



Technical Memorandum

To:	Mike Giampa – City of Ottawa	Date:	2024-06-24
Cc:	Jeremy Silburt – Theberge Homes		
From:	John Kingsley, Christopher Gordon – CGH	Project Number:	2023-133

Re: 9 Gurdwara Road – Prince of Wales Drive Access

1 Context

9 Gurdwara Limited is pursuing a Zoning By-Law amendment for the 9 Gurdwara parcel which includes an office building and a surface parking lot comprising approximately 90 parking spaces, for which CGH has been retained to provide transportation services.

The site currently includes a full-movement access onto Gurdwara Road, connecting through Laser Street to the arterial network via West Hunt Club Road. Gurdwara Road and Laser Street provide access to a larger industrial/business park, of which the 9 Gurdwara Road parcel is a small component. Within the industrial park, the neighbouring parcel of 2098 Prince of Wales Drive includes a full-movement access onto Prince of Wales Drive and the 44 Rideau Heights Drive parcel has a loading access onto Rideau Heights Drive, and the remainder of the parcels make exclusive use of Laser Street to access the arterial road network.

No change in use for the subject building is being considered as part of the application, and a new access is being proposed on Prince of Wales Drive. The access will include a channelizing triangular island to restrict the movements to right-in/right-out movements only. This access is proposed as a secondary access for site tenants, where visitors, garbage collection, and loading would continue to use the main site access on Gurdwara Road.

2 Access Design

To permit the new access, a Private Approach Permit is being pursued by the proponent. In advance of this submission, CGH solicited feedback from the City's Transportation Engineering Services department on a draft design of a right-in/right-out access that CGH had prepared.

The recommended list of elements as provided by Transportation Engineering Services for a future Private Approach Permit is as follows:

1. A [plan] showing that there is no conflict with the paved shoulder and the channelizing island on Prince of Wales Drive. [Prince of Wales Drive] is a crosstown bikeway in the 2023 Transportation Master Plan, and TES would not support the channelizing island in conflict with the bike facility.
2. The private approach should be a Right-In/Right-Out (as currently proposed).
3. The [plan] should show all details in the adjacent roadway, such as edge lines and pavement markings. Also please show the proposed grades of the private approach.

4. The [plan] should show the throat length of the private approach measured from the end of the driveway radii (per the TAC Geometric Design Guide). The proposed parking lot plan should be adjusted to achieve TAC recommended throat length.

The access design prepared by CGH is provided in Attachment 1 and has incorporated the above list of recommendations.

The throat length, as outlined in the Geometric Design Guide for Canadian Roads (TAC, 2017), has been provided on the inbound approach to alleviate potential conflicts from spill back onto the public roadway.

On the outbound approach, an approximate 20-metre throat length is provided between the access curb radii and first parking stall. However, an effective 25-metre throat length is provided based on measurement assuming typical 5.0-metre corner radii. As right-in/right-out radii are larger than typical full-moves accesses to channelize traffic and restrict left-turns, the space along this larger radius provides storage for queuing vehicles. Notwithstanding this effective length being provided, no impacts to the transportation network would result from failing to provide the full 25-metre suggested minimum length on the outbound movement, and any impacts would be confined within the site. Therefore, the proposed throat length is considered adequate for the site.

The proposed grades requested in recommendation #3 are available within the Grading Plan – G1 (W. Elias & Associates, 2024).

The access is in line with the Private Approach By-Law, providing a 6.0-metre-wide aisle, a 9.0-metre offset from the adjacent parcel's driveway, and an approximately 7.3-metre offset from the adjacent property line.

Based on the foregoing analysis and discussion, it is recommended that the Private Approach Permit be approved on the basis of the proposed design.

3 Traffic

3.1 Existing Area Traffic

To assess the traffic operations at the Laster Street/Antares Drive at West Hunt Club Road, and West Hunt Club Road at Prince of Wales Drive intersections, existing turning movement counts were acquired from the City of Ottawa. The counts were conducted in 2023 and are provided in Attachment 2.

Synchro 11 has been used to model the signalized intersections. The level of service for signalized intersections is based on v/c calculations for individual lane movements and HCM 2000 v/c calculations for the overall intersection. All parameters have been coded using the City of Ottawa's TIA Guidelines and default parameters. West Hunt Club Road was considered the east-west roadway at the intersection with Laster Street/Antares Drive in the analysis.

All volume figures, level of service operation tables, and Synchro worksheets are provided in Attachment 3.

3.2 Site Traffic

As previously stated, the zoning amendment does not consider a change of use for the subject site. Therefore, no increase in traffic is expected from the site. Existing site traffic volumes were estimated from the proportion of traffic accessing Laser Street as captured in the turning movement count discussed in Section 3.1.

As the site is only a small component of the larger industrial/business park, the site's proportional traffic generation of inbound and outbound traffic on Laser Street at its intersection with West Hunt Club Road has been estimated from its proportion of the industrial/business park's ITE trip generation by land use (using trip generation rates for Industrial Park for 20-24 Gurdwara Road, General Light Industrial for 44 Rideau Heights Drive,

General Office Building for 2-9 Gurdwara Road) for estimated gross floor areas for buildings within the park. No trip generation has been assumed for the RV dealership, based on having direct access to Prince of Wales Drive, the car dealership, based on not being open at the time of the counts, or the Sikh Gurdwara, based on an assumed low typical daily traffic at peak hours.

By this method, the subject site has been estimated to contribute nine percent of the total 259 AM and 198 PM peak hour two-way vehicles on Laser Street. This breaks down to an estimated 17 inbound and six outbound AM peak hour vehicles, and seven inbound and 11 outbound PM peak hour vehicles generated by the site. The two-way values obtained via this observation and method are approximately 8% lower for the AM peak hour and 28% lower for the PM peak hour than the ITE values with the TRANS employment generator mode shares applied, per the TIA guidelines methodology.

3.3 Forecasted Operations and Site Impacts

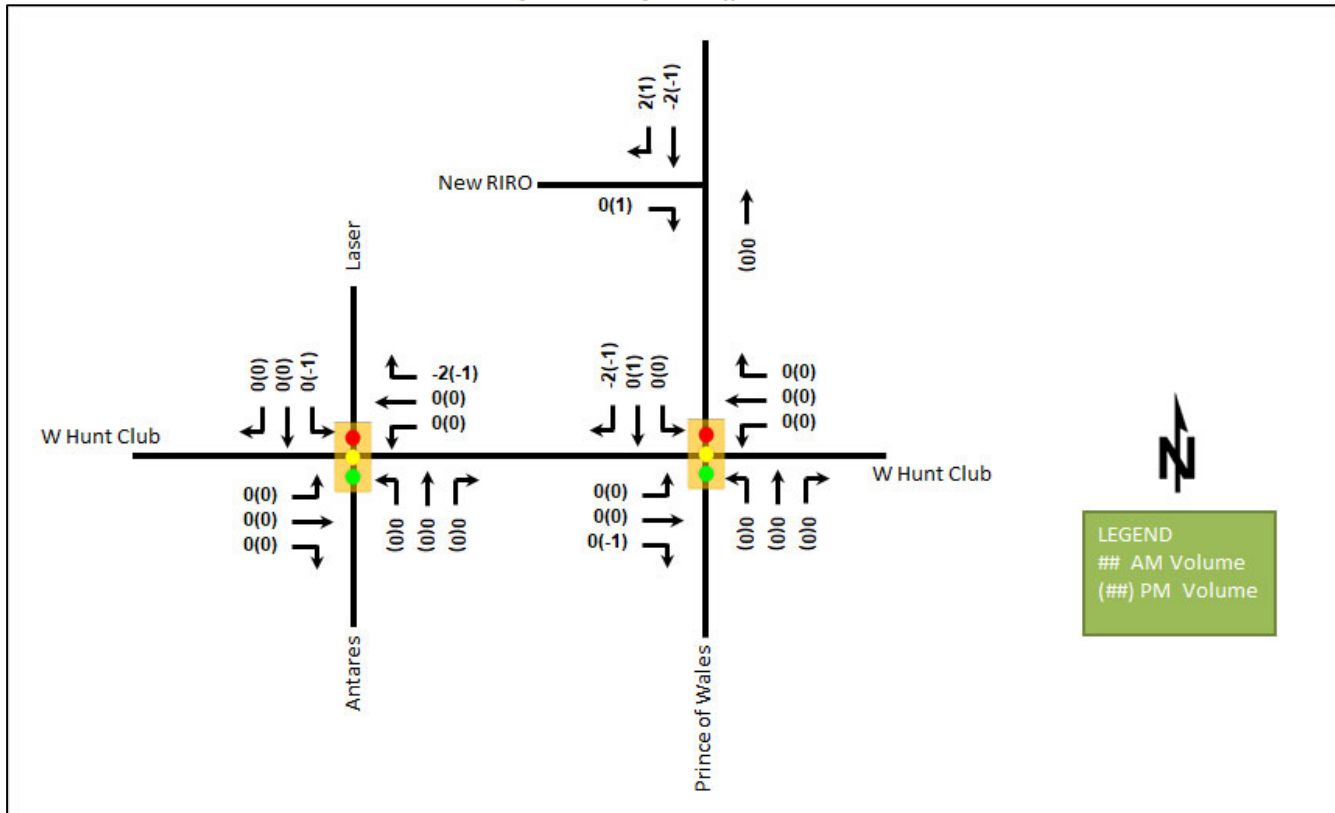
As shown in the operations table in Attachment 3, the southbound left-turn during both peak hours and the southbound through movement during the PM peak hour of the intersection of West Hunt Club Road at Prince of Wales Drive is over theoretical capacity and subject to high delays and extended queues.

The provision of a right-in/right-out access on Prince of Wales Drive is not anticipated to increase traffic at the intersection of West Hunt Club Road at Prince of Wales Drive, as discussed below.

Inbound vehicles arriving to the site from Prince of Wales Drive north of West Hunt Club Road, previously via the southbound right turn at the intersection of these roads, will be removed from the road network before reaching the intersection. All other inbound movements are anticipated to continue to use the access on Gurdwara Road.

Although using the proposed Prince of Wales Drive access would result in a shorter path, given high delays on the southbound left-turn movement, outbound vehicles bound for West Hunt Club Road east of Prince of Wales Drive are anticipated to continue to use the Gurdwara Road access, which provides access to the eastbound through movement at the intersection of West Hunt Club Road at Prince of Wales Drive. Outbound vehicles bound for Prince of Wales Drive south of West Hunt Club Road may use either the existing Gurdwara Road access or the proposed Prince of Wales Drive access, but for the purposes of this memo have been assumed to use the latter. All other outbound movements are anticipated to continue to use the Gurdwara Road access. The resultant change in traffic volumes, based on area turning movement splits applied to the site trip generation discussed in Section 3.2, are illustrated in Figure 1.

Figure 1: Change in Traffic Volumes



As shown above, a net reduction in traffic during the AM peak hour and no net change during the PM peak hour are noted at the intersection of West Hunt Club at Prince of Wales. Furthermore, all anticipated changes in traffic are negligible.

3.4 Potential for Queuing at the Site Access

The 95th percentile queue lengths on the southbound approach of Prince of Wales Drive at West Hunt Club Road are anticipated to be in the range of 171 metres during the AM peak hour to 252 metres during the PM peak hour. The site access is proposed to be approximately 275 metres from the intersection, and thus southbound queuing is not expected to block the access. Notwithstanding this expectation, the proposed access is a secondary access only whose blockage would not impact site function.

3.5 Potential for Cut-Through Traffic

Based on the conditions associated with the outbound movement as discussed in the preceding sections, the demand for cut-through is expected to be negligible for outbound movements and is expected to be mainly associated with inbound movements. Control measures (such as gating) and traffic calming measures (such as speed humps) may be explored should the site owner document cut-through, and would be implemented privately within the site.

