

March 19<sup>th</sup>, 2026

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### **Re: Redeemer Christian High School, 82 Colonnade Road North Proposed Expansion to Facilities**

Redeemer Christian High School is proposing an expansion to their existing facility located at 82 Colonnade Road North. The existing school currently accommodates 223 students and 25 employees.

The proposed expansion focuses on an enhanced academic environment by adding approximately 1,393 m<sup>2</sup> (15,000 ft<sup>2</sup>) of new space and 120 m<sup>2</sup> (1,300 ft<sup>2</sup>) for cafeteria. This phase includes the construction of additional classrooms, an open-concept library, social areas for student interaction, and expanded cafeteria space to accommodate the growing student population. It is anticipated that the proposed expansion will enable the campus to accommodate 300 students and 36 employees. In terms of growth, the expansion was estimated to translates to 77 new students and 11 new employees and an expansion of the parking supply from 54-to-125 (by 71) new parking stalls.

#### *1. Traffic Information Collected*

Manual traffic counts were undertaken on Thursday, May 8<sup>th</sup>, 2025, over two 3-hour “**peak periods**” (between 6:30-to-9:30 am and 3:00-to-6:00pm) along the Colonnade Road North corridor within the vicinity of the proposed site. The analyzed intersections included:

- Colonnade Road North / Corinth Private,
- Colonnade Road North / Commercial Access,
- Colonnade Road North / both the access and egress to the Redeemer Christian High School,
- Colonnade Road North / Redeemer Christian High School Exit, and
- Colonnade Road North / Citiplace Drive.

The traffic count information was then converted to digital format, and the “**peak hour**” traffic volumes were then determined. The peak hour information was then balanced to assure that all traffic leaving an upstream intersection/access would balance with the traffic entering the adjacent intersection. The existing traffic volume diagram is illustrated in *Annex “A”*.

The peak hour for adjacent roadway traffic along Colonnade Road was determined to occur between 8:00-9:00am during the morning and between 3:45-4:45pm, during the afternoon. However, these times differ from the peak hour of school-related vehicle traffic generated by the Redeemer Christian High School which occurred 15 minutes earlier, from 7:45-8:45 AM during the morning, and 45 minutes earlier during the 3:00-4:00pm period in the afternoon.

## 2. Traffic Generation and Mode Shares

As noted above, the time in which the morning and afternoon peak hours of the traffic along Colonnade Road North occurs is different than compared to the peak hours of vehicle traffic destined to/originating from the Redeemer Christian High School. This was accounted for in the traffic generation estimate associated with the proposed expansion to the high school.

The methodology used to estimate the number of trips generated by the Redeemer High School expansion is detailed in *Annex B*. As the school’s morning and afternoon peak hours differ from the time of the adjacent traffic’s peak hours, adjustment ratios were applied to the total trips generated by the proposed expansion to align with the time of adjacent traffic peak hour. The adjustment ratios applied to the traffic generated by the proposed expansion are detailed in *Annex B*.

- *Morning Peak Hour:* A 6% reduction factor was applied to inbound traffic at the west access, that covered vehicle trips generated by both students and employees, as well as drop-off trips by passenger-vehicles and school buses. For morning peak hour outbound traffic at the east access, no reduction factor was applied to, as the site’s peak hour aligns with the timing of adjacent traffic.
- *Afternoon Peak Hour:* An 81% reduction factor was applied to inbound afternoon peak hour traffic which generally represent pick-up trips. A 70% reduction factor was applied to outbound afternoon peak hour vehicle traffic to account for the 45-minute offset related to early school dismissal times.

*Pick-Up/Drop-Off Trips:* Only the west access can be used to enter the campus. All pick-up and drop-off vehicles must enter through the west access; however, vehicle traffic can choose to exit from either the west access or the east access. There is a separate designated pick-up/drop-off area on the west side of the existing building for pick-ups.

Table 2-1 presents the reductions applied to the new site generated traffic attributed to the proposed expansion of the high school. The reduction factors are applied to the site peak hour of travel demand associated with the high school which are offset from the peak hour of adjacent traffic volumes along Colonnade Road North.

**Table 2-1: Ratio of Site Peak Hour to Peak Hour of Adjacent Traffic**

Time Period	Access	Trip Type	Reduction Factor	
			Inbound	Outbound
Morning Peak Hour	West Access	All Inbound Trips	6%	0%
	East Access	Drop off Trips	n/a	0%
Afternoon Peak Hour	West Access	Pick up trips (to pick up students)	81%	n/a
		Vehicle Trips (Students & Employees)	n/a	70%
	East Access	Vehicle Trips (Students & Employees)	n/a	70%
		Pickup Trips (Departing with students)	n/a	82%

n/a - not applicable

Table 2-2 presents the additional new peak hour traffic volumes attributed to the proposed expansion of the high school after the reductions in Table 2-1 were applied to the site peak hour volumes.

**Table 2-2: Site Generated Traffic Volumes during the Peak Hour of Adjacent Traffic**

Type of Trips	Morning Trips		Afternoon Trips	
	Inbound	Outbound	Inbound	Outbound
Vehicle Trips (Student)	7	-	-	2
Vehicle Trips (Staff)	8	-	-	3
Pick ups and Drop off's (Auto Passenger)	13	14	3	2
Pick ups and Drop off's (School Bus)	5	5	1	1
<b>Total</b>	<b>33</b>	<b>19</b>	<b>4</b>	<b>8</b>

### 3. Traffic Distribution Assumptions

Traffic was distributed according to the following trends:

- 50% of site-generated traffic is destined to, or originates from, areas west of the study area,
- 50% of site-generated traffic is associated with areas to the east of the study area.
- With the introduction of a new access to the parking lot, it is assumed that vehicles traveling from east to west will use this new access to enter the parking area, while vehicles traveling from west to east will continue to use the primary west access to the parking lot.
- *Morning Peak Hour*: The traffic entering the site during the morning peak hour would utilize two accesses: the primary west access and the new access. It was assumed that there would be no “drop-off’s” at the new parking lot access with Colonnade Road North.
- *Afternoon Peak Hour*: The traffic exiting the site during the afternoon peak hour would utilize three accesses: the primary west access, the east access, and the new access. It was assumed that there would be no “pick-up’s” at the new parking lot access with Colonnade Road North.

### 4. Site Plan and Access Requirements

#### *The Proposed Expansion and Traffic Operational Impacts*

The proposed expansion of the Redeemer High School is illustrated within *Annex “C” Site Plan*.

*Annex “D”*: Table D-1 2025 ***Without*** the Proposed Expansion in Place: This table presents the existing 2025 traffic operational parameters (traffic volumes, delay, levels-of-service, queuing and volume-to-capacity ratios) without the development in place. The table indicates that all turning movements at all intersections evaluated were found to currently provide satisfactory operational parameters. (LOS “C”-or-above, lower than 0.9 v/c, and vehicle delays less than 25 seconds.)

*Annex “D”*: Table D-2 2025 ***With*** the Proposed Expansion in Place: This table presents, for comparison purpose, the existing 2025 traffic operational parameters assuming the proposed high school expansion to already be in place. The table continues to indicate that all the turning movements at all intersections, including the new parking access, were found to also exhibit satisfactory operational parameters.

#### *The New Site Access to the Expanded Parking Area*

A new access to an expanded parking facility is proposed on the east side of the high school to facilitate vehicle entry and exit to the expanded parking area and improve overall on-site traffic circulation. The following factors were considered in the location and design of the new access:

