MEMO

Creamery Road Precinct Structure Plan

Traffic Engineering Advice

To		**Date**	11 August 2025
Company	Villawood Properties		
Copy To	(Creo Civil)		(Mesh Planning)

Introduction

onemile**grid** continue to assist with traffic and transport engineering advice for land development within the Creamery Road Precinct Structure Plan (PSP) and Development Contributions Plan (DCP) area.

onemile**grid** has undertaken a review of the draft PSP and DCP, and the Standing Advisory Committee (SAC) report, including relevant background documentation. As part of this, **one**mile**grid** has reviewed the Creamery Road PSP SIDRA Modelling Report prepared by Stantec and has generally adopted this as a foundation for the completion of independent SIDRA modelling of the preferred road network following the delivery of the SAC report. The key difference is the provision for through traffic along the Clever and Creative Corridor (CCC) between IN-07 and IN-09.

Following this review, we have also identified opportunities for reductions in the scale of intersections within the PSP and modifications to the proposed intersection configurations to better align with the expected road network.

The preferred road network adopts the Mesh Planning preferred precinct layout as a base and includes the changes to the Clever and Creative Corridor cross-section and the road network agreed to as part of the Standing Advisory Committee.

The above review, preparation of the preferred road network designs and the updated SIDRA analysis include the following intersections:

- IN01: CCC / Ballan Road;
- IN03: CCC Activity Centre / Ballan Road;
- IN04: Connector Road / Ballan Road / Ross Road;
- IN05: Midland Highway / Ballan Road;
- IN06: Midland Highway / CCC;
- IN07: CCC / Creamery Road;
- IN08: CCC / East-West Connector;
- IN09: CCC / Activity Centre Connector
- IN10: CCC / East-West Connector
- IN12: CCC / Evans Road

The location of the above intersections is shown in below in Figure 1.

Figure 1 Preferred Movement Network

Summary of Road Network Modifications

The key differences between the preferred outcomes post-SAC draft plan and those proposed in the draft PSP are as detailed below.

General

onemile**grid** has undertaken independent SIDRA modelling of the modified road network, taking into consideration the SAC recommendations and items agreed with Council to date.

All intersections have been remodelled in SIDRA to confirm that the intersection configurations have suitable performance, adopting the Stantec traffic volumes as a base, with some conservativeness built in where appropriate.

The previous modelling work undertaken by Stantec is considered to form a solid foundation for the analysis of the road network and the need for further VITM modelling is not considered to be necessary, and has not been conducted for the amended road network. The changes to the road network are expected to primarily modify the distribution along roads internal to the Creamery Road precinct, but not modify the total volumes through the precinct.

In broad terms, our methodology for undertaking updated modelling to establish these alternative designs is as follows:

- Preparation of SIDRA models of interim intersection arrangements based generally upon Stantec concept designs provided within the PSP material;
- Use of Stantec "Interim Adjusted" AM and PM period traffic volumes for modelling purposes;
- Iteration of alterations to intersection geometry to provide target Degree of Saturation generally equivalent to Stantec models using cycle times of approximately 90 seconds on Ballan Road and 120 seconds of Midland Highway intersections;
- Incorporate efficiency improvements to signalised intersection phasing where possible;
- Size turning lane lengths to accommodate the greater of 95th percentile queues or deceleration length requirements;
- Use of design speed and design/check vehicles consistent with Stantec documentation;
- Minimisation of redundant works for ultimate intersection upgrades;
- The amended designs allow for through traffic along the CCC between IN07 and IN09, which was previously closed top vehicular traffic. An additional 200 vph have been added to through movements along the CCC north of IN07, during the AM and PM peak hours to account for increased permeability through the Creamery Road PSP area.
- The IN10 intersections has been modelled adopting the following:
  - A lot yield to the east of the CCC of 463 lots with a traffic generation of 9 movements per lot per day, with 10% occurring in each of the peaks;
  - An inbound/outbound distribution of 30%/70% in the AM peak hour and 60%40% in the PM peak hour;
  - A north/south distribution of 70% to the south and 30% to the north; and
  - The Stantec Interim peak hour through volumes along the CCC + 200 vph.

Clever and Creative Corridor

The Standing Advisory Committee report includes discussion on the CCC through the Creamery Road PSP area and included the following findings:

- The CCC does not require dedicated bus lanes within the Creamery Road precinct;
- The CCC could be delivered as a standard connector street reservation with shared bus and vehicle lanes;
- Further work should be undertaken to redesign and cost the new connector street and its intersections, including a cost benefit analysis of intersection designs, and redesign of its intersection with Midland Highway (IN-06) to a T-intersection;
- The Urban Connector Street typologies in the PSP should be updated to reflect Villawood's 'Reframed CCC' cross section, with lot access limited along the side with the cycle path; and
- The delivery of the Reframed CCC should be developer funded and removed from the DCP, apart from any signalised intersections.

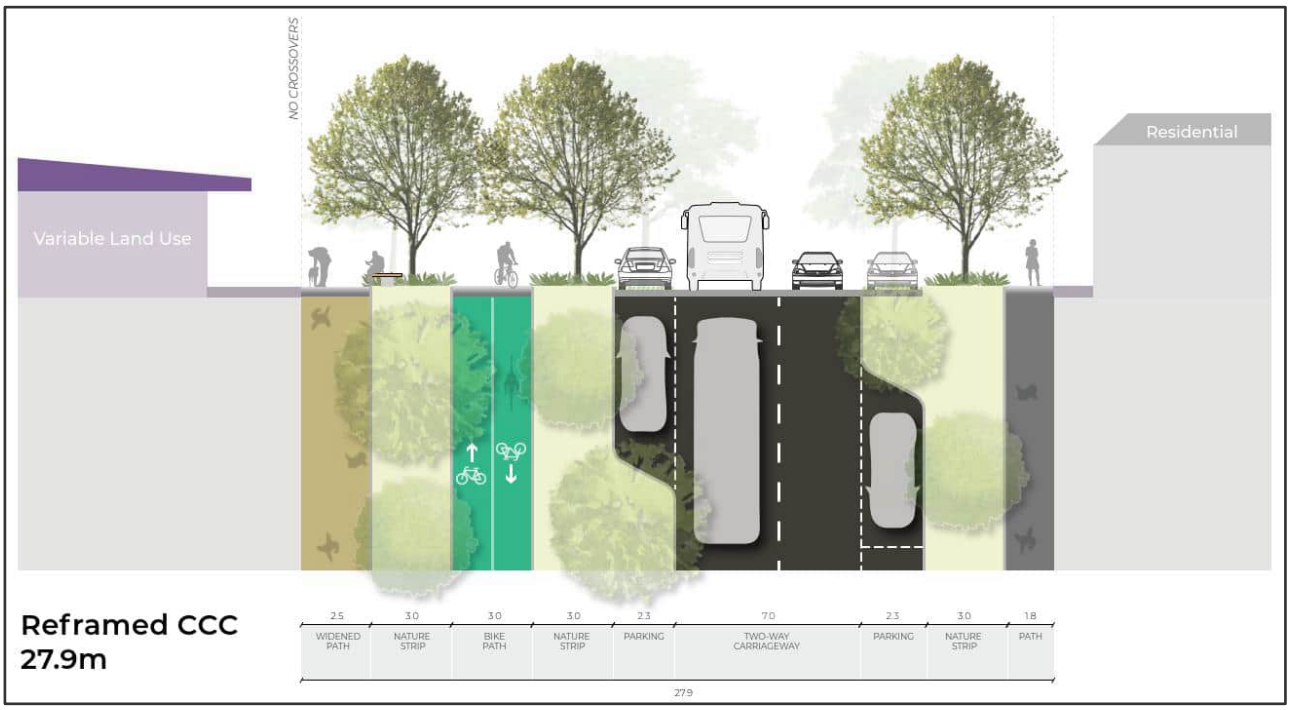
Based on the findings of the SAC report, the Clever and Creative Corridor has been modified to function as an urban connector street through the Creamery Road precinct. As noted above, the major change to the CCC is to allow for through movements between IN-07 and IN-09.

The cross section for the Clever and Creative Corridor has been modified to function as a Connector Street through the Creamery Road PSP in line with the SAC recommendations, with the Villawood 'Reframed CCC' cross section generally supported by Council.

The Villawood Reframed CCC road reserve width of 27.6 m was agreed to by Council as part of the SAC. Subsequent discussions held with Council requested the adoption of a 1.8 m wide footpath on eastern and northern sides, increasing the road reserve width to 27.9 m.

The reframed CCC is proposed with a 27.9 m cross section as shown in Figure 2.

Figure 2 Reframed CCC – 27.9 m Road Reserve



Evans Road

Traffic modelling undertaken as part of Movement and Access Report (Stantec,16/01/2023) suggests a long-term large reliance on Evans Road as a north-south link between western and northern growth areas, carrying approximately 13,500 vehicles per day. In contrast, peak-hour movements presented in Appendix A of the Stantec SIDRA Modelling Report suggest volumes closer to 9,800 vehicles per day in the ultimate scenario (assuming peak period volumes are approximately 10% of daily volumes).

Regardless of this discrepancy, it is unclear from the modelling why there is such a large reliance on Evans Road for north-south movement in preference to the existing arterial routes of Ballan Road and the Geelong Ring Road, neither of which necessitate upgrades to cater for this through movement.

Further to this, the modelling does not expect Evans Road to reach traffic volumes warranting duplication (in excess of 18,000 vpd) within the 30-year development horizon for the DCP. On this basis, provision for Evans Road as a sub-arterial road should not be included as part of the DCP.

As per the SAC report, it is therefore considered appropriate for Evans Road to be constructed to an urban standard in the PSP area within the existing road reserve as a Key Local Road. Evans Road is proposed with the cross section shown in Figure 3.

Figure 3 Evans Road – 21.5 m Road Reserve

Creo Civil Consultants have prepared a revised civil engineering plan taking into consideration the revised design speed of 60 km/h in accordance with the SAC recommendations (refer attached).

Road Cross Sections

The remaining connector streets through the Creamery Road PSP area are proposed with a 25 m cross section. The cross section to be adopted for the connector roads is still being discussed with Council, and there may ultimately be a variety of cross-sections provided through the PSP area.

There are currently two preferred options being contemplated, with the Villawood preferred cross-section shown in Figure 4 and the Council preferred cross-section in Figure 5.

Figure 4 Connector Road – 25 m Road Reserve – Mesh Preferred

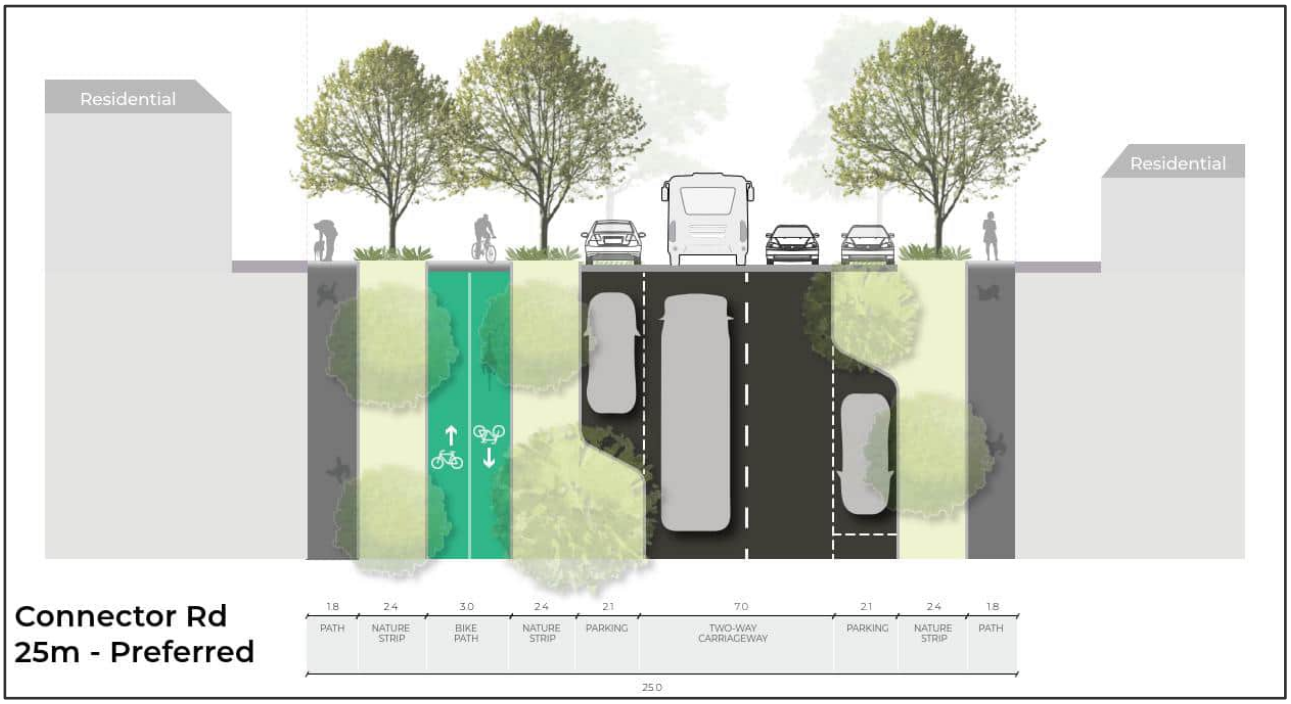
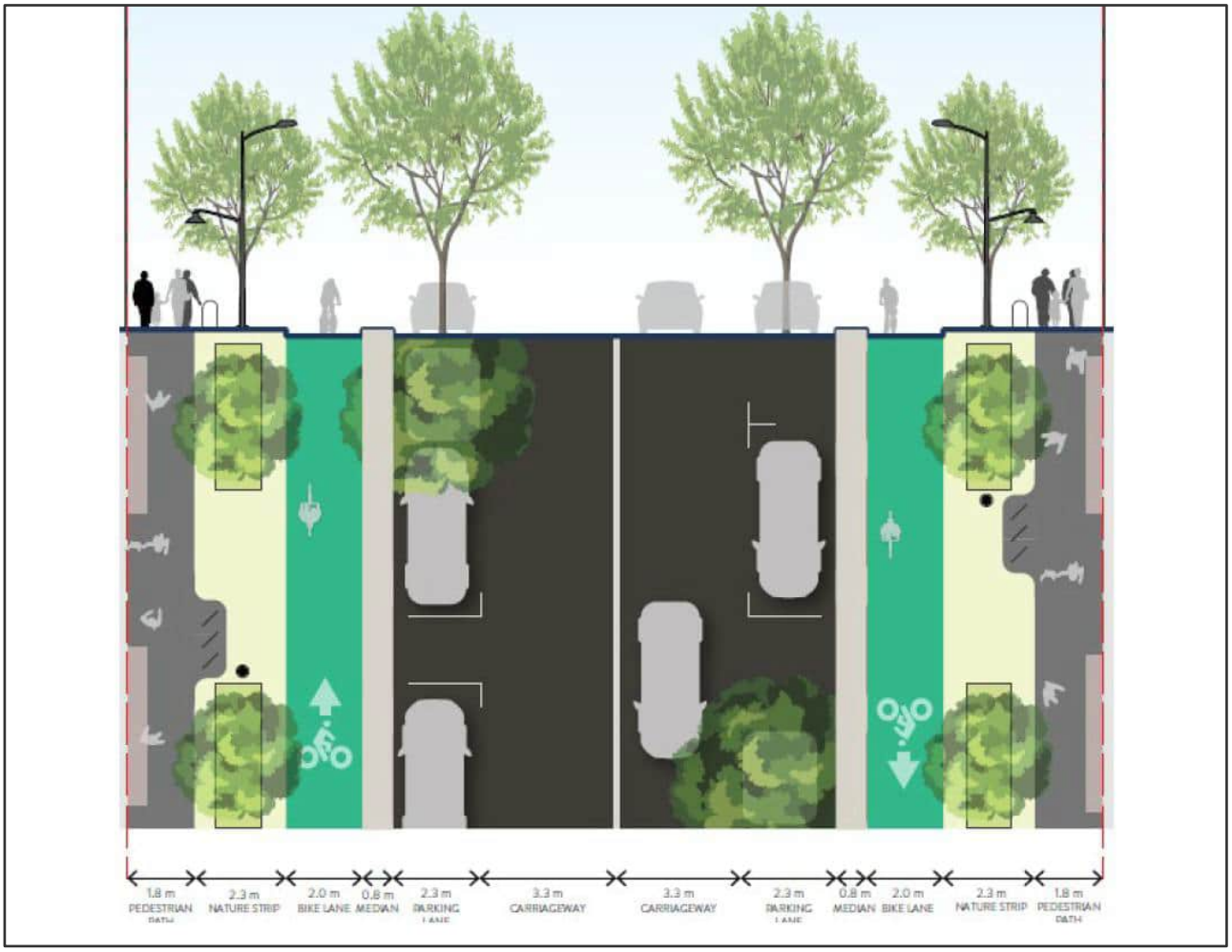


Figure 5 Connector Road – 25 m Road Reserve – Council Preferred



Bicycle Paths

As shown above, the Reframed CCC and the Villawood preferred Connector Roads propose off-road two-way cycle paths through the PSP, generally to be provided on the western and/or southern side of these roads, as shown on the attached concept plans.

The preferred two-way bicycle paths have been applied to the indicative DCP designs, with further discussions with Council required to determine the final connector road cross-sections. The type of bicycle path adopted within the connector cross-sections (single or bi-directional) is not expected to have a significant impact on the current DCP intersection costings.

The proposed two-way bicycle paths provide the following benefits compared to provision of single direction bicycle paths on each side of the road:

- Having cyclists on a single side of the road provides greater opportunity to provide an uninterrupted riding experience;
- Consolidated paths allow for a reduction in clear zones required and provides increased opportunity for permeable surfaces and tree planting;
- Suitable off set from lot boundaries will allow suitable sight distances between vehicles and cyclists;
- The two-way cycle paths will largely front residential lots, where drivers will adjust to the presence of two-way bicycle traffic. They will be required to check in both directions in the same manner as for the footpath, which accommodates two-way pedestrian flows.

IN-01

Given the proximity of the two intersections, the bus jump lanes have been extended as continuous bus lanes between IN-01 & IN-12.

The continuous bus lanes are not proposed to continue through IN-12 to the north or east, or through the Batesford North PSP area to the west.

Bus stops have been shifted to the incoming leg (rather than the outgoing leg) in line with Council comments.

IN-02

No change to previous modelling. Left-in/left-out proposed to Geelong Ballan Road as a non-DCP project.

IN-03

Bus stops on the east and west reframed CCC legs have been relocated to be on the approach side to the intersection in line with Council comments received. The bus lane on the departure side of these legs has been removed, as buses will be provided with a jump movement and will merge into the through lane.

IN-04

No changes to the intersection design.

IN-05

The Stantec interim design includes redundant elements that are not required to facilitate development in the interim and should be removed to provide a more efficient design and limit unnecessary works. Noting the State's position that they will not contribute to the funding of this intersection, a reduction in the scope of infrastructure works where appropriate is beneficial to the precinct.

The interim intersection design has been modified, reducing the provision for turning movements to/from the northern leg. The following has been removed:

- Right-turn lane on the eastern approach;
- Short through lane on the departure side of the northern leg; and
- Left turn lane on the northern approach.

The SIDRA modelling confirms that the proposed geometry will service the interim volumes adopted within the Stantec modelling.

IN-06

The interim intersection design has been modified to better suit the expected traffic distribution and SIDRA modelling, including:

- Removal of a through lane on the approach and departure side of the eastern and western legs; and
- Provision of an additional right turn lane on the northern approach.

Given the proximity of the two intersections, continuous bus lanes have been provided between IN-06 & IN-07.

The continuous bus lanes are not proposed to continue through IN-07 to the north.

IN-07

The CCC has been reframed as a key connector route through the PSP area and has been modified to allow for through traffic north of IN-07. The intersection has been modified as follows:

- Provision for through and turning movements to/from the northern leg;
- Removal of the continuous bus lanes on the northern leg, providing approach side bus stops and jump lanes on the north and south approaches.

IN-08

The Key Local Road forming the eastern leg of the intersection has been shifted north to front the open space to the north, creating a T-intersection. The SIDRA modelling shows that this intersection will operate suitably as an unsignalised T-intersection.

The signals have therefore been removed, and the intersection will no longer be a DCP funded project.

IN-09

The CCC has been reframed as a key connector route through the PSP area and has been modified to allow for through traffic south of IN-09. The intersection has been modified as follows:

- Provision for through and turning movements to/from the southern leg;
- Removal of the continuous bus lanes on the northern and southern legs, providing approach side bus stops and jump lanes on the north and south approaches in line with Council comments; and
- Provision of a departure side bus stop on the western leg and a bus jump lane on the approach side to facilitate north-west and south-west bus routes along the Activity Centre CCC.

IN-10

Modelling shows that this intersection will operate suitably as an unsignalised T-intersection.

The signals have therefore been removed, and the intersection will no longer be a DCP funded project.

IN-12

Dedicated bus facilities will not continue within the CCC cross-section east of IN-12 as per the SAC report recommendation.

Noting the updated SIDRA modelling, IN-12 is proposed to be upgraded to a signalised T-intersection and re-introduced as a DCP project, generally consistent with the previous SIDRA modelling, though modified as follows:

- Provision of dedicated turn lanes on the northern leg;
- Provision of a combined through and left turn lane on the western approach;
- Removal of the bus lanes on the northern leg;
- Removal of continuous bus lanes on the eastern leg, providing an approach side bus stop and jump lanes.

Costings

Creo Civil Consultants have provided updated cost estimates for the DCP projects based on the modified intersection designs, see attached.

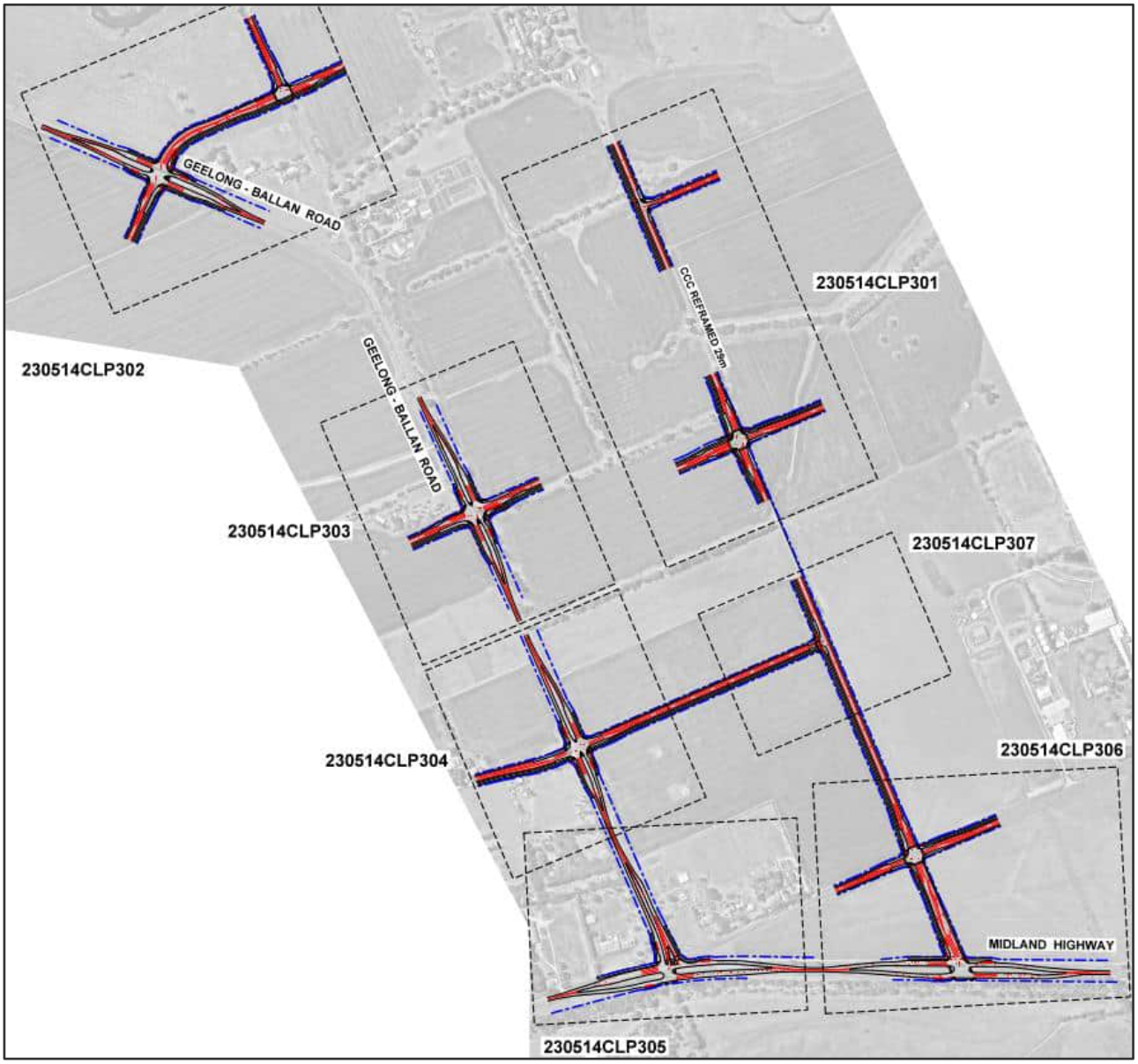
Concept Plans

Concept Layout Plans depicting our designs for the intersections detailed above and based on the adopted cross-sections are attached.