4 Conclusions

Based on the proposed access design, and the foregoing analysis and discussion:

- The new site access is recommended to be approved for a Private Approach Permit.
- No change in trip generation is anticipated as part of the rezoning.
- No traffic impacts are forecast from the provision of the new access, which is not anticipated to result in an increase in traffic at the intersection of West Hunt Club Prince of Wales Drive.
- Queueing on the southbound approach of the intersection of West Hunt Club Prince of Wales Drive is not expected to block the site access, which is a secondary site access only.
- Cut through traffic is not anticipated, and control or traffic calming measures may be explored internal to the site by the owner as they see fit.
- The Zoning By-Law amendment should proceed, from a transportation perspective.

Prepared By:

Reviewed By:



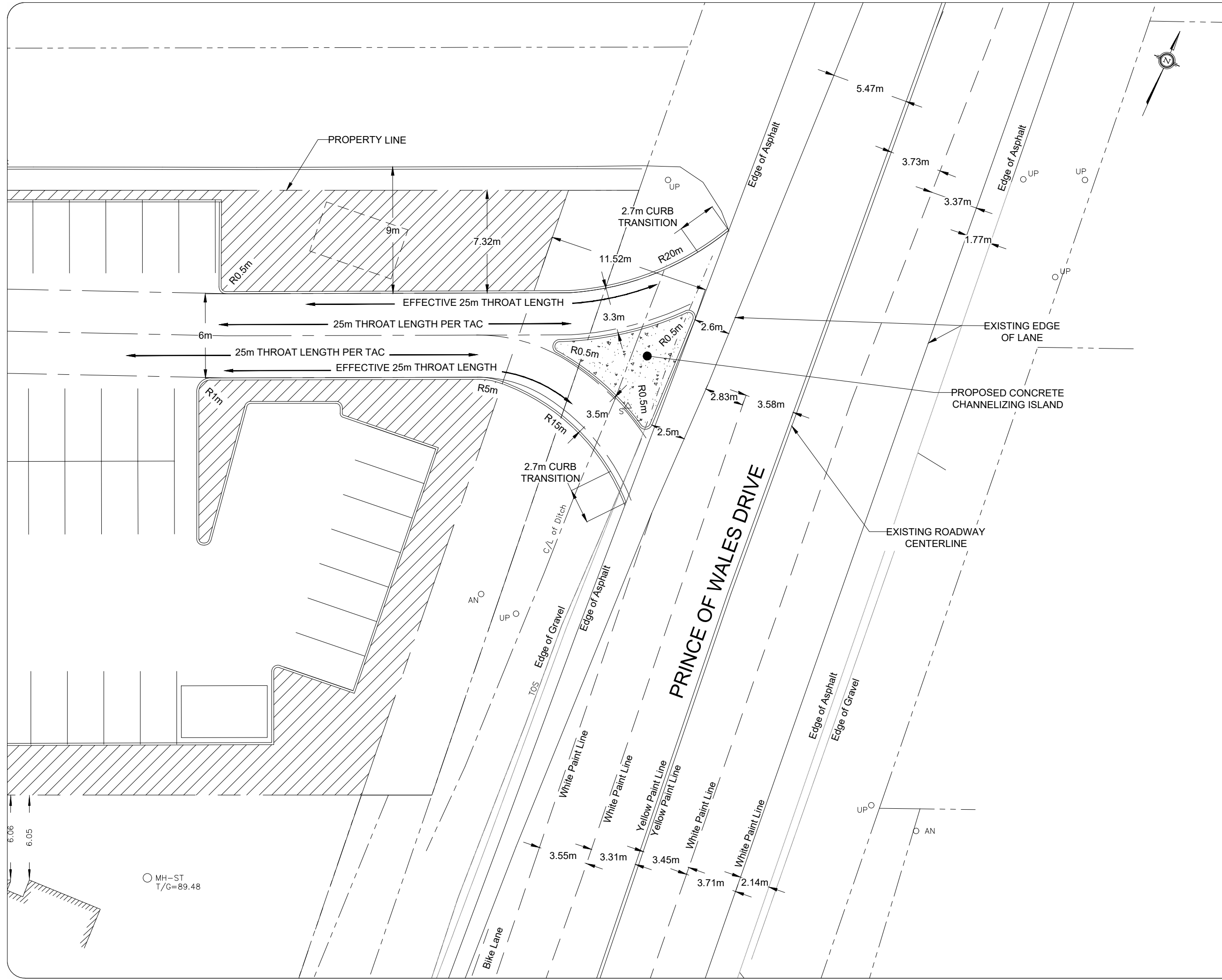
John Kingsley
Transportation Engineering Intern



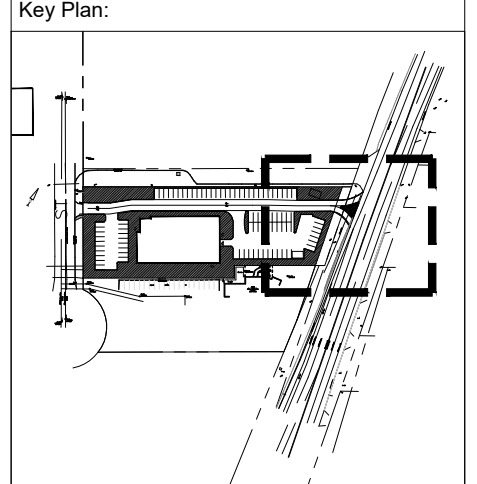
Christopher Gordon, P.Eng.
Senior Transportation Engineer

Attachment 1

Access Design



Notes:



TAC Suggested Minimum Throat Length = **25m**

Throat Length Per TAC is based on Figure 8.5.2 of Geometric Design Guide for Canadian Roads (2017).

Effective Throat Length is based on TAC measurement assuming typical 5m corner radii at the access.

02	Issued for Review	AN	2024-02-29
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



CGH Transportation
6 Plaza Court
Ottawa, ON
K2H 7W1
(343) 999-9117

CLIENT: Theberge Homes

ARCHITECT:

SITE: 9 Gurdwara Road

TITLE: Proposed Access Geometry

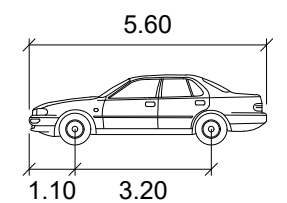
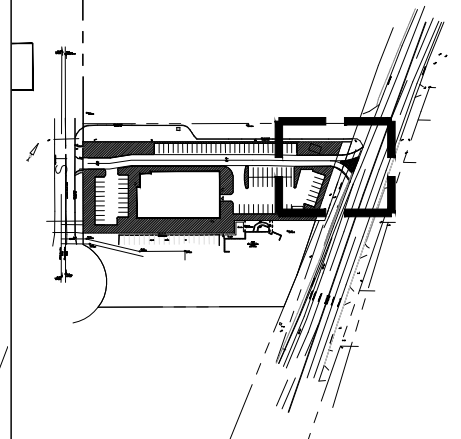
SCALE AT A3:	DATE:	DRAWN:	CHECKED:
NTS	2024-02-29	AN	JK
PROJECT NO:	DRAWING NO:	REVISION:	
2023-113	001	02	

○ MH-ST
T/G=89.48



Notes:

Key Plan:



P

	meters
Width	: 2.00
Track	: 2.00
Lock to Lock Time	: 6.0
Steering Angle	: 35.9

02	Issued for Review	AN	2024-02-29
REV:	DESCRIPTION:	BY:	DATE:
STATUS:			



CGH Transportation
 6 Plaza Court
 Ottawa, ON
 K2H 7W1
 (343) 999-9117

CLIENT: Theberge Homes

ARCHITECT:

SITE: 9 Gurdwara Road

TITLE: Turning Movement Analysis
 TAC P Movements

SCALE AT A3: NTS	DATE: 2024-02-29	DRAWN: AN	CHECKED: JK
PROJECT NO: 2023-113	DRAWING NO: 002	REVISION: 02	

Attachment 2

Turning Movement Counts



Transportation Services - Traffic Services

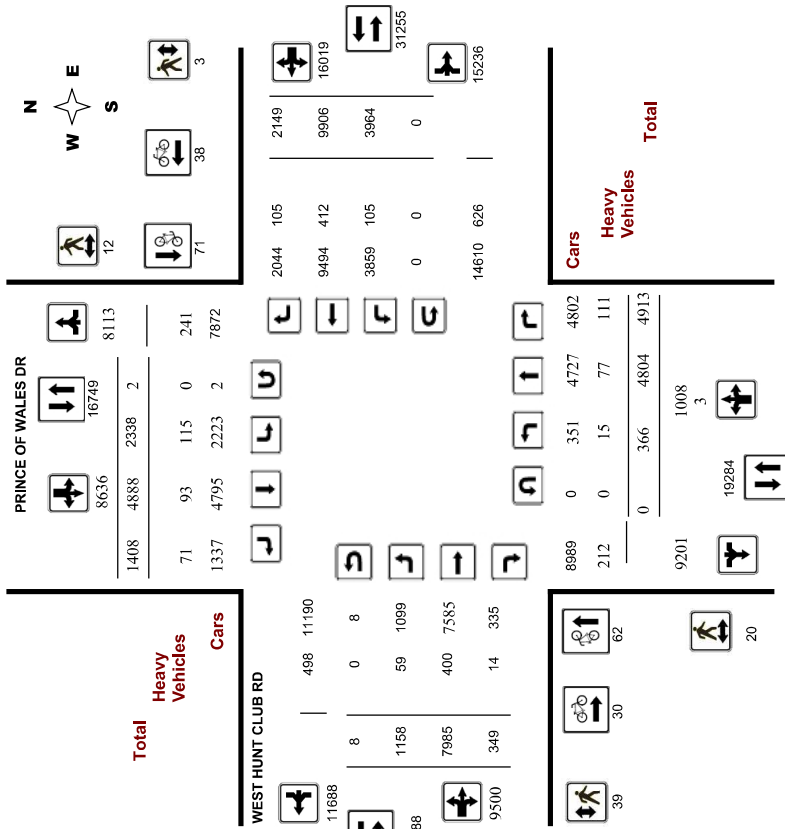
Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision

Full Study Diagram



Transportation Services - Traffic Services

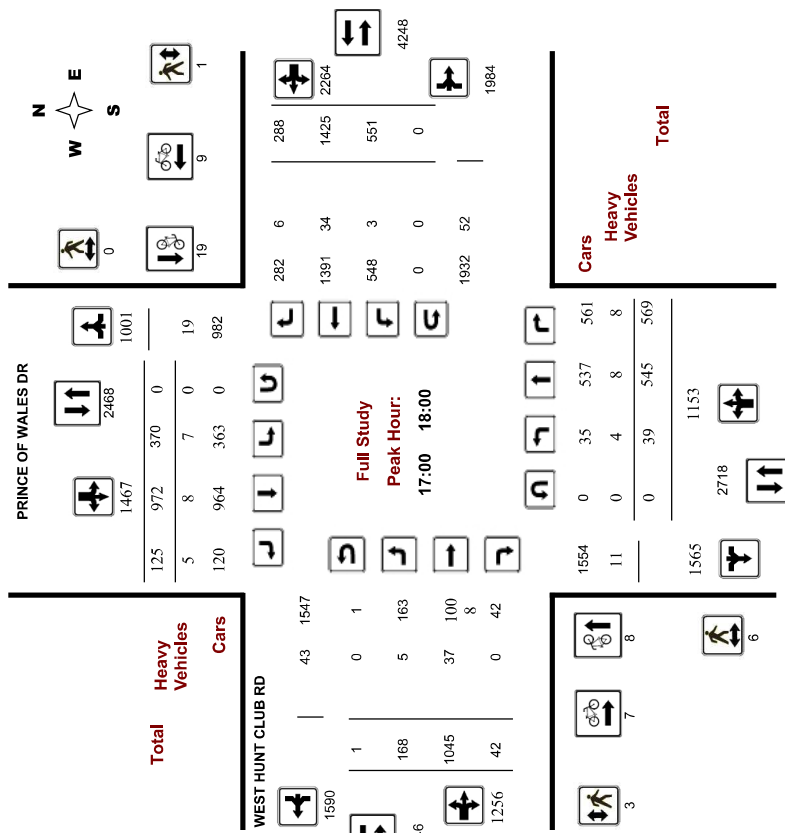
Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision