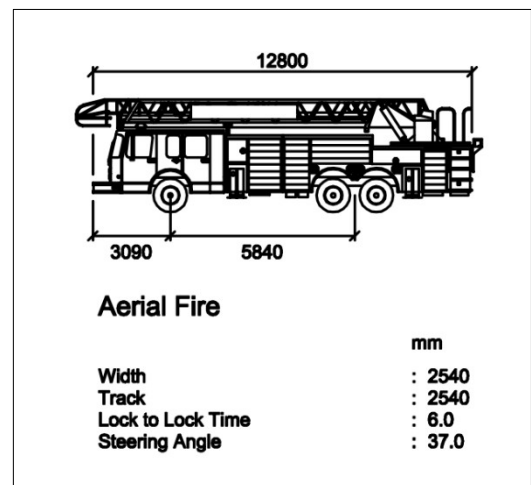
- **Right-of-Way:** The design of the new access and associated parking stalls is based on the 26m ROW standard, consistent with major collector requirements, as Colonnade Road is classified as a major collector.<sup>1</sup>
- **Posted Speed Adjustment:** In accordance with design guideline recommendations<sup>2</sup>, the access location on a horizontal curve with an approximate radius of 100 m warrants reducing the posted speed to 50 km/h (and therefore the design speed to 60 km/h) around the curve to enhance safety for vehicles entering and exiting the site. **The required advance warning and posted speed signage be implemented to accommodate the existing curve along Colonnade Road North.**
- **Throat Length:** A 15m throat length ensures vehicles can enter the site without queuing onto Colonnade Road, improving traffic flow and safety.
- **Curve Radii:** The left curve radius is 5m and the right curve radius is 7m, both within the guidelines<sup>3</sup> recommended range of 4.5-to-12.0m for urban collector accesses.
- **Minimum Corner Clearances:** The access location satisfies the corner clearance requirements that reduce the incidence of potential conflicts with turning movements at the intersection.
- **Separation to Nearest Intersection:** As per the guidelines<sup>4</sup>, the minimum clearance for a collector roadway is 55m; the proposed access would be located 86m from the adjacent signalized intersection (Colonnade Road/Cityplace Drive.). The 86m separation from the traffic signal-controlled Colonnade Road/Cityplace Drive intersection avoids conflict with the left-turn lane taper and auxiliary lane onto Cityplace Drive.
- **Sight Distance Requirements:** See Section 6.
- **Minimum Spacing from Existing East Egress:** The distance between the new and existing West egress is ~70 meters which exceeds the required minimum 20 m spacing<sup>5</sup> requirements, satisfying access management requirements and ensuring safe vehicle maneuvering.

## 5. On-Site Circulation

### Circulating Through the Site

In discussion with Redeemer High School staff, it was determined that “standard size fire truck” would best represent the design vehicle that would require access to the site for emergency purposes.

Exhibit 5-1 illustrates the design vehicle adopted to evaluate on-site turning radius requirements. Vehicle circulation through the new access and parking lot was analyzed using AutoTURN software, confirming that a fire truck can maneuver safely and efficiently around the building.



**Exhibit 5-1: Vehicle Specifications**

<sup>1</sup> Schedule C-16 – Road Classification and Rights-of-Way Protection, Page 19

<sup>2</sup> “TAC Geometric Design Guide for Canadian Roads”, Chapter 3, alignment and Lane Configuration, Figure 3.2.4. Page 20

<sup>3</sup> “TAC Geometric Design Guide for Canadian Roads”, Chapter 8, Access, Figure 8.5.1. Page 19

<sup>4</sup> “TAC Geometric Design Guide for Canadian Roads”, Chapter 8, Access, Figure 8.8.2. Page 44

<sup>5</sup> “TAC Geometric Design Guide for Canadian Roads”, Chapter 8, Access, Figure 8.5.1. Page 19

Annex “E” illustrates the following two primary maneuvers “A” & “B” through the proposed high school internal circulation roadways.

- *Maneuver “A”*: This exhibit illustrates a westbound emergency vehicle entering the new parking access via a northbound left turn, circulating through the site, and exiting via a right turn onto Colonnade Road North heading east.
- *Maneuver “B”*: This exhibit illustrates an eastbound emergency vehicle entering the existing west access via an eastbound right turn, circulating through the site, and exiting via a northbound left turn onto Colonnade Road North heading to the west.

Annex “E” illustrates three other turning maneuvers (C, D, and E) at the existing east and west accesses fronting the building.

It was assumed for the purpose of this TIA that a fire truck would require access to the new parking intersection to access the rear and west side of the building.

#### *The East (Exit Only) Egress*

It can be appreciated that the existing East (Exit-Only) Egress would be required to be relocated further west to accommodate the new

expansion. It was assumed that both passenger vehicles and school bus vehicles would still continue to be required to enter the site through the main west access for pick-up and drop-off and then exit via a newly designed East (Exit-Only) Egress, promoting efficient internal circulation and minimizing operational conflicts.

The configuration of the East (Exit-Only) Egress was evaluated specifically for school buses (See Annex “E”, Page E-2) to assure that the vehicle turning movements could continue to be accommodated.

#### *The West Access*

The throat width at the west access is proposed to remain unchanged at 7 metres, as the existing configuration is considered sufficient to accommodate current and projected traffic volumes, including emergency and service vehicle access.

### **6. Sight Distances**

A sight distance assessment was conducted for the proposed access to the proposed parking lot for the proposed Redeemer Christian High School expansion. The access was assumed to be minor leg STOP-controlled.



**Exhibit 5-2: Emergency Water Sources on West Side of Building**

**Intersection Sight Distance (ISD) & Required Sight Triangles:** ISD is the sight distance required to assure that a vehicle fully stopped at the new parking access at a STOP sign can assess the available gaps along Colonnade Road North that will enable the motorist to select an opportunity to complete his turn onto the collector roadway. Annex “F” illustrates the required intersection (ISD) sight distance and the corresponding sight triangles that must remain clear of any obstacles (solid fencing, signage, foliage, large trees, landscaping features etc.) that could obscure the line of sight between a vehicle at the new access and a vehicle travelling along Colonnade Road North.

The Ministry of Transportation of Ontario’s (MTO’s) geometric design standards<sup>1</sup> indicate that the decision point of the departure sight triangle from the site access should be positioned 4.4- meters from the edge of the Colonnade Road N travel lane. The analyses assumed a fire truck that leaves the access must observe oncoming traffic along Colonnade Rd to assess the required gap necessary to safely complete a turning maneuver out of the site. TAC standards indicate for a 60 km/h posted speed (70 km/h design speed) the “required” ISD for turning right would be 170m and for turning to the left would be 180m. Table A-1 indicates the “available” ISD is approximately 180m on both sides of the proposed access. Hence, it was determined that **the “available” ISD either meets, or exceeds, the “required” ISD distances for right or left turning movements onto Colonnade Road North.**

**Stopping Sight Distance (SSD):** SSD is the distance a vehicle requires to come to a complete stop to avoid a collision with a vehicle that is attempting to turn into the new parking access from Colonnade Road North. TAC standards indicate that the section of Colonnade Rd fronting the proposed new access would require a 105m stopping sight distance to avoid a collision with a vehicle turning into the new parking access. The available SSD determined from observations from Streetview photography was determined to be approximately 180m. It was concluded that **sufficient SSD is “available” that exceeds the “required” SSD of 105m.**

**The cyan shaded areas within Annex “F” should be interpreted as a clear zone, free of obstacles that could obstruct the view of on-coming opposing traffic along Colonnade Road North.**

**Table 6-1: ISD and SSD Distances at 70kph Design Speed (Proposed Parking Access)**

		<i>Design Speed: 70 kph (Posted Speed: 60 kph)</i>		
<i>Intersection Sight Distance (ISD) for</i>	<i>To</i>	<i>Required Distance</i>	<i>Available Distance</i>	<i>Satisfied</i>
Passenger Vehicle Measured from • West to East	Fire truck leaving Proposed Access	170m <sup>1</sup>	180m	YES
Passenger Vehicle Measured from • East to West	Fire truck leaving Proposed Access	180m <sup>2</sup>	180m	YES
<i>Intersection Stop Sight Distance (SSD) for</i>	<i>To</i>	<i>Required Distance</i>	<i>Available Distance</i>	<i>Satisfied</i>
Passenger Vehicle Measured from • West to East • East to West	Fire truck entering and exiting the site	105m <sup>3</sup>	180m	YES

1. “TAC Geometric Design Guide for Canadian Roads”, Chapter 9 Intersections, TAC Figure 9.9.5. Intersection Sight Distance – Case B2, Right Turn from Stop, Pg. 71 (Single-unit Truck)
2. Ibid, Figure 9.9.4. Intersection Sight Distance – Case B1, Left Turn from Stop, Chapter 9 Intersections. Pg. 69 (Single-unit Truck)
3. Ibid, Table 2.5.2. Stopping Sight Distance on Level roadways, Chapter 2 Design Controls, Classification and Consistency. Pg. 38

<sup>1</sup> MTO Design Supplement for TAC Geometric Design Guide for Canadian Roads”, Appendix 9: Intersections, June 2017

## 7. Findings

- For the purposes of this letter report the proposed expansion to the existing Christian Redeemer High School would involve 77 new students, 11 new employees, 71 new parking stalls and generate 52 (33 inbound/19 outbound) new vehicle trips during the morning peak hour and 12 (4 inbound/8 outbound) new vehicle trips during the afternoon peak hour of adjacent street traffic.
- The expansion would provide for a new access to/from Colonnade Road South connecting to the expanded surface parking lot. This access was found to meet or exceed all TAC, MTO and City of Ottawa geometric and operational requirements for collector roadways. The new intersection location avoids interference with the eastbound left-turn taper leading to the traffic-signal controlled Colonnade Road/Citiplace Drive intersection assuring satisfactory intersection operations.
- AutoTURN simulations confirm that emergency vehicles (a fire truck) can safely maneuver through all of the high school accesses without conflicts.
- Analysis indicated that the available Intersection Sight Distance (ISD) and Stopping Sight Distance (SSD) values for a 70 km/h design speed meet or exceed required distances.
- A clear zone has been defined that would be free of visual obstructions such as landscaping, signage, etc that could potentially obscure the sight lines between vehicles at the access and vehicles along the collector roadway.
- The existing 100 m radius curve of Colonnade Road North requires a design speed reduction to 60kph (posted at 50 km/h) to remain in accordance with TAC<sup>1</sup> standards.