The proposed concepts are based on the preferred road network, with some elements such as final cross-sections and bicycle path alignments still being discussed.

An extract of the overall intersection layout is shown in Figure 6.

Figure 6 Overall Network Layout



SIDRA Analysis Inputs

SIDRA summary files are provided attached detailing the critical outputs to validate intersection performance of the above intersections.

Please do not hesitate to contact James Dear should you wish to discuss the above.

Regards

James Dear

Director

onemile**grid**

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d: (03) 9982 9717
e: james.dear@onemilegrid.com.au

att: Concept Layout Plans
SIDRA Outputs
CREO DCP Costings

N

CAD File: N:\Projects\2023\230514\Drawings\230514CLP300.dgn

Date Plotted: 04-08-2025 3:20:43 PM

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Scale
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Drawing Title
CREAMERY ROAD PSP
INTERSECTION LAYOUTS
KEY PLAN

Designed	Approved	Melway Ref
JPB	VG	

Project Number	Drawing Number	Revision
230514	CLP300	H

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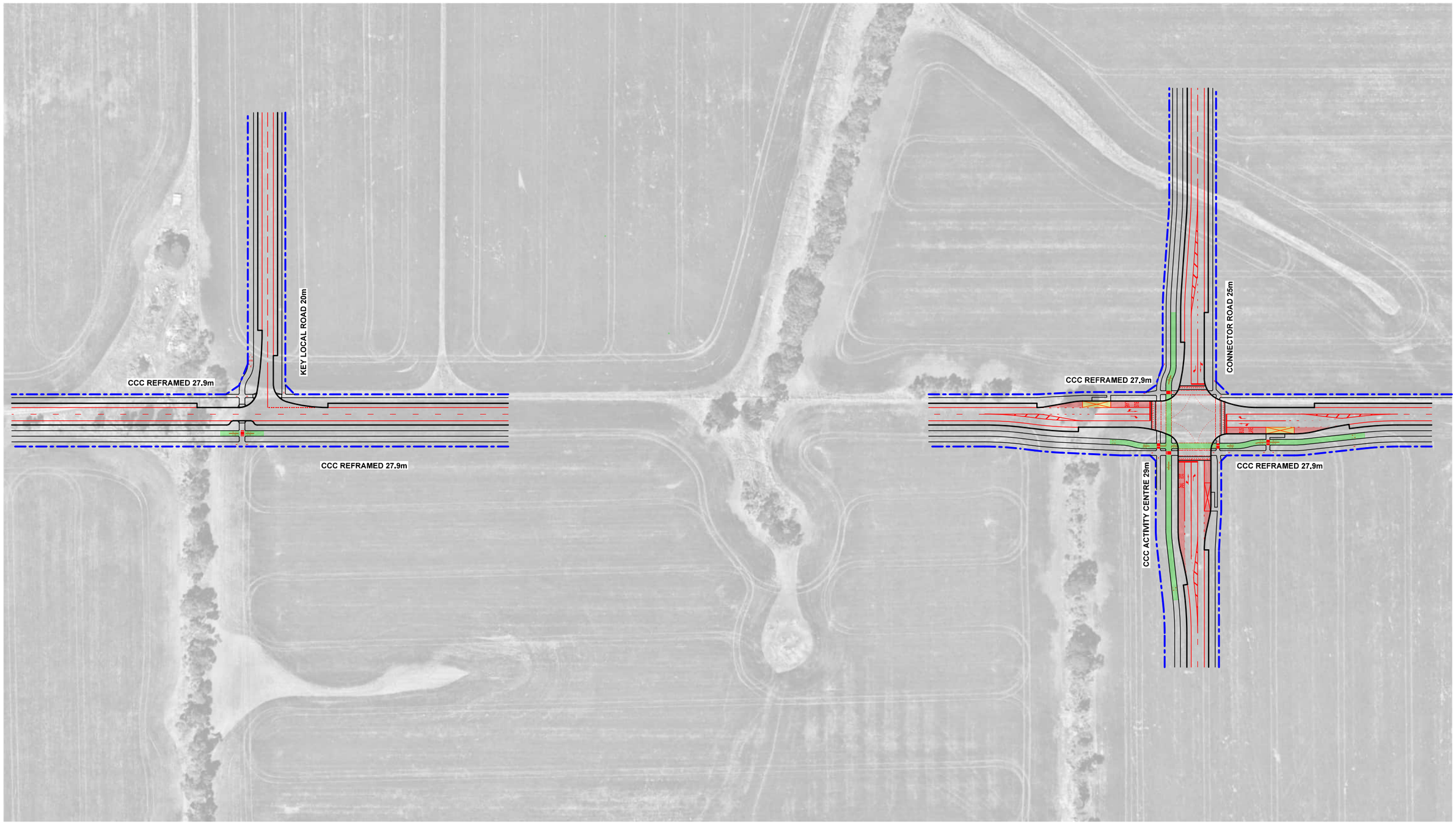

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Scale
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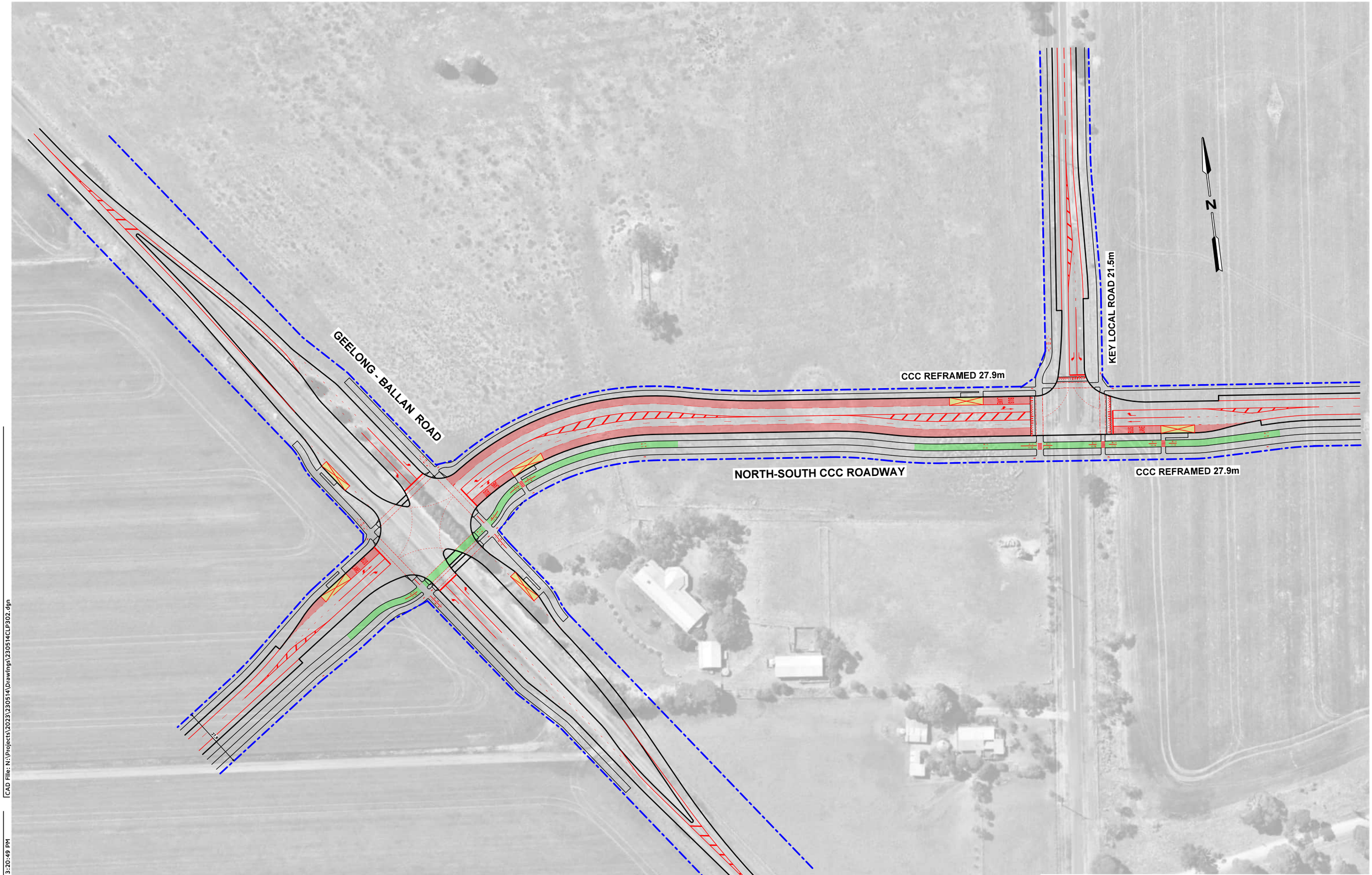
Drawing Title
NORTH-SOUTH CCC ROADWAY / MIDLAND HIGHWAY
CONCEPT LAYOUT PLAN

Designed	Approved	Melway Ref
JPB	VG	

Project Number	Drawing Number	Revision
230514	CLP301	H



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Drawing Title
NORHT-SOUTH CCC ROADWAY / GEELONG - BALLAN ROAD (IN-01) CONCEPT LAYOUT PLAN

Designed	Approved	Melway Ref
JPB	VG	

Scale 1:1500 @ A3 (0, 7.5, 15, 30)

Project Number	Drawing Number	Revision
230514	CLP302	H

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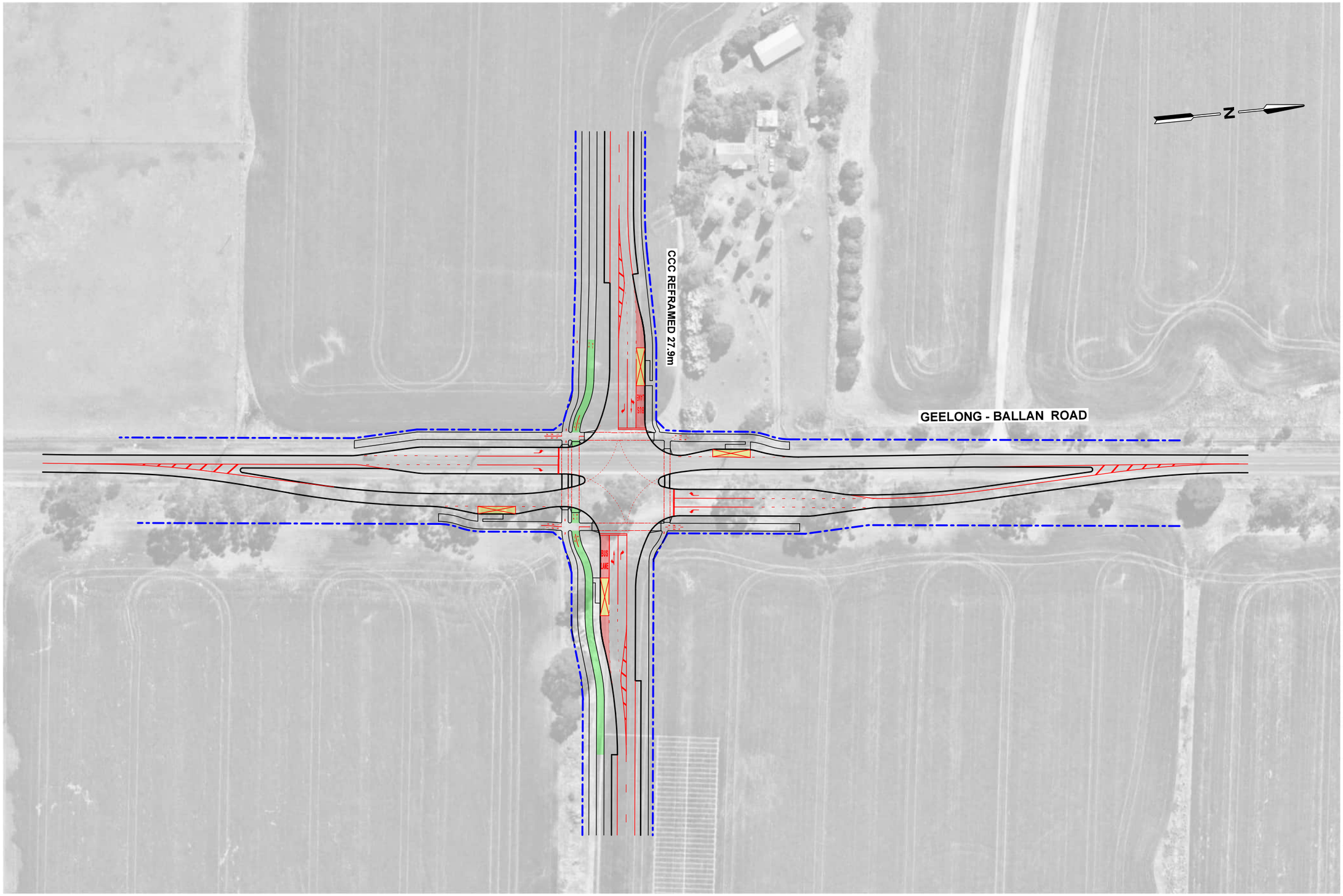

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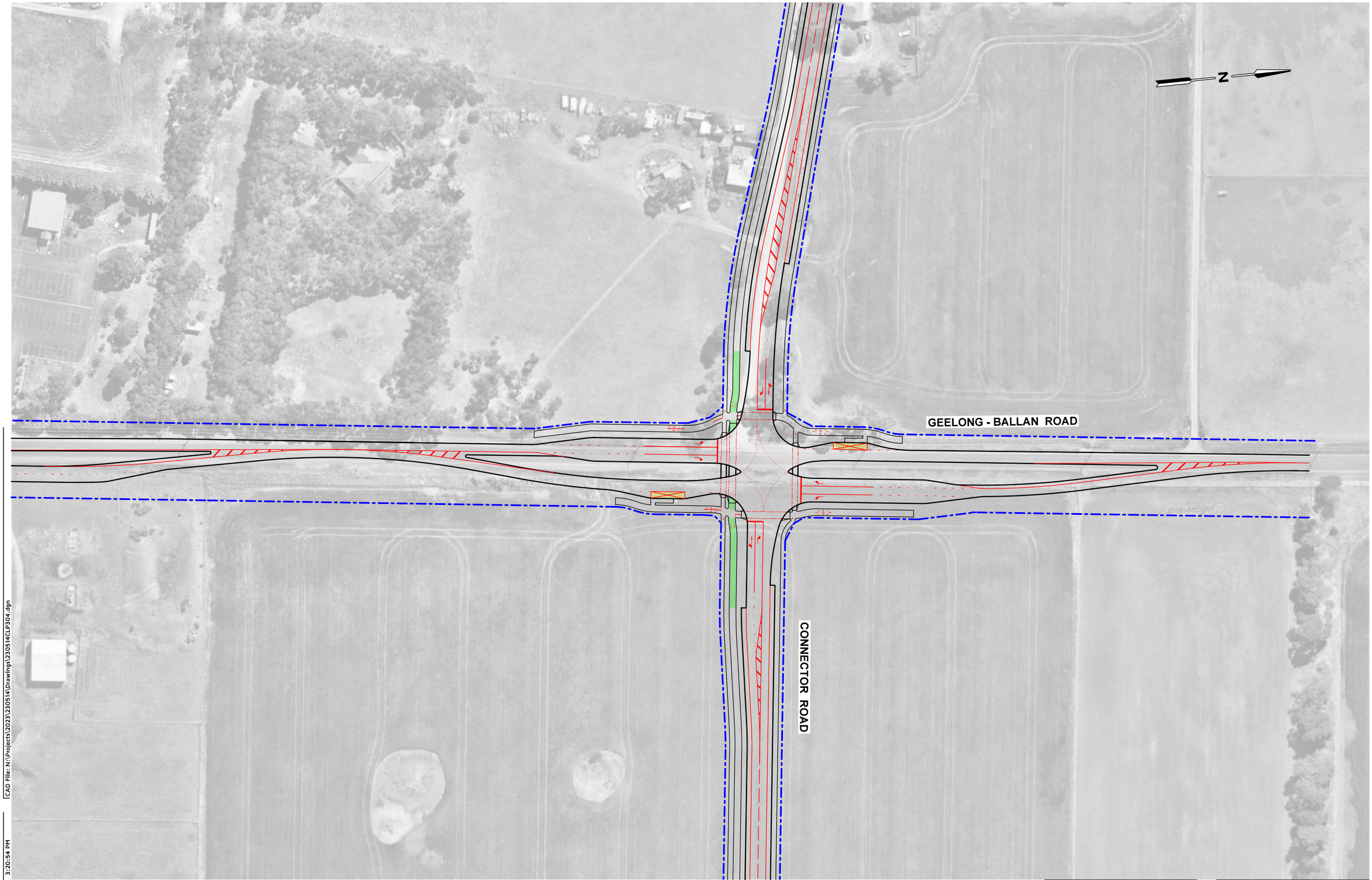
Drawing Title
EAST-WEST CCC ROADWAY /
GEELONG - BALLAN ROAD (IN-03)
CONCEPT LAYOUT PLAN

Designed	Approved	Melway Ref
JPB	VG	

Project Number	Drawing Number	Revision
230514	CLP303	H



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Scale
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Drawing Title
EAST-WEST CONNECTOR ROAD /
GEELONG - BALLAN ROAD (IN-04)
CONCEPT LAYOUT PLAN

Designed	Approved	Melway Ref
JPB	VG	

Project Number	Drawing Number	Revision
230514	CLP304	H

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Scale
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0 7.5 15 30

Drawing Title
MIDLAND HIGHWAY /
GEELONG - BALLAN ROAD (IN-05)
CONCEPT LAYOUT PLAN

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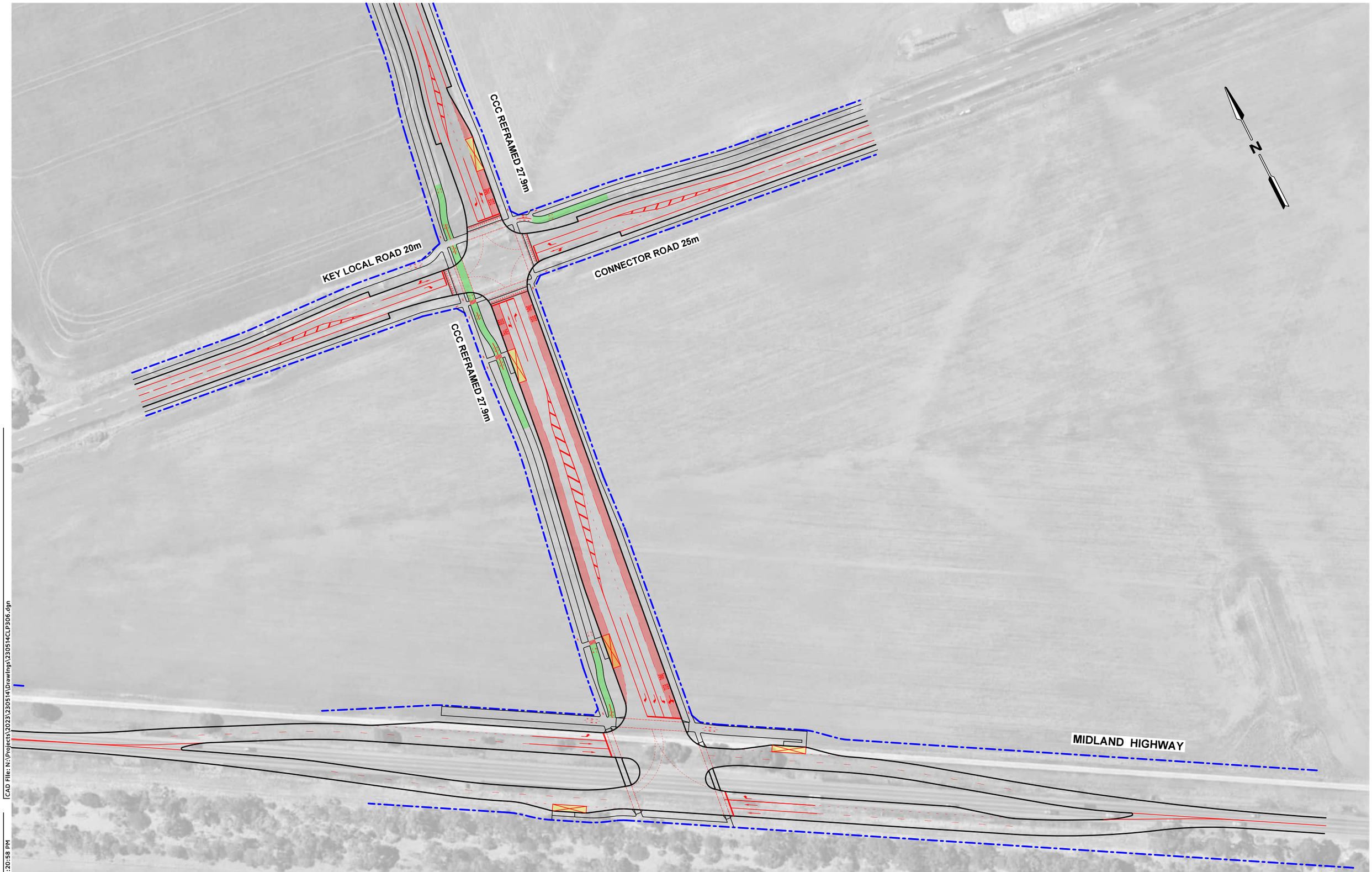
JPB	VG	

Project Number	Drawing Number	Revision
230514	CLP305	H



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Drawing Title
NOORTH-SOUTH CCC ROADWAY / GEELONG - BALLAN ROAD (IN-06) CONCEPT LAYOUT PLAN

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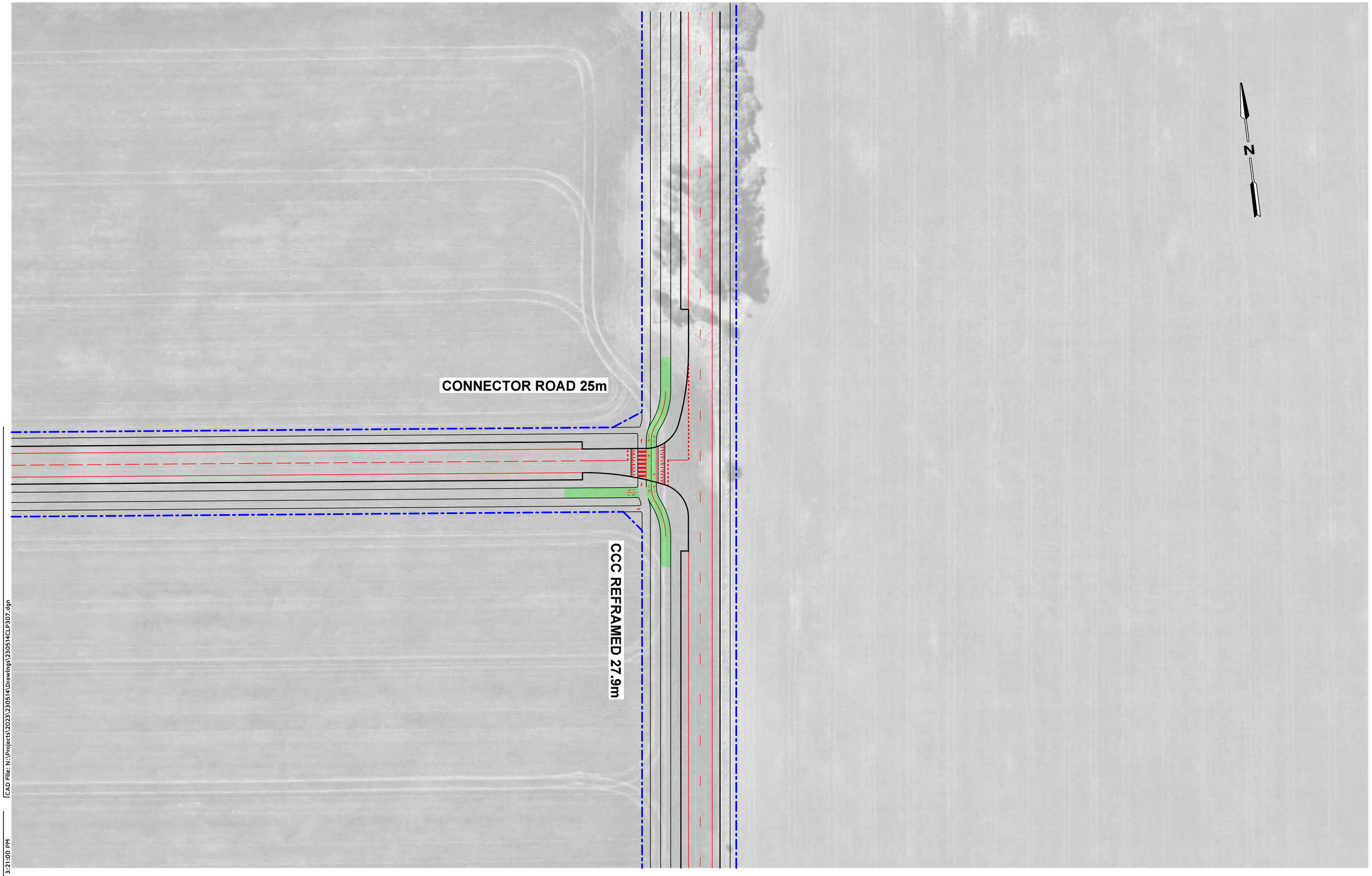
230514	CLP306	H