Full Study Peak Hour Diagram





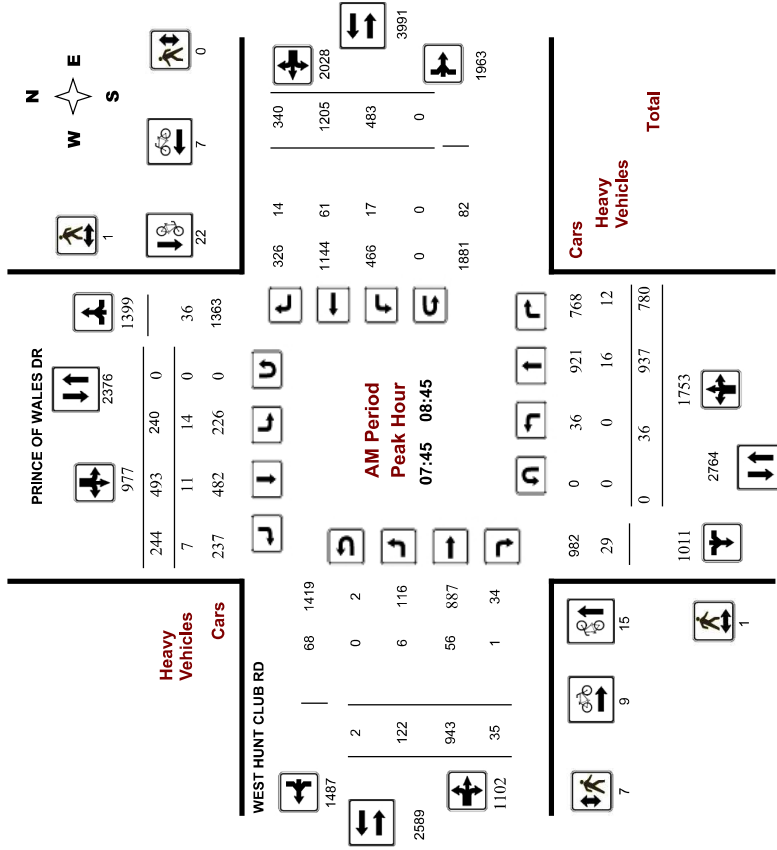
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: MioVision



Comments



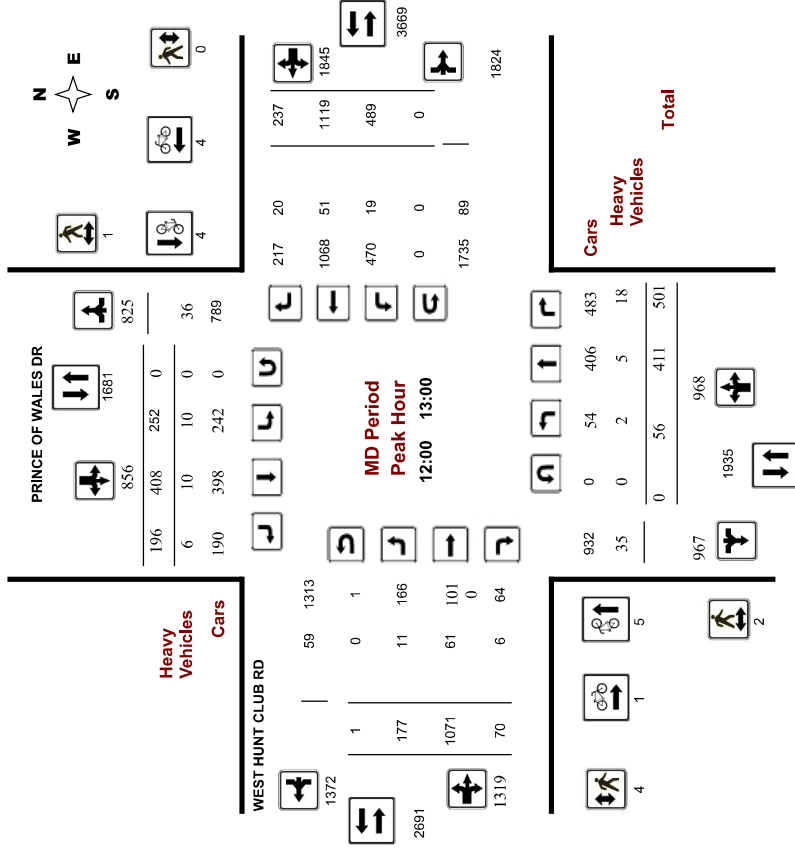
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: MioVision



Comments



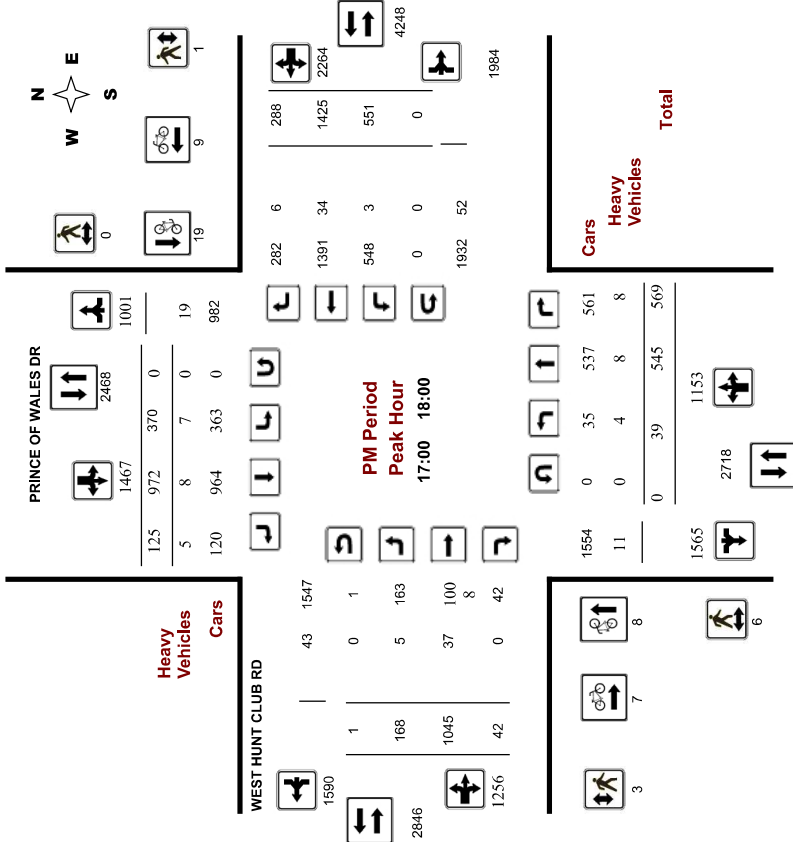
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Tuesday, September 26, 2023
Total Observed U-Turns: 2
Northbound: 0
Southbound: 2
Eastbound: 8
Westbound: 0
AADT Factor: 1.00

Period	Northbound				Southbound				Eastbound				Westbound				Grand Total		
	LT	ST	RT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT	LT	ST	RT	TOT			
07:00-08:00	46	887	753	1696	201	412	191	804	2500	108	894	26	1028	463	1101	286	1860	2888	5388
08:00-09:00	37	883	784	1704	249	523	236	1008	2712	110	944	32	1086	468	1217	354	2057	3143	5855
09:00-10:00	53	686	629	1380	238	374	197	809	2189	136	1027	29	1192	410	1162	226	1798	2990	5179
11:30-12:30	56	385	506	947	249	413	209	871	1818	147	988	80	1215	487	1160	207	1854	3069	4887
12:30-13:30	57	377	534	968	233	412	164	809	1777	201	1091	63	1355	494	1074	221	1789	3144	4921
15:00-16:00	41	512	534	1087	383	940	147	1470	2557	156	1052	36	1244	548	1365	251	2164	3408	5965
16:00-17:00	37	507	604	1148	415	842	139	1396	2544	132	944	41	1117	525	1402	306	2233	3350	5894
17:00-18:00	39	545	569	1153	370	972	125	1467	2620	168	1045	42	1255	551	1425	288	2264	3519	6139
Sub Total	366	4804	4913	10083	2338	4888	1408	8634	18717	1158	7985	349	9492	3964	9506	2149	16019	25511	44228
U Turns	0	0	0	0	2	2	2	8	8	8	8	8	0	0	0	0	0	8	10
Total	366	4804	4913	10083	2338	4888	1408	8636	18719	1158	7985	349	9500	3964	9506	2149	16019	25519	44238
EQ 12hr	509	6878	6829	14015	3250	6794	1957	12004	26019	1610	11099	485	13205	5510	13769	2987	22266	35471	61491
Note: These values are calculated by multiplying the totals by the appropriate expansion factor. 1.39																			
AVG 12hr	509	6878	6829	14015	3250	8901	2564	12004	26019	1610	11099	485	13205	5510	13769	2987	22266	35471	61491
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor. 1.00																			
AVG 24hr	687	8748	8946	18380	4258	11660	3359	15725	34085	2109	14540	655	17299	7218	18037	3913	29168	46467	80553

Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor. **1.31**
Note: U-Turns provided for approach totals. Refer to 'U-Turn' Report for specific breakdown.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023

Start Time: 07:00

WO No: 41202

Device: Miovision

Full Study 15 Minute Increments

WEST HUNT CLUB RD

Time Period	Northbound				Eastbound				Westbound				W	STR	Grand Total				
	LT	ST	RT	TOT	LT	ST	RT	TOT	E	LT	ST	RT				TOT	STR	TOT	
07:00 07:15	7	168	203	378	48	103	33	184	562	18	247	5	272	111	194	75	380	682	1214
07:15 07:30	14	227	164	405	62	102	44	208	613	30	204	5	239	115	282	82	479	718	1331
07:30 07:45	11	251	195	457	40	101	54	195	652	26	225	8	260	118	305	69	492	752	1404
07:45 08:00	14	251	191	466	51	106	60	217	673	34	218	8	260	119	320	70	509	769	1442
08:00 08:15	5	251	182	438	49	127	54	230	668	20	247	10	277	122	289	102	523	800	1468
08:15 08:30	4	232	233	469	70	118	65	253	722	39	258	10	309	130	298	72	500	809	1531
08:30 08:45	13	203	174	390	70	142	65	277	667	29	220	7	256	112	288	96	496	782	1419
08:45 09:00	15	197	195	407	60	136	52	248	655	22	219	5	246	122	332	84	538	784	1439
09:00 09:15	19	205	177	401	68	79	53	200	601	29	251	5	285	112	328	63	503	788	1389
09:15 09:30	8	192	155	365	52	119	44	215	570	40	248	8	296	113	263	51	427	723	1293
09:30 09:45	13	170	178	361	69	93	54	216	577	36	252	6	294	86	313	63	462	756	1333
09:45 10:00	13	131	119	263	49	83	46	178	441	31	276	10	317	99	258	49	406	723	1164
11:30 11:45	6	81	129	216	52	98	44	195	411	36	232	17	266	124	274	50	448	734	1145
11:45 12:00	19	102	140	261	65	107	50	222	483	31	223	23	277	109	301	45	455	732	1215
12:00 12:15	17	95	110	222	54	108	52	214	436	48	243	22	313	142	280	56	478	791	1227
12:15 12:30	14	107	127	248	78	98	63	240	488	32	200	18	340	112	305	56	473	813	1301
12:30 12:45	11	104	133	248	48	133	37	218	466	39	243	19	302	126	236	64	426	728	1194
12:45 13:00	14	105	131	250	72	88	44	184	434	58	295	11	364	109	298	61	468	832	1266
13:00 13:15	18	105	125	248	66	106	37	210	458	47	243	16	306	124	273	49	446	782	1210
13:15 13:30	14	63	145	222	47	105	46	198	420	57	310	17	384	135	268	67	476	833	1253
15:00 15:15	4	99	139	242	94	222	41	357	599	44	305	14	363	121	288	67	476	839	1438
15:15 15:30	15	151	106	272	93	211	32	336	608	41	249	12	302	135	345	63	543	845	1453
15:30 15:45	8	140	165	313	99	246	37	382	695	37	241	7	285	142	357	59	568	843	1538
15:45 16:00	14	122	124	260	97	261	37	395	655	34	252	3	294	150	375	62	587	881	1536
16:00 16:15	10	126	155	291	118	240	35	383	684	21	232	9	262	126	356	80	562	824	1508
16:15 16:30	8	105	142	255	88	214	38	340	595	36	243	12	291	129	337	69	535	826	1421
16:30 16:45	12	134	153	299	110	197	39	346	645	38	229	8	275	133	349	86	568	843	1488
16:45 17:00	7	142	154	303	99	191	27	318	621	37	240	12	289	137	360	71	568	857	1478
17:00 17:15	15	147	143	304	104	231	28	381	665	53	249	8	310	138	354	83	575	885	1550
17:15 17:30	10	127	132	269	98	257	28	383	652	46	247	11	304	134	356	60	550	854	1506
17:30 17:45	5	130	168	303	90	258	34	382	685	30	257	3	291	141	360	68	569	860	1545
17:45 18:00	9	142	126	277	78	226	37	341	618	39	292	20	351	138	385	77	570	921	1539
Total	366	4804	4913	10088	2338	4888	1408	8636	18716	1158	7985	349	9500	3964	9906	2149	16019	25519	44,238