## 8. Recommendations

It is recommendation that ...:

- The speed along colonnade Road North in the vicinity of the 100 m radius curve be reduced to a posted speed to 50 km/h through a signage plan that provides for the required advance warning and posted speed signage.
- The identified clear zone in the vicinity of the new parking access remains clear of landscaping, large signage, and other potential visual obstructions.
- No parking be permitted along the curb in front of the school entrance to assure that school buses attempting to exit the site by way of the east access are not blocked by parked vehicles.

Respectfully,

  
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cc. Mr. Tim Priddle, Redeemer Christian High School

<sup>1</sup> “TAC Geometric Design Guide for Canadian Roads”, Chapter 3, alignment and Lane Configuration, Figure 3.2.4. Page 20



**Castleglenn  
Consultants**

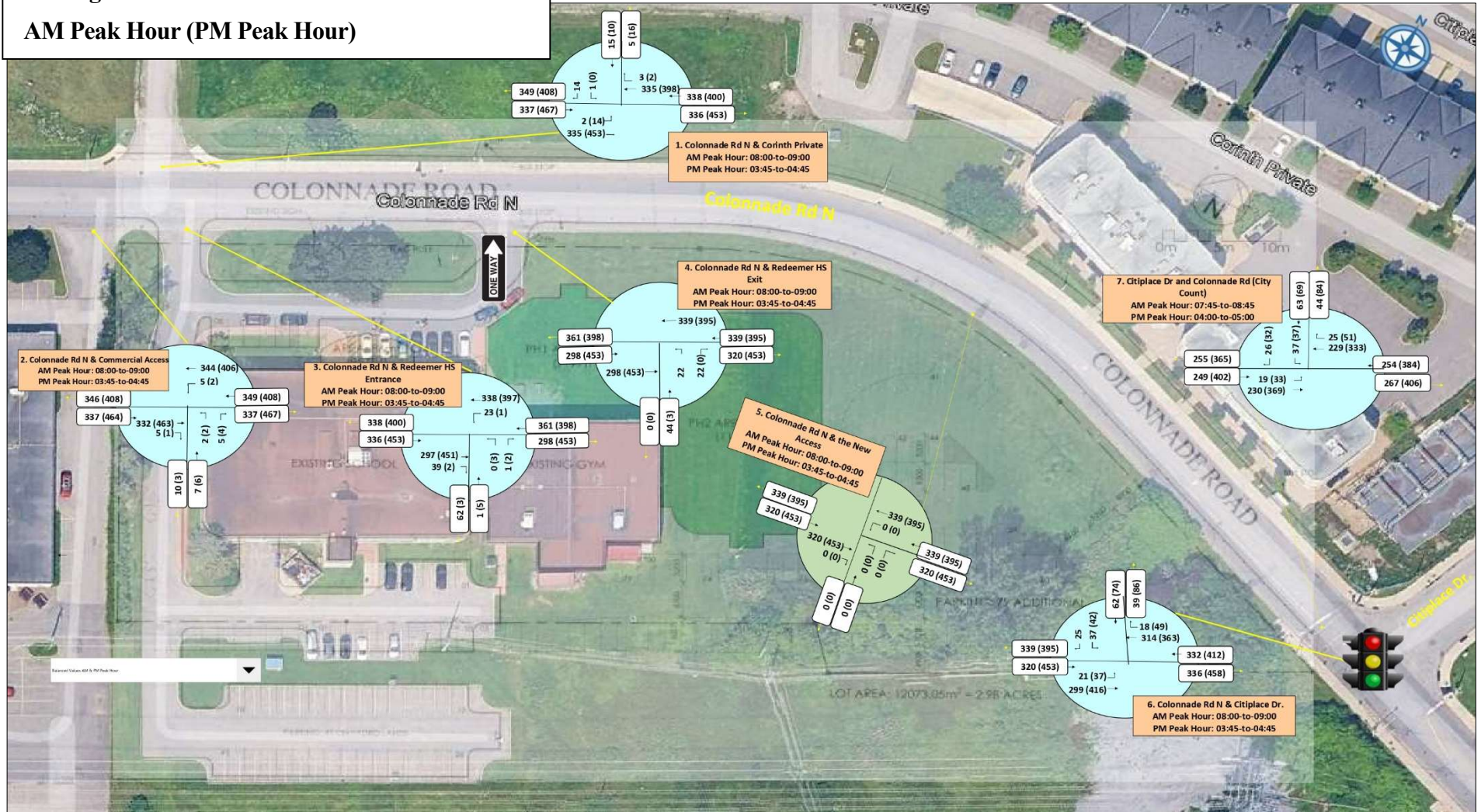
Engineers, Project Managers & Planners

## Annex "A"

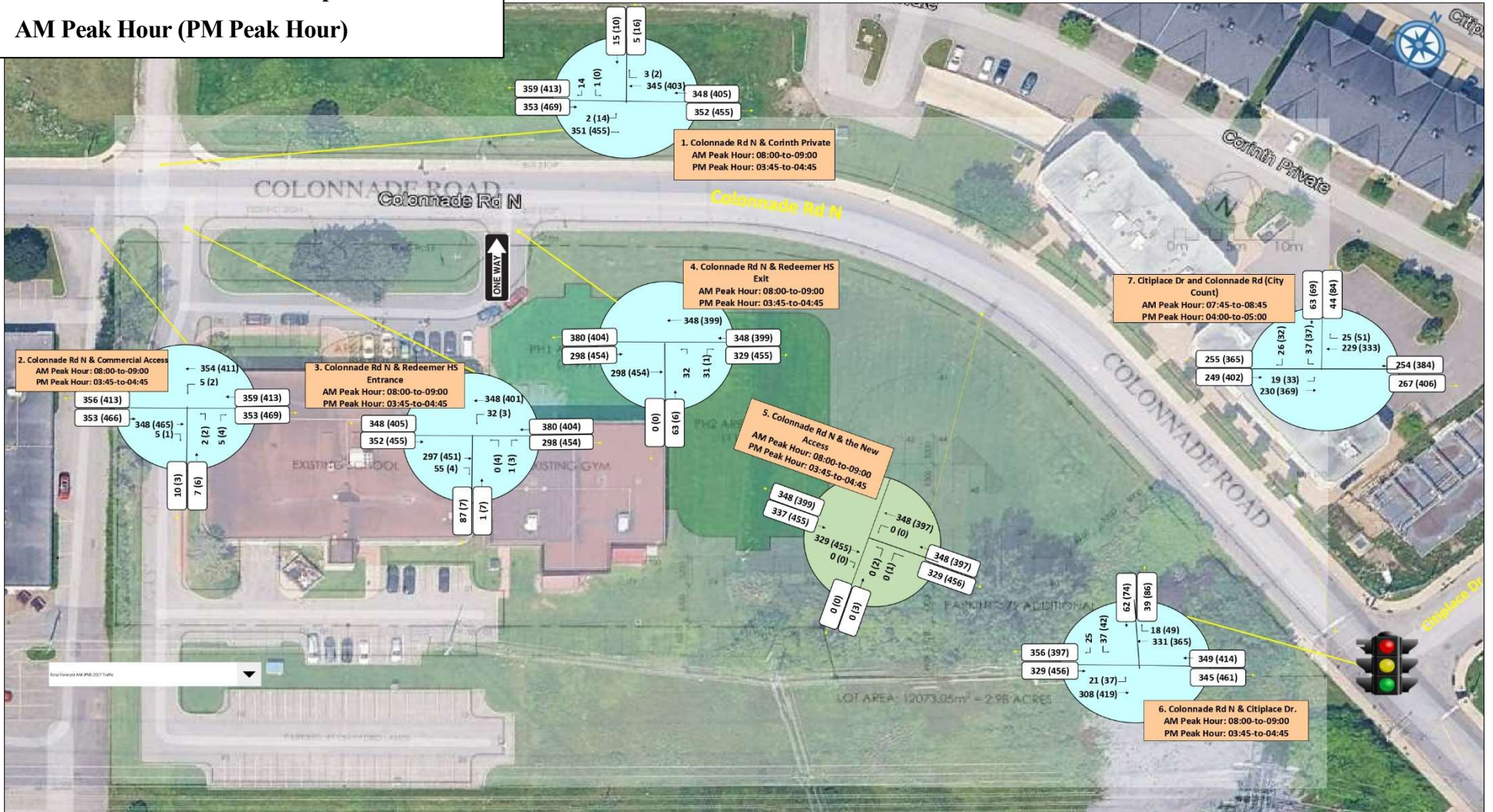
Exiting (2025) Traffic & Forecast Volumes with Development in  
Place