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Drawing Title
NORTH-SOUTH CCC ROADWAY / EAST-WEST CONNECTOR STREET CONCEPT LAYOUT PLAN

Designed	Approved	Melway Ref
JPB	VG	

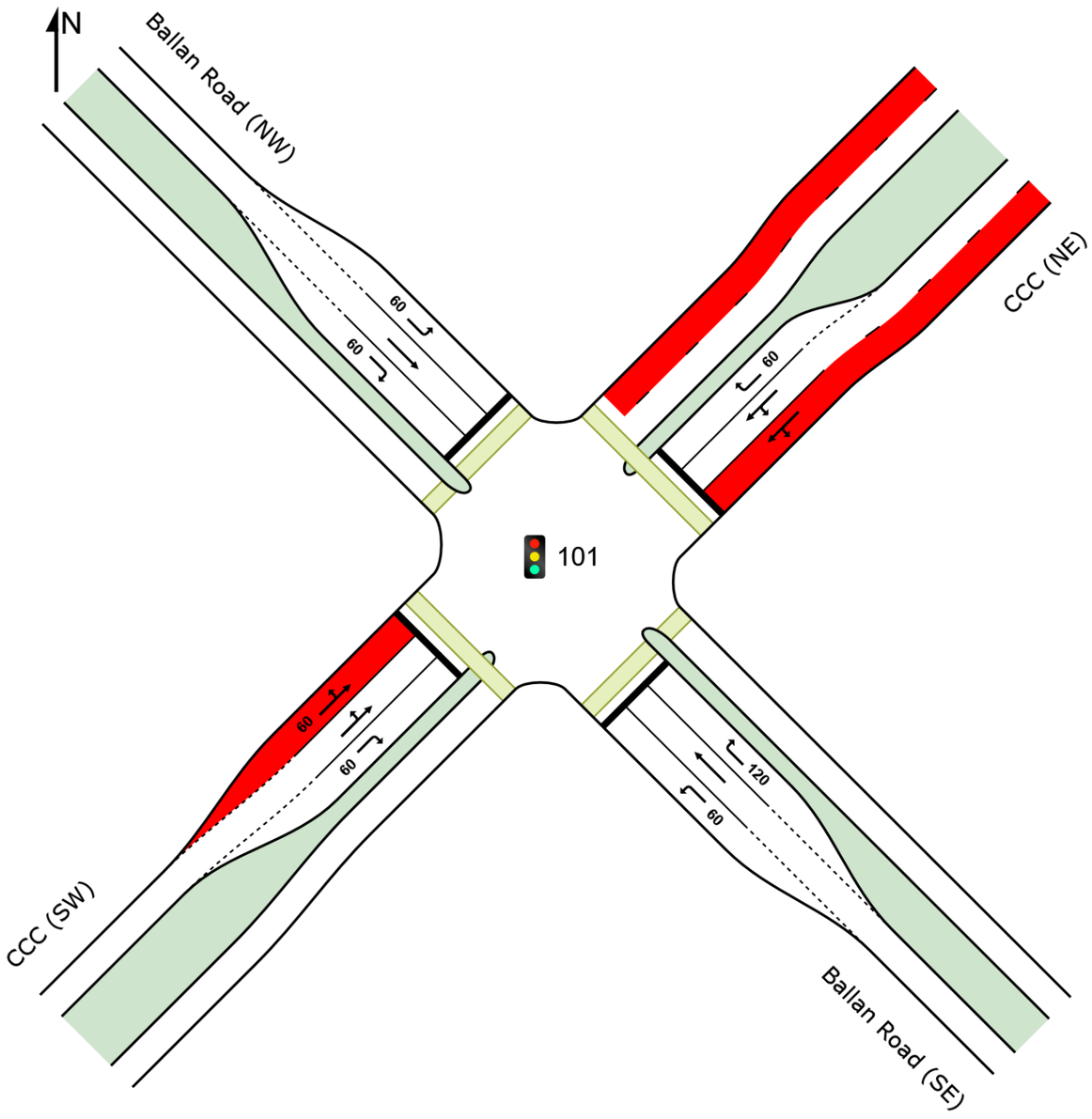
Project Number	Drawing Number	Revision
230514	CLP307	H

SITE LAYOUT

Site: 101 [IN01AMInt (Site Folder: General)]

IN01
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN01AMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN01
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Ballan Road (SE)															
4	L2	All MCs	22	4.8	22	4.8	0.046	29.4	LOS C	0.6	4.7	0.77	0.69	0.77	37.2
5	T1	All MCs	145	7.2	145	7.2	0.294	25.8	LOS C	4.6	34.2	0.84	0.68	0.84	42.3
6	R2	All MCs	347	3.9	347	3.9	*0.896	51.0	LOS D	16.3	117.7	1.00	1.05	1.38	30.6
Approach			515	4.9	515	4.9	0.896	43.0	LOS D	16.3	117.7	0.95	0.93	1.20	33.5
NorthEast: CCC (NE)															
7	L2	All MCs	157	4.0	157	4.0	0.870	50.3	LOS D	10.0	72.5	1.00	1.07	1.39	29.5
8	T1	All MCs	69	12.1	69	12.1	*0.870	43.6	LOS D	10.0	72.5	0.99	1.03	1.34	30.6
9	R2	All MCs	21	5.0	21	5.0	0.155	44.3	LOS D	0.8	6.0	0.97	0.70	0.97	30.8
Approach			247	6.4	247	6.4	0.870	47.9	LOS D	10.0	72.5	0.99	1.02	1.34	29.9
NorthWest: Ballan Road (NW)															
10	L2	All MCs	22	4.8	22	4.8	0.097	40.2	LOS D	0.8	5.8	0.92	0.70	0.92	33.5
11	T1	All MCs	204	7.2	204	7.2	*0.868	46.0	LOS D	9.2	68.4	1.00	1.03	1.40	34.3
12	R2	All MCs	22	4.8	22	4.8	0.162	45.4	LOS D	0.9	6.3	0.97	0.70	0.97	32.1
Approach			248	6.8	248	6.8	0.868	45.5	LOS D	9.2	68.4	0.99	0.97	1.31	34.0
SouthWest: CCC (SW)															
1	L2	All MCs	21	5.0	21	5.0	0.532	40.8	LOS D	5.3	38.5	0.98	0.78	0.98	32.7
2	T1	All MCs	123	8.5	123	8.5	0.532	35.4	LOS D	5.3	38.5	0.97	0.77	0.97	33.5
3	R2	All MCs	32	3.3	32	3.3	*0.230	44.7	LOS D	1.2	8.9	0.97	0.72	0.97	30.7
Approach			176	7.2	176	7.2	0.532	37.7	LOS D	5.3	38.5	0.97	0.76	0.97	32.9
All Vehicles			1186	5.9	1186	5.9	0.896	43.7	LOS D	16.3	117.7	0.97	0.93	1.22	32.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Ballan Road (SE)												
P21	Stage 1	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44
P22	Stage 2	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44

NorthEast: CCC (NE)												
P3	Full	51	54	29.8	LOS C	0.1	0.1	0.86	0.86	46.5	20.0	0.43
NorthWest: Ballan Road (NW)												
P41	Stage 1	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44
P42	Stage 2	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44
SouthWest: CCC (SW)												
P1	Full	51	54	21.1	LOS C	0.1	0.1	0.73	0.73	37.7	20.0	0.53
All Pedestrians		306	322	27.8	LOS C	0.1	0.1	0.83	0.83	44.5	20.0	0.45

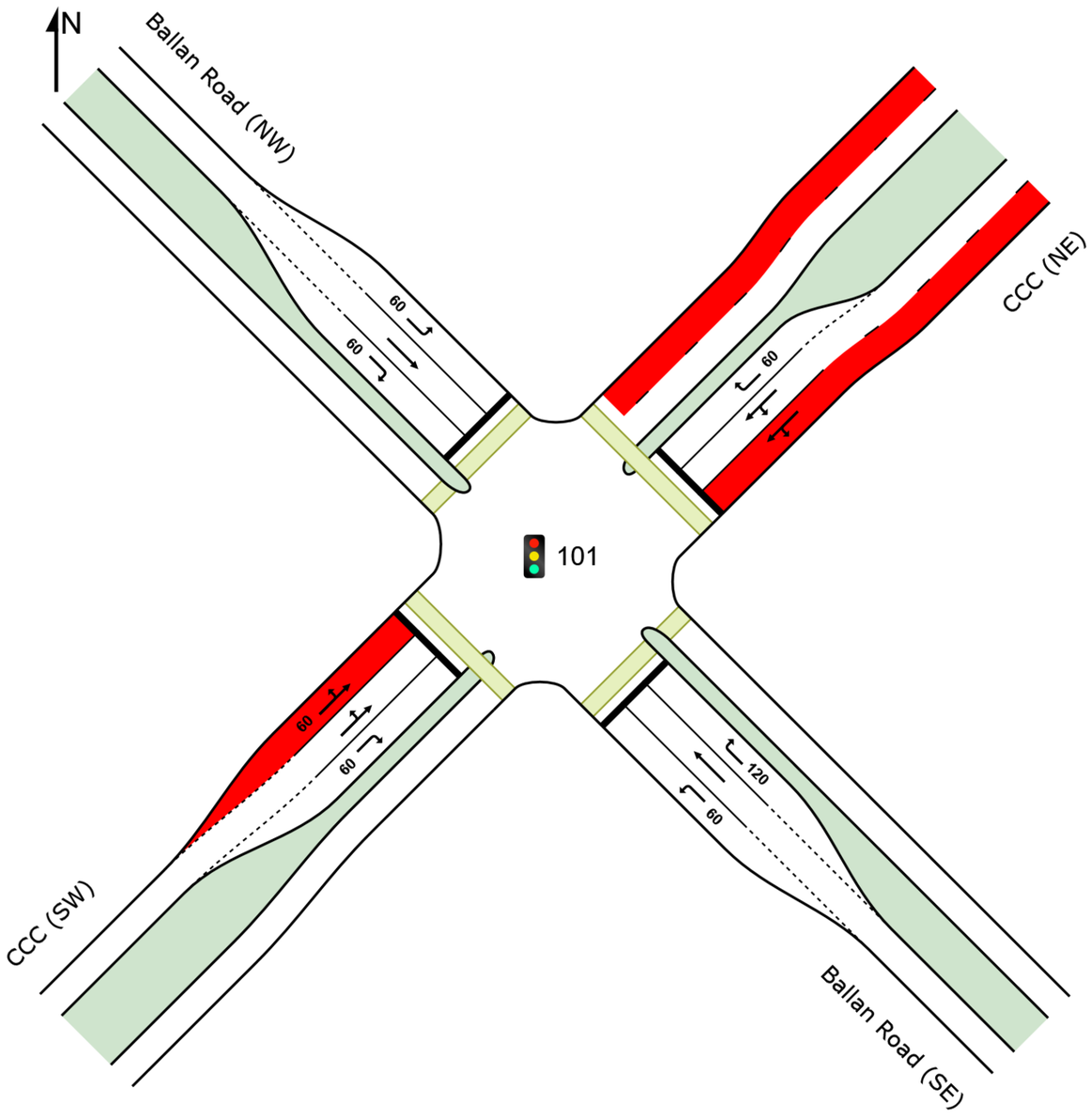
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN01PMInt (Site Folder: General)]

IN01
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN01PMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN01
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 95 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
SouthEast: Ballan Road (SE)															
4	L2	All MCs	35	4.0	35	4.0	0.082	36.5	LOS D	1.3	9.2	0.81	0.71	0.81	34.7
5	T1	All MCs	213	7.0	213	7.0	0.487	34.6	LOS C	8.7	64.4	0.92	0.76	0.92	38.4
6	R2	All MCs	212	4.0	212	4.0	*0.918	65.2	LOS E	11.9	86.2	1.00	1.07	1.48	27.4
Approach			459	5.4	459	5.4	0.918	48.8	LOS D	11.9	86.2	0.95	0.90	1.17	32.2
NorthEast: CCC (NE)															
7	L2	All MCs	323	4.0	323	4.0	0.897	62.0	LOS E	23.3	168.5	1.00	1.05	1.29	29.8
8	T1	All MCs	113	8.8	113	8.8	*0.897	55.4	LOS E	23.3	168.5	0.99	1.02	1.26	29.5
9	R2	All MCs	21	4.0	21	4.0	0.183	61.1	LOS E	1.0	7.1	0.98	0.70	0.98	28.7
Approach			457	5.2	457	5.2	0.897	60.3	LOS E	23.3	168.5	1.00	1.03	1.26	27.9
NorthWest: Ballan Road (NW)															
10	L2	All MCs	21	4.0	21	4.0	0.069	41.8	LOS D	0.8	6.0	0.87	0.70	0.87	33.0
11	T1	All MCs	276	7.0	276	7.0	*0.869	50.8	LOS D	14.4	107.0	1.00	1.03	1.29	32.8
12	R2	All MCs	28	4.0	28	4.0	0.247	54.4	LOS D	1.3	9.7	0.98	0.71	0.98	29.8
Approach			325	6.5	325	6.5	0.869	50.6	LOS D	14.4	107.0	0.99	0.98	1.24	32.5
SouthWest: CCC (SW)															
1	L2	All MCs	21	4.0	21	4.0	0.176	33.8	LOS C	3.1	22.8	0.81	0.66	0.81	36.5
2	T1	All MCs	72	11.2	72	11.2	0.176	28.2	LOS C	3.1	22.8	0.80	0.65	0.80	35.8
3	R2	All MCs	24	4.0	24	4.0	*0.210	53.1	LOS D	1.1	8.2	0.98	0.71	0.98	29.8
Approach			117	8.4	117	8.4	0.210	34.4	LOS C	3.1	22.8	0.84	0.66	0.84	34.5
All Vehicles			1358	5.9	1358	5.9	0.918	51.9	LOS D	23.3	168.5	0.96	0.94	1.19	30.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
SouthEast: Ballan Road (SE)												
P21	Stage 1	51	54	25.1	LOS C	0.1	0.1	0.73	0.73	41.8	20.0	0.48
P22	Stage 2	51	54	25.1	LOS C	0.1	0.1	0.73	0.73	41.8	20.0	0.48

NorthEast: CCC (NE)												
P3	Full	51	54	32.1	LOS D	0.1	0.1	0.82	0.82	48.8	20.0	0.41
NorthWest: Ballan Road (NW)												
P41	Stage 1	51	54	25.1	LOS C	0.1	0.1	0.73	0.73	41.8	20.0	0.48
P42	Stage 2	51	54	25.1	LOS C	0.1	0.1	0.73	0.73	41.8	20.0	0.48
SouthWest: CCC (SW)												
P1	Full	51	54	27.3	LOS C	0.1	0.1	0.76	0.76	44.0	20.0	0.45
All Pedestrians		306	322	26.6	LOS C	0.1	0.1	0.75	0.75	43.3	20.0	0.46

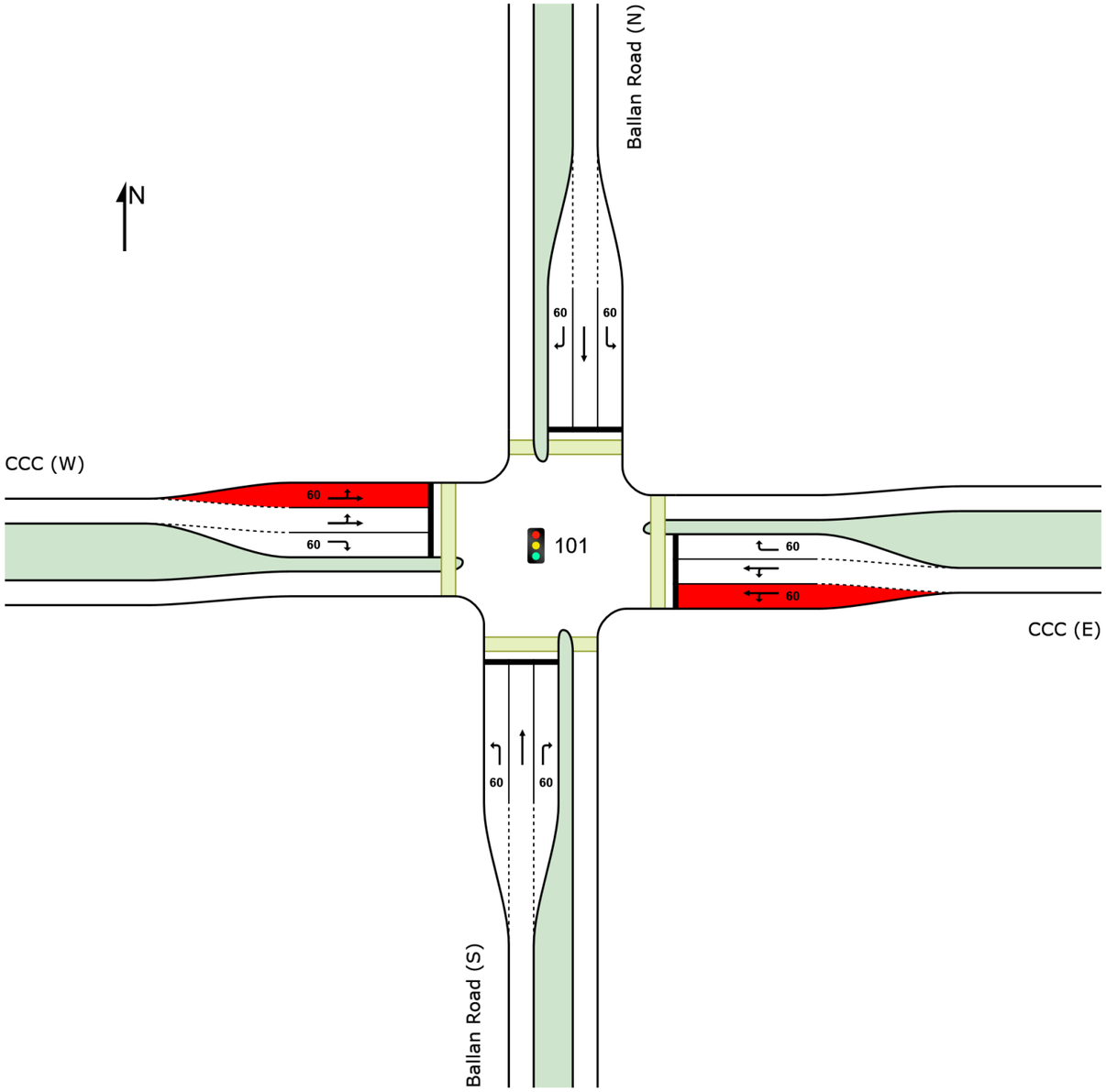
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN03AMInt (Site Folder: General)]

IN03
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN03AMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN03
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ballan Road (S)															
4	L2	All MCs	21	5.0	21	5.0	0.036	37.1	LOS D	0.6	4.6	0.71	0.68	0.71	37.8
5	T1	All MCs	513	7.0	513	7.0	*0.856	47.8	LOS D	24.2	179.4	1.00	1.01	1.18	36.8
6	R2	All MCs	109	3.8	109	3.8	*0.771	64.6	LOS E	5.3	38.1	1.00	0.90	1.25	29.6
Approach			643	6.4	643	6.4	0.856	50.3	LOS D	24.2	179.4	0.99	0.98	1.17	32.5
East: CCC (E)															
7	L2	All MCs	38	2.8	38	2.8	0.604	50.2	LOS D	4.6	33.2	1.00	0.81	1.05	29.9
8	T1	All MCs	68	12.3	68	12.3	*0.604	43.8	LOS D	4.6	33.2	0.99	0.79	1.04	30.9
9	R2	All MCs	75	4.2	75	4.2	0.369	46.4	LOS D	3.2	23.1	0.97	0.76	0.97	30.2
Approach			181	7.0	181	7.0	0.604	46.2	LOS D	4.6	33.2	0.98	0.78	1.01	30.4
North: Ballan Road (N)															
10	L2	All MCs	63	3.3	63	3.3	0.107	30.5	LOS C	1.9	14.0	0.73	0.72	0.73	37.5
11	T1	All MCs	404	7.0	404	7.0	0.674	30.7	LOS C	15.5	115.3	0.92	0.80	0.92	40.8
12	R2	All MCs	39	2.7	39	2.7	0.272	52.3	LOS D	1.7	12.3	0.98	0.73	0.98	30.8
Approach			506	6.2	506	6.2	0.674	32.3	LOS C	15.5	115.3	0.90	0.79	0.90	38.6
West: CCC (W)															
1	L2	All MCs	28	3.7	28	3.7	0.335	48.4	LOS D	2.4	17.6	0.98	0.74	0.98	30.2
2	T1	All MCs	33	19.4	33	19.4	0.335	40.3	LOS D	2.4	17.6	0.96	0.71	0.96	31.7
3	R2	All MCs	172	4.3	172	4.3	*0.848	55.0	LOS E	8.5	61.6	1.00	1.01	1.34	28.2
Approach			233	6.3	233	6.3	0.848	52.1	LOS D	8.5	61.6	0.99	0.93	1.24	28.9
All Vehicles			1563	6.4	1563	6.4	0.856	44.3	LOS D	24.2	179.4	0.96	0.89	1.08	33.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ballan Road (S)												
P21	Stage 1	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
P22	Stage 2	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38

East: CCC (E)												
P3	Full	51	54	20.0	LOS C	0.1	0.1	0.67	0.67	36.7	20.0	0.54
North: Ballan Road (N)												
P41	Stage 1	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
P42	Stage 2	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
West: CCC (W)												
P1	Full	51	54	20.0	LOS C	0.1	0.1	0.67	0.67	36.7	20.0	0.54
All Pedestrians		306	322	31.0	LOS D	0.1	0.1	0.82	0.82	47.7	20.0	0.42

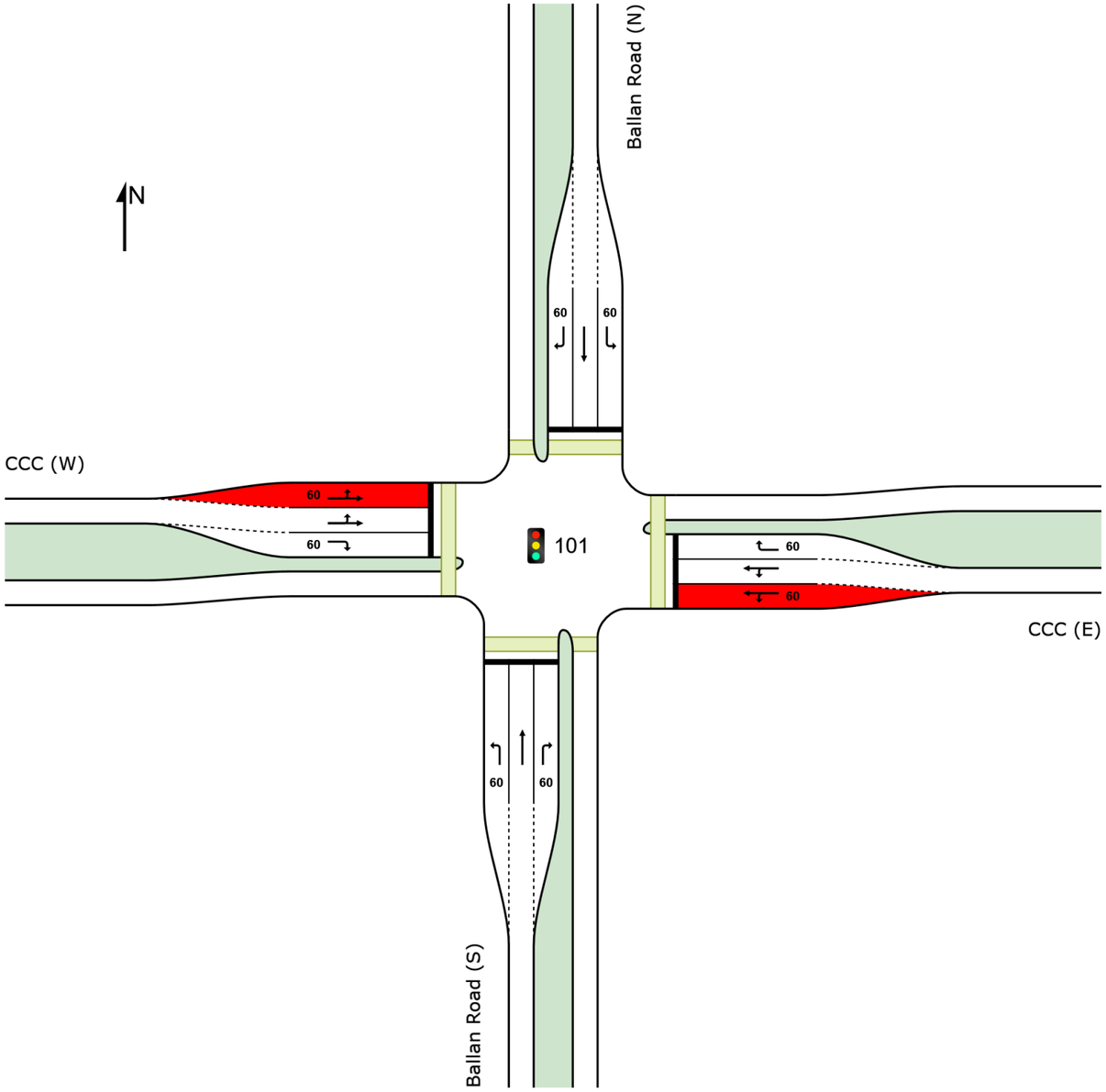
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN03PMInt (Site Folder: General)]