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023

Start Time: 07:00

WO No: 41202

Device: Miovision

Full Study Cyclist Volume

WEST HUNT CLUB RD

Time Period	Northbound		Eastbound		Westbound		Street Total	Street Total	Grand Total
	Southbound	Street Total	Eastbound	Westbound	Street Total	Street Total			
07:00 07:15	5	1	1	1	1	2	3	3	9
07:15 07:30	5	5	1	1	2	2	3	3	13
07:30 07:45	4	0	0	0	0	0	0	0	4
07:45 08:00	4	10	14	2	5	7	7	7	21
08:00 08:15	3	2	6	2	0	2	2	2	8
08:15 08:30	6	3	8	2	1	3	3	3	11
08:30 08:45	2	7	9	3	1	4	4	4	13
08:45 09:00	0	1	1	1	0	1	1	1	2
09:00 09:15	1	3	4	0	0	0	0	0	4
09:15 09:30	3	1	4	1	0	1	1	1	5
09:30 09:45	2	0	2	0	0	0	0	0	2
09:45 10:00	0	2	2	1	1	2	2	2	4
11:30 11:45	0	1	1	0	1	1	1	1	2
11:45 12:00	1	0	1	0	0	0	0	0	1
12:00 12:15	0	2	2	1	0	1	1	1	3
12:15 12:30	3	1	4	0	0	1	1	1	5
12:30 12:45	2	1	3	0	2	2	2	2	5
12:45 13:00	0	0	0	0	0	1	1	1	3
13:00 13:15	1	1	2	0	0	2	2	2	4
13:15 13:30	1	0	1	0	0	1	1	1	2
15:00 15:15	0	0	0	0	0	1	1	1	1
15:15 15:30	1	0	1	0	1	1	1	1	2
15:30 15:45	3	1	4	0	1	1	1	1	5
15:45 16:00	0	1	1	3	1	1	4	4	5
16:00 16:15	2	2	4	1	0	4	1	1	5
16:15 16:30	3	2	5	1	4	5	5	5	10
16:30 16:45	1	3	4	1	1	2	2	2	6
16:45 17:00	1	1	2	2	0	0	0	0	4
17:00 17:15	6	3	9	0	3	3	3	3	12
17:15 17:30	2	4	6	2	2	3	3	3	11
17:30 17:45	0	6	6	0	0	3	3	3	9
17:45 18:00	0	6	6	5	5	0	5	5	11
Total	62	71	133	30	38	68	68	68	201



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision

Full Study Pedestrian Volume PRINCE OF WALES DR WEST HUNT CLUB RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00 - 07:15	0	0	0	0	0	2	2
07:15 - 07:30	1	1	2	1	0	1	3
07:30 - 07:45	0	2	2	0	0	2	4
07:45 - 08:00	0	0	0	3	0	3	3
08:00 - 08:15	0	0	0	2	0	2	2
08:15 - 08:30	0	1	1	1	0	1	2
08:30 - 08:45	1	0	1	1	0	1	2
08:45 - 09:00	0	0	0	0	0	0	0
09:00 - 09:15	0	0	0	0	0	0	0
09:15 - 09:30	1	0	1	0	0	0	1
09:30 - 09:45	0	1	1	0	1	1	2
09:45 - 10:00	0	0	0	1	0	1	1
10:00 - 10:15	0	0	0	0	0	0	0
10:15 - 10:30	0	0	0	0	0	0	0
10:30 - 10:45	0	0	0	0	0	0	0
10:45 - 11:00	0	0	0	0	0	0	0
11:00 - 11:15	0	0	0	0	0	0	0
11:15 - 11:30	0	0	0	0	0	0	0
11:30 - 11:45	0	0	0	0	0	0	0
11:45 - 12:00	0	0	0	0	0	0	0
12:00 - 12:15	0	0	0	0	0	0	0
12:15 - 12:30	0	0	0	0	0	0	0
12:30 - 12:45	1	1	2	1	0	1	3
12:45 - 13:00	1	0	1	1	0	1	2
13:00 - 13:15	0	1	1	0	0	0	1
13:15 - 13:30	0	0	0	0	0	0	0
13:30 - 13:45	0	0	0	0	0	0	0
13:45 - 14:00	1	0	1	0	0	0	1
14:00 - 14:15	1	0	1	0	0	0	1
14:15 - 14:30	6	1	7	1	0	1	8
14:30 - 14:45	0	2	2	7	0	7	9
14:45 - 15:00	1	0	1	2	0	2	3
15:00 - 15:15	0	0	0	1	0	1	1
15:15 - 15:30	0	2	2	1	0	1	3
15:30 - 15:45	0	2	2	4	0	4	6
15:45 - 16:00	1	0	1	2	0	2	3
16:00 - 16:15	0	0	0	1	0	1	1
16:15 - 16:30	0	2	2	2	1	3	5
16:30 - 16:45	1	0	1	4	0	4	5
16:45 - 17:00	0	0	0	2	0	2	2
17:00 - 17:15	4	0	4	4	0	4	8
17:15 - 17:30	2	0	2	1	1	2	4
17:30 - 17:45	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0
Total	20	12	32	39	3	42	74



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023
Start Time: 07:00

WO No: 41202
Device: Miovision

Full Study Heavy Vehicles PRINCE OF WALES DR WEST HUNT CLUB RD

Time Period	Northbound			Southbound			Eastbound			Westbound			W TOT	STR TOT	Grand Total				
	LT	ST	RT	N TOT	LT	ST	RT	S TOT	LT	ST	RT	E TOT				LT	ST	RT	
07:00 - 07:15	1	2	2	13	6	2	2	18	31	5	11	1	33	5	11	1	38	71	51
07:15 - 07:30	0	5	3	19	8	7	1	30	49	4	13	0	25	4	7	5	40	65	57
07:30 - 07:45	0	5	2	15	0	4	1	13	28	0	19	1	41	3	20	3	47	88	58
07:45 - 08:00	0	5	2	18	4	4	1	18	36	2	14	1	36	6	18	2	46	82	59
08:00 - 08:15	0	2	5	14	2	1	2	11	25	1	9	0	24	6	12	3	37	61	43
08:15 - 08:30	0	3	3	9	3	1	1	15	24	2	18	0	38	2	17	5	48	86	55
08:30 - 08:45	0	6	2	16	5	5	3	24	40	1	15	0	33	3	14	4	43	76	58
08:45 - 09:00	1	6	16	4	2	1	12	28	2	12	0	24	6	8	2	38	62	45	
09:00 - 09:15	0	3	8	17	4	2	2	12	29	1	21	0	40	4	16	0	53	93	61
09:15 - 09:30	0	3	8	20	11	0	2	21	41	1	8	0	30	9	19	4	59	89	65
09:30 - 09:45	2	3	5	21	2	4	8	23	44	0	9	2	34	5	13	6	40	74	59
09:45 - 10:00	1	5	1	11	2	0	5	17	28	1	22	0	46	4	17	4	50	96	62
10:00 - 10:15	0	1	4	12	6	4	5	21	33	1	9	0	29	3	14	4	40	69	51
10:15 - 10:30	0	3	4	11	4	2	2	18	29	3	11	0	27	2	11	4	36	63	46
10:30 - 10:45	0	0	3	14	3	2	1	11	25	3	12	5	35	4	14	2	38	73	49
10:45 - 11:00	1	1	5	14	2	2	1	14	28	2	19	0	36	5	13	6	50	86	57
11:00 - 11:15	1	5	12	2	0	0	11	23	4	15	0	31	5	11	4	42	73	48	
11:15 - 11:30	0	3	5	20	3	6	4	26	46	2	15	1	35	5	13	8	49	84	65
11:30 - 11:45	1	6	14	7	5	4	28	42	5	12	0	33	1	12	6	43	76	59	
11:45 - 12:00	2	3	3	14	2	3	6	22	36	5	12	0	37	3	12	3	35	72	54
12:00 - 12:15	0	1	1	13	5	6	1	20	33	4	15	1	28	4	7	3	35	63	48
12:15 - 12:30	0	4	2	13	3	4	0	16	29	1	14	1	35	2	19	4	44	79	54
12:30 - 12:45	0	4	3	13	1	3	1	14	27	0	10	1	32	2	20	5	41	73	50
12:45 - 13:00	0	3	3	11	3	5	1	18	29	1	9	0	20	0	9	5	29	49	39
13:00 - 13:15	0	0	2	9	7	2	5	15	24	0	10	0	23	5	8	1	33	56	40
13:15 - 13:30	1	2	4	5	0	2	10	14	1	11	0	28	0	13	1	32	60	37	
13:30 - 13:45	0	0	5	11	0	5	2	9	20	1	8	0	21	1	10	1	25	46	33
13:45 - 14:00	0	0	3	10	4	4	2	14	24	1	9	0	32	3	20	3	42	74	49
14:00 - 14:15	1	2	4	8	2	0	1	10	18	4	8	0	25	1	11	1	27	52	35
14:15 - 14:30	3	1	1	8	0	3	0	7	15	1	5	0	21	0	12	2	20	41	28
14:30 - 14:45	0	3	3	12	3	4	2	15	27	0	11	0	21	2	8	3	30	51	39
14:45 - 15:00	0	2	0	3	2	1	2	7	10	0	13	0	18	0	3	0	18	36	23
Total	15	77	111	415	115	93	71	520	935	59	400	14	971	105	412	105	1248	2219	1,577



Transportation Services - Traffic Services

Turning Movement Count - Study Results

PRINCE OF WALES DR @ WEST HUNT CLUB RD

Survey Date: Tuesday, September 26, 2023

Start Time: 07:00

WO No: 41202

Device: Miovision

Full Study 15 Minute U-Turn Total PRINCE OF WALES DR WEST HUNT CLUB RD

Time Period	Northbound		Southbound		Eastbound		Westbound		Total
	U-Turn	Total	U-Turn	Total	U-Turn	Total	U-Turn	Total	
07:00	0	0	0	0	2	0	0	0	2
07:15	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	1	0	0	0	1
07:45	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0
08:15	0	0	0	0	0	0	0	0	0
08:30	0	0	0	0	2	0	0	0	2
08:45	0	0	0	0	0	0	0	0	0
09:00	0	0	0	0	0	0	0	0	0
09:15	0	0	0	0	0	0	0	0	0
09:30	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0
11:30	0	0	0	0	1	0	0	0	1
11:45	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0
12:15	0	0	0	0	0	0	0	0	0
12:30	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	1	0	0	0	1
13:00	0	0	0	0	0	0	0	0	0
13:15	0	0	1	0	0	0	0	0	1
13:30	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0
17:00	0	0	1	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	1	0	0	0	1
18:00	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	8	0	0	0	10