# Existing Balanced

## AM Peak Hour (PM Peak Hour)



**Forecast Volumes with Development in Place**  
**AM Peak Hour (PM Peak Hour)**





**Castleglenn  
Consultants**

Engineers, Project Managers & Planners

## Annex "B"

### Estimates of Traffic Generation and Distribution

*B1. Traffic Generation and Mode Shares*

Following the proposed expansion of the existing Redeemer High School facility, student enrollment is expected to increase from 223-to-300 students, while the number of employees is anticipated to rise from 25-to-36 employees.

Table B-1 indicates the mode share percentages for students and staff.

Vehicle occupancy rates have been considered as follows:

- 1.1 persons-per-passenger car for those students who drive their own car,
- 2.2 persons-per-passenger car, and
- 3.5 persons-per-school bus for pick-up and drop-off activities.

As well, it was estimated that approximately 20% of students will drive their own vehicles, while the remaining 80% would generate trips through pick-up and drop-off operations.

**Table B-1: High School Mode Share and Trip Generation**

<i>Mode Share</i>	<i>Auto Passenger</i>	<i>School Bus</i>	<i>Transit</i>	<i>Walk</i>		<i>Bike</i>	<i>Other</i>	
<i>Students</i>	50%	30%	10%	4%		3%	3%	
<i>No. of Students using the mode shares</i>	39	23	8	3		2	2	
<i>Employees</i>	90%	-	5%	-		-	5%	
<i>No. of Employees using the mode shares</i>	10	-	1	-		-	1	
<i>Trip Generated by</i>	<i>Vehicle Occupancy</i>	<i>Percentage of Vehicle Trips</i>	<i>Vehicle Trips</i>	<i>Pick ups and Drop off's Rates</i>		<i>Percentage of Pick ups and drop off</i>	<i>Pick ups and drop off's Trips</i>	
				<i>Auto Passenger</i>	<i>School Bus</i>		<i>Auto Passenger</i>	<i>School Bus</i>
<i>Students</i>	1.1	20%	7	2.2	3.5	80%	14	5
<i>Employees</i>	1.1	100%	9	-	-	-	-	-
<b><i>Total Number of Vehicle Trips</i></b>			<b>16</b>	<b><i>Total Number of Vehicle Trips</i></b>			<b>19</b>	

The trip generation for Redeemer High School was analyzed by categorizing traffic into four key considerations:

- Traffic generated to, and from, the school:
  - Traffic generated to, and from, the school's parking lot during the peak hours of site generated traffic, and
  - Pick-up and drop-off vehicle traffic:
- Vehicle traffic during the peak hour of the adjacent Colonnade Road.

## B2. The Site Peak Hour

The traffic counts undertaken indicated:

- *Morning site peak hour:* A total of 66 vehicles were observed to enter the site which occurred, between 7:45-8:45am. During this same time 41 vehicles left the campus, resulting in (66 minus 41) 25 vehicles that were observed to remain on site during the morning peak hour of travel demand. This substantiates that roughly 62% (41 out of 66 vehicles) of the entering traffic during the morning peak hour is “pick-up and drop-off” traffic (inclusive of individual passenger cars, ride sharing and school buses). In addition, a small percentage of walking, bicycle and transit trips were observed to have occurred.
- *Afternoon site peak hour:* A total of 27 vehicles left the site during the site peak hour which occurred, between 3:00-4:00pm. During this same time 16 vehicles that entered the campus, resulting in (27 minus 16) 11 vehicles being generated from the parking area. This further substantiates that roughly 60% of the exiting traffic represented “pick-up” of one-or-more students.
- The difference between the 25 vehicle which remained on site during the morning site peak hour and the 11 vehicle that left the parking areas during the afternoon site peak hour is attributed to staff who leave the facility either before or more likely after the afternoon site peak hour.

## B3. The Peak Hour of Adjacent Traffic

Exhibit 1-1 illustrates the locations of both the primary (west) access and the east access.

The West access:

- The primary west access accommodates both inbound and outbound traffic. However, based on observations during the traffic count, only one vehicle was recorded exiting via this access during the morning peak hour. Therefore, it is assumed that morning drop-off trips enter from the west access and exit through the east access.
- The peak hour for adjacent roadway traffic was observed between 8:00-9:00am and 3:45-4:45pm. In comparison, the peak hour for school-related traffic at the west access occurred slightly earlier, from 7:45-8:45 AM in the morning and 45 minutes earlier from 3:00-4:00 PM in the afternoon.

The East access:

- This access operates as a one-way exit, used exclusively by outbound vehicles leaving the site.
- The peak hour for adjacent roadway traffic occurs between 8:00-9:00 AM and 3:45-4:45 PM. The site's peak hour for this access (northbound approach) aligns with the adjacent morning peak (8:00-9:00 AM), but in the afternoon, it mirrors the west access pattern, with the site's peak hour occurring earlier, from 3:00-4:00 PM.



**Exhibit B-1: Redeemer High School Accesses**

*B4. Ratio of Site Peak Hour to Peak Hour of Adjacent Traffic*

Table B-1 indicates that:

- For the morning peak hour, a 6%  $((0.868 - 0.816) / 0.868)$ , reduction factor is applied to inbound trips at the west access, covering vehicle trips generated by both students and employees, as well as drop-off trips by auto passengers and school buses.
- For outbound trips at the east access, no reduction factor is applied, as the site's peak hour aligns with that of the adjacent traffic.

**Table B-1: Inbound & Outbound Traffic Volume (AM – West & East Access)**

Time Intervals	Inbound Traffic (AM – West Access)			Outbound Traffic (AM – East Access)		
	NB-Egress Volumes	Percentage of Volumes	Hourly Inbound Trips	NB Volume	Percentage of Volumes	Hourly Outbound Trips
6:30 to 6:45	0	0%	-	0	0%	-
6:45 to 7:00	0	0%	-	0	0%	-
7:00 to 7:15	0	0%	-	0	0%	-
7:15 to 7:30	1	1.3%	1	0	0%	0
7:30 to 7:45	0	0%	1	0	0%	0
7:45 to 8:00	9	11.8%	10	0	0%	0
8:00 to 8:15	11	14.5%	21	3	6%	3
8:15 to 8:30	25	32.9%	45	23	49%	26
8:30 to 8:45	21	27.6%	66	14	30%	40
8:45 to 9:00	5	6.6%	62	4	9%	44
9:00 to 9:15	3	3.9%	54	1	2%	42
9:15 to 9:30	1	1.3%	30	2	4%	21

1. The yellow highlighted cells indicate the site peak hour.
2. The red box highlights peak hour of adjacent traffic.

- During the afternoon peak hour, an 81%  $((80\% - 15\%) / 80\%)$  reduction factor is applied to inbound pick-up trips at the west access, as illustrated in Table B-2.

**Table B-2: Inbound Traffic Volume (PM – West Access)**

Inbound (PM)			
Time Intervals	NB-Egress Volumes	Percentage of Volumes	Hourly Inbound Trips
3:00 to 3:15	12	60%	-
3:15 to 3:30	2	10%	-
3:30 to 3:45	2	10%	-
3:45 to 4:00	0	0%	16
4:00 to 4:15	1	5%	5
4:15 to 4:30	1	5%	4
4:30 to 4:45	1	5%	3
4:45 to 5:00	0	0%	3
5:00 to 5:15	1	5%	3
5:15 to 5:30	0	0%	2
5:30 to 5:45	0	0%	1
5:45 to 6:00	0	0%	1

1. The yellow highlighted cells indicate the site peak hour.
2. The red box highlights peak hour of adjacent traffic.

- A 70% For vehicle trips where drivers remain parked on-site throughout the day and exit during the afternoon, both the primary west and east accesses are utilized. The reduction factor applied to these trips reflects the total outbound volume from both accesses. As shown in Table B-3, a reduction factor of 70%  $((73\% - 21.6\%) / 73\%)$  has been applied.