IN03
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN03PMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN03
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ballan Road (S)															
4	L2	All MCs	34	4.0	34	4.0	0.062	27.1	LOS C	0.9	6.8	0.74	0.70	0.74	38.1
5	T1	All MCs	32	7.0	32	7.0	0.056	21.4	LOS C	0.9	6.5	0.74	0.55	0.74	44.4
6	R2	All MCs	86	4.0	86	4.0	*0.631	48.2	LOS D	3.6	26.0	1.00	0.82	1.11	31.4
Approach			152	4.6	152	4.6	0.631	37.9	LOS D	3.6	26.0	0.89	0.74	0.95	34.9
East: CCC (E)															
7	L2	All MCs	27	4.0	27	4.0	0.548	43.9	LOS D	4.1	29.8	1.00	0.78	1.01	31.7
8	T1	All MCs	82	10.5	82	10.5	*0.548	38.0	LOS D	4.1	29.8	0.99	0.77	1.00	32.6
9	R2	All MCs	81	4.0	81	4.0	0.592	46.7	LOS D	3.3	24.2	1.00	0.80	1.08	30.1
Approach			190	6.8	190	6.8	0.592	42.6	LOS D	4.1	29.8	0.99	0.78	1.03	31.4
North: Ballan Road (N)															
10	L2	All MCs	41	4.0	41	4.0	0.075	30.1	LOS C	1.1	8.3	0.75	0.71	0.75	38.1
11	T1	All MCs	446	7.0	446	7.0	*0.798	34.7	LOS C	17.7	131.0	0.98	0.94	1.11	39.4
12	R2	All MCs	57	4.0	57	4.0	0.415	49.6	LOS D	2.3	16.6	0.99	0.75	0.99	31.8
Approach			544	6.5	544	6.5	0.798	35.9	LOS D	17.7	131.0	0.97	0.90	1.07	37.3
West: CCC (W)															
1	L2	All MCs	21	4.0	21	4.0	0.247	42.3	LOS D	1.8	12.7	0.96	0.72	0.96	31.9
2	T1	All MCs	30	20.7	30	20.7	0.247	34.5	LOS C	1.8	12.7	0.94	0.69	0.94	33.5
3	R2	All MCs	98	4.0	98	4.0	*0.715	48.3	LOS D	4.2	30.1	1.00	0.88	1.20	29.8
Approach			149	7.4	149	7.4	0.715	44.6	LOS D	4.2	30.1	0.98	0.82	1.12	30.7
All Vehicles			1035	6.4	1035	6.4	0.798	38.7	LOS D	17.7	131.0	0.96	0.84	1.05	34.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ballan Road (S)												
P21	Stage 1	51	54	31.6	LOS D	0.1	0.1	0.89	0.89	48.2	20.0	0.41
P22	Stage 2	51	54	31.6	LOS D	0.1	0.1	0.89	0.89	48.2	20.0	0.41

East: CCC (E)												
P3	Full	51	54	18.9	LOS B	0.1	0.1	0.69	0.69	35.6	20.0	0.56
North: Ballan Road (N)												
P41	Stage 1	51	54	31.6	LOS D	0.1	0.1	0.89	0.89	48.2	20.0	0.41
P42	Stage 2	51	54	31.6	LOS D	0.1	0.1	0.89	0.89	48.2	20.0	0.41
West: CCC (W)												
P1	Full	51	54	18.9	LOS B	0.1	0.1	0.69	0.69	35.6	20.0	0.56
All Pedestrians		306	322	27.4	LOS C	0.1	0.1	0.82	0.82	44.0	20.0	0.45

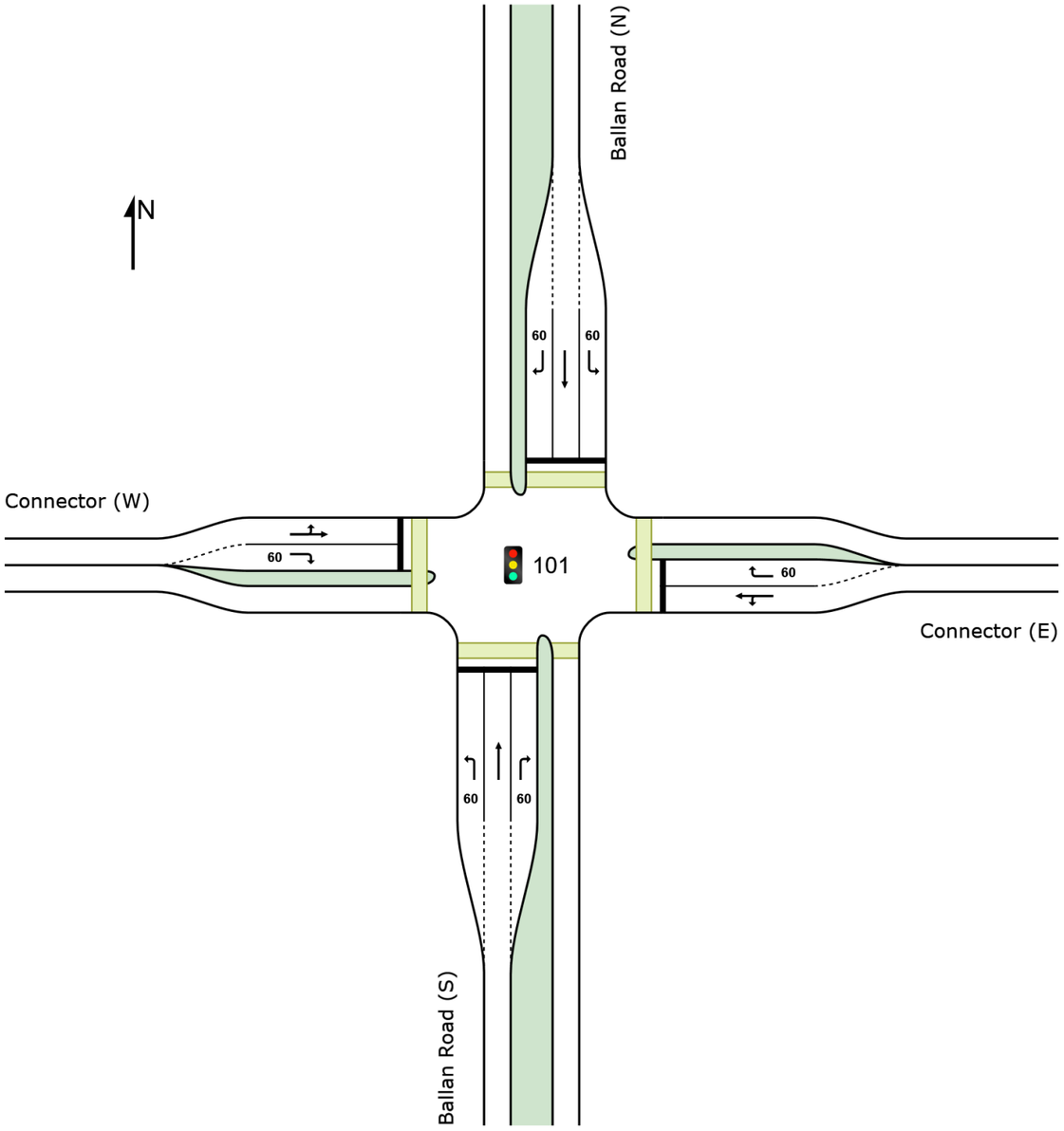
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN04AMInt (Site Folder: General)]

IN04
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN04AMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN04
AM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ballan Road (S)															
4	L2	All MCs	21	4.0	21	4.0	0.025	22.6	LOS C	0.5	3.5	0.56	0.66	0.56	41.5
5	T1	All MCs	535	7.0	535	7.0	0.613	22.7	LOS C	17.5	130.0	0.80	0.71	0.80	45.6
6	R2	All MCs	125	4.0	125	4.0	*0.687	54.8	LOS D	5.8	41.7	1.00	0.85	1.12	30.4
Approach			681	6.4	681	6.4	0.687	28.6	LOS C	17.5	130.0	0.83	0.74	0.85	40.1
East: Connector (E)															
7	L2	All MCs	125	4.0	125	4.0	0.597	46.1	LOS D	6.3	45.9	0.99	0.81	1.00	30.4
8	T1	All MCs	21	4.0	21	4.0	0.597	41.5	LOS D	6.3	45.9	0.99	0.81	1.00	30.9
9	R2	All MCs	142	4.0	142	4.0	*0.701	49.7	LOS D	6.5	47.1	1.00	0.87	1.12	29.4
Approach			288	4.0	288	4.0	0.701	47.5	LOS D	6.5	47.1	0.99	0.84	1.06	29.9
North: Ballan Road (N)															
10	L2	All MCs	79	4.0	79	4.0	0.100	27.8	LOS C	2.0	14.7	0.62	0.71	0.62	40.4
11	T1	All MCs	563	7.0	563	7.0	*0.720	28.7	LOS C	20.4	151.4	0.88	0.79	0.88	43.7
12	R2	All MCs	21	4.0	21	4.0	0.173	57.1	LOS E	0.9	6.7	0.97	0.70	0.97	30.5
Approach			663	6.5	663	6.5	0.720	29.5	LOS C	20.4	151.4	0.86	0.77	0.86	39.9
West: Connector (W)															
1	L2	All MCs	21	4.0	21	4.0	0.253	47.9	LOS D	1.8	13.1	0.97	0.72	0.97	30.3
2	T1	All MCs	21	4.0	21	4.0	*0.253	43.3	LOS D	1.8	13.1	0.97	0.72	0.97	30.8
3	R2	All MCs	21	4.0	21	4.0	0.173	50.0	LOS D	0.9	6.7	0.97	0.70	0.97	29.3
Approach			63	4.0	63	4.0	0.253	47.1	LOS D	1.8	13.1	0.97	0.71	0.97	30.1
All Vehicles			1696	5.9	1696	5.9	0.720	32.9	LOS C	20.4	151.4	0.87	0.77	0.89	37.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ballan Road (S)												
P21	Stage 1	51	54	33.0	LOS D	0.1	0.1	0.86	0.86	49.7	20.0	0.40
P22	Stage 2	51	54	33.0	LOS D	0.1	0.1	0.86	0.86	49.7	20.0	0.40

East: Connector (E)												
P3	Full	51	54	13.9	LOS B	0.1	0.1	0.56	0.56	30.6	20.0	0.65
North: Ballan Road (N)												
P41	Stage 1	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
P42	Stage 2	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
West: Connector (W)												
P1	Full	51	54	12.3	LOS B	0.1	0.1	0.52	0.52	29.0	20.0	0.69
All Pedestrians		306	322	27.6	LOS C	0.1	0.1	0.77	0.77	44.2	20.0	0.45

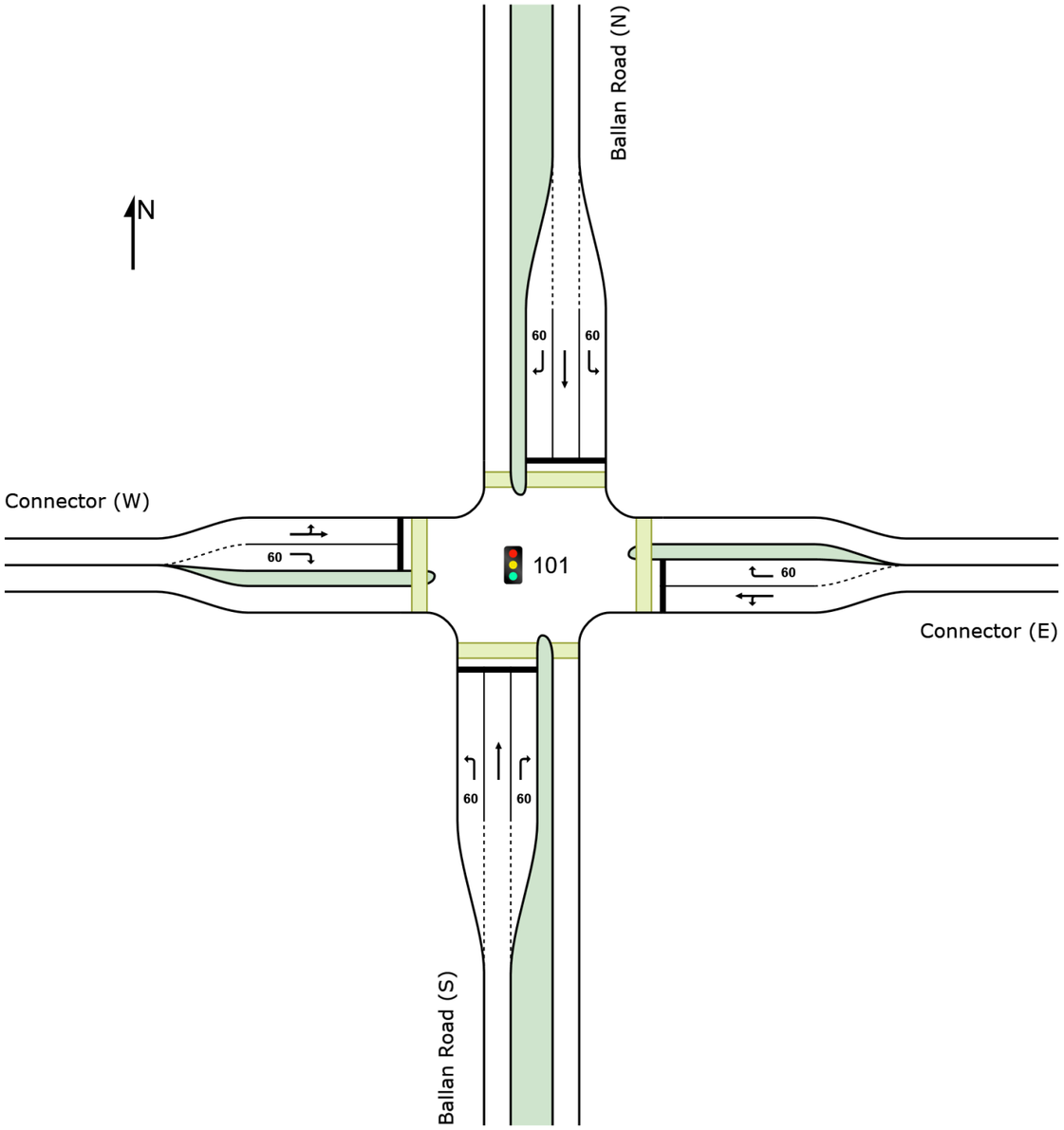
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN04PMInt (Site Folder: General)]

IN04
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN04PMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN04
PM Peak
Interim Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Ballan Road (S)															
4	L2	All MCs	21	4.0	21	4.0	0.024	18.1	LOS B	0.5	3.4	0.54	0.66	0.54	42.0
5	T1	All MCs	414	7.0	414	7.0	0.449	16.1	LOS B	11.8	87.9	0.70	0.61	0.70	47.4
6	R2	All MCs	122	4.0	122	4.0	*0.602	49.1	LOS D	5.4	39.2	1.00	0.80	1.03	31.0
Approach			557	6.2	557	6.2	0.602	23.5	LOS C	11.8	87.9	0.76	0.66	0.77	42.3
East: Connector (E)															
7	L2	All MCs	98	4.0	98	4.0	0.582	47.9	LOS D	5.2	38.0	1.00	0.80	1.01	30.0
8	T1	All MCs	21	4.0	21	4.0	0.582	43.3	LOS D	5.2	38.0	1.00	0.80	1.01	30.4
9	R2	All MCs	102	4.0	102	4.0	*0.630	50.6	LOS D	4.7	33.8	1.00	0.82	1.08	29.2
Approach			221	4.0	221	4.0	0.630	48.7	LOS D	5.2	38.0	1.00	0.81	1.04	29.7
North: Ballan Road (N)															
10	L2	All MCs	41	4.0	41	4.0	0.051	24.8	LOS C	1.0	7.3	0.59	0.69	0.59	40.9
11	T1	All MCs	532	7.0	532	7.0	*0.646	25.1	LOS C	18.2	135.0	0.84	0.74	0.84	44.6
12	R2	All MCs	21	4.0	21	4.0	0.173	55.2	LOS E	0.9	6.7	0.97	0.70	0.97	30.5
Approach			594	6.7	594	6.7	0.646	26.2	LOS C	18.2	135.0	0.82	0.74	0.82	41.6
West: Connector (W)															
1	L2	All MCs	21	4.0	21	4.0	0.253	47.9	LOS D	1.8	13.1	0.97	0.72	0.97	30.3
2	T1	All MCs	21	4.0	21	4.0	*0.253	43.3	LOS D	1.8	13.1	0.97	0.72	0.97	30.8
3	R2	All MCs	21	4.0	21	4.0	0.173	50.0	LOS D	0.9	6.7	0.97	0.70	0.97	29.3
Approach			63	4.0	63	4.0	0.253	47.1	LOS D	1.8	13.1	0.97	0.71	0.97	30.1
All Vehicles			1435	6.0	1435	6.0	0.646	29.5	LOS C	18.2	135.0	0.83	0.72	0.84	38.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Ballan Road (S)												
P21	Stage 1	51	54	34.7	LOS D	0.1	0.1	0.88	0.88	51.4	20.0	0.39
P22	Stage 2	51	54	34.7	LOS D	0.1	0.1	0.88	0.88	51.4	20.0	0.39

East: Connector (E)												
P3	Full	51	54	13.4	LOS B	0.1	0.1	0.55	0.55	30.0	20.0	0.67
North: Ballan Road (N)												
P41	Stage 1	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
P42	Stage 2	51	54	36.5	LOS D	0.1	0.1	0.90	0.90	53.2	20.0	0.38
West: Connector (W)												
P1	Full	51	54	11.3	LOS B	0.1	0.1	0.50	0.50	27.9	20.0	0.72
All Pedestrians		306	322	27.9	LOS C	0.1	0.1	0.77	0.77	44.5	20.0	0.45

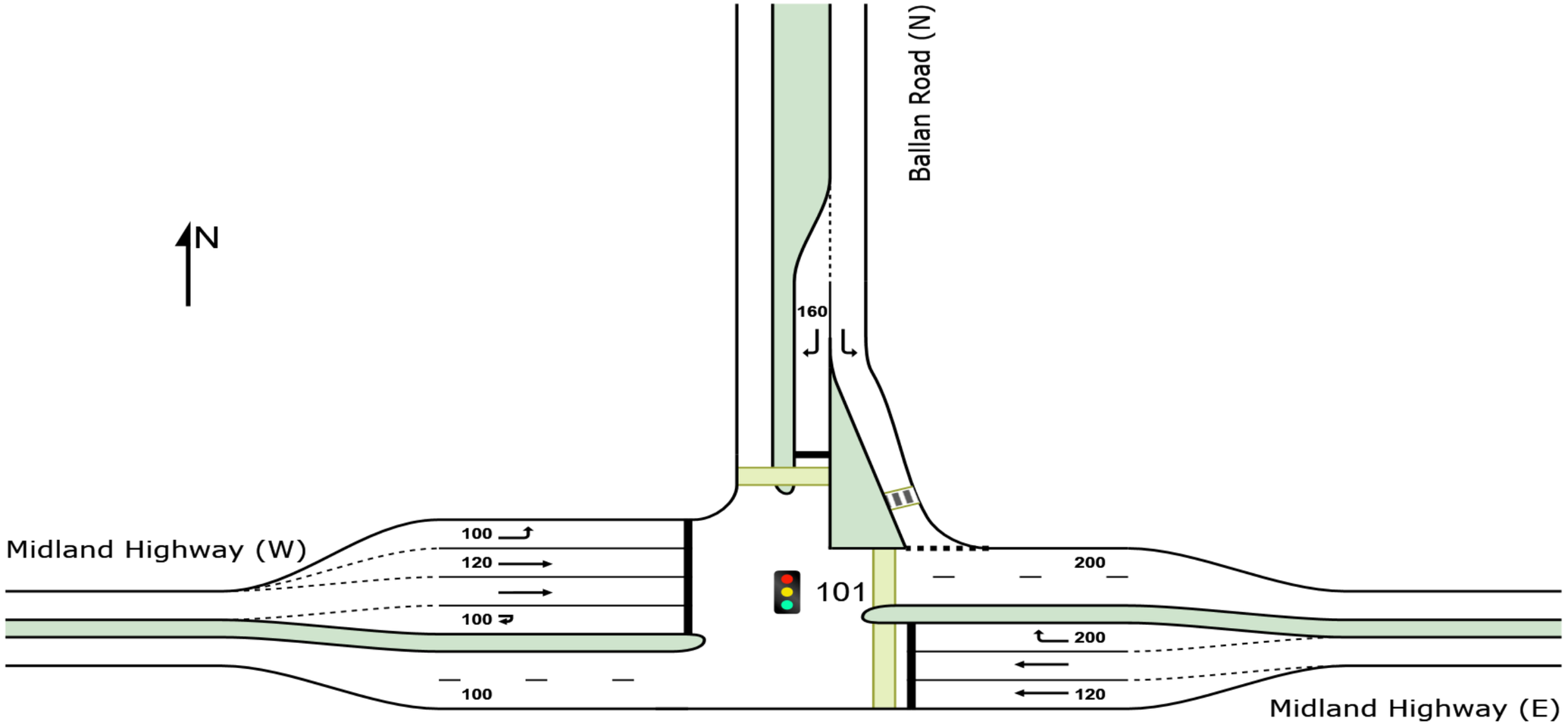
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN05AMInt (Site Folder: General)]

IN05
AM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN05AMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN05
AM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Midland Highway (E)															
5	T1	All MCs	653	7.0	653	7.0	0.319	8.9	LOS A	9.1	67.4	0.39	0.53	0.39	59.0
6	R2	All MCs	402	7.0	402	7.0	*0.909	69.7	LOS E	27.2	202.0	1.00	0.99	1.26	29.2
Approach			1055	7.0	1055	7.0	0.909	32.1	LOS C	27.2	202.0	0.62	0.70	0.72	42.4
North: Ballan Road (N)															
7	L2	All MCs	477	7.0	477	7.0	0.656	110.4	LOS F	17.7	131.4	0.82	0.97	0.82	39.7
9	R2	All MCs	187	7.0	187	7.0	*0.908	77.0	LOS E	12.8	94.8	1.00	1.03	1.38	27.0
Approach			664	7.0	664	7.0	0.908	101.0	LOS F	17.7	131.4	0.87	0.99	0.98	35.1
West: Midland Highway (W)															
10	L2	All MCs	219	7.0	219	7.0	0.190	25.1	LOS C	5.0	37.2	0.43	0.73	0.43	50.8
11	T1	All MCs	1588	7.0	1588	7.0	*0.897	130.4	LOS F	50.3	373.4	0.98	0.99	1.10	42.9
12u	U	All MCs	21	7.0	21	7.0	0.316	85.4	LOS F	1.3	9.7	1.00	0.71	1.00	28.3
Approach			1828	7.0	1828	7.0	0.897	117.3	LOS F	50.3	373.4	0.91	0.96	1.02	38.4
All Vehicles			3547	7.0	3547	7.0	0.909	88.9	LOS F	50.3	373.4	0.82	0.89	0.92	38.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Midland Highway (E)												
P21	Stage 1	51	54	46.0	LOS E	0.2	0.2	0.88	0.88	62.7	20.0	0.32
P22	Stage 2	51	54	46.0	LOS E	0.2	0.2	0.88	0.88	62.7	20.0	0.32
North: Ballan Road (N)												
P3	Full	51	54	14.0	LOS B	0.1	0.1	0.48	0.48	30.7	20.0	0.65
All Pedestrians		153	161	35.4	LOS D	0.2	0.2	0.75	0.75	52.0	20.0	0.38