Transportation Services - Traffic Services

Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

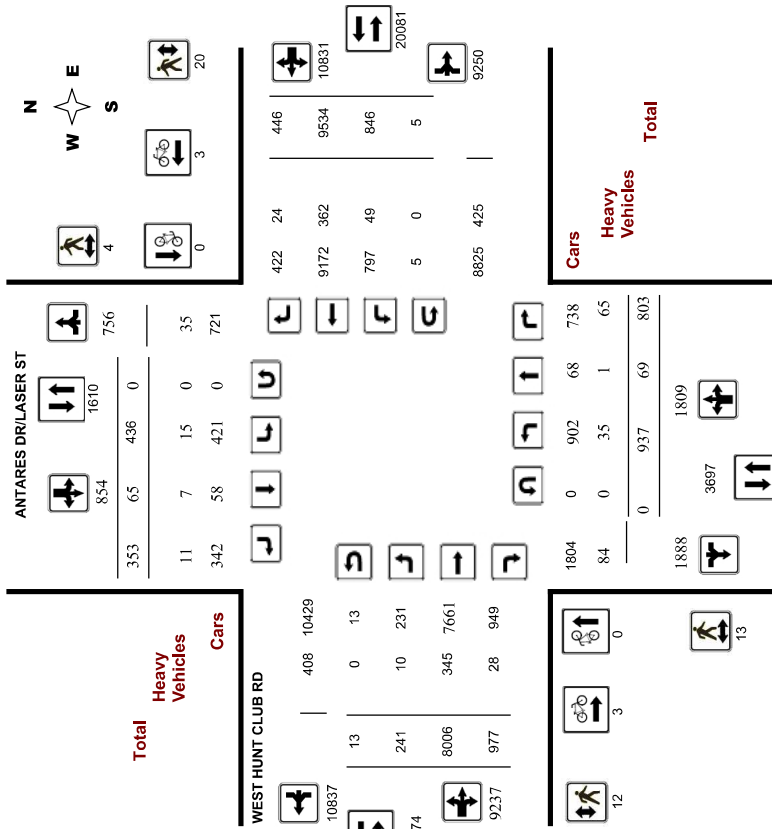
Survey Date: Wednesday, November 29, 2023

Start Time: 07:00

WO No: 41347

Device: Miovision

Full Study Diagram





Transportation Services - Traffic Services

Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST



Transportation Services - Traffic Services

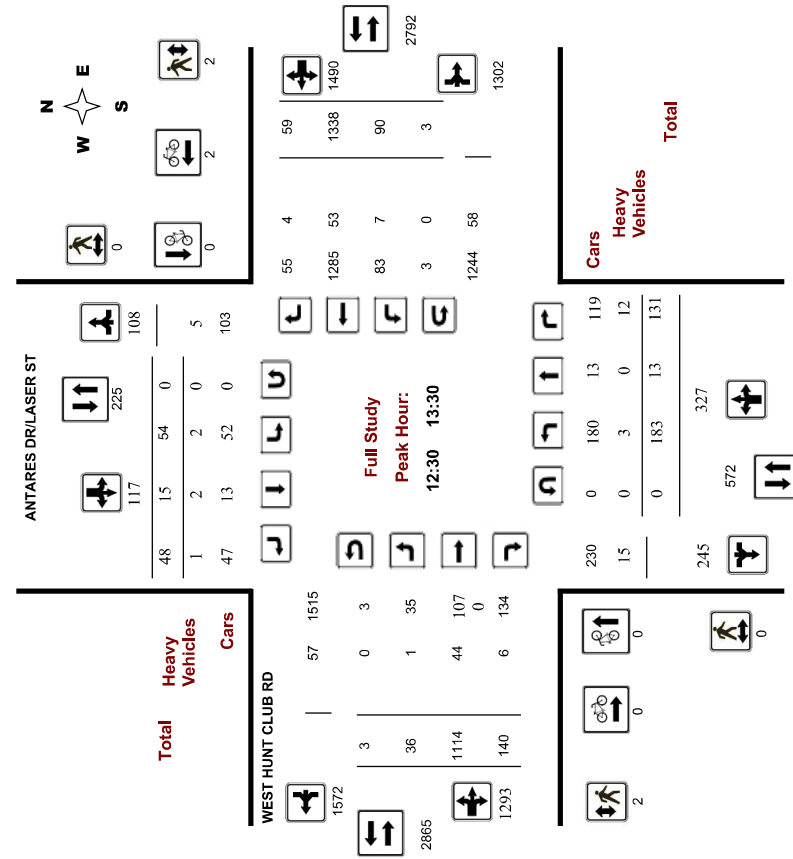
Turning Movement Count - Peak Hour Diagram

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: MioVision

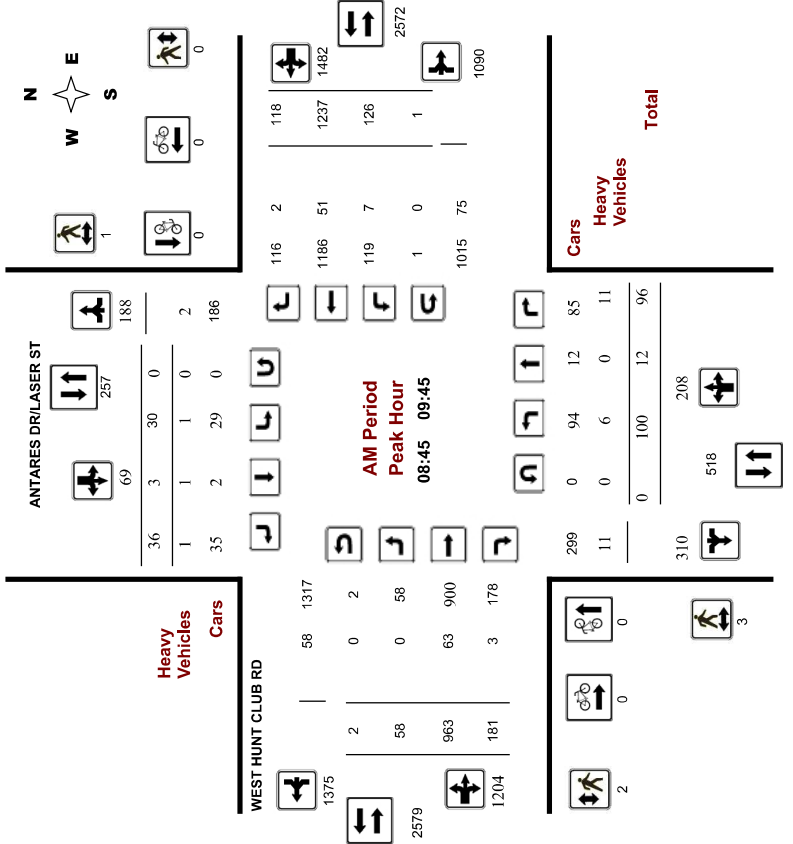
Full Study Peak Hour Diagram



Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: MioVision

AM Period Peak Hour 08:45 - 09:45





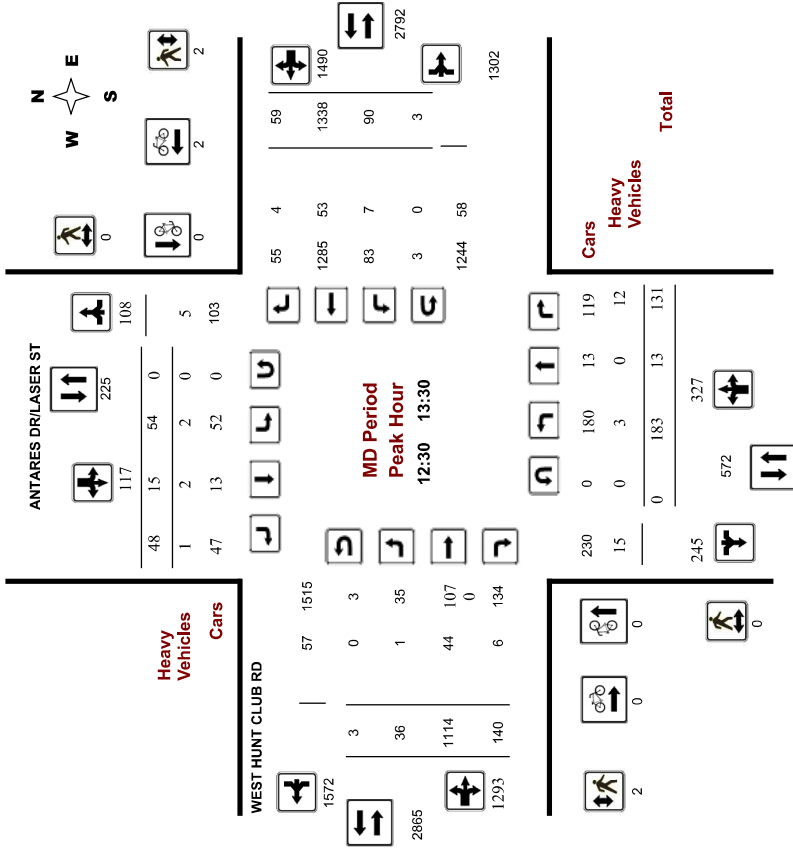
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: MioVision



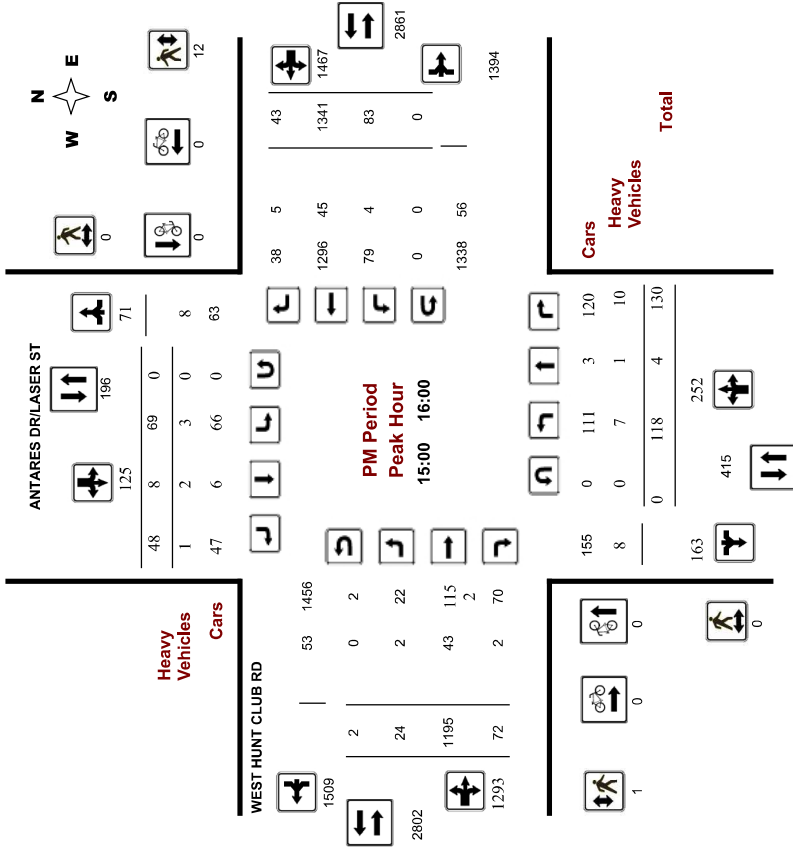
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: MioVision





Transportation Services - Traffic Services
Turning Movement Count - Study Results
WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: Miovision

Full Study Summary (8 HR Standard)

Survey Date: Wednesday, November 29, 2023
Total Observed U-Turns: 0
Southbound: 0
Eastbound: 13
Westbound: 5
AADT Factor: .90

Period	Southbound					Eastbound					Westbound					WB TOT	STR TOT	Grand Total	
	LT	ST	RT	TOT	SB TOT	LT	ST	RT	TOT	EB TOT	LT	ST	RT	TOT					
07:00-08:00	19	8	21	48	18	2	22	42	90	17	929	182	1128	141	616	36	793	1921	2011
08:00-09:00	63	17	67	147	22	1	27	50	197	39	1015	219	1273	155	1014	67	1236	2509	2706
09:00-10:00	99	12	93	204	39	3	33	75	279	70	915	156	1141	120	1268	132	1520	2661	2940
11:30-12:30	110	8	103	221	81	1	67	149	370	30	1016	121	1167	108	1064	46	1218	2385	2755
12:30-13:30	183	13	131	327	54	15	48	117	444	36	1114	140	1290	90	1338	59	1487	2777	3221
15:00-16:00	118	4	130	252	69	8	48	125	377	24	1195	72	1291	83	1341	43	1467	2758	3185
16:00-17:00	133	6	121	260	84	9	68	161	421	16	866	51	933	98	1457	36	1591	2524	2945
17:00-18:00	212	1	137	350	69	26	40	135	485	9	956	36	1001	51	1436	27	1514	2515	3000
Sub Total	937	69	803	1809	436	65	353	854	2663	241	8006	977	9224	846	9534	446	10826	20050	22713
U-Turns	0	0	0	0	0	0	0	0	0	0	13	13	13	13	5	18	18	18	18
Total	937	69	803	1809	436	65	353	854	2663	241	8006	977	9237	846	9534	446	10831	20068	22731
EQ 12Hr	1302	96	1116	2515	606	90	491	1187	3702	335	11128	1358	12839	1176	13252	620	15065	27895	31596
Note: These values are calculated by multiplying the totals by the appropriate expansion factor.																			
AVG 12Hr	1172	86	1004	2264	545	107	578	1068	3332	302	10015	1222	11555	1058	11927	558	13550	25106	28436
Note: These volumes are calculated by multiplying the Equivalent 12 hr. totals by the AADT factor.																			
AVG 24Hr	1535	113	1315	2966	714	140	757	1399	4365	396	13120	1601	15137	1386	15624	731	17750	32889	37251
Note: These volumes are calculated by multiplying the Average Daily 12 hr. totals by 12 to 24 expansion factor.																			
Note: U-Turns provided for approach totals. Refer to U-Turn Report for specific breakdown.																			



