
To: Greg Pinchin

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From: Caitlin Sheahan

Date: September 30, 2020

Ref: 174 Maitland Drive Draft Plan Application – Traffic Review

File: 19628-1

Comments:

Quinte Broadcasting Ltd. is proposing a Draft Plan of Subdivision to the south of Maitland Drive, west of Highway 62 and immediately east of Deerfield Park Subdivision. The development property is 4.84 hectares (ha) in size, and is located between existing residential subdivisions and vacant land (**Figure 1**). It is proposed to develop the land with thirty-six (36) single family residential units and sixty-one (61) townhouse units as shown in **Figure 2**. The purpose of this memo is to provide a review of the proposed draft plan with regard to the road network and traffic flow.

Existing Conditions

The subject property fronts onto Maitland Drive, which is under the jurisdiction of the Municipality of the City of Belleville, Hastings County. Through the study area, Maitland Drive is a two-lane road oriented east-west, providing one travel lane in each direction. The road has an urban cross-section with curbs installed within the property's frontage as of September 2020. Upon approaching the site access, the alignment of Maitland Drive is relatively straight and flat. Through the subject area, Maitland Drive has a posted speed limit of 50 km/h. Thus, a design speed of 60 km/h applies (posted speed limit + 10 km/h for lower speed roads).

Proposed Road Network & Access

One (1) new Municipal road is currently proposed on the draft plan and will connect to Maitland Drive in two locations to provide a loop. The western proposed intersection, "Intersection A" is 250m west of Highway 62, and the eastern proposed intersection "Intersection B" is 150m west of Highway 62. The proposed Municipal road shows a 20m urban right-of-way, consistent with urban local Municipal standards as outlined in **Figure 3**.

The draft plan shows two (2) 90° 'T' intersections for the proposed street with Maitland Drive. The proposed intersections are approximately 100m apart. The proposed "Intersection A" is located 250m west of Highway 62, and approximately 300m east of Cox Drive. The proposed

“Intersection B” is located 150m west of Highway 62, and approximately 400m east of Cox Drive. The proposed intersections therefore comply with the Transportation Association of Canada’s *Geometric Design Guide for Canadian Roads*, which indicates that the minimum distance between adjacent intersections is 60m.

Site Generated Trips and Turning Lane Review

Trip generation rates have been determined from the Institute of Transportation Engineer’s *Trip Generation Manual*. Based on the proposed land use (i.e. 36 single family units and 61 townhouse units) the applicable ITE land use category for the site is ‘single family detached’ (ITE land use code 210) and ‘townhouse’ (ITE land use code 213). Based on the proposed development configuration, it’s anticipated that traffic will be evenly distributed between Intersections A & B. The applicable trip rates and corresponding trip estimates for the peak hours are provided in **Table 1** and represent anticipated counts at each intersection.

Table 1: Trips Generated at each Proposed Intersection with Maitland Drive

Land Use	Rate / Estimate	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Single Family Detached		36						
	Rate		0.19	0.56	0.75	0.64	0.37	1.01
	Estimate		6.84	20.16	27	23.04	13.32	36.36
Town-house		61						
	Rate		0.17	0.50	0.67	0.45	0.33	0.78
	Estimate		10.37	30.50	40.87	27.45	20.13	47.58
Total for Development:					68	Total Development:		84
Total at Each Intersection:					34	Total at Each Intersection:		42