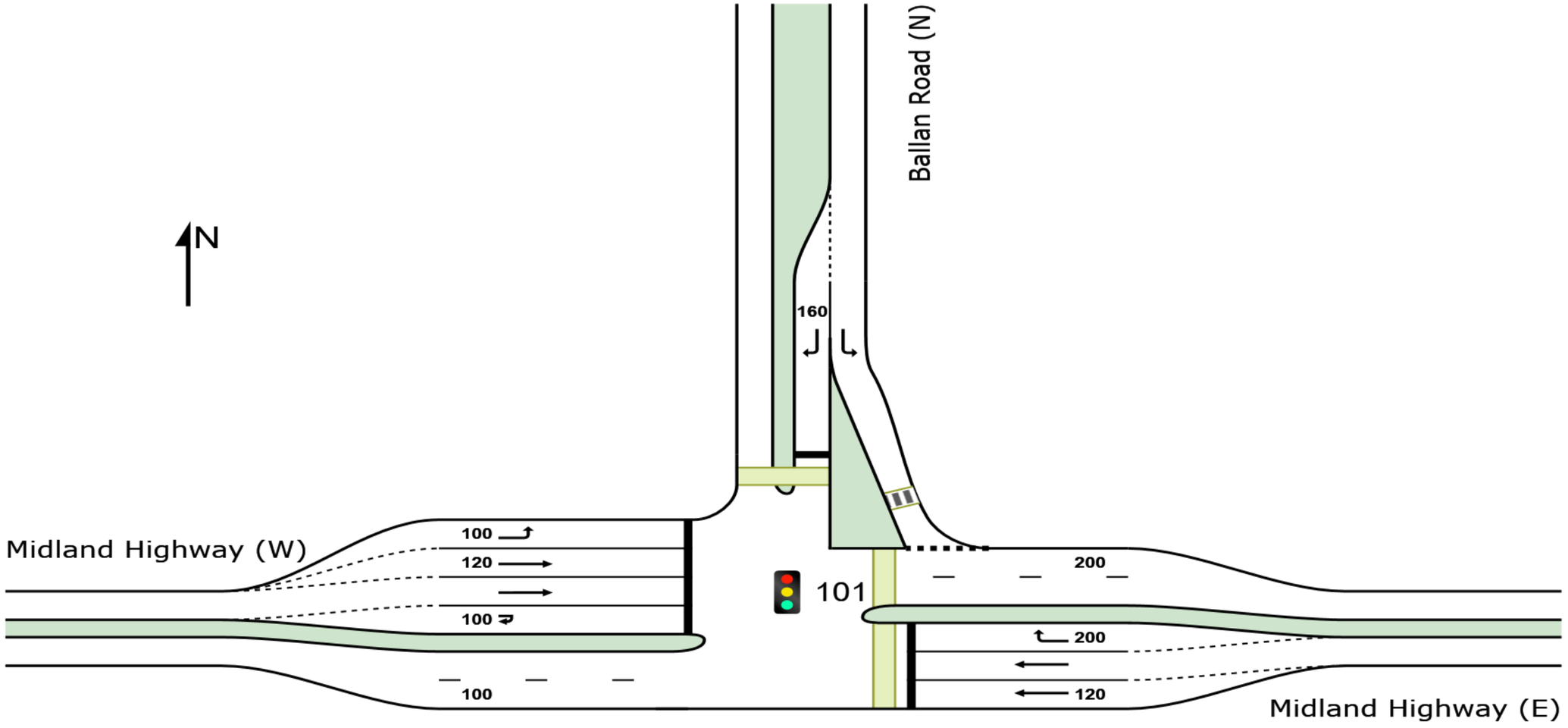
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN05PMInt (Site Folder: General)]

IN05
PM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN05PMInt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN05
PM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Midland Highway (E)															
5	T1	All MCs	1023	7.0	1023	7.0	0.574	14.1	LOS B	22.6	167.4	0.60	0.54	0.60	61.8
6	R2	All MCs	393	7.0	393	7.0	*0.666	44.2	LOS D	19.7	146.3	0.92	0.85	0.92	36.6
Approach			1416	7.0	1416	7.0	0.666	22.4	LOS C	22.6	167.4	0.68	0.62	0.68	51.9
North: Ballan Road (N)															
7	L2	All MCs	351	7.0	351	7.0	0.326	11.4	LOS B	7.4	55.0	0.39	0.67	0.39	52.1
9	R2	All MCs	279	7.0	279	7.0	*0.676	51.5	LOS D	15.1	111.7	0.97	0.84	0.97	33.2
Approach			629	7.0	629	7.0	0.676	29.2	LOS C	15.1	111.7	0.65	0.74	0.65	41.6
West: Midland Highway (W)															
10	L2	All MCs	138	7.0	138	7.0	0.138	19.9	LOS B	3.7	27.6	0.50	0.73	0.50	48.1
11	T1	All MCs	769	7.0	769	7.0	*0.669	39.4	LOS D	19.7	145.9	0.93	0.81	0.93	43.2
12u	U	All MCs	21	7.0	21	7.0	0.632	81.6	LOS F	1.4	10.6	1.00	0.76	1.21	26.6
Approach			928	7.0	928	7.0	0.669	37.4	LOS D	19.7	145.9	0.87	0.80	0.87	43.2
All Vehicles			2974	7.0	2974	7.0	0.676	28.5	LOS C	22.6	167.4	0.73	0.70	0.74	46.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Midland Highway (E)												
P21	Stage 1	51	54	34.6	LOS D	0.1	0.1	0.76	0.76	51.2	20.0	0.39
P22	Stage 2	51	54	34.6	LOS D	0.1	0.1	0.76	0.76	51.2	20.0	0.39
North: Ballan Road (N)												
P3	Full	51	54	28.1	LOS C	0.1	0.1	0.68	0.68	44.7	20.0	0.45
All Pedestrians		153	161	32.4	LOS D	0.1	0.1	0.73	0.73	49.1	20.0	0.41

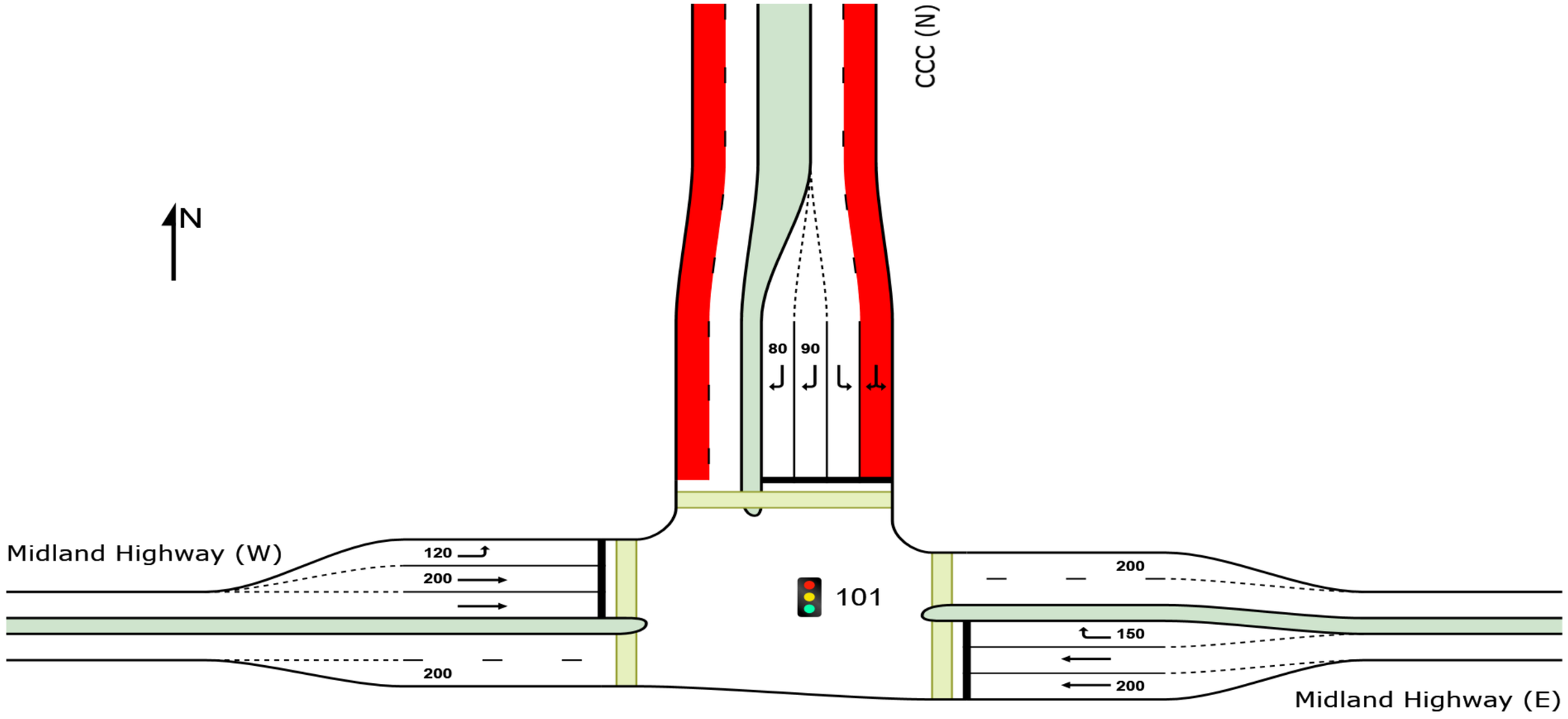
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN06AMInt - PSP (Site Folder: General)]

IN06
AM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN06AMInt - PSP (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN06
AM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 115 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Midland Highway (E)															
5	T1	All MCs	784	7.0	784	7.0	0.291	6.7	LOS A	7.6	56.2	0.38	0.33	0.38	54.7
6	R2	All MCs	193	3.8	193	3.8	*0.875	69.8	LOS E	12.2	87.9	1.00	1.00	1.31	27.6
Approach			977	6.4	977	6.4	0.875	19.2	LOS B	12.2	87.9	0.50	0.46	0.56	45.8
North: CCC (N)															
7	L2	All MCs	26	24.0	26	24.0	0.169	130.9	LOS F	1.2	8.5	0.97	0.70	0.97	28.9
9	R2	All MCs	124	8.5	124	8.5	*0.475	65.5	LOS E	3.4	24.8	1.00	0.75	1.00	28.7
Approach			151	11.2	151	11.2	0.475	76.9	LOS E	3.4	24.8	0.99	0.74	0.99	28.7
West: Midland Highway (W)															
10	L2	All MCs	21	5.0	21	5.0	0.021	28.0	LOS C	0.5	3.8	0.48	0.65	0.48	44.7
11	T1	All MCs	1875	7.0	1875	7.0	*0.927	221.6	LOS F	58.4	433.4	0.99	1.04	1.15	35.9
Approach			1896	7.0	1896	7.0	0.927	219.4	LOS F	58.4	433.4	0.99	1.04	1.15	34.2
All Vehicles			3023	7.0	3023	7.0	0.927	147.6	LOS F	58.4	433.4	0.83	0.84	0.95	36.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Midland Highway (E)												
P21	Stage 1	51	54	49.0	LOS E	0.2	0.2	0.92	0.92	65.6	20.0	0.30
P22	Stage 2	51	54	49.0	LOS E	0.2	0.2	0.92	0.92	65.6	20.0	0.30
North: CCC (N)												
P3	Full	51	54	11.3	LOS B	0.1	0.1	0.44	0.44	28.0	20.0	0.71
West: Midland Highway (W)												
P41	Stage 1	51	54	49.0	LOS E	0.2	0.2	0.92	0.92	65.6	20.0	0.30
P42	Stage 2	51	54	49.0	LOS E	0.2	0.2	0.92	0.92	65.6	20.0	0.30
All Pedestrians		255	268	41.4	LOS E	0.2	0.2	0.83	0.83	58.1	20.0	0.34

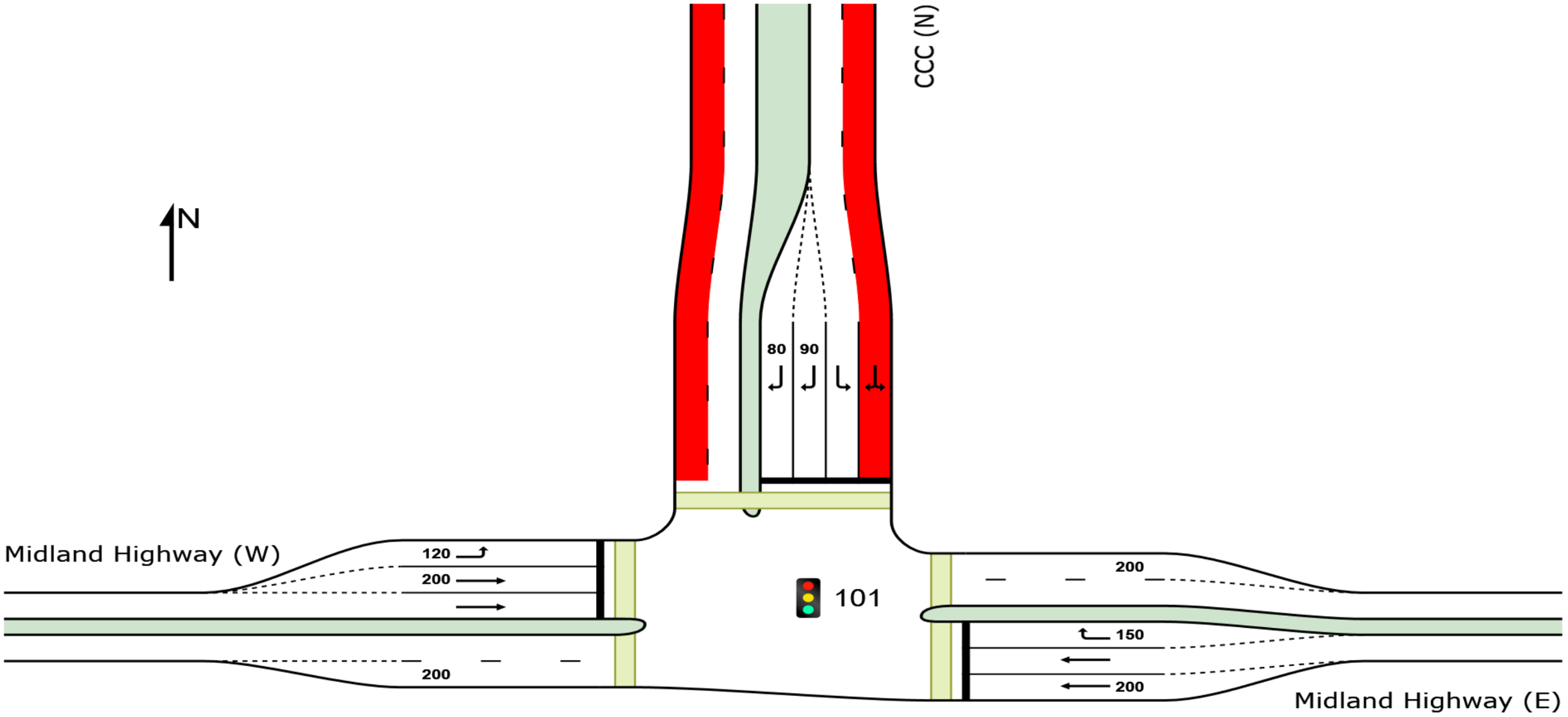
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [IN06PMInt - PSP (Site Folder: General)]

IN06
PM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [IN06PMInt - PSP (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

IN06
PM Peak
Interim
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site Optimum Cycle Time - Minimum Degree of Saturation)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: Midland Highway (E)															
5	T1	All MCs	1104	7.0	1104	7.0	0.418	9.7	LOS A	13.1	97.3	0.45	0.40	0.45	53.4
6	R2	All MCs	208	4.0	208	4.0	*0.577	53.1	LOS D	11.2	81.1	0.96	0.82	0.96	31.5
Approach			1313	6.5	1313	6.5	0.577	16.6	LOS B	13.1	97.3	0.53	0.47	0.53	48.1
North: CCC (N)															
7	L2	All MCs	26	23.2	26	23.2	0.127	60.5	LOS E	1.2	8.5	0.95	0.70	0.95	29.1
9	R2	All MCs	205	6.5	205	6.5	*0.603	67.3	LOS E	5.9	42.8	1.00	0.80	1.02	28.6
Approach			231	8.4	231	8.4	0.603	66.5	LOS E	5.9	42.8	0.99	0.79	1.02	28.6
West: Midland Highway (W)															
10	L2	All MCs	21	4.0	21	4.0	0.025	24.3	LOS C	0.7	4.8	0.57	0.67	0.57	41.5
11	T1	All MCs	1003	7.0	1003	7.0	*0.587	26.8	LOS C	21.5	159.9	0.80	0.71	0.80	42.3
Approach			1024	6.9	1024	6.9	0.587	26.7	LOS C	21.5	159.9	0.79	0.71	0.79	42.3
All Vehicles			2568	6.9	2568	6.9	0.603	25.1	LOS C	21.5	159.9	0.68	0.59	0.68	43.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Midland Highway (E)												
P21	Stage 1	51	54	48.7	LOS E	0.2	0.2	0.90	0.90	65.4	20.0	0.31
P22	Stage 2	51	54	48.7	LOS E	0.2	0.2	0.90	0.90	65.4	20.0	0.31
North: CCC (N)												
P3	Full	51	54	17.1	LOS B	0.1	0.1	0.53	0.53	33.8	20.0	0.59
West: Midland Highway (W)												
P41	Stage 1	51	54	48.7	LOS E	0.2	0.2	0.90	0.90	65.4	20.0	0.31
P42	Stage 2	51	54	48.7	LOS E	0.2	0.2	0.90	0.90	65.4	20.0	0.31
All Pedestrians		255	268	42.4	LOS E	0.2	0.2	0.83	0.83	59.1	20.0	0.34

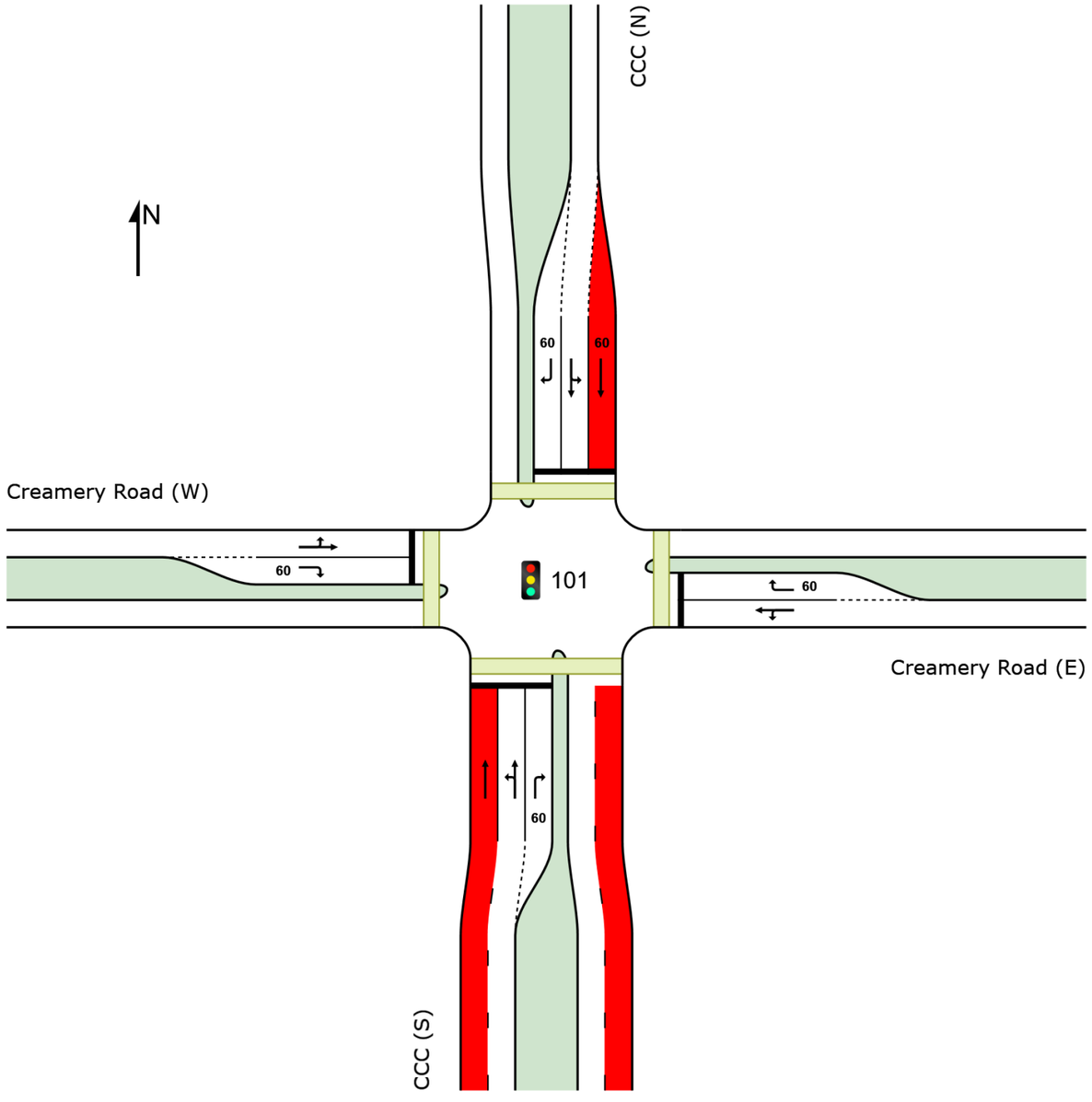
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC07AMUlt (Site Folder: General)]

CC09
AM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC07AMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC09
AM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC (S)															
1	L2	All MCs	190	4.2	190	4.2	0.783	33.5	LOS C	9.2	66.4	1.00	0.97	1.22	34.2
2	T1	All MCs	106	9.0	106	9.0	*0.783	28.5	LOS C	9.2	66.4	0.99	0.95	1.20	35.0
3	R2	All MCs	114	7.7	114	7.7	*0.641	35.8	LOS D	3.6	26.6	1.00	0.84	1.13	33.1
Approach			410	6.4	410	6.4	0.783	32.8	LOS C	9.2	66.4	1.00	0.93	1.19	34.1
East: Creamery Road (E)															
4	L2	All MCs	203	4.0	203	4.0	0.639	30.0	LOS C	6.7	48.7	0.97	0.84	1.02	35.0
5	T1	All MCs	32	4.0	32	4.0	0.639	25.4	LOS C	6.7	48.7	0.97	0.84	1.02	35.7
6	R2	All MCs	32	4.0	32	4.0	0.173	33.1	LOS C	0.9	6.6	0.95	0.71	0.95	33.9
Approach			266	4.0	266	4.0	0.639	29.8	LOS C	6.7	48.7	0.97	0.82	1.01	35.0
North: CCC (N)															
7	L2	All MCs	30	4.2	30	4.2	0.354	27.8	LOS C	3.5	25.6	0.90	0.73	0.90	36.8
8	T1	All MCs	109	8.7	109	8.7	0.354	23.1	LOS C	3.5	25.6	0.90	0.72	0.90	37.6
9	R2	All MCs	29	4.3	29	4.3	0.161	33.0	LOS C	0.8	6.1	0.95	0.71	0.95	33.9
Approach			169	7.1	169	7.1	0.354	25.7	LOS C	3.5	25.6	0.91	0.72	0.91	36.8
West: Creamery Road (W)															
10	L2	All MCs	29	4.3	29	4.3	0.778	33.1	LOS C	9.3	67.4	1.00	0.96	1.21	35.2
11	T1	All MCs	268	4.0	268	4.0	*0.778	28.5	LOS C	9.3	67.4	1.00	0.96	1.21	35.9
12	R2	All MCs	51	4.7	51	4.7	*0.278	33.6	LOS C	1.5	10.8	0.96	0.73	0.96	33.8
Approach			348	4.1	348	4.1	0.778	29.7	LOS C	9.3	67.4	0.99	0.93	1.17	35.5
All Vehicles			1193	5.3	1193	5.3	0.783	30.2	LOS C	9.3	67.4	0.98	0.87	1.10	35.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: CCC (S)												
P1	Full	51	54	18.4	LOS B	0.1	0.1	0.79	0.79	35.1	20.0	0.57
East: Creamery Road (E)												

P2	Full	51	54	18.4	LOS B	0.1	0.1	0.79	0.79	35.1	20.0	0.57
North: CCC (N)												
P3	Full	51	54	18.4	LOS B	0.1	0.1	0.79	0.79	35.1	20.0	0.57
West: Creamery Road (W)												
P4	Full	51	54	18.4	LOS B	0.1	0.1	0.79	0.79	35.1	20.0	0.57
All Pedestrians		204	215	18.4	LOS B	0.1	0.1	0.79	0.79	35.1	20.0	0.57