Transportation Services - Traffic Services
Turning Movement Count - Study Results
WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: Miovision

Full Study 15 Minute Increments

ANTARES DR/LASER ST

WEST HUNT CLUB RD

Time Period	Northbound					Southbound					Eastbound					Westbound					W TOT	STR TOT	Grand Total
	LT	ST	RT	TOT	N TOT	LT	ST	RT	TOT	S TOT	LT	ST	RT	TOT	E TOT	LT	ST	RT	TOT				
07:00-07:15	2	0	3	5	2	0	3	5	10	2	237	42	281	30	96	2	128	409	419				
07:15-07:30	1	3	2	6	5	0	2	7	13	1	242	40	283	35	143	7	185	488	481				
07:30-07:45	6	3	11	20	5	1	13	19	39	2	224	54	280	32	179	10	221	501	540				
07:45-08:00	10	2	5	17	6	1	4	11	28	12	226	46	284	44	198	17	269	543	571				
08:00-08:15	7	7	7	21	6	0	6	12	33	3	255	57	315	38	200	11	249	564	597				
08:15-08:30	16	2	10	28	5	0	7	12	40	12	262	54	328	41	238	13	292	620	660				
08:30-08:45	17	6	19	42	7	0	5	12	54	11	251	54	316	39	273	20	332	648	702				
08:45-09:00	23	2	31	56	4	1	9	14	70	13	247	54	314	37	303	23	363	677	747				
09:00-09:15	25	5	18	48	8	0	9	17	65	16	250	42	308	37	302	24	363	671	736				
09:15-09:30	23	4	25	52	7	0	8	15	67	13	221	48	282	23	314	39	376	668	725				
09:30-09:45	29	1	22	52	11	2	10	23	72	16	245	37	300	29	318	32	380	680	755				
09:45-10:00	22	2	28	52	13	1	6	20	72	25	199	29	253	31	334	37	402	655	727				
11:30-11:45	21	0	19	40	7	1	20	28	68	4	249	27	280	24	262	11	297	577	645				
11:45-12:00	31	2	29	62	41	0	18	59	121	7	236	32	276	28	254	14	297	573	694				
12:00-12:15	28	3	30	61	24	0	20	44	105	9	238	37	285	29	277	5	311	596	701				
12:15-12:30	30	3	25	58	9	0	9	18	76	10	263	25	328	27	271	16	314	642	718				
12:30-12:45	41	4	22	67	9	4	9	22	89	7	289	38	336	22	328	18	369	705	794				
12:45-13:00	47	4	40	91	11	4	16	31	122	10	295	42	347	19	332	14	365	712	834				
13:00-13:15	47	3	33	83	14	3	10	27	110	12	253	32	297	28	369	15	404	701	811				
13:15-13:30	48	2	36	86	20	4	13	37	123	7	277	28	313	21	319	12	352	665	788				
15:00-15:15	32	2	38	72	17	0	10	27	99	4	329	21	354	14	327	14	355	709	808				
15:15-15:30	21	1	40	62	20	3	10	33	95	8	326	10	345	19	337	10	366	711	806				
15:30-15:45	25	0	23	48	14	3	13	30	78	8	311	16	335	27	386	10	393	728	806				
15:45-16:00	40	1	29	70	18	2	15	35	105	4	229	25	259	23	321	9	353	612	717				
16:00-16:15	41	0	33	74	29	0	23	52	126	3	195	16	215	26	347	8	381	586	722				
16:15-16:30	30	3	27	60	24	3	20	47	107	3	240	17	260	18	390	13	421	681	788				
16:30-16:45	29	2	30	61	12	0	13	25	86	5	219	9	233	32	349	8	389	622	708				
16:45-17:00	33	1	31	65	19	6	12	37	102	5	212	9	226	22	371	7	400	626	728				
17:00-17:15	58	0	37	95	21	4	16	41	136	3	199	7	210	11	389	9	409	619	755				
17:15-17:30	40	1	29	70	22	6	11	39	109	3	287	11	283	16	360	6	392	665	774				
17:30-17:45	60	0	45	105	13	10	3	26	131	3	258	8	269	14	352	4	350	619	750				
17:45-18:00	54	0	26	80	13	6	10	29	109	0	232	10	242	10	385	8	373	615	724				
Total	937	69	803	1809	436	65	353	854	2663	241	8006	977	9237	846	9534	446	10831	20068	22731				

Note: U-Turns are included in Totals.



Transportation Services - Traffic Services
Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: Miovision

Full Study Cyclist Volume

ANTARES DR/LASER ST WEST HUNT CLUB RD

Time Period	Northbound	Southbound	Street Total	Eastbound	Westbound	Street Total	Grand Total
07:00-07:15	0	0	0	0	0	0	0
07:15-07:30	0	0	0	0	0	0	0
07:30-07:45	0	0	0	0	0	0	0
07:45-08:00	0	0	0	0	0	0	0
08:00-08:15	0	0	0	0	0	0	0
08:15-08:30	0	0	0	0	0	0	0
08:30-08:45	0	0	0	0	0	0	0
08:45-09:00	0	0	0	0	0	0	0
09:00-09:15	0	0	0	0	0	0	0
09:15-09:30	0	0	0	0	0	0	0
09:30-09:45	0	0	0	0	0	0	0
09:45-10:00	0	0	0	0	0	0	0
10:00-10:15	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0
10:30-10:45	0	0	0	0	0	0	0
10:45-11:00	0	0	0	0	0	0	0
11:00-11:15	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0
13:00-13:15	0	0	0	0	0	0	0
13:15-13:30	0	0	0	0	0	0	0
13:30-13:45	0	0	0	0	0	0	0
13:45-14:00	0	0	0	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0
16:00-16:15	0	0	0	0	0	0	0
16:15-16:30	0	0	0	0	0	0	0
16:30-16:45	0	0	0	0	0	0	0
16:45-17:00	0	0	0	0	0	0	0
17:00-17:15	0	0	0	0	0	0	0
17:15-17:30	0	0	0	0	0	0	0
17:30-17:45	0	0	0	0	0	0	0
17:45-18:00	0	0	0	0	0	0	0
Total	0	0	0	3	3	6	6



Transportation Services - Traffic Services
Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023
Start Time: 07:00

WO No: 41347
Device: Miovision

Full Study Pedestrian Volume

ANTARES DR/LASER ST WEST HUNT CLUB RD

Time Period	NB Approach (E or W Crossing)	SB Approach (E or W Crossing)	Total	EB Approach (N or S Crossing)	WB Approach (N or S Crossing)	Total	Grand Total
07:00-07:15	0	0	0	0	0	0	0
07:15-07:30	0	0	0	0	0	0	0
07:30-07:45	0	0	0	0	0	0	0
07:45-08:00	0	0	0	0	0	0	0
08:00-08:15	0	0	0	0	0	0	0
08:15-08:30	0	0	0	0	0	0	0
08:30-08:45	0	0	0	0	0	0	0
08:45-09:00	1	0	1	0	0	1	1
09:00-09:15	1	0	1	0	0	1	1
09:15-09:30	0	0	0	0	0	0	0
09:30-09:45	1	1	2	0	0	2	2
09:45-10:00	0	0	0	0	0	0	0
10:00-10:15	0	0	0	0	0	0	0
10:15-10:30	0	0	0	0	0	0	0
10:30-10:45	0	0	0	0	0	0	0
10:45-11:00	0	0	0	0	0	0	0
11:00-11:15	0	0	0	0	0	0	0
11:15-11:30	0	0	0	0	0	0	0
11:30-11:45	0	0	0	0	0	0	0
11:45-12:00	0	0	0	0	0	0	0
12:00-12:15	0	0	0	0	0	0	0
12:15-12:30	0	0	0	0	0	0	0
12:30-12:45	0	0	0	0	0	0	0
12:45-13:00	0	0	0	0	0	0	0
13:00-13:15	0	0	0	0	0	0	0
13:15-13:30	0	0	0	0	0	0	0
13:30-13:45	0	0	0	0	0	0	0
13:45-14:00	0	0	0	0	0	0	0
14:00-14:15	0	0	0	0	0	0	0
14:15-14:30	0	0	0	0	0	0	0
14:30-14:45	0	0	0	0	0	0	0
14:45-15:00	0	0	0	0	0	0	0
15:00-15:15	0	0	0	0	0	0	0
15:15-15:30	0	0	0	0	0	0	0
15:30-15:45	0	0	0	0	0	0	0
15:45-16:00	0	0	0	0	0	0	0
16:00-16:15	0	0	0	0	0	0	0
16:15-16:30	0	0	0	0	0	0	0
16:30-16:45	2	1	3	0	0	3	3
16:45-17:00	2	0	2	0	0	2	2
17:00-17:15	2	0	2	0	0	2	2
17:15-17:30	1	1	2	0	0	2	2
17:30-17:45	1	0	1	0	0	1	1
17:45-18:00	1	0	1	0	0	1	1
Total	13	4	17	12	20	32	49



Transportation Services - Traffic Services

Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023

Start Time: 07:00

WO No: 41347

Device: Miovision

Full Study Heavy Vehicles

ANTARES DR/LASER ST WEST HUNT CLUB RD

Time Period	Northbound			Southbound			Eastbound			Westbound			W	STR	Grand				
	LT	ST	RT	LT	ST	RT	LT	ST	RT	LT	ST	RT				TOT	TOT	TOT	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0	25	49	25			
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0	21	40	21			
07:30	0	0	1	0	0	0	0	0	0	0	0	0	0	19	36	23			
07:45	0	0	1	0	0	0	0	0	0	0	0	0	0	17	3	19			
08:00	2	0	2	0	0	0	0	0	0	0	0	0	0	33	37	70			
08:15	1	0	0	0	0	0	0	0	0	0	0	0	0	6	10	40			
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0	3	27	29			
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0	24	10	25			
09:00	0	0	0	0	0	0	0	0	0	0	0	0	0	33	15	47			
09:15	0	0	0	0	0	0	0	0	0	0	0	0	0	23	65	38			
09:30	0	0	0	0	0	0	0	0	0	0	0	0	0	23	2	25			
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	48			
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	34	1	37			
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	71			
10:30	0	0	0	0	0	0	0	0	0	0	0	0	0	34	2	38			
10:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	18	42			
11:00	0	0	0	0	0	0	0	0	0	0	0	0	0	33	2	35			
11:15	0	0	0	0	0	0	0	0	0	0	0	0	0	17	0	68			
11:30	0	0	0	0	0	0	0	0	0	0	0	0	0	29	3	39			
11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3	10	59			
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0	4	12	33			
12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	29	54			
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	26	0	32			
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	15	39			
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	36	1	29			
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	27	4	56			
13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	11	2	32			
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	23	0	44			
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13	28			
14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	34			
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0	27	2	61			
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	36			
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	33			
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	2	7	59			
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	10	1	32			
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	3	16	33			
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	13	38			
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	15	2	66			
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	35			
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	29	2	64			
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	34			
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	8	2	38			
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	2	14	33			
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	4	8	34			
18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0	60			
Total	35	1	65	185	15	7	11	68	253	10	345	28	791	49	362	24	860	1651	952