**Table B-3: Outbound Traffic Volume (PM – Both Access)**

Time Intervals	Outbound (AM)		
	NB Volume	Percentage of Volumes	Hourly Outbound Trips
3:00 to 3:15	17	45.9%	-
3:15 to 3:30	5	13.5%	-
3:30 to 3:45	3	8.1%	-
3:45 to 4:00	2	5.4%	27
4:00 to 4:15	5	13.5%	15
4:15 to 4:30	1	2.7%	11
4:30 to 4:45	0	0.0%	8
4:45 to 5:00	1	2.7%	7
5:00 to 5:15	3	8.1%	5
5:15 to 5:30	0	0.0%	4
5:30 to 5:45	0	0.0%	4
5:45 to 6:00	0	0.0%	3

1. The yellow highlighted cells indicate the site peak hour.
2. The red box highlights peak hour of adjacent traffic.

- For pick-up trips specifically, vehicles are assumed to enter through the west access, perform the pick-up, and exit via the east access. Accordingly, only the east access is considered for these trips, and a reduction factor of 82%  $((85\% - 15\%) / 85\%)$  is applied.

**Table B-4: Outbound Traffic Volume (PM – East Access)**

East Access			
Time Intervals	Outbound (PM)		
	NB Volume	Percentage of Volumes	Hourly Outbound Trips
3:00 to 3:15	12	60%	-
3:15 to 3:30	2	10%	-
3:30 to 3:45	2	10%	-
3:45 to 4:00	1	5%	17
4:00 to 4:15	1	5%	6
4:15 to 4:30	1	5%	5
4:30 to 4:45	0	0%	3
4:45 to 5:00	1	5%	3
5:00 to 5:15	0	0%	2
5:15 to 5:30	0	0%	1
5:30 to 5:45	0	0%	1
5:45 to 6:00	0	0%	0

1. The yellow highlighted cells indicate the site peak hour.
2. The red box highlights peak hour of adjacent traffic.

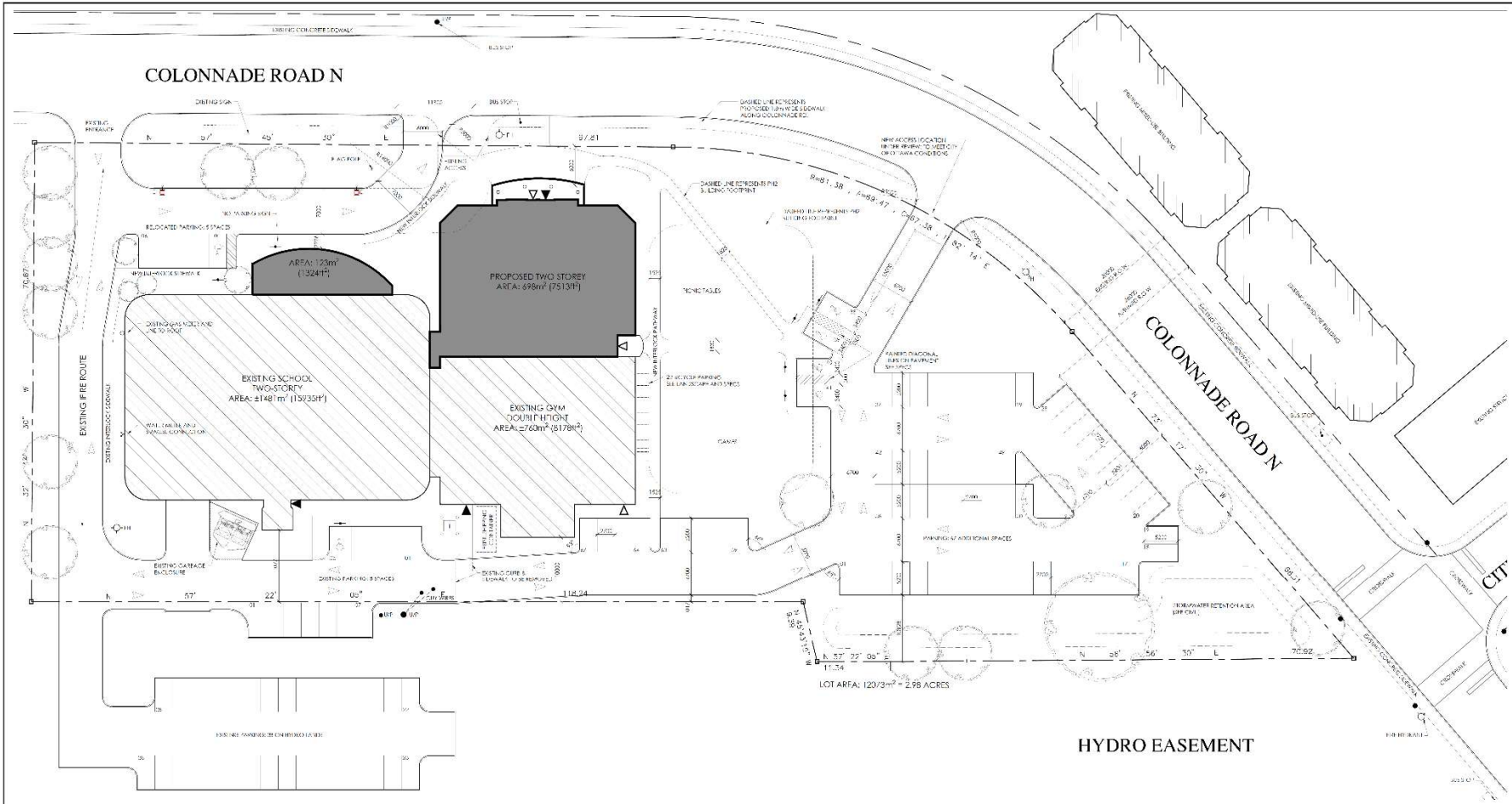


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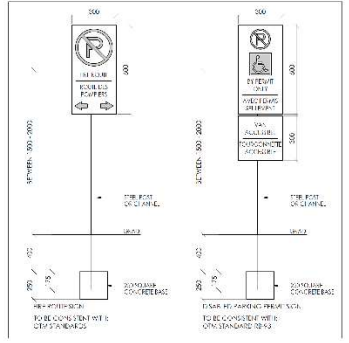
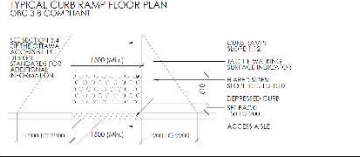
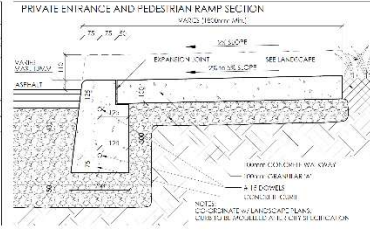
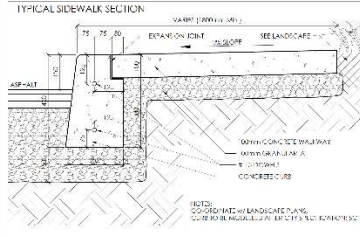
## Annex "C"

Site Plan (August 21<sup>st</sup>, 2025)



NO.	REVISION	DATE
1	ACCESS FACILITIES	2012

HYDRO EASEMENT



**Vandenberg & Wildeboer**  
A • R • C • H • I • T • E • C • T • S

PROJECT: REDEEMER CHRISTIAN HIGH SCHOOL  
12 COLONNADE ROAD, CHATHAM, ONTARIO

DRAWING: SITE PLAN & NOTES

DATE: 2012  
SCALE: AS SHOWN  
PROJECT NO: 120/3

**A000**

## Annex “D”

### Intersection Capacity Analyses Results (Synchro 12)

#### Existing Condition

*Traffic Operations*

Table D-1 indicates the intersection capacity analysis results for the Colonnade Road North corridor assuming a 2025-time horizon without the development in place.