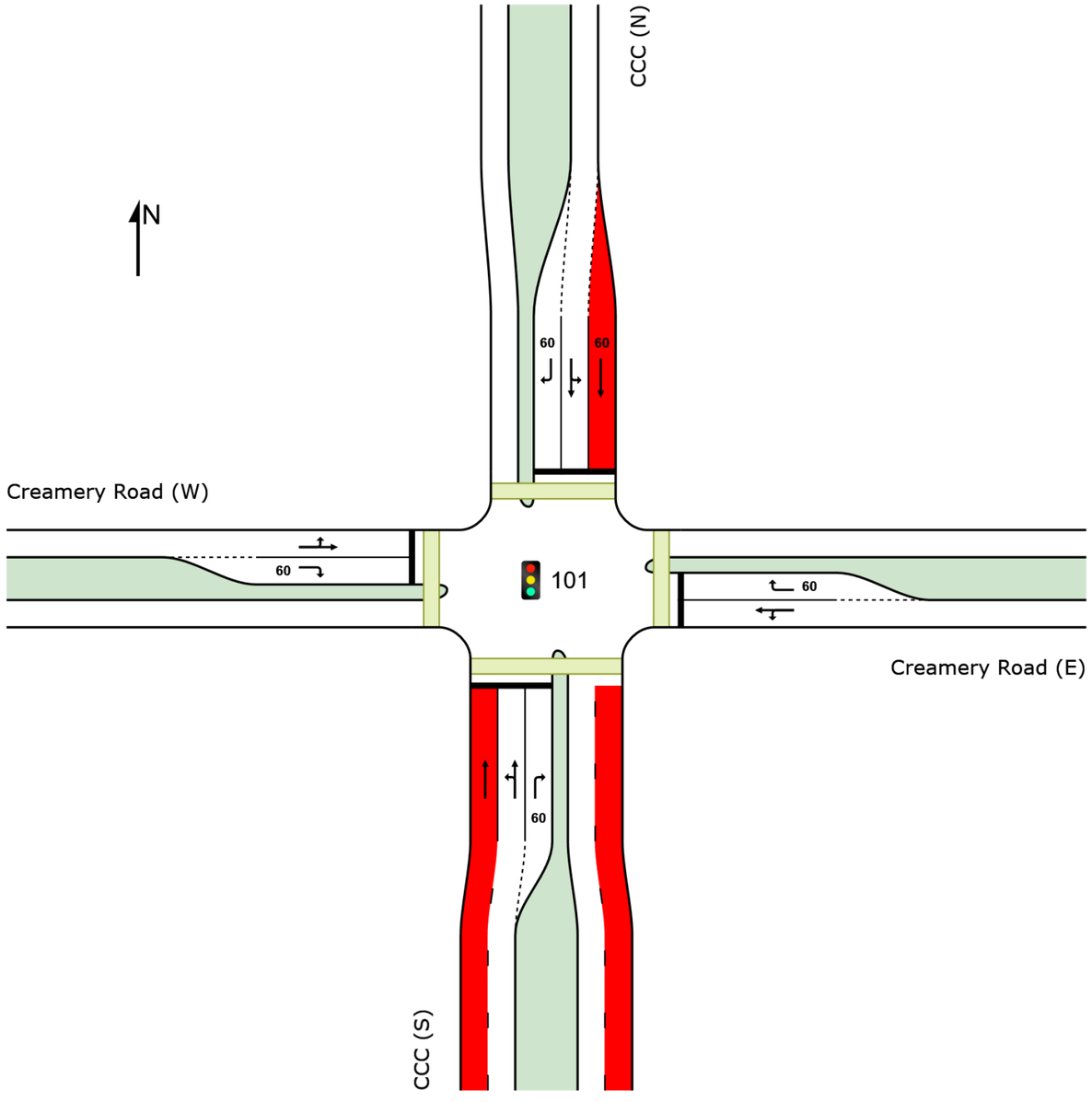
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC07PMUlt (Site Folder: General)]

CC07
PM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC07PMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC07
PM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 70 seconds (Site Practical Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC (S)															
1	L2	All MCs	203	3.9	203	3.9	0.880	44.5	LOS D	12.3	89.1	1.00	1.10	1.40	31.0
2	T1	All MCs	105	9.0	105	9.0	*0.880	39.2	LOS D	12.3	89.1	0.99	1.07	1.37	31.7
3	R2	All MCs	52	17.0	52	17.0	*0.360	40.0	LOS D	1.8	14.5	0.98	0.74	0.98	31.8
Approach			360	7.3	360	7.3	0.880	42.3	LOS D	12.3	89.1	0.99	1.04	1.33	31.3
East: Creamery Road (E)															
4	L2	All MCs	429	1.9	429	1.9	0.839	36.1	LOS D	17.5	124.3	1.00	0.98	1.22	33.1
5	T1	All MCs	38	3.3	38	3.3	*0.839	31.6	LOS C	17.5	124.3	1.00	0.98	1.22	33.6
6	R2	All MCs	38	3.3	38	3.3	*0.241	39.3	LOS D	1.3	9.3	0.97	0.72	0.97	32.2
Approach			505	2.1	505	2.1	0.839	36.0	LOS D	17.5	124.3	1.00	0.96	1.20	33.0
North: CCC (N)															
7	L2	All MCs	38	3.3	38	3.3	0.404	32.6	LOS C	4.4	32.1	0.92	0.75	0.92	35.0
8	T1	All MCs	109	8.7	109	8.7	0.404	27.9	LOS C	4.4	32.1	0.92	0.74	0.92	35.8
9	R2	All MCs	52	2.4	52	2.4	0.326	39.5	LOS D	1.8	12.8	0.98	0.74	0.98	32.0
Approach			199	6.0	199	6.0	0.404	31.8	LOS C	4.4	32.1	0.94	0.74	0.94	34.6
West: Creamery Road (W)															
10	L2	All MCs	38	3.3	38	3.3	0.218	24.7	LOS C	3.1	23.5	0.79	0.67	0.79	37.9
11	T1	All MCs	81	13.3	81	13.3	0.218	20.1	LOS C	3.1	23.5	0.79	0.67	0.79	38.6
12	R2	All MCs	21	11.2	21	11.2	0.141	38.7	LOS D	0.7	5.5	0.96	0.70	0.96	32.2
Approach			140	10.3	140	10.3	0.218	24.1	LOS C	3.1	23.5	0.81	0.67	0.81	37.3
All Vehicles			1204	5.3	1204	5.3	0.880	35.8	LOS D	17.5	124.3	0.96	0.91	1.15	33.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: CCC (S)												
P1	Full	51	54	16.5	LOS B	0.1	0.1	0.69	0.69	33.2	20.0	0.60
East: Creamery Road (E)												

P2	Full	51	54	22.5	LOS C	0.1	0.1	0.80	0.80	39.1	20.0	0.51
North: CCC (N)												
P3	Full	51	54	16.5	LOS B	0.1	0.1	0.69	0.69	33.2	20.0	0.60
West: Creamery Road (W)												
P4	Full	51	54	22.5	LOS C	0.1	0.1	0.80	0.80	39.1	20.0	0.51
All Pedestrians		204	215	19.5	LOS B	0.1	0.1	0.74	0.74	36.1	20.0	0.55

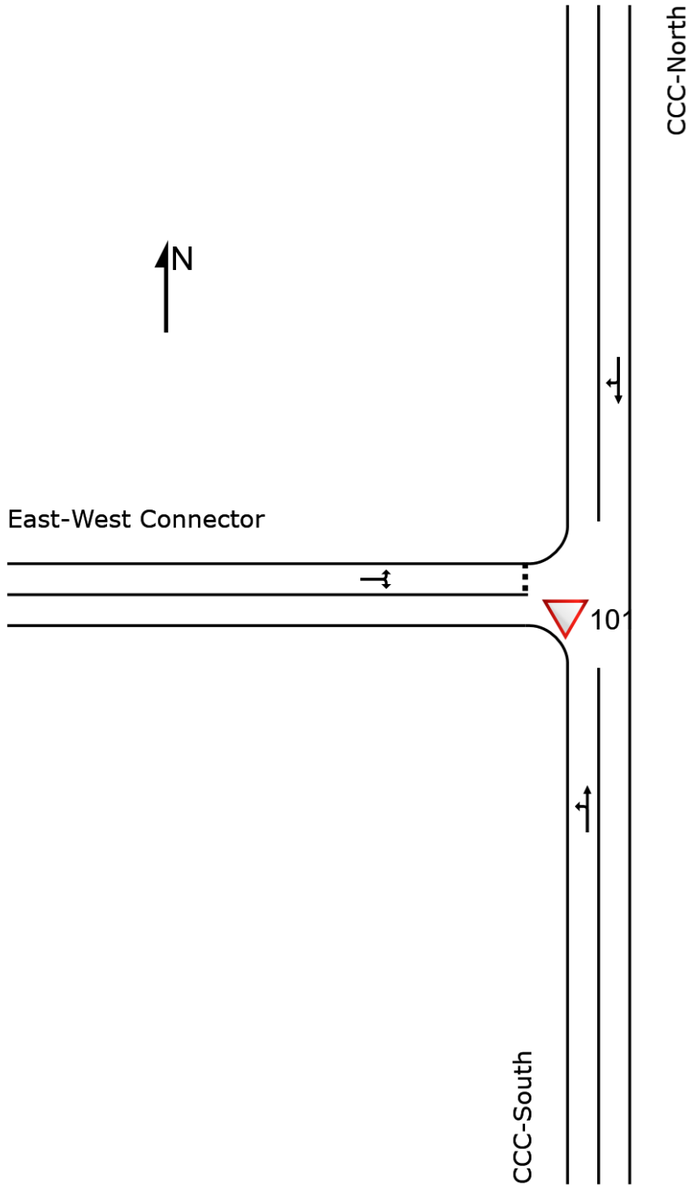
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC08AM (Site Folder: General)]

CC08
CCC and East-West Connector
AM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC08AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC08
CCC and East-West Connector
AM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 20 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC-South															
1	L2	All MCs	296	3.0	296	3.0	0.334	5.7	LOS A	0.0	0.0	0.00	0.28	0.00	54.9
2	T1	All MCs	328	3.0	328	3.0	0.334	0.1	LOS A	0.0	0.0	0.00	0.28	0.00	57.3
Approach			624	3.0	624	3.0	0.334	2.7	NA	0.0	0.0	0.00	0.28	0.00	56.2
North: CCC-North															
8	T1	All MCs	302	3.0	302	3.0	0.231	1.1	LOS A	0.8	5.6	0.27	0.33	0.27	57.7
9	R2	All MCs	63	3.0	63	3.0	0.231	8.9	LOS A	0.8	5.6	0.27	0.33	0.27	54.9
Approach			364	3.0	364	3.0	0.231	2.5	NA	0.8	5.6	0.27	0.33	0.27	57.2
West: East-West Connector															
10	L2	All MCs	352	3.0	352	3.0	0.485	8.4	LOS A	3.3	24.0	0.60	0.81	0.83	49.8
12	R2	All MCs	94	3.0	94	3.0	0.485	14.4	LOS B	3.3	24.0	0.60	0.81	0.83	49.6
Approach			446	3.0	446	3.0	0.485	9.6	LOS A	3.3	24.0	0.60	0.81	0.83	49.8
All Vehicles			1434	3.0	1434	3.0	0.485	4.8	NA	3.3	24.0	0.25	0.46	0.33	54.2

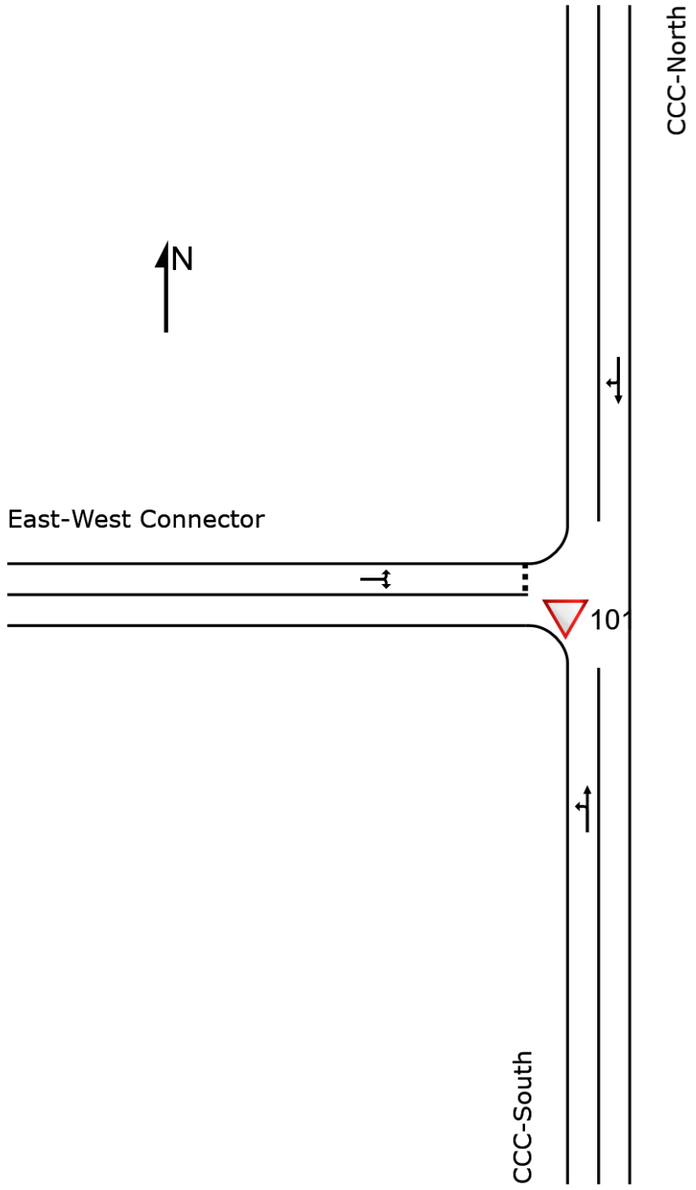
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [CC08PM (Site Folder: General)]

CC08
CCC and East-West Connector
PM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC08PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC08
CCC and East-West Connector
PM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 20 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC-South															
1	L2	All MCs	302	3.0	302	3.0	0.288	5.6	LOS A	0.0	0.0	0.00	0.33	0.00	54.5
2	T1	All MCs	233	3.0	233	3.0	0.288	0.1	LOS A	0.0	0.0	0.00	0.33	0.00	56.9
Approach			535	3.0	535	3.0	0.288	3.2	NA	0.0	0.0	0.00	0.33	0.00	55.6
North: CCC-North															
8	T1	All MCs	638	3.0	638	3.0	0.398	0.6	LOS A	0.9	6.8	0.14	0.18	0.17	58.7
9	R2	All MCs	63	3.0	63	3.0	0.398	8.7	LOS A	0.9	6.8	0.14	0.18	0.17	55.9
Approach			701	3.0	701	3.0	0.398	1.3	NA	0.9	6.8	0.14	0.18	0.17	58.5
West: East-West Connector															
10	L2	All MCs	120	3.0	120	3.0	0.186	6.5	LOS A	0.7	5.1	0.47	0.63	0.47	50.7
12	R2	All MCs	31	3.0	31	3.0	0.186	16.0	LOS C	0.7	5.1	0.47	0.63	0.47	50.4
Approach			152	3.0	152	3.0	0.186	8.4	LOS A	0.7	5.1	0.47	0.63	0.47	50.6
All Vehicles			1387	3.0	1387	3.0	0.398	2.8	NA	0.9	6.8	0.12	0.29	0.14	56.4

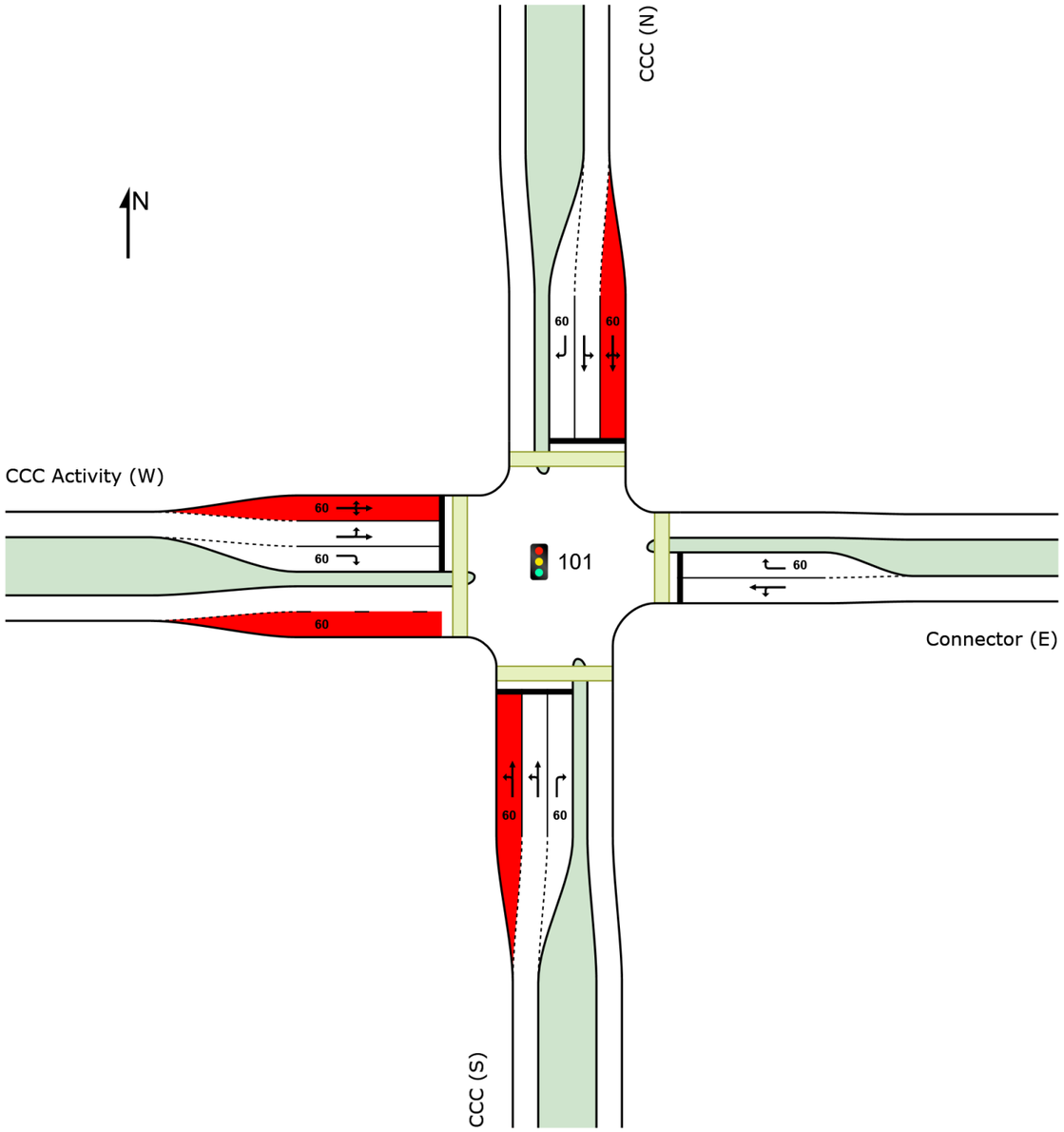
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [CC09AMUlt (Site Folder: General)]

CC09
AM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC09AMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC09
AM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 85 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC (S)															
1	L2	All MCs	120	7.3	120	7.3	*0.903	54.7	LOS D	10.9	78.6	0.99	1.09	1.43	28.7
2	T1	All MCs	111	7.6	111	7.6	*0.903	50.4	LOS D	10.9	78.6	0.99	1.09	1.43	29.1
3	R2	All MCs	71	3.0	71	3.0	0.544	49.2	LOS D	3.1	22.0	1.00	0.78	1.03	29.5
Approach			301	6.4	301	6.4	0.903	51.8	LOS D	10.9	78.6	0.99	1.02	1.34	29.0
East: Connector (E)															
4	L2	All MCs	32	3.0	32	3.0	0.392	39.8	LOS D	4.7	33.8	0.94	0.75	0.94	32.8
5	T1	All MCs	92	3.0	92	3.0	0.392	35.2	LOS D	4.7	33.8	0.94	0.75	0.94	33.4
6	R2	All MCs	21	3.0	21	3.0	0.162	47.1	LOS D	0.9	6.3	0.97	0.70	0.97	30.0
Approach			144	3.0	144	3.0	0.392	38.0	LOS D	4.7	33.8	0.94	0.75	0.94	32.7
North: CCC (N)															
7	L2	All MCs	120	7.3	120	7.3	0.903	55.6	LOS E	10.9	78.6	1.00	1.10	1.44	28.4
8	T1	All MCs	106	4.0	106	4.0	0.903	51.7	LOS D	10.9	78.6	1.00	1.11	1.46	28.8
9	R2	All MCs	76	9.7	76	9.7	*0.544	49.6	LOS D	3.1	22.0	0.99	0.77	1.03	29.8
Approach			302	6.7	302	6.7	0.903	52.7	LOS D	10.9	78.6	1.00	1.02	1.34	28.9
West: CCC Activity (W)															
10	L2	All MCs	67	10.6	67	10.6	0.834	46.4	LOS D	11.9	85.7	0.99	0.98	1.22	30.7
11	T1	All MCs	201	3.5	201	3.5	*0.834	43.6	LOS D	11.9	85.7	1.00	1.01	1.25	31.0
12	R2	All MCs	37	16.9	37	16.9	*0.244	49.2	LOS D	1.3	9.5	0.97	0.71	0.97	30.5
Approach			305	6.7	305	6.7	0.834	44.9	LOS D	11.9	85.7	0.99	0.97	1.21	30.9
All Vehicles			1053	6.1	1053	6.1	0.903	48.2	LOS D	11.9	85.7	0.99	0.97	1.25	30.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: CCC (S)												
P1	Full	51	54	28.9	LOS C	0.1	0.1	0.83	0.83	45.6	20.0	0.44
East: Connector (E)												

P2	Full	51	54	31.4	LOS D	0.1	0.1	0.86	0.86	48.1	20.0	0.42
North: CCC (N)												
P3	Full	51	54	28.9	LOS C	0.1	0.1	0.83	0.83	45.6	20.0	0.44
West: CCC Activity (W)												
P4	Full	51	54	31.4	LOS D	0.1	0.1	0.86	0.86	48.1	20.0	0.42
All Pedestrians		204	215	30.2	LOS D	0.1	0.1	0.84	0.84	46.8	20.0	0.43

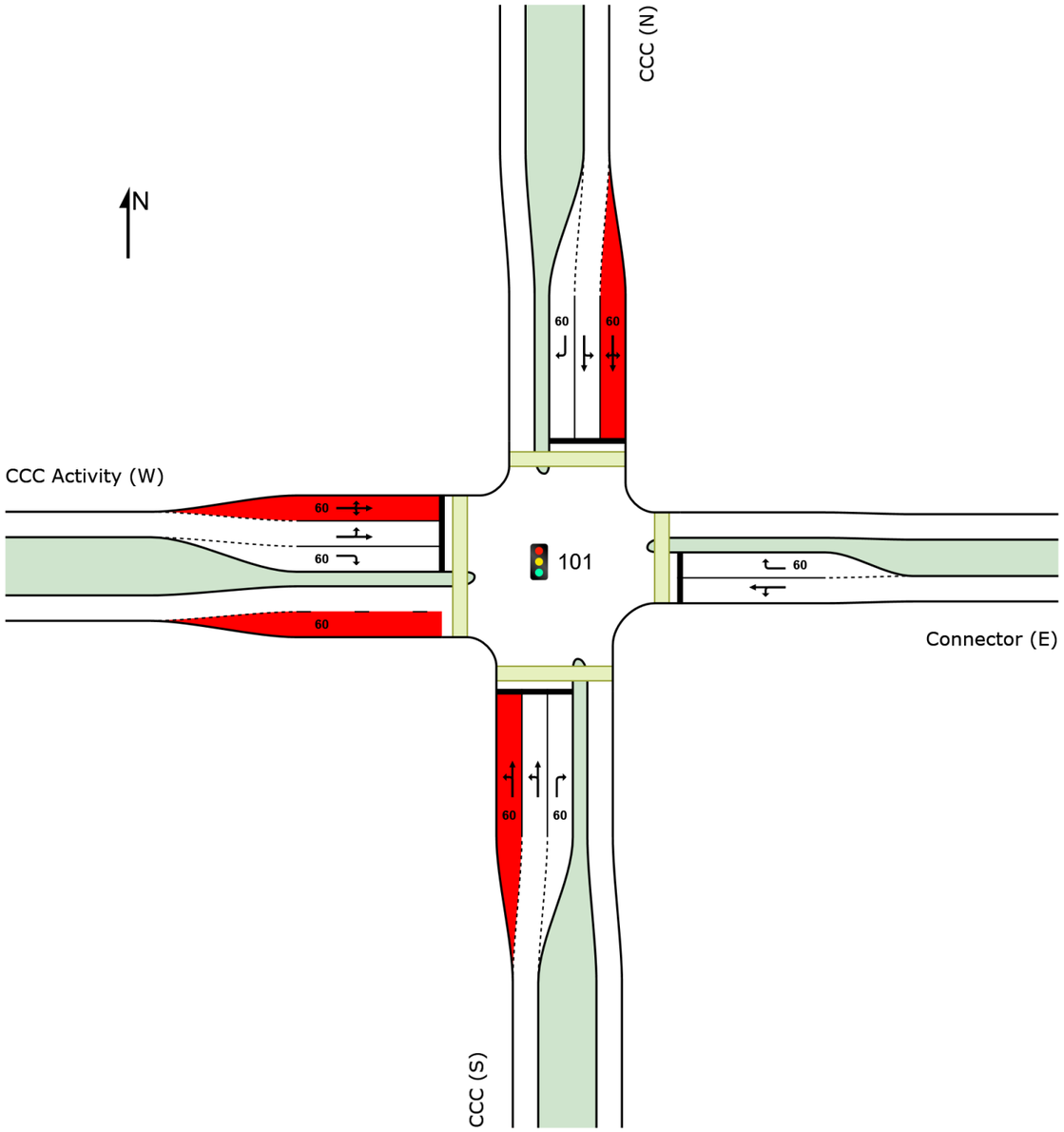
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC09PMUlt (Site Folder: General)]