Transportation Services - Traffic Services

Turning Movement Count - Study Results

WEST HUNT CLUB RD @ ANTARES DR/LASER ST

Survey Date: Wednesday, November 29, 2023

Start Time: 07:00

WO No: 41347

Device: Miovision

Full Study 15 Minute U-Turn Total

ANTARES DR/LASER ST WEST HUNT CLUB RD

Time Period	Northbound		Southbound		Eastbound		Westbound		Total	
	U-Turn	Total	U-Turn	Total	U-Turn	Total	U-Turn	Total		
07:00	0	0	0	0	0	0	0	0	0	
07:15	0	0	0	0	0	0	0	0	0	
07:30	0	0	0	0	0	0	0	0	0	
07:45	0	0	0	0	0	0	0	0	0	
08:00	0	0	0	0	0	0	0	0	0	
08:15	0	0	0	0	0	0	0	0	0	
08:30	0	0	0	0	0	0	0	0	0	
08:45	0	0	0	0	0	0	0	0	0	
09:00	0	0	0	0	0	0	0	0	0	
09:15	0	0	0	0	0	0	0	0	0	
09:30	0	0	0	0	2	2	1	1	3	
09:45	0	0	0	0	0	0	0	0	0	
10:00	0	0	0	0	0	0	0	0	0	
10:15	0	0	0	0	0	0	0	0	0	
10:30	0	0	0	0	1	1	1	1	2	
10:45	0	0	0	0	0	0	0	0	0	
11:00	0	0	0	0	0	0	0	0	0	
11:15	0	0	0	0	1	1	1	1	2	
11:30	0	0	0	0	0	0	0	0	0	
11:45	0	0	0	0	0	0	0	0	0	
12:00	0	0	0	0	0	0	0	0	0	
12:15	0	0	0	0	0	0	0	0	0	
12:30	0	0	0	0	2	2	1	1	3	
12:45	0	0	0	0	0	0	0	0	0	
13:00	0	0	0	0	0	0	2	2	2	
13:15	0	0	0	0	0	0	1	1	1	
13:30	0	0	0	0	0	0	0	0	0	
13:45	0	0	0	0	0	0	1	1	1	
14:00	0	0	0	0	0	0	0	0	0	
14:15	0	0	0	0	0	0	1	1	1	
14:30	0	0	0	0	0	0	0	0	0	
14:45	0	0	0	0	0	0	1	1	1	
15:00	0	0	0	0	0	0	0	0	0	
15:15	0	0	0	0	0	0	0	0	0	
15:30	0	0	0	0	0	0	0	0	0	
15:45	0	0	0	0	0	0	1	1	1	
16:00	0	0	0	0	0	0	0	0	0	
16:15	0	0	0	0	0	0	1	1	1	
16:30	0	0	0	0	0	0	0	0	0	
16:45	0	0	0	0	0	0	0	0	0	
17:00	0	0	0	0	0	0	1	1	1	
17:15	0	0	0	0	0	0	2	2	2	
17:30	0	0	0	0	0	0	0	0	0	
17:45	0	0	0	0	0	0	0	0	0	
18:00	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	13	13	5	18

Attachment 3

Traffic Volumes and Operations

Figure 2: Existing Traffic Counts

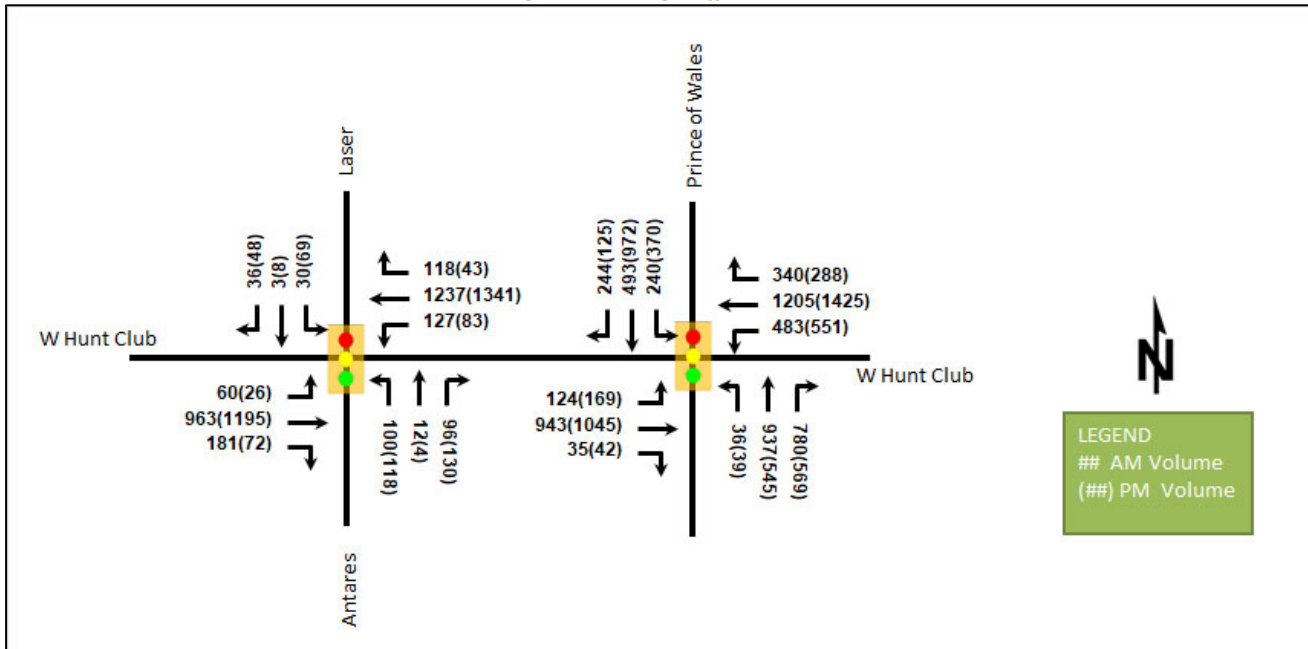


Table 1: Existing Intersection Operations

Intersection	Lane	AM Peak Hour				PM Peak Hour			
		LOS	V/C	Delay (s)	Q (95 th)	LOS	V/C	Delay (s)	Q (95 th)
Antares/Laser & W Hunt Club <i>Signalized</i>	EBL	A	0.44	33.7	29.3	A	0.22	21.2	11.2
	EBT/R	C	0.76	30.4	185.6	C	0.76	27.3	189.4
	WBL	C	0.76	96.6	m45.1	C	0.77	87.9	m26.1
	WBT/R	B	0.67	5.3	m18.2	B	0.68	17.0	m236.6
	NBL	A	0.42	56.0	48.3	A	0.49	57.6	56.2
	NBT/R	A	0.31	13.0	20.1	A	0.36	10.0	19.3
	SBL	A	0.14	49.2	17.8	A	0.35	54.3	35.8
	SBT/R	A	0.12	15.4	11.2	A	0.17	15.4	14.6
Overall	B	0.68	22.1	-	B	0.70	25.1	-	
Prince of Wales & W Hunt Club <i>Signalized</i>	EBL	B	0.63	81.9	m30.2	F	1.08	130.1	m#52.5
	EBT	F	1.04	83.9	#215.8	E	0.95	87.6	#227.7
	EBR	A	0.07	0.2	m0.0	A	0.07	0.1	m0.0
	WBL	F	1.27	187.8	#139.7	F	1.35	217.6	#159.7
	WBT	F	1.10	99.8	#281.5	F	1.04	72.1	#308.0
	WBR	A	0.54	16.0	63.4	A	0.41	11.3	45.4
	NBL	A	0.40	78.8	23.9	B	0.67	113.7	#32.8
	NBT	F	1.17	134.3	#235.1	F	1.12	132.9	#147.4
	NBR	F	1.58	297.0	#399.4	F	1.50	262.6	#277.2
	SBL	F	1.64	352.4	#170.9	F	1.74	386.6	#245.9
	SBT	A	0.50	43.7	92.7	F	1.16	132.0	#251.6
	SBR	A	0.41	6.2	21.8	A	0.27	3.6	8.2
Overall	F	1.45	132.0	-	F	1.40	136.4	-	

Notes: Saturation flow rate of 1800 veh/h/lane
 Queue is measured in metres
 Peak Hour Factor = 0.90

Delay = average vehicle delay in seconds
 m = metered queue
 # = volume for the 95th %ile cycle exceeds capacity

Lanes, Volumes, Timings
1.: Antares/Laser & W Hunt Club

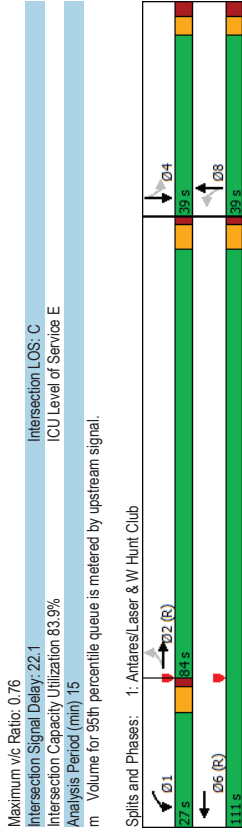
2023 Existing AM Peak Hour
06-24-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	60	963	181	127	1237	118	100	12	96	30	3	36
Traffic Volume (vph)	60	963	181	127	1237	118	100	12	96	30	3	36
Future Volume (vph)	60	963	181	127	1237	118	100	12	96	30	3	36
Satd. Flow (prot)	1658	3094	0	1595	3209	0	1595	1401	0	1642	1435	0
Flt Permitted	0.161			0.950			0.729			0.635		
Satd. Flow (perm)	281	3094	0	1593	3209	0	1220	1401	0	1097	1435	0
Satd. Flow (RTOR)	21			16			107			40		
Lane Group Flow (vph)	67	1271	0	141	1505	0	111	120	0	33	43	0
Turn Type	Perm	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	1	6	6	8	8	8	8	4	4	4
Detector Phase	2	2	1	6	6	8	8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	37.2	37.2	11.2	37.2	37.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Total Split (s)	84.0	84.0	27.0	111.0	111.0	39.0	39.0	39.0	39.0	26.0%	26.0%	26.0%
Total Split (%)	56.0%	56.0%	18.0%	74.0%	74.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Yes	Yes	Lead	Yes	Yes	Lead	Yes	Yes	Yes	Lead	Yes	Yes
Recall Mode	C	C	F	A	A	E	B	B	D	D	B	B
Act Effct Green (s)	81.1	81.1	17.5	104.8	104.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
Actuated G/C Ratio	0.54	0.54	0.12	0.70	0.70	0.22	0.22	0.22	0.22	0.22	0.22	0.22
v/c Ratio	0.44	0.76	0.76	0.67	0.67	0.42	0.31	0.14	0.14	0.12	0.12	0.12
Control Delay	33.7	30.4	96.6	5.3	5.3	56.0	13.0	49.2	15.4	15.4	15.4	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	30.4	96.6	5.3	5.3	56.0	13.0	49.2	15.4	15.4	15.4	15.4
LOS	C	C	F	A	A	E	B	B	D	D	B	B
Approach Delay	30.6	30.6	13.1	13.1	13.1	33.7	33.7	33.7	33.7	30.1	30.1	30.1
Approach LOS	C	C	B	B	B	C	C	C	C	C	C	C
Queue Length 50th (m)	11.9	150.5	44.1	18.4	18.4	28.7	3.1	8.0	8.0	0.7	0.7	0.7
Queue Length 95th (m)	29.3	185.6	m45.1	m18.2	m18.2	48.3	20.1	17.8	17.8	11.2	11.2	11.2
Internal Link Dist (m)	665.6			391.4		137.5		130.5				
Turn Bay Length (m)	70.0			75.0		36.0		34.0				
Base Capacity (vph)	151	1683	221	2246	2246	266	389	239	345	345	345	345
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.76	0.64	0.67	0.67	0.42	0.31	0.14	0.14	0.12	0.12	0.12