**Table D-1: Traffic Operational Analysis:  
Forecast (2025) Without the Development in Place**

Intersection		Control Type	Weekday Morning Peak Hour (Afternoon Peak Hour)					
			Critical Movement Operations					
			Approach / Movement	Volume	Delay (seconds)	LOS	95th Percentile Queue (m)	v/c
<b>2025 WITHOUT the Development in Place</b>								
2.	Colonnade Rd N & Commercial Access	Minor Leg -STOP Control	NB-RT/LT	7 (6)	12 (13.5)	B (B)	0 (0)	0.014 (0.015)
			WB-Th/LT	349 (408)	8.1 (8.4)	A (A)	0 (0)	0.005 (0.002)
			EB-Th/RT	337 (464)	- (-)	- (-)	0 (0)	- (-)
3.	Colonnade Rd N & Redeemer HS West Access	Minor Leg -STOP Control	NB-Shared	1 (5)	10.1 (17.2)	B (C)	0 (0.75)	0.002 (0.018)
			SB-Shared	15 (10)	10.8 (10.9)	B (B)	0.75 (0.75)	0.026 (0.017)
			EB-Shared	338 (469)	8.1 (8.2)	A (A)	0 (0)	0.002 (0.014)
			WB-Shared	364 (401)	8.1 (8.3)	A (A)	0.75 (0)	0.021 (0.001)
4.	Colonnade Rd N & Redeemer Hs East Access	Minor Leg -STOP Control	NB-RT	22 (0)	10.2 (17.6)	B (A)	0.75 (0)	0.034 (-)
			NB-LT	22 (3)	14.4 (0)	B (C)	1.5 (0)	0.059 (0.011)
			EB-Th	298 (453)	-	-	-	-
			WB-TH	339 (395)	-	-	-	-
5.	Colonnade Rd N & Citiplace Dr.	Traffic Signal Control	SB-RT	25 (32)	0 (4.9)	A (A)	3.4 (4.4)	0.03 (0.05)
			SB-LT	37 (42)	6.5 (10.3)	A (B)	6.7 (8.1)	0.04 (0.06)
			EB-LT	21 (37)	16.2 (12.1)	B (B)	6.1 (7.1)	0.13 (0.18)
			EB-Th	299 (416)	23.3 (18.9)	C (B)	49 (53)	0.62 (0.69)
			WB-Th/RT	332 (412)	25 (18)	C (B)	54.4 (50.8)	0.69 (0.67)

The findings of Table D-1 indicate that all intersections were found to offer satisfactory operational characteristics assuming existing (2025) conditions, with LOS “C” or better.

Table D-2 indicates the intersection capacity analysis results for the Colonnade Road North corridor assuming a 2025-time horizon with the development in place.

**Table D-2: Traffic Operational Analysis:  
Forecast (2025) With the Development in Place**

Intersection	Control Type	Weekday Morning Peak Hour (Afternoon Peak Hour)						
		Critical Movement Operations						
		Approach / Movement	Volume	Delay (seconds)	LOS	95th Percentile Queue (m)	v/c	
<b>2025 WITH the Development in Place</b>								
2.	Colonnade Rd N & Commercial Access	Minor Leg -STOP Control	NB-RT/LT	7 (6)	12.2 (13.5)	B (B)	0 (0)	0.015 (0.015)
			WB-Th/LT	359 (413)	8.1 (8.4)	A (A)	0 (0)	0.005 (0.002)
			EB-Th/RT	353 (466)	- (-)	- (-)	- (-)	- (-)
3.	Colonnade Rd N & Redeemer HS West Access	Minor Leg -STOP Control	NB-Shared	1 (7)	10.6 (17.1)	B (C)	0 (0.75)	0.002 (0.025)
			SB-Shared	15 (10)	11.1 (10.9)	B (B)	0.75 (0.75)	0.027 (0.018)
			EB-Shared	408 (473)	8.1 (8.3)	A (A)	0 (0)	0.002 (0.014)
			WB-Shared	383 (408)	8.3 (8.4)	A (A)	0.75 (0)	0.031 (0.003)
4.	Colonnade Rd N & Redeemer Hs East Access	Minor Leg -STOP Control	NB-RT	31 (1)	10.3 (11.4)	B (B)	0.75 (0)	0.047 (0.002)
			NB-LT	32 (5)	14.8 (17.8)	B (C)	2.25 (0.75)	0.087 (0.019)
			EB-Th	298 (454)	-	-	-	-
			WB-TH	348 (399)	-	-	-	-
5.	Colonnade Rd N & New Parking Access	Minor Leg -STOP Control	NB-RT/LT	2 (3)	12.3 (15.3)	B (C)	0 (0)	0.004 (0.009)
			WB-Th/LT	349 (398)	8 (8.4)	A (A)	0 (0)	0.001 (0.001)
			EB-Th/RT	330 (456)	0	A (A)	0 (0)	- (-)
6.	Colonnade Rd N & Citiplace Dr.	Traffic Signal Control	SB-RT	25 (32)	4.7 (5.1)	A (A)	3.5 (4.4)	0.04 (0.05)
			SB-LT	37 (42)	8.9 (10.5)	A (B)	6.5 (8.2)	0.05 (0.07)
			EB-LT	21 (37)	10.9 (11.5)	B (B)	4.5 (6.8)	0.10 (0.17)
			EB-Th	308 (419)	16.3 (18.1)	B (B)	37.1 (51.2)	0.57 (0.68)
			WB-Th/RT	349 (414)	17.7 (17.3)	B (B)	42.1 (49.4)	0.64 (0.67)