CC09
PM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC09PMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC09
PM Peak
Ultimate Volumes
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 80 seconds (Site Practical Cycle Time)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC (S)															
1	L2	All MCs	69	11.5	69	11.5	*0.774	44.2	LOS D	6.9	50.1	0.98	0.91	1.19	31.4
2	T1	All MCs	106	9.0	106	9.0	*0.774	40.8	LOS D	6.9	50.1	0.99	0.92	1.20	31.7
3	R2	All MCs	24	4.0	24	4.0	0.177	44.4	LOS D	0.9	6.8	0.97	0.70	0.97	30.6
Approach			198	9.3	198	9.3	0.774	42.4	LOS D	6.9	50.1	0.98	0.89	1.17	31.4
East: Connector (E)															
4	L2	All MCs	32	4.0	32	4.0	0.780	45.2	LOS D	8.5	61.8	1.00	0.95	1.20	31.5
5	T1	All MCs	173	4.0	173	4.0	*0.780	40.6	LOS D	8.5	61.8	1.00	0.95	1.20	32.0
6	R2	All MCs	69	4.0	69	4.0	*0.508	46.1	LOS D	2.8	20.5	1.00	0.76	1.01	30.3
Approach			274	4.0	274	4.0	0.780	42.5	LOS D	8.5	61.8	1.00	0.90	1.15	31.5
North: CCC (N)															
7	L2	All MCs	28	21.9	28	21.9	0.595	41.0	LOS D	5.0	36.5	0.96	0.77	0.99	32.5
8	T1	All MCs	109	8.7	109	8.7	0.595	38.1	LOS D	5.0	36.5	0.99	0.80	1.02	32.7
9	R2	All MCs	63	5.9	63	5.9	*0.452	45.8	LOS D	2.5	18.1	0.99	0.75	0.99	30.5
Approach			201	9.7	201	9.7	0.595	40.9	LOS D	5.0	36.5	0.99	0.78	1.01	31.9
West: CCC Activity (W)															
10	L2	All MCs	71	11.4	71	11.4	0.625	40.4	LOS D	6.3	45.6	0.98	0.81	1.02	32.1
11	T1	All MCs	96	5.1	96	5.1	0.625	37.1	LOS D	6.3	45.6	0.99	0.82	1.03	32.6
12	R2	All MCs	32	20.2	32	20.2	0.199	46.1	LOS D	1.1	7.7	0.95	0.70	0.95	31.3
Approach			200	9.8	200	9.8	0.625	39.7	LOS D	6.3	45.6	0.98	0.80	1.02	32.2
All Vehicles			873	7.8	873	7.8	0.780	41.5	LOS D	8.5	61.8	0.99	0.85	1.09	31.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: CCC (S)												
P1	Full	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44
East: Connector (E)												

P2	Full	51	54	30.7	LOS D	0.1	0.1	0.88	0.88	47.4	20.0	0.42
North: CCC (N)												
P3	Full	51	54	29.0	LOS C	0.1	0.1	0.85	0.85	45.6	20.0	0.44
West: CCC Activity (W)												
P4	Full	51	54	30.7	LOS D	0.1	0.1	0.88	0.88	47.4	20.0	0.42
All Pedestrians		204	215	29.8	LOS C	0.1	0.1	0.86	0.86	46.5	20.0	0.43

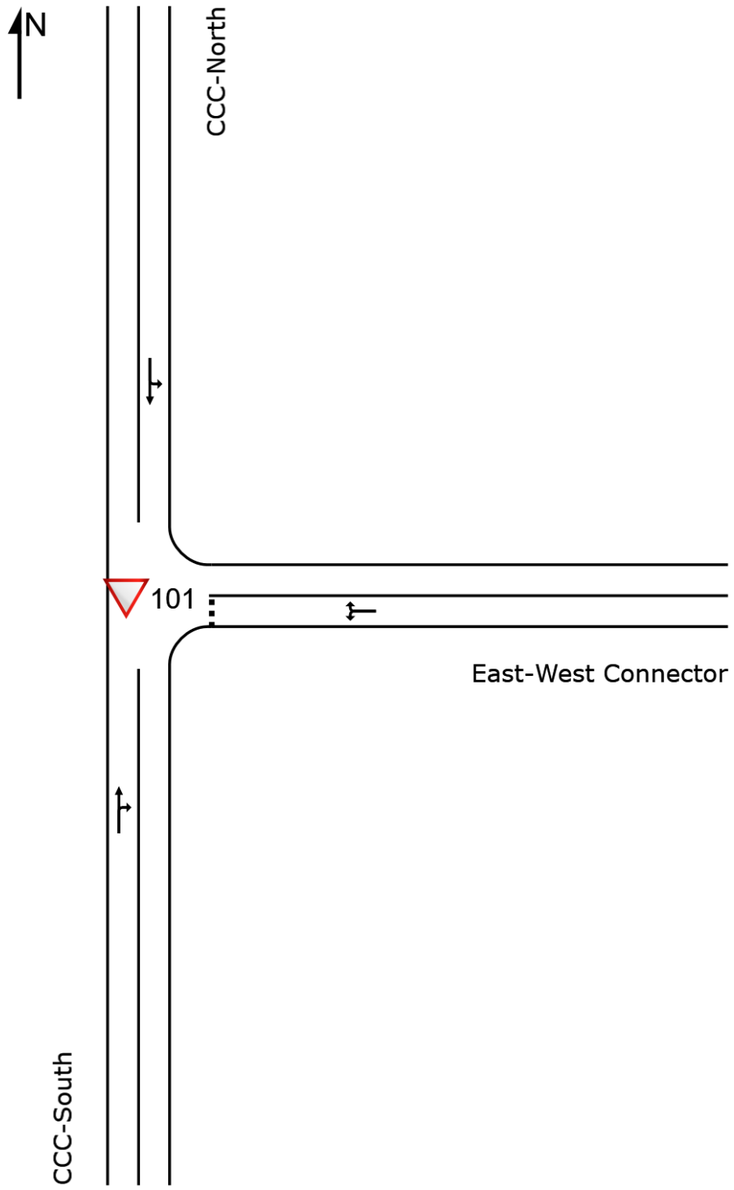
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC10-AMUlt (Site Folder: General)]

CC10
CCC/East-west Connector
AM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC10-AMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC10
CCC/East-west Connector
AM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 20 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC-South															
2	T1	All MCs	283	4.0	283	4.0	0.270	1.4	LOS A	1.2	8.7	0.38	0.44	0.38	56.8
3	R2	All MCs	122	4.0	122	4.0	0.270	8.1	LOS A	1.2	8.7	0.38	0.44	0.38	54.1
Approach			405	4.0	405	4.0	0.270	3.4	NA	1.2	8.7	0.38	0.44	0.38	56.0
East: East-West Connector															
4	L2	All MCs	283	4.0	283	4.0	0.538	9.8	LOS A	3.5	25.6	0.68	0.96	1.08	48.5
6	R2	All MCs	122	4.0	122	4.0	0.538	15.5	LOS C	3.5	25.6	0.68	0.96	1.08	48.3
Approach			405	4.0	405	4.0	0.538	11.6	LOS B	3.5	25.6	0.68	0.96	1.08	48.5
North: CCC-North															
7	L2	All MCs	52	4.0	52	4.0	0.265	5.7	LOS A	0.0	0.0	0.00	0.06	0.00	56.7
8	T1	All MCs	449	4.0	449	4.0	0.265	0.1	LOS A	0.0	0.0	0.00	0.06	0.00	59.3
Approach			501	4.0	501	4.0	0.265	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.0
All Vehicles			1311	4.0	1311	4.0	0.538	4.9	NA	3.5	25.6	0.33	0.46	0.45	54.4

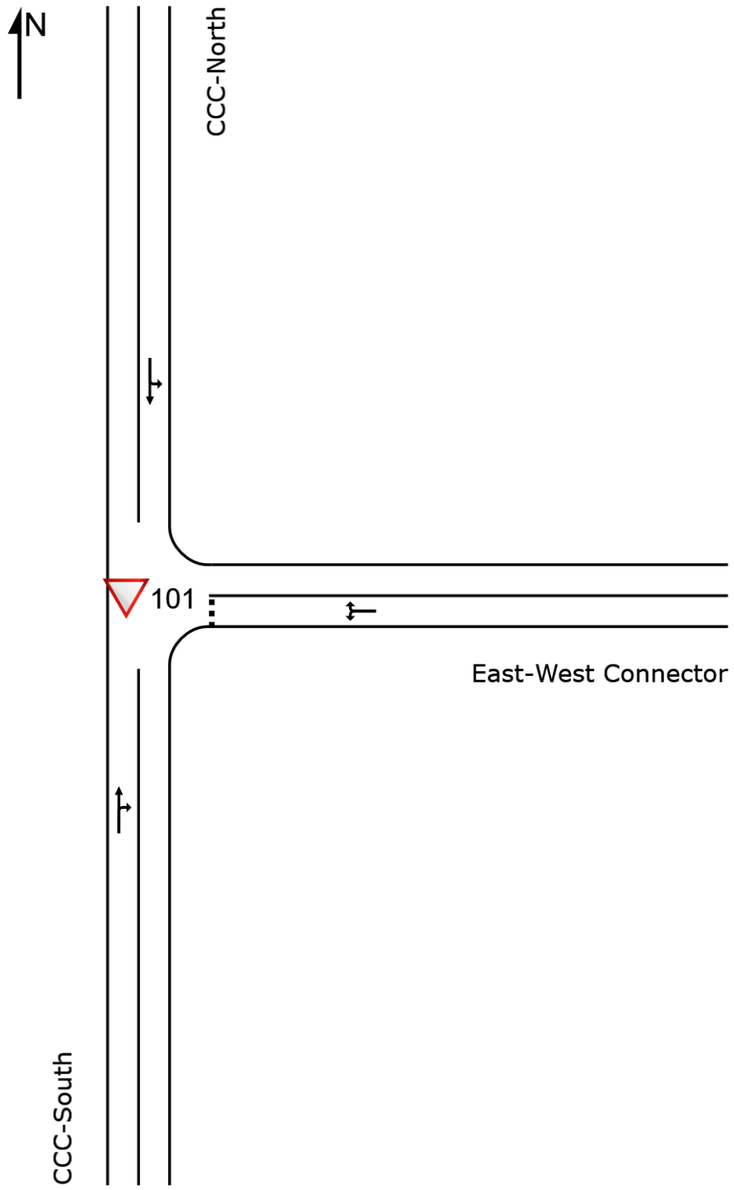
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [CC10-PMUlt (Site Folder: General)]

CC10
CCC/East-west Connector
PM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC10-PMUlt (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC10
CCC/East-west Connector
PM Peak Ultimate
Site Category: (None)
Give-Way (Two-Way)
Design Life Analysis (Final Year): Results for 20 years

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: CCC-South															
2	T1	All MCs	366	4.0	366	4.0	0.405	1.7	LOS A	2.6	18.7	0.45	0.51	0.51	56.1
3	R2	All MCs	242	4.0	242	4.0	0.405	8.0	LOS A	2.6	18.7	0.45	0.51	0.51	53.4
Approach			608	4.0	608	4.0	0.405	4.2	NA	2.6	18.7	0.45	0.51	0.51	55.0
East: East-West Connector															
4	L2	All MCs	163	4.0	163	4.0	0.305	7.2	LOS A	1.3	9.7	0.56	0.72	0.62	50.0
6	R2	All MCs	69	4.0	69	4.0	0.305	14.7	LOS B	1.3	9.7	0.56	0.72	0.62	49.7
Approach			231	4.0	231	4.0	0.305	9.4	LOS A	1.3	9.7	0.56	0.72	0.62	49.9
North: CCC-North															
7	L2	All MCs	105	4.0	105	4.0	0.215	5.6	LOS A	0.0	0.0	0.00	0.15	0.00	55.9
8	T1	All MCs	299	4.0	299	4.0	0.215	0.1	LOS A	0.0	0.0	0.00	0.15	0.00	58.5
Approach			404	4.0	404	4.0	0.215	1.5	NA	0.0	0.0	0.00	0.15	0.00	57.8
All Vehicles			1244	4.0	1244	4.0	0.405	4.3	NA	2.6	18.7	0.32	0.43	0.36	54.8

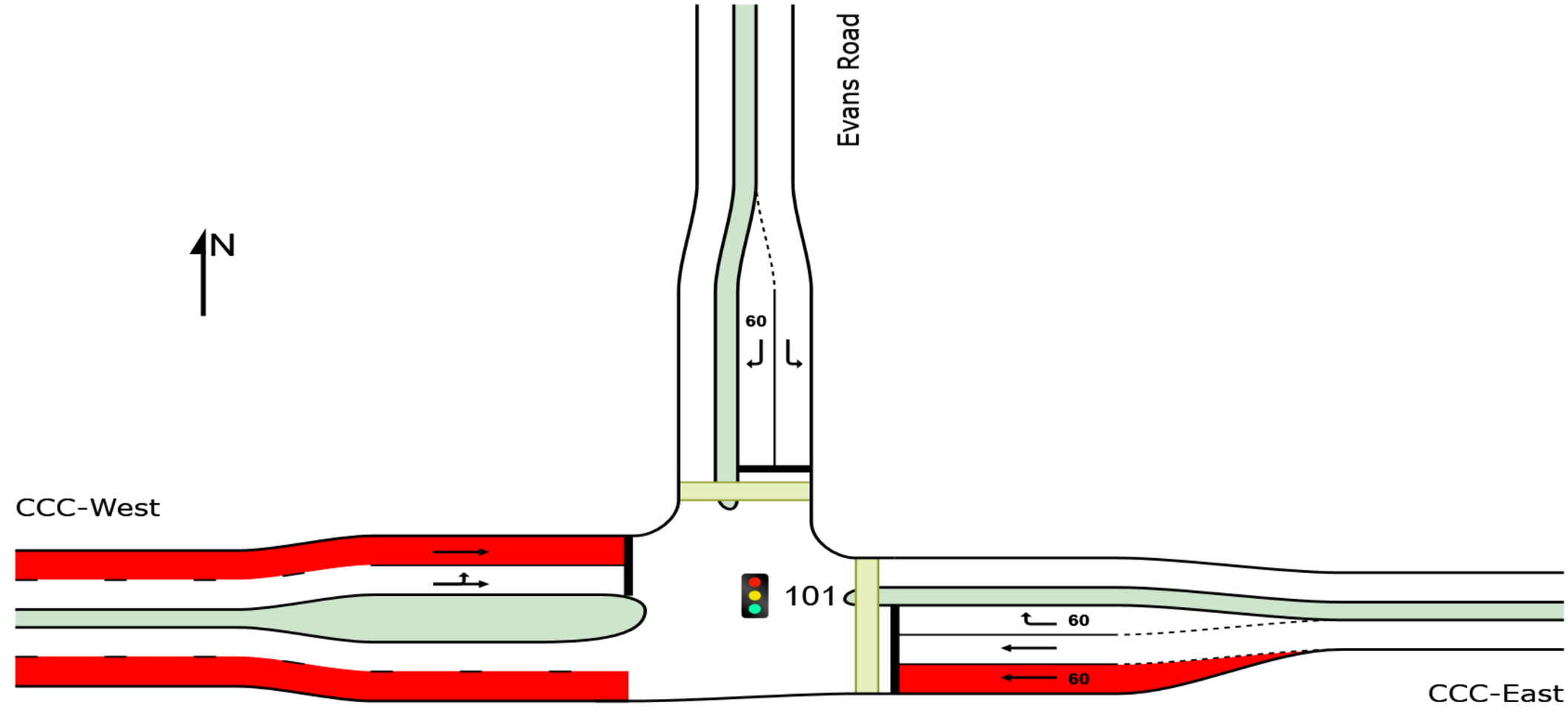
Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Minor Road Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

SITE LAYOUT

Site: 101 [CC12PMUlt-+200 veh-AltGeo (Site Folder: General)]

CC12
CCC/Evans Road
PM Peak Ultimate
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC12AMUlt-+200 veh-AltGeo (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC12
CCC/Evans Road
AM Peak Ultimate
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: CCC-East															
5	T1	All MCs	237	6.1	237	6.1	0.180	5.6	LOS A	3.7	26.5	0.39	0.33	0.39	54.9
6	R2	All MCs	131	4.0	131	4.0	*0.929	66.1	LOS E	7.1	51.3	1.00	1.07	1.63	28.2
Approach			367	5.4	367	5.4	0.929	27.1	LOS C	7.1	51.3	0.61	0.59	0.83	41.1
North: Evans Road															
7	L2	All MCs	83	4.0	83	4.0	0.148	29.7	LOS C	2.6	19.1	0.76	0.74	0.76	39.1
9	R2	All MCs	307	4.0	307	4.0	*0.901	57.4	LOS E	16.1	116.6	1.00	1.04	1.38	30.3
Approach			391	4.0	391	4.0	0.901	51.5	LOS D	16.1	116.6	0.95	0.98	1.25	31.8
West: CCC-West															
10	L2	All MCs	635	4.0	635	4.0	0.915	42.6	LOS D	44.2	320.0	0.99	1.03	1.21	35.0
11	T1	All MCs	237	6.1	237	6.1	*0.915	34.6	LOS C	44.2	320.0	0.98	1.01	1.19	36.3
Approach			872	4.6	872	4.6	0.915	40.4	LOS D	44.2	320.0	0.99	1.02	1.20	35.4
All Vehicles			1629	4.6	1629	4.6	0.929	40.1	LOS D	44.2	320.0	0.89	0.91	1.13	35.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: CCC-East												
P2	Full	51	54	28.9	LOS C	0.1	0.1	0.80	0.80	45.5	20.0	0.44
North: Evans Road												
P3	Full	51	54	9.4	LOS A	0.1	0.1	0.46	0.46	26.0	20.0	0.77
All Pedestrians		102	107	19.1	LOS B	0.1	0.1	0.63	0.63	35.8	20.0	0.56

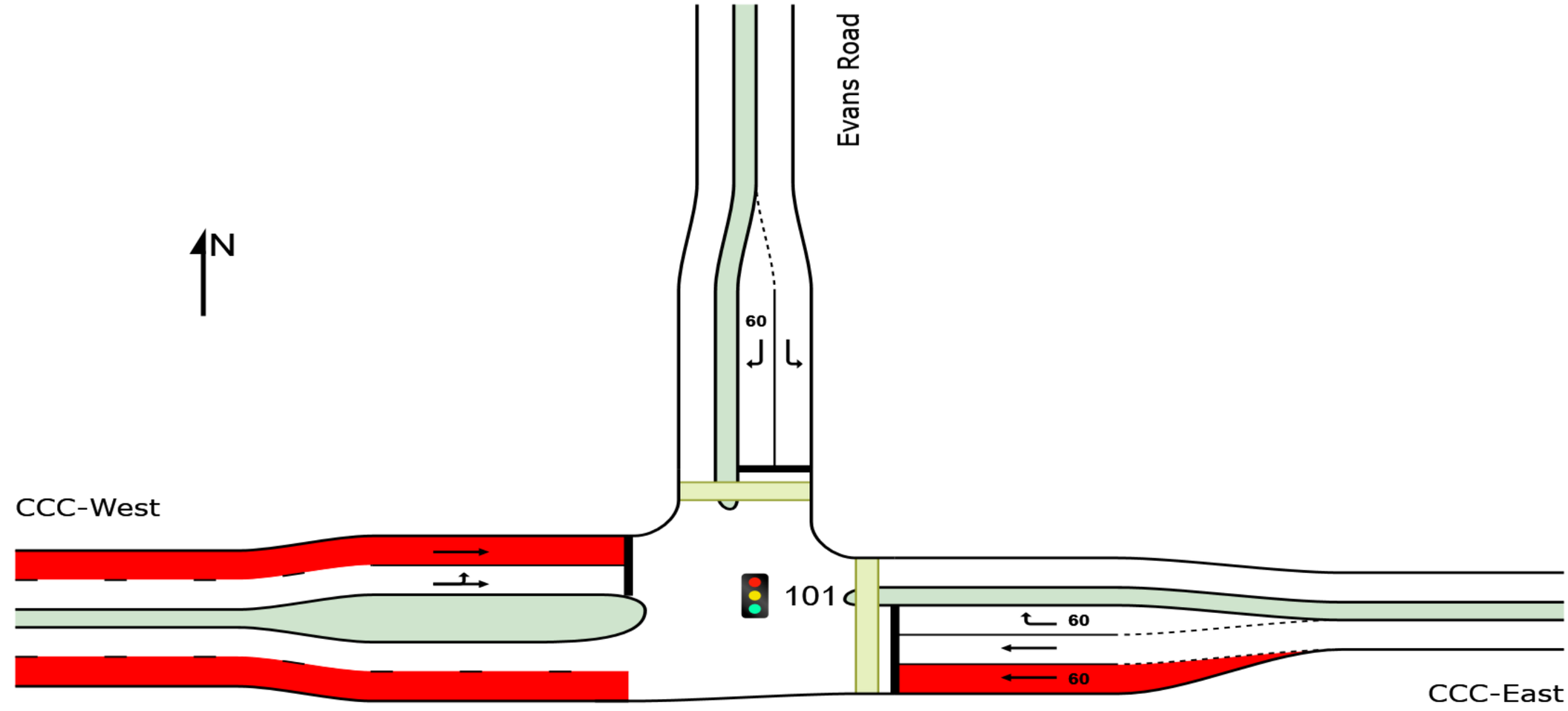
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: 101 [CC12AMUlt-+200 veh-AltGeo (Site Folder: General)]

CC12
CCC/Evans Road
AM Peak Ultimate
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [CC12PMUlt-+200 veh-AltGeo (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

CC12
CCC/Evans Road
PM Peak Ultimate
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 90 seconds (Site User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
East: CCC-East															
5	T1	All MCs	237	6.1	237	6.1	0.233	12.4	LOS B	5.5	39.6	0.58	0.49	0.58	49.8
6	R2	All MCs	81	4.0	81	4.0	*0.673	54.5	LOS D	3.8	27.8	1.00	0.83	1.15	30.9
Approach			318	5.6	318	5.6	0.673	23.1	LOS C	5.5	39.6	0.68	0.57	0.72	43.1
North: Evans Road															
7	L2	All MCs	103	4.0	103	4.0	0.125	24.1	LOS C	2.6	18.8	0.61	0.72	0.61	43.3
9	R2	All MCs	440	4.0	440	4.0	*0.732	38.2	LOS D	17.5	127.0	0.94	0.87	0.97	37.2
Approach			543	4.0	543	4.0	0.732	35.5	LOS D	17.5	127.0	0.88	0.84	0.90	36.9
West: CCC-West															
10	L2	All MCs	288	4.0	288	4.0	*0.748	33.8	LOS C	20.4	148.0	0.93	0.86	0.96	38.8
11	T1	All MCs	237	6.1	237	6.1	0.748	26.1	LOS C	20.4	148.0	0.92	0.85	0.95	40.1
Approach			525	5.0	525	5.0	0.748	30.3	LOS C	20.4	148.0	0.93	0.86	0.96	39.4
All Vehicles			1386	4.7	1386	4.7	0.748	30.7	LOS C	20.4	148.0	0.85	0.79	0.88	39.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: CCC-East												
P2	Full	51	54	18.7	LOS B	0.1	0.1	0.65	0.65	35.4	20.0	0.57
North: Evans Road												
P3	Full	51	54	16.2	LOS B	0.1	0.1	0.60	0.60	32.9	20.0	0.61
All Pedestrians		102	107	17.5	LOS B	0.1	0.1	0.62	0.62	34.2	20.0	0.59