Scenario 1 9 Gurdwara 11:59 pm 03-14-2024 2023 Existing
Synchro 11 Report
Page 1

Lanes, Volumes, Timings
1.: Antares/Laser & W Hunt Club

2023 Existing AM Peak Hour
06-24-2024



Scenario 1 9 Gurdwara 11:59 pm 03-14-2024 2023 Existing
Synchro 11 Report
Page 2

Lanes, Volumes, Timings
2: Prince of Wales & W Hunt Club

2023 Existing AM Peak Hour
06-24-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Traffic Volume (vph)	124	943	35	483	1205	340	36	937	780	240	493	244
Future Volume (vph)	124	943	35	483	1205	340	36	937	780	240	493	244
Satd. Flow (prot)	3124	3191	1469	3154	3221	1455	1658	3316	1483	1595	3316	1469
Flt Permitted	0.950			0.950			0.950				0.950	
Satd. Flow (perm)	3124	3191	1469	3154	3221	1455	1658	3316	1483	1595	3316	1469
Satd. Flow (RTOR)	173			237			206				271	
Lane Group Flow (vph)	138	1048	39	537	1339	378	40	1041	867	267	548	271
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Permitted Phases	5	2	2	1	6	3	8	8	7	4	4	4
Detector Phase	5	2	2	1	6	3	8	8	7	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.8	31.8	31.8	11.8	31.8	31.8	11.6	30.6	30.6	11.6	30.6	30.6
Total Split (s)	18.0	54.0	54.0	27.0	63.0	63.0	22.0	47.0	47.0	22.0	47.0	47.0
Total Split (%)	12.0%	36.0%	36.0%	18.0%	42.0%	42.0%	14.7%	31.3%	31.3%	14.7%	31.3%	31.3%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	None	Max	Max
Act Effct Green (s)	10.5	47.2	47.2	20.2	56.9	56.9	9.0	40.4	40.4	15.4	49.2	49.2
Actuated G/C Ratio	0.07	0.31	0.31	0.13	0.38	0.38	0.06	0.27	0.27	0.10	0.33	0.33
v/c Ratio	0.63	1.04	0.07	1.27	1.10	0.54	0.40	1.17	1.58	1.64	0.50	0.41
Control Delay	81.9	83.9	0.2	187.8	99.8	16.0	78.8	134.3	297.0	352.4	43.7	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.9	83.9	0.2	187.8	99.8	16.0	78.8	134.3	297.0	352.4	43.7	6.2
LOS	F	F	A	F	F	B	E	F	F	F	D	A
Approach Delay	81.0			106.7			205.5				110.3	
Approach LOS	F			F			F				F	
Queue Length 50th (m)	22.4	-172.1	0.0	-103.1	-238.7	31.2	11.7	-192.9	-320.1	-114.2	70.8	0.0
Queue Length 95th (m)	m30.2	#215.8	m0.0	#139.7	#281.5	63.4	23.9	#235.1	#399.4	#170.9	92.7	21.8
Internal Link Dist (m)	391.4			574.2			342.2				459.5	
Turn Bay Length (m)	105.0	130.0	150.0	80.0	50.0	170.0	90.0	50.0	170.0	90.0	140.0	50.0
Base Capacity (vph)	233	1004	580	424	1221	699	170	893	549	163	1087	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.04	0.07	1.27	1.10	0.54	0.24	1.17	1.58	1.64	0.50	0.41

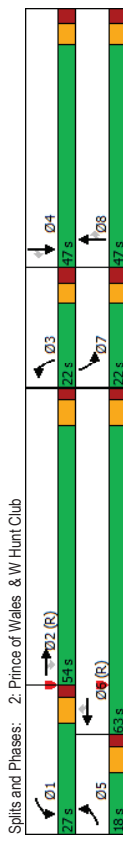
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 68 (45%), Referenced to phase 2EBT and 6WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Scenario 1 9 Gurdwara 11:59 pm 03-14-2024 2023 Existing
Synchro 11 Report
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Lanes, Volumes, Timings
2: Prince of Wales & W Hunt Club

2023 Existing AM Peak Hour
06-24-2024

Maximum v/c Ratio: 1.64	Intersection LOS: F
Intersection Signal Delay: 132.0	ICU Level of Service H
Intersection Capacity Utilization 109.2%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
# Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
~ Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	



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Synchro 11 Report
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Lanes, Volumes, Timings
1: Antares/Laser & W Hunt Club

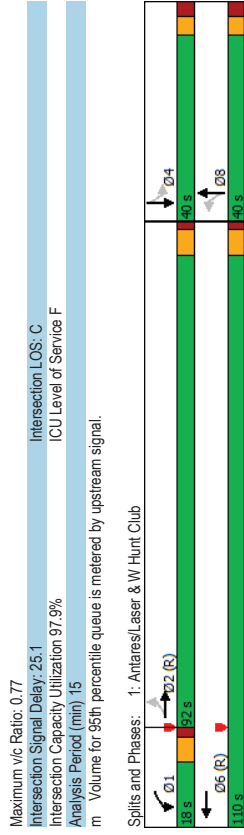
2023 Existing PM Peak Hour
06-24-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	26	1195	72	83	1341	43	118	4	130	69	8	48
Future Volume (vph)	26	1195	72	83	1341	43	118	4	130	69	8	48
Satd. Flow (prot)	1566	3224	0	1610	3258	0	1595	1355	0	1626	1456	0
Flt Permitted	0.139	0.950		0.717						0.580		
Satd. Flow (perm)	229	3224	0	1610	3258	0	1202	1355	0	976	1456	0
Satd. Flow (RTOR)	7			5			144			53		
Lane Group Flow (vph)	29	1408	0	92	1538	0	131	148	0	77	62	0
Turn Type	Perm	NA	Prot	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	2	2	1	6	6	8	8	4	4	4	4	4
Detector Phase	2	2	1	6	6	8	8	4	4	4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	37.2	37.2	11.2	37.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2	30.2
Total Split (s)	92.0	92.0	18.0	110.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Total Split (%)	61.3%	61.3%	12.0%	73.3%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
All-Red Time (s)	1.6	1.6	1.6	1.6	1.6	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Lead/Lag	Lead	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	86.4	86.4	11.2	103.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8	33.8
Actuated G/C Ratio	0.56	0.58	0.07	0.69	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23
v/c Ratio	0.22	0.76	0.77	0.68	0.49	0.36	0.36	0.36	0.36	0.36	0.36	0.36
Control Delay	21.2	27.3	87.9	17.0	57.6	10.0	54.3	15.4	15.4	15.4	15.4	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.2	27.3	87.9	17.0	57.6	10.0	54.3	15.4	15.4	15.4	15.4	15.4
LOS	C	C	F	B	E	B	D	B	D	B	D	B
Approach Delay	27.2	21.0	32.4	32.4	36.9	36.9	36.9	36.9	36.9	36.9	36.9	36.9
Approach LOS	C	C	C	C	D	D	D	D	D	D	D	D
Queue Length 50th (m)	4.1	160.8	25.0	249.4	34.2	0.9	19.5	2.1	2.1	2.1	2.1	2.1
Queue Length 95th (m)	11.2	189.4	m26.1	m236.6	66.2	19.3	35.8	14.6	14.6	14.6	14.6	14.6
Internal Link Dist (m)	665.6	665.6	391.4	391.4	137.5	137.5	137.5	137.5	137.5	137.5	137.5	137.5
Turn Bay Length (m)	70.0	70.0	75.0	75.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0
Base Capacity (vph)	131	1859	126	2256	270	416	219	369	369	369	369	369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.76	0.73	0.68	0.49	0.36	0.35	0.35	0.35	0.35	0.35	0.35

Scenario 1 9 Gurdwara 11:59 pm 03-14-2024 2023 Existing
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Lanes, Volumes, Timings
1: Antares/Laser & W Hunt Club

2023 Existing PM Peak Hour
06-24-2024



Scenario 1 9 Gurdwara 11:59 pm 03-14-2024 2023 Existing
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Lanes, Volumes, Timings
2: Prince of Wales & W Hunt Club

2023 Existing PM Peak Hour
06-24-2024

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Traffic Volume (vph)	169	1045	42	551	1425	288	39	545	569	370	972	125
Future Volume (vph)	169	1045	42	551	1425	288	39	545	569	370	972	125
Sat'd. Flow (prot)	3185	3252	1483	3216	3316	1483	1537	3316	1483	1658	3316	1455
Flt Permitted	0.950			0.950			0.950				0.950	
Sat'd. Flow (perm)	3185	3252	1444	3209	3316	1459	1535	3316	1447	1657	3316	1406
Sat'd. Flow (RTOR)	221			197			223				175	
Lane Group Flow (vph)	188	1161	47	612	1583	320	43	606	632	411	1080	139
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Permitted Phases	5	2	2	1	6	3	8	8	7	4	4	4
Detector Phase	5	2	2	1	6	3	8	8	7	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	11.8	31.8	31.8	11.8	31.8	31.8	11.6	30.6	30.6	11.6	30.6	30.6
Total Split (s)	15.0	63.0	63.0	28.0	76.0	76.0	13.0	31.0	31.0	28.0	46.0	46.0
Total Split (%)	10.0%	42.0%	42.0%	18.7%	50.7%	50.7%	8.7%	20.7%	20.7%	18.7%	30.7%	30.7%
Yellow Time (s)	4.6	4.6	4.6	4.6	4.6	4.6	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8	6.8	6.6	6.6	6.6	6.6	6.6	6.6
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead/Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	Max	None	Max	Max
Act Effct Green (s)	8.2	56.2	56.2	21.2	69.2	69.2	6.3	24.4	24.4	21.4	42.0	42.0
Actuated G/C Ratio	0.05	0.37	0.37	0.14	0.46	0.46	0.04	0.16	0.16	0.14	0.28	0.28
v/c Ratio	1.08	0.95	0.07	1.35	1.04	0.41	0.67	1.12	1.12	1.50	1.74	1.16
Control Delay	130.1	87.6	0.1	217.6	72.1	11.3	113.7	132.9	262.6	386.6	132.0	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.1	87.6	0.1	217.6	72.1	11.3	113.7	132.9	262.6	386.6	132.0	3.6
LOS	F	F	A	F	E	B	F	F	F	F	F	A
Approach Delay		90.3		99.7			196.3			185.2		
Approach LOS		F		F			F			F		F
Queue Length 50th (m)	-32.2	192.6	0.0	-122.3	-265.5	21.7	12.9	-109.1	-202.2	-180.5	-209.1	0.0
Queue Length 95th (m)	m#52.5	#227.7	m0.0	#159.7	#308.0	45.4	#32.8	#147.4	#277.2	#245.9	#251.6	8.2
Internal Link Dist (m)		391.4		574.2			342.2			170.0	90.0	459.5
Turn Bay Length (m)	105.0	130.0	150.0	80.0	50.0	80.0	50.0	170.0	50.0	140.0	140.0	140.0
Base Capacity (vph)	174	1218	679	454	1529	779	65	539	422	236	928	519
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.95	0.07	1.35	1.04	0.41	0.66	1.12	1.50	1.74	1.16	0.27

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 31 (21%), Referenced to phase 2EBT and 6WBT, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated

Lanes, Volumes, Timings
2: Prince of Wales & W Hunt Club

2023 Existing PM Peak Hour
06-24-2024

Maximum v/c Ratio: 1.74	Intersection LOS: F
Intersection Signal Delay: 136.4	ICU Level of Service H
Intersection Capacity Utilization 111.1%	
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	
m Volume for 95th percentile queue is metered by upstream signal.	