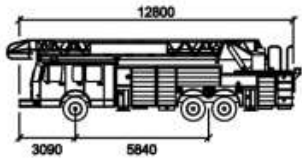


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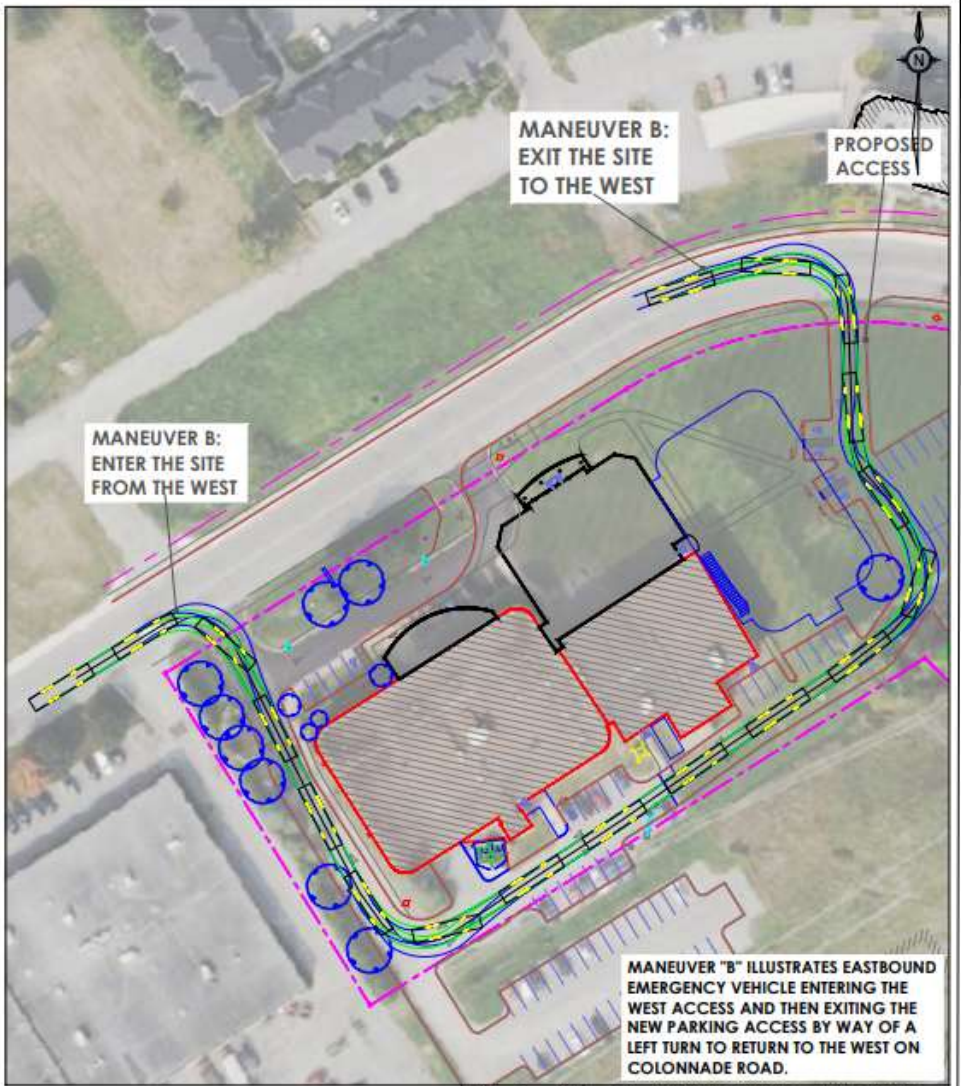
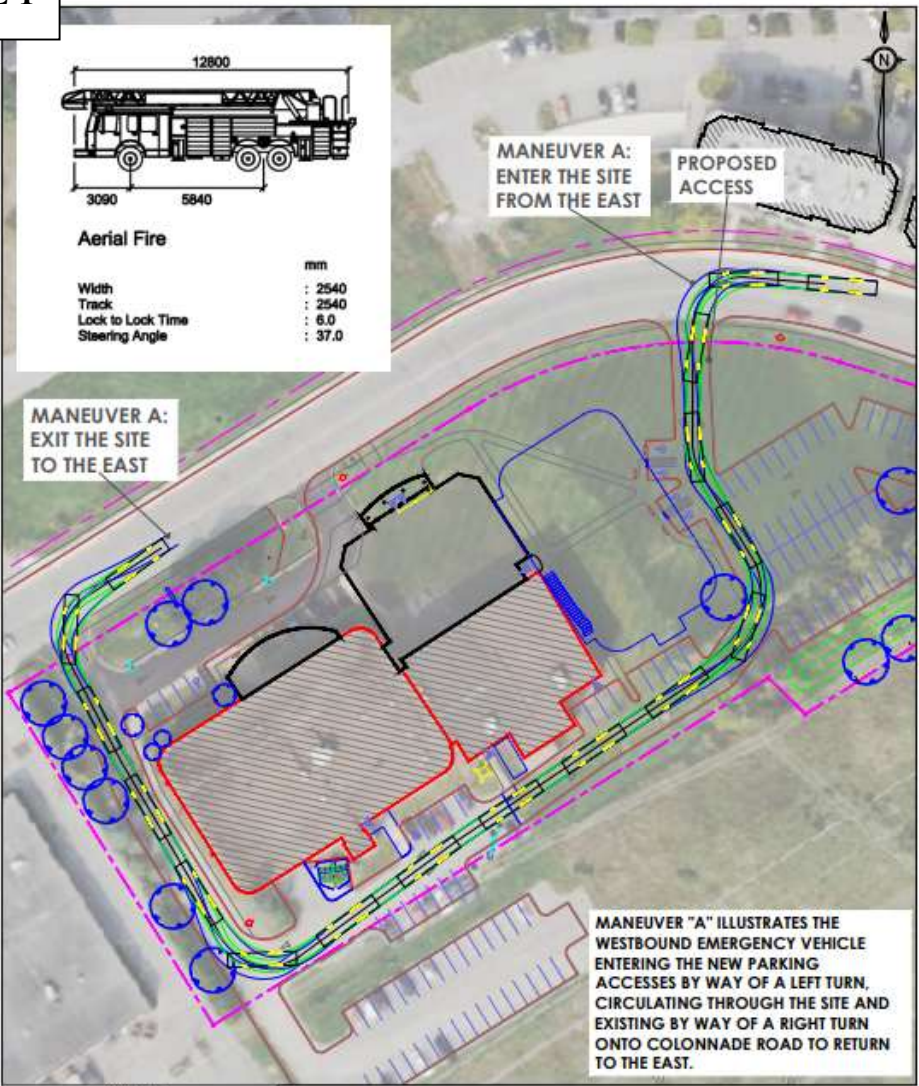
## Annex “E”

### Turning Movements Diagram



**Aerial Fire**

	mm
Width	: 2540
Track	: 2540
Lock to Lock Time	: 6.0
Steering Angle	: 37.0



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CONSULTANTS JOB NO. 7372

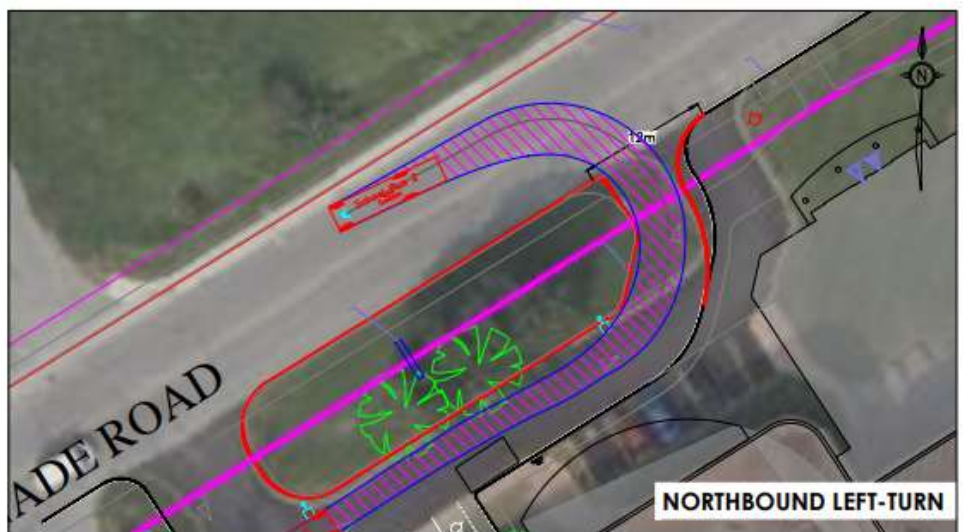
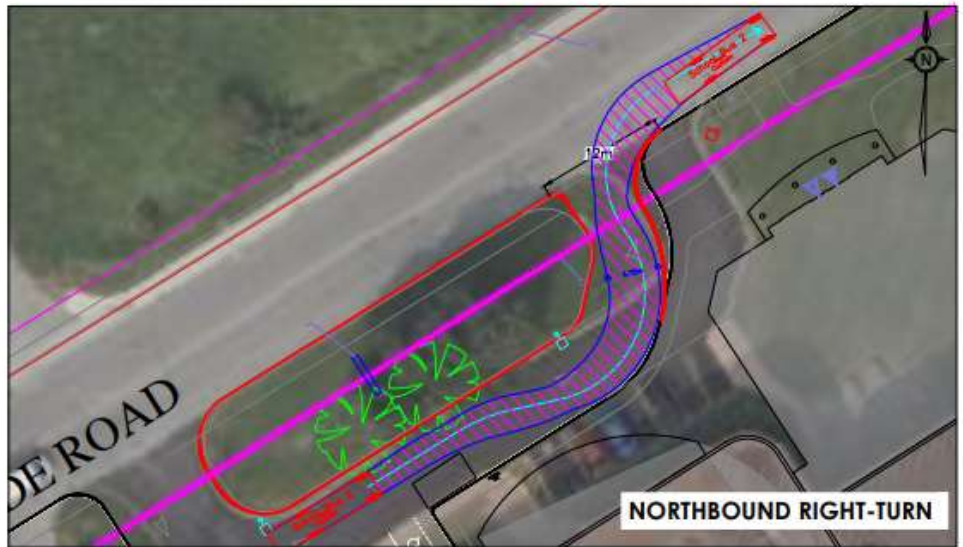
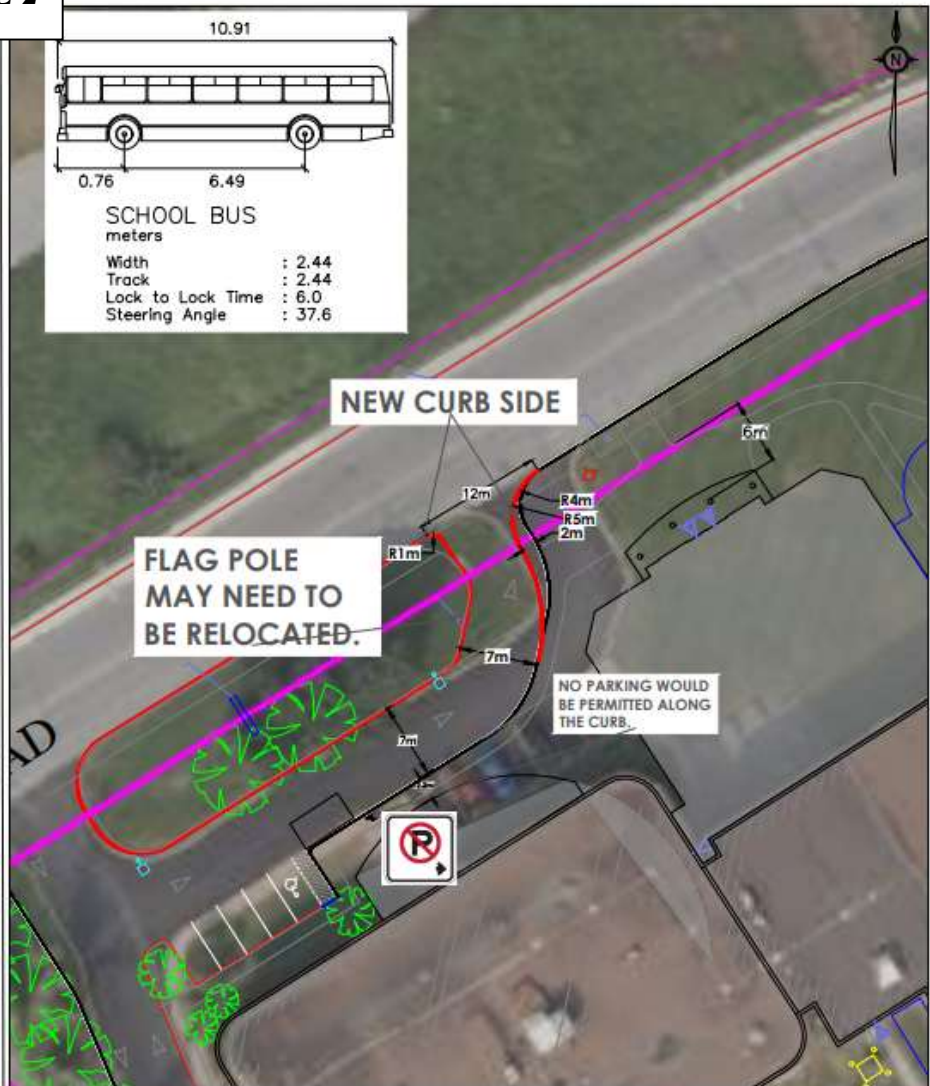
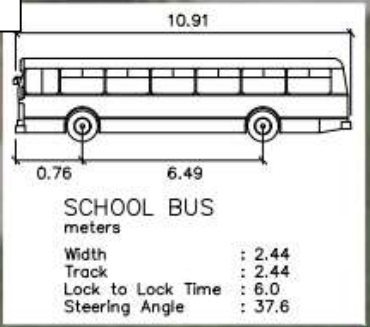
HORIZ 1:400