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SCHEDULE SUMMARY

	Excluding Delivery	Including Delivery
Description	Amount	Amount ($)
IN-01	$ 5,659,780.70	$ 8,277,429.27
IN-03	$ 5,841,513.16	$ 8,543,212.99
IN-04	$ 6,123,600.32	$ 8,955,765.46
IN-05	$ 8,854,067.92	$ 12,949,074.34
IN-06	$ 6,709,488.08	$ 9,812,626.31
IN-07	$ 566,208.24	$ 828,079.55
IN-09	$ 566,208.24	$ 828,079.55
IN-12	$ 424,656.18	$ 621,059.66
TOTAL	$ 34,745,522.84	$ 50,815,327.15

Description:	GEELONG-BALLAN ROAD/CCC (NORTH) - SIGNALISED INTERSECTION
Civil Component Number:	IN-01 (Based on OMG Intersection Dated 7/3/25)

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	22,500	m2	4.75	$ 106,875
	Earthworks (All Inclusive)	13,519	m3	55.00	$ 743,531
Road Pavement	Primary Arterial Pavement	6,010	m2	218.81	$ 1,315,048
	Secondary Arterial Pavement	3,015	m2	163.84	$ 493,978
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	4,513	m2	25.00	$ 112,813
Concrete Works	Kerb and Channel	2,020	m	70.70	$ 142,814
	Cycle Path	720	m2	98.80	$ 71,136
	SUP/ Footpath	2,040	m2	81.93	$ 167,137
	Traffic Island	500	m2	100.10	$ 50,050
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	505	m	334.24	$ 168,791
	Drainage Pipe 450mm CR Bfilled	505	m	386.26	$ 195,061
	Drainage - pits	40	No.	3,309.35	$ 132,374
	Drainage – Sub-soil drainage	2,020	m	43.71	$ 88,294
Traffic signals	Traffic Signals (all inclusive)	4	Item/Per Leg	141,552.06	$ 566,208
Landscape	Tree Planting	101	No.	391.31	$ 39,522
	Landscaping	6,009	m2	27.88	$ 167,531
	Topsoil Seeding	6,009	m2	9.30	$ 55,884
Street Lighting	Street Lighting - Intersections	4	Item/Per Leg	62,524.92	$ 250,100
Misc.	Regulatory Signage	16	Item	436.57	$ 6,985
	Line marking	9,025	m2 of Pavement	4.01	$ 36,190
	Landscape maintenance (intersections)	1	Item	92,034.61	$ 92,035
	Tactile Pavers (Hazard Only)	24	Item	377.23	$ 9,054
Other	Telecommunications underground relocation	455	m	714.00	$ 324,870
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	3	No.	50,000.00	$ 150,000
	Electrical overhead relocation poles (>22kV)	0	No.	100,000.00	$ -
	Relocate existing underground LV	50	m	750.00	$ 37,500
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	1	Item	25,000.00	$ 25,000
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	3,700	m2	30.00	$ 111,000
Delivery	Council Fees	3.25	%	3.25	$ 183,943
	VicRoads Fees	1.00	%	1.00	$ 56,598
	Traffic Management	5.00	%	5.00	$ 282,989
	Environmental Management	0.50	%	0.50	$ 28,299
	Surveying and Design	5.00	%	5.00	$ 282,989
	Supervision and Project management	9.00	%	9.00	$ 509,380
	Site Establishment	2.50	%	2.50	$ 141,495
	Contingency	20.00	%	20.00	$ 1,131,956
Total	Excluding Delivery				**$ 5,659,781**
	Including Delivery				**$ 8,277,429**

Description:	GEELONG-BALLAN ROAD/CCC (CENTRAL) - SIGNALISED INTERSECTION
Civil Component Number:	IN-03 (Based on OMG Intersection Dated 7/3/25)

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	20,000	m2	4.75	$ 95,000
	Earthworks (All Inclusive)	12,225	m3	55.00	$ 672,375
Road Pavement	Primary Arterial Pavement	6,000	m2	218.81	$ 1,312,860
	Secondary Arterial Pavement	2,300	m2	163.84	$ 376,832
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	4,150	m2	25.00	$ 103,750
Concrete Works	Kerb and Channel	1,875	m	70.70	$ 132,563
	Cycle Path	600	m2	98.80	$ 59,280
	SUP/ Footpath	1,650	m2	81.93	$ 135,185
	Traffic Island	500	m2	100.10	$ 50,050
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	469	m	334.24	$ 156,675
	Drainage Pipe 450mm CR Bfilled	469	m	386.26	$ 181,059
	Drainage - pits	38	No.	3,309.35	$ 125,755
	Drainage – Sub-soil drainage	1,875	m	43.71	$ 81,956
Traffic signals	Traffic Signals (all inclusive)	4	Item/Per Leg	141,552.06	$ 566,208
Landscape	Tree Planting	94	No.	391.31	$ 36,685
	Landscaping	5,063	m2	27.88	$ 141,143
	Topsoil Seeding	5,063	m2	9.30	$ 47,081
Street Lighting	Street Lighting - Intersections	4	Item/Per Leg	62,524.92	$ 250,100
Misc.	Regulatory Signage	16	Item	436.57	$ 6,985
	Line marking	8,300	m2 of Pavement	4.01	$ 33,283
	Landscape maintenance (intersections)	1	Item	92,034.61	$ 92,035
	Tactile Pavers (Hazard Only)	24	Item	377.23	$ 9,054
Other	Telecommunications underground relocation	900	m	714.00	$ 642,600
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	4	No.	100,000.00	$ 400,000
	Relocate existing underground LV	0	m	750.00	$ -
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	1	Item	25,000.00	$ 25,000
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	3,600	m2	30.00	$ 108,000
Delivery	Council Fees	3.25	%	3.25	$ 189,849
	VicRoads Fees	1.00	%	1.00	$ 58,415
	Traffic Management	5.00	%	5.00	$ 292,076
	Environmental Management	0.50	%	0.50	$ 29,208
	Surveying and Design	5.00	%	5.00	$ 292,076
	Supervision and Project management	9.00	%	9.00	$ 525,736
	Site Establishment	2.50	%	2.50	$ 146,038
	Contingency	20.00	%	20.00	$ 1,168,303
Total	Excluding Delivery				**$ 5,841,513**
	Including Delivery				**$ 8,543,213**

Description:	GEELONG-BALLAN ROAD/ROSS ROAD - SIGNALISED INTERSECTION
Civil Component Number:	IN-04 (Based on OMG Intersection Dated 7/3/25)

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	20,200	m2	4.75	$ 95,950
	Earthworks (All Inclusive)	12,345	m3	55.00	$ 678,975
Road Pavement	Primary Arterial Pavement	5,360	m2	218.81	$ 1,172,822
	Secondary Arterial Pavement	3,020	m2	163.84	$ 494,797
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	4,190	m2	25.00	$ 104,750
Concrete Works	Kerb and Channel	1,875	m	70.70	$ 132,563
	Cycle Path	800	m2	98.80	$ 79,040
	SUP/ Footpath	1,450	m2	81.93	$ 118,799
	Traffic Island	500	m2	100.10	$ 50,050
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	469	m	334.24	$ 156,675
	Drainage Pipe 450mm CR Bfilled	469	m	386.26	$ 181,059
	Drainage - pits	38	No.	3,309.35	$ 125,755
	Drainage – Sub-soil drainage	1,885	m	43.71	$ 82,393
Traffic signals	Traffic Signals (all inclusive)	4	Item/Per Leg	141,552.06	$ 566,208
Landscape	Tree Planting	94	No.	391.31	$ 36,685
	Landscaping	3,530	m2	27.88	$ 98,402
	Topsoil Seeding	8,236	m2	9.30	$ 76,590
Street Lighting	Street Lighting - Intersections	4	Item/Per Leg	62,524.92	$ 250,100
Misc.	Regulatory Signage	16	Item	436.57	$ 6,985
	Line marking	8,380	m2 of Pavement	4.01	$ 33,604
	Landscape maintenance (intersections)	1	Item	92,034.61	$ 92,035
	Tactile Pavers (Hazard Only)	24	Item	377.23	$ 9,054
Other	Telecommunications underground relocation	1040	m	714.00	$ 742,560
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	3	No.	50,000.00	$ 150,000
	Electrical overhead relocation poles (>22kV)	4	No.	100,000.00	$ 400,000
	Relocate existing underground LV	75	m	750.00	$ 56,250
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	1	Item	25,000.00	$ 25,000
	Removal & Disposal of existing drainage	10	m	150.00	$ 1,500
	Pavement removal	3,500	m2	30.00	$ 105,000
Delivery	Council Fees	3.25	%	3.25	$ 199,017
	VicRoads Fees	1.00	%	1.00	$ 61,236
	Traffic Management	5.00	%	5.00	$ 306,180
	Environmental Management	0.50	%	0.50	$ 30,618
	Surveying and Design	5.00	%	5.00	$ 306,180
	Supervision and Project management	9.00	%	9.00	$ 551,124
	Site Establishment	2.50	%	2.50	$ 153,090
	Contingency	20.00	%	20.00	$ 1,224,720
Total	Excluding Delivery				**$ 6,123,600**
	Including Delivery				**$ 8,955,765**

Description:	GEELONG-BALLAN ROAD/MIDLAND HWY - SIGNALISED INTERSECTION
Civil Component Number:	IN-05 (Based on OMG Intersection Dated 7/3/25)

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	25,500	m2	4.75	$ 121,125
	Earthworks (All Inclusive)	15,398	m3	55.00	$ 846,863
Road Pavement	Primary Arterial Pavement	8,130	m2	218.81	$ 1,778,925
	Secondary Arterial Pavement	2,200	m2	163.84	$ 360,448
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	5,165	m2	25.00	$ 129,125
Concrete Works	Kerb and Channel	2,825	m	70.70	$ 199,728
	Cycle Path	0	m2	98.80	$ -
	SUP/ Footpath	1,330	m2	81.93	$ 108,967
	Traffic Island	500	m2	100.10	$ 50,050
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	706	m	334.24	$ 236,057
	Drainage Pipe 450mm CR Bfilled	706	m	386.26	$ 272,796
	Drainage - pits	57	No.	3,309.35	$ 188,633
	Drainage – Sub-soil drainage	2,825	m	43.71	$ 123,481
Traffic signals	Traffic Signals (all inclusive)	3	Item/Per Leg	141,552.06	$ 424,656
Landscape	Tree Planting	141	No.	391.31	$ 55,273
	Landscaping	4,154	m2	27.88	$ 115,800
	Topsoil Seeding	9,692	m2	9.30	$ 90,131
Street Lighting	Street Lighting - Intersections	3	Item/Per Leg	62,524.92	$ 187,575
Misc.	Regulatory Signage	12	Item	436.57	$ 5,239
	Line marking	10,330	m2 of Pavement	4.01	$ 41,423
	Landscape maintenance (intersections)	1	Item	92,034.61	$ 92,035
	Tactile Pavers (Hazard Only)	18	Item	377.23	$ 6,790
Other	Telecommunications underground relocation	1750	m	714.00	$ 1,249,500
	Fibre Optic underground relocation	550	m	1,139.00	$ 626,450
	Electrical overhead relocation poles (</=22kV)	8	No.	50,000.00	$ 400,000
	Electrical overhead relocation poles (>22kV)	7	No.	100,000.00	$ 700,000
	Relocate existing underground LV	0	m	750.00	$ -
	Relocate existing 100/150dia watermain	460	m	400.00	$ 184,000
	Tree/vegetation removal	1	Item	25,000.00	$ 25,000
	Removal & Disposal of existing drainage	60	m	150.00	$ 9,000
	Pavement removal	7,500	m2	30.00	$ 225,000
Delivery	Council Fees	3.25	%	3.25	$ 287,757
	VicRoads Fees	1.00	%	1.00	$ 88,541
	Traffic Management	5.00	%	5.00	$ 442,703
	Environmental Management	0.50	%	0.50	$ 44,270
	Surveying and Design	5.00	%	5.00	$ 442,703
	Supervision and Project management	9.00	%	9.00	$ 796,866
	Site Establishment	2.50	%	2.50	$ 221,352
	Contingency	20.00	%	20.00	$ 1,770,814
Total	Excluding Delivery				**$ 8,854,068**
	Including Delivery				**$ 12,949,074**

Description:	MIDLAND HWY/CCC - SIGNALISED INTERSECTION
Civil Component Number:	IN-06 (Based on OMG Intersection Dated 7/3/25)

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	20,000	m2	4.75	$ 95,000
	Earthworks (All Inclusive)	13,740	m3	55.00	$ 755,700
Road Pavement	Primary Arterial Pavement	8,130	m2	218.81	$ 1,778,925
	Secondary Arterial Pavement	2,190	m2	163.84	$ 358,810
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	5,160	m2	25.00	$ 129,000
Concrete Works	Kerb and Channel	2,080	m	70.70	$ 147,056
	Cycle Path	400	m2	98.80	$ 39,520
	SUP/ Footpath	1,300	m2	81.93	$ 106,509
	Traffic Island	500	m2	100.10	$ 50,050
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	520	m	334.24	$ 173,805
	Drainage Pipe 450mm CR Bfilled	520	m	386.26	$ 200,855
	Drainage - pits	42	No.	3,309.35	$ 138,993
	Drainage – Sub-soil drainage	2,080	m	43.71	$ 90,917
Traffic signals	Traffic Signals (all inclusive)	3	Legs	141,552.06	$ 424,656
Landscape	Tree Planting	104	No.	391.31	$ 40,696
	Landscaping	2,647	m2	27.88	$ 73,787
	Topsoil Seeding	6,175	m2	9.30	$ 57,431
Street Lighting	Street Lighting - Intersections	3	No.	62,524.92	$ 187,575
Misc.	Regulatory Signage	16	Item	436.57	$ 6,985
	Line marking	10,320	m2 of Pavement	4.01	$ 41,383
	Landscape maintenance (intersections)	1	Item	92,034.61	$ 92,035
	Tactile Pavers (Hazard Only)	18	Item	377.23	$ 6,790
Other	Telecommunications underground relocation	1060	m	714.00	$ 756,840
	Fibre Optic underground relocation	530	m	1,139.00	$ 603,670
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	0	m	100,000.00	$ -
	Relocate existing underground LV	0	m2	750.00	$ -
	Relocate existing 100/150dia watermain	500	m	400.00	$ 200,000
	Tree/vegetation removal	1	Item	25,000.00	$ 25,000
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	4,250	m2	30.00	$ 127,500
Delivery	Council Fees	3.25	%	3.25	$ 218,058
	VicRoads Fees	1.00	%	1.00	$ 67,095
	Traffic Management	5.00	%	5.00	$ 335,474
	Environmental Management	0.50	%	0.50	$ 33,547
	Surveying and Design	5.00	%	5.00	$ 335,474
	Supervision and Project management	9.00	%	9.00	$ 603,854
	Site Establishment	2.50	%	2.50	$ 167,737
	Contingency	20.00	%	20.00	$ 1,341,898
Total	Excluding Delivery				**$ 6,709,488**
	Including Delivery				**$ 9,812,626**

Description:	CCC/CREAMERY ROAD - SIGNALISED INTERSECTION (SIGNALS ONLY)
Civil Component Number:	IN-07

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	0	m2	4.75	$ -
	Earthworks (All Inclusive)	0	m3	55.00	$ -
Road Pavement	Primary Arterial Pavement	0	m2	218.81	$ -
	Secondary Arterial Pavement	0	m2	163.84	$ -
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	0	m2	25.00	$ -
Concrete Works	Kerb and Channel	0	m	70.70	$ -
	Cycle Path	0	m2	98.80	$ -
	SUP/ Footpath	0	m2	81.93	$ -
	Traffic Island	0	m2	100.10	$ -
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	0	m	334.24	$ -
	Drainage Pipe 450mm CR Bfilled	0	m	386.26	$ -
	Drainage - pits	0	No.	3,309.35	$ -
	Drainage – Sub-soil drainage	0	m	43.71	$ -
Traffic signals	Traffic Signals (all inclusive)	4	Legs	141,552.06	$ 566,208
Landscape	Tree Planting	0	No.	391.31	$ -
	Landscaping	0	m2	27.88	$ -
	Topsoil Seeding	0	m2	9.30	$ -
Street Lighting	Street Lighting - Intersections	0	No.	62,524.92	$ -
Misc.	Regulatory Signage	0	Item	436.57	$ -
	Line marking	0	m2 of Pavement	4.01	$ -
	Landscape maintenance (intersections)	0	Item	92,034.61	$ -
	Tactile Pavers (Hazard Only)	0	Item	377.23	$ -
Other	Telecommunications underground relocation	0	m	714.00	$ -
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	0	m	100,000.00	$ -
	Relocate existing underground LV	0	m2	750.00	$ -
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	0	Item	25,000.00	$ -
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	0	m2	30.00	$ -
Delivery	Council Fees	3.25	%	3.25	$ 18,402
	VicRoads Fees	1.00	%	1.00	$ 5,662
	Traffic Management	5.00	%	5.00	$ 28,310
	Environmental Management	0.50	%	0.50	$ 2,831
	Surveying and Design	5.00	%	5.00	$ 28,310
	Supervision and Project management	9.00	%	9.00	$ 50,959
	Site Establishment	2.50	%	2.50	$ 14,155
	Contingency	20.00	%	20.00	$ 113,242
Total	Excluding Delivery				**$ 566,208**
	Including Delivery				**$ 828,080**

Description:	CCC/COLLECTOR ROAD - SIGNALISED INTERSECTION (SIGNALS ONLY)
Civil Component Number:	IN-08

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	0	m2	4.75	$ -
	Earthworks (All Inclusive)	0	m3	55.00	$ -
Road Pavement	Primary Arterial Pavement	0	m2	218.81	$ -
	Secondary Arterial Pavement	0	m2	163.84	$ -
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	0	m2	25.00	$ -
Concrete Works	Kerb and Channel	0	m	70.70	$ -
	Cycle Path	0	m2	98.80	$ -
	SUP/ Footpath	0	m2	81.93	$ -
	Traffic Island	0	m2	100.10	$ -
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	0	m	334.24	$ -
	Drainage Pipe 450mm CR Bfilled	0	m	386.26	$ -
	Drainage - pits	0	No.	3,309.35	$ -
	Drainage – Sub-soil drainage	0	m	43.71	$ -
Traffic signals	Traffic Signals (all inclusive)	4	Legs	141,552.06	$ 566,208
Landscape	Tree Planting	0	No.	391.31	$ -
	Landscaping	0	m2	27.88	$ -
	Topsoil Seeding	0	m2	9.30	$ -
Street Lighting	Street Lighting - Intersections	0	No.	62,524.92	$ -
Misc.	Regulatory Signage	0	Item	436.57	$ -
	Line marking	0	m2 of Pavement	4.01	$ -
	Landscape maintenance (intersections)	0	Item	92,034.61	$ -
	Tactile Pavers (Hazard Only)	0	Item	377.23	$ -
Other	Telecommunications underground relocation	0	m	714.00	$ -
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	0	m	100,000.00	$ -
	Relocate existing underground LV	0	m2	750.00	$ -
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	0	Item	25,000.00	$ -
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	0	m2	30.00	$ -
Delivery	Council Fees	3.25	%	3.25	$ 18,402
	VicRoads Fees	1.00	%	1.00	$ 5,662
	Traffic Management	5.00	%	5.00	$ 28,310
	Environmental Management	0.50	%	0.50	$ 2,831
	Surveying and Design	5.00	%	5.00	$ 28,310
	Supervision and Project management	9.00	%	9.00	$ 50,959
	Site Establishment	2.50	%	2.50	$ 14,155
	Contingency	20.00	%	20.00	$ 113,242
Total	Excluding Delivery				**$ 566,208**
	Including Delivery				**$ 828,080**

Description:	CCC/CCC - SIGNALISED INTERSECTION (SIGNALS ONLY)
Civil Component Number:	IN-09

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	0	m2	4.75	$ -
	Earthworks (All Inclusive)	0	m3	55.00	$ -
Road Pavement	Primary Arterial Pavement	0	m2	218.81	$ -
	Secondary Arterial Pavement	0	m2	163.84	$ -
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	0	m2	25.00	$ -
Concrete Works	Kerb and Channel	0	m	70.70	$ -
	Cycle Path	0	m2	98.80	$ -
	SUP/ Footpath	0	m2	81.93	$ -
	Traffic Island	0	m2	100.10	$ -
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	0	m	334.24	$ -
	Drainage Pipe 450mm CR Bfilled	0	m	386.26	$ -
	Drainage - pits	0	No.	3,309.35	$ -
	Drainage – Sub-soil drainage	0	m	43.71	$ -
Traffic signals	Traffic Signals (all inclusive)	4	Legs	141,552.06	$ 566,208
Landscape	Tree Planting	0	No.	391.31	$ -
	Landscaping	0	m2	27.88	$ -
	Topsoil Seeding	0	m2	9.30	$ -
Street Lighting	Street Lighting - Intersections	0	No.	62,524.92	$ -
Misc.	Regulatory Signage	0	Item	436.57	$ -
	Line marking	0	m2 of Pavement	4.01	$ -
	Landscape maintenance (intersections)	0	Item	92,034.61	$ -
	Tactile Pavers (Hazard Only)	0	Item	377.23	$ -
Other	Telecommunications underground relocation	0	m	714.00	$ -
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	0	m	100,000.00	$ -
	Relocate existing underground LV	0	m2	750.00	$ -
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	0	Item	25,000.00	$ -
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	0	m2	30.00	$ -
Delivery	Council Fees	3.25	%	3.25	$ 18,402
	VicRoads Fees	1.00	%	1.00	$ 5,662
	Traffic Management	5.00	%	5.00	$ 28,310
	Environmental Management	0.50	%	0.50	$ 2,831
	Surveying and Design	5.00	%	5.00	$ 28,310
	Supervision and Project management	9.00	%	9.00	$ 50,959
	Site Establishment	2.50	%	2.50	$ 14,155
	Contingency	20.00	%	20.00	$ 113,242
Total	Excluding Delivery				**$ 566,208**
	Including Delivery				**$ 828,080**

Description:	CCC/Evans Road - SIGNALISED INTERSECTION (SIGNALS ONLY)
Civil Component Number:	IN-12

Group	Sub Item	Qty	Unit	Rate	Amount
Siteworks/ Earthworks	Site Preparation	0	m2	4.75	$ -
	Earthworks (All Inclusive)	0	m3	55.00	$ -
Road Pavement	Primary Arterial Pavement	0	m2	218.81	$ -
	Secondary Arterial Pavement	0	m2	163.84	$ -
	Collector Arterial Pavement	0	m2	135.64	$ -
	Subgrade Preparation	0	m2	25.00	$ -
Concrete Works	Kerb and Channel	0	m	70.70	$ -
	Cycle Path	0	m2	98.80	$ -
	SUP/ Footpath	0	m2	81.93	$ -
	Traffic Island	0	m2	100.10	$ -
Drainage	Drainage Pipe 300mm CR Bfilled	0	m	232.01	$ -
	Drainage Pipe 375mm CR Bfilled	0	m	334.24	$ -
	Drainage Pipe 450mm CR Bfilled	0	m	386.26	$ -
	Drainage - pits	0	No.	3,309.35	$ -
	Drainage – Sub-soil drainage	0	m	43.71	$ -
Traffic signals	Traffic Signals (all inclusive)	3	Legs	141,552.06	$ 424,656
Landscape	Tree Planting	0	No.	391.31	$ -
	Landscaping	0	m2	27.88	$ -
	Topsoil Seeding	0	m2	9.30	$ -
Street Lighting	Street Lighting - Intersections	0	No.	62,524.92	$ -
Misc.	Regulatory Signage	0	Item	436.57	$ -
	Line marking	0	m2 of Pavement	4.01	$ -
	Landscape maintenance (intersections)	0	Item	92,034.61	$ -
	Tactile Pavers (Hazard Only)	0	Item	377.23	$ -
Other	Telecommunications underground relocation	0	m	714.00	$ -
	Fibre Optic underground relocation	0	m	1,139.00	$ -
	Electrical overhead relocation poles (</=22kV)	0	No.	50,000.00	$ -
	Electrical overhead relocation poles (>22kV)	0	m	100,000.00	$ -
	Relocate existing underground LV	0	m2	750.00	$ -
	Relocate existing 100/150dia watermain	0	m	400.00	$ -
	Tree/vegetation removal	0	Item	25,000.00	$ -
	Removal & Disposal of existing drainage	0	m	150.00	$ -
	Pavement removal	0	m2	30.00	$ -
Delivery	Council Fees	3.25	%	3.25	$ 13,801
	VicRoads Fees	1.00	%	1.00	$ 4,247
	Traffic Management	5.00	%	5.00	$ 21,233
	Environmental Management	0.50	%	0.50	$ 2,123
	Surveying and Design	5.00	%	5.00	$ 21,233
	Supervision and Project management	9.00	%	9.00	$ 38,219
	Site Establishment	2.50	%	2.50	$ 10,616
	Contingency	20.00	%	20.00	$ 84,931
Total	Excluding Delivery				**$ 424,656**
	Including Delivery				**$ 621,060**