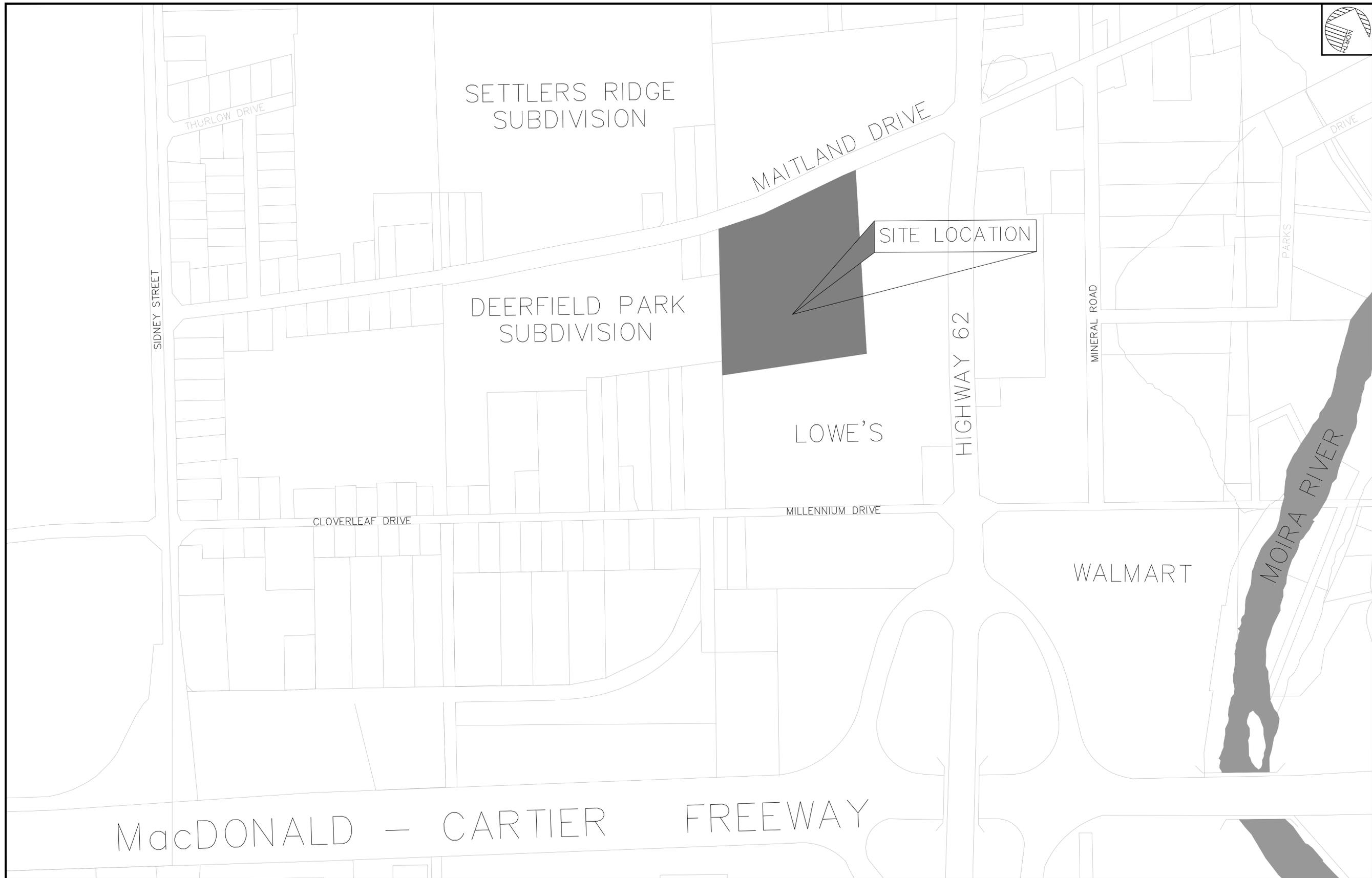
Table 1 provides an estimate for peak hour traffic at Maitland Drive, assuming that all traffic for the proposed development is evenly distributed between the two intersections with Maitland Drive. The development is expected to generate 34 trips in the AM peak hour and 42 trips in the PM peak hour (both inbound and outbound trips) to each intersection. MTO design criteria indicate that right turn lanes should be considered when the turning volume is anticipated to exceed 60 vehicles per hour at an unsignalized intersection. Based on the projected traffic volumes, no right turn lane is required at the proposed two (2) intersections with Maitland Drive.

The need for a left turn lane at the proposed intersections was also reviewed. **Figure 4** shows the MTO’s Left Turn Warrant Chart for 60 km/h design speed. The anticipated number of trips generated at each intersection at peak hours from the development has been plotted on the MTO chart. The chart shows that, in order for a left turn lane to be warranted, approximately 540 vehicles per hour on Maitland Drive would have to pass by the site location. A traffic impact study was completed in March 2015 for Settlers Ridge Residential

Subdivision. The report included projections for the 2028 total traffic volumes on Maitland, shown in **Figure 5**. The total traffic volumes passing the site westbound is 135 trips in the AM peak hour and 234 trips in the PM peak hour. The total traffic volumes passing the site eastbound is 206 trips in the AM peak hour and 216 trips in the PM peak hour. The opposing traffic volumes for the 2028 indicate that a left turn lane is not warranted; as such, a left turn lane is not proposed at either intersection.

Sight Line Analysis

Based on MTO geometric design standards, the minimum stopping distance for design speeds of 60 km/h is 85 meters. This requirement provides sufficient distance for an approaching vehicle to observe a stationary hazard in the road (such as a vehicle stopped at an intersection waiting to complete a turn) and bring their vehicle to a complete stop prior to the hazard. The available sight lines along Maitland Drive for “Intersection A” as determined at the site accesses are more than 275m to the west and 150m to the east, and for “Intersection B” are more than 275m to the west and 150m to the east. Thus, all sight lines are in excess of the minimum 85 meters. As such, adequate sight lines are provided in both directions to ensure safe operations for vehicles turning to Maitland Drive from the site accesses.



174 MAITLAND DRIVE
CITY OF BELLEVILLE

FIGURE 1
KEY MAP





EXISTING RESIDENTIAL



PART 1
21R-5534

LOT 8

LOT 7

LOT 6

LOT 5

LOT 4

LOT 3

LOT 2

LOT 1

EXISTING RESIDENTIAL

PART 2, PLN

PART 1, PLAN 21R-22195

EXISTING COMMERCIAL