SCALE  
PLAN NUMBER

**EMERGENCY VEHICLE INTERNAL TURNING  
MOVEMENTS  
PEDEBEMER CHRISTIAN HIGH SCHOOL**

STATUS	DATE	SHEET
	October 7th, 2025	01 OF 01

E-2



CONSULTANT

**Castleglenn Consultants**  
Engineers, Project Managers & Planners

DESIGNED BY: S.J.    CHECKED BY: \_\_\_\_\_  
CONSULTANTS JOB NO. 7379

HORIZ 1:200

SCALE

PLAN NUMBER

<b>EXIT ONLY ACCESS AND SCHOOL BUS TURNING MOVEMENTS</b>		
<b>REDEEMER CHRISTIAN HIGH SCHOOL</b>		
STATUS	DATE	SHEET
	October 19, 2025	05 OF 01

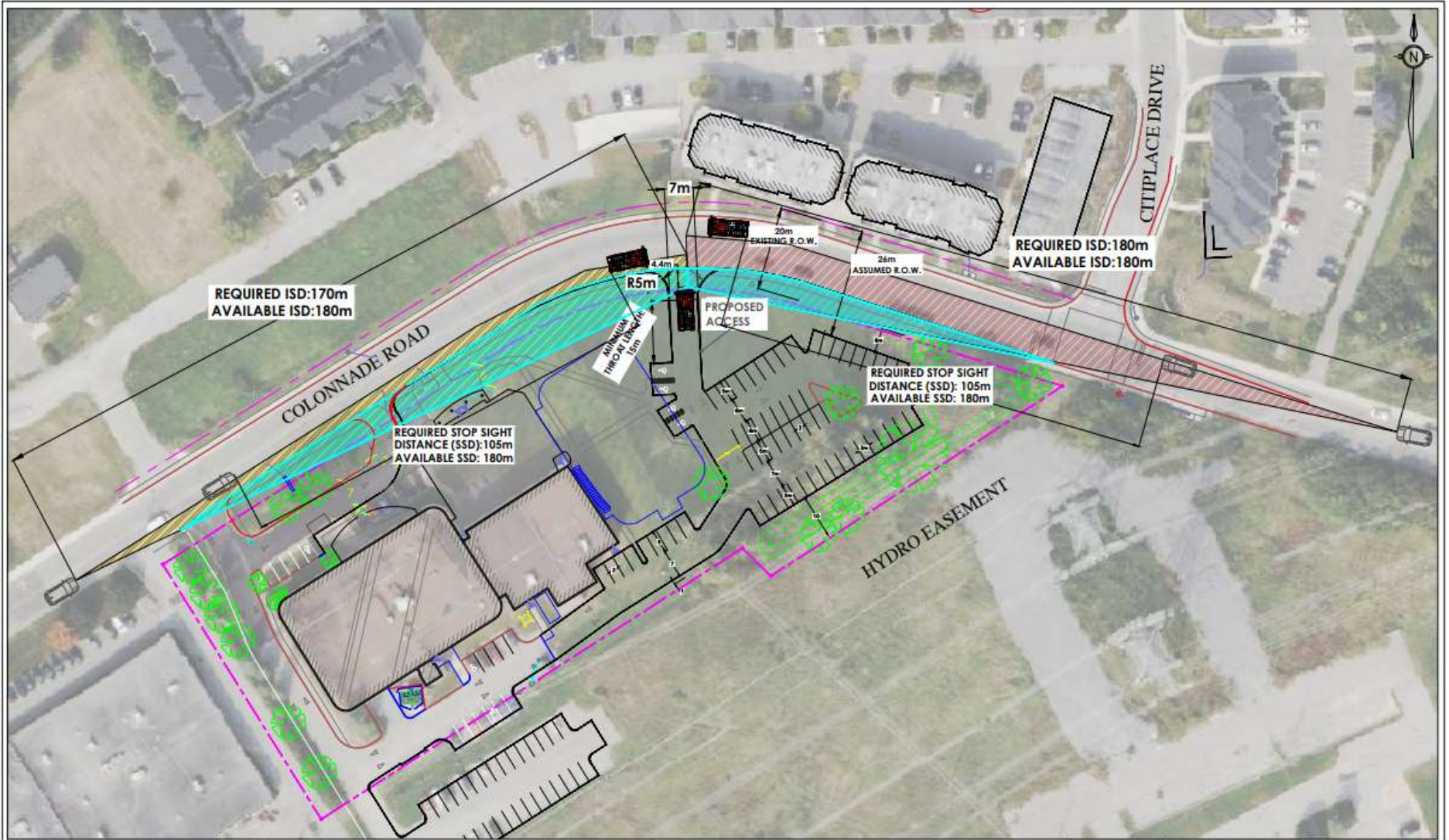


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## Annex "F"

### Sight Distances: Proposed Access



REQUIRED ISD:170m  
AVAILABLE ISD:180m

REQUIRED ISD:180m  
AVAILABLE ISD:180m

REQUIRED STOP SIGHT  
DISTANCE (SSD):105m  
AVAILABLE SSD: 180m

REQUIRED STOP SIGHT  
DISTANCE (SSD): 105m  
AVAILABLE SSD: 180m

R5m  
MINIMUM  
HWO R. LENGTH  
15m

4.4m

7m

20m  
EXISTING E.O.W.

26m  
ASSUMED R.O.W.

PROPOSED  
ACCESS

HYDRO EASEMENT

COLONNADE ROAD

CITIPPLACE DRIVE



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- LEGEND**
- SIGHT TRIANGLE LENGTH FOR LEFT TURN FROM STOP (70 KM/H DESIGN SPEED): 180 m (REFERENCE FROM TAO 200, CHAP 10)
  - SIGHT TRIANGLE LENGTH FOR RIGHT TURN FROM STOP (70 KM/H DESIGN SPEED): 170 m (REFERENCE FROM TAO 200, CHAP 10)
  - AREAS ON SOUTH SIDE OF COLONNADE ROAD THAT MUST BE FREE OF OBSTACLES THAT CAN OBSCURE SIGHT LINES.

SCALE

HORIZ 1:400

PLAN NUMBER

**REDEEMER CHRISTIAN HIGH SCHOOL**  
**PROPOSED ACCESS'S SIGHT DISTANCES**

STATUS	DATE	SHEET
	OCTOBER 7th, 2023	01 OF 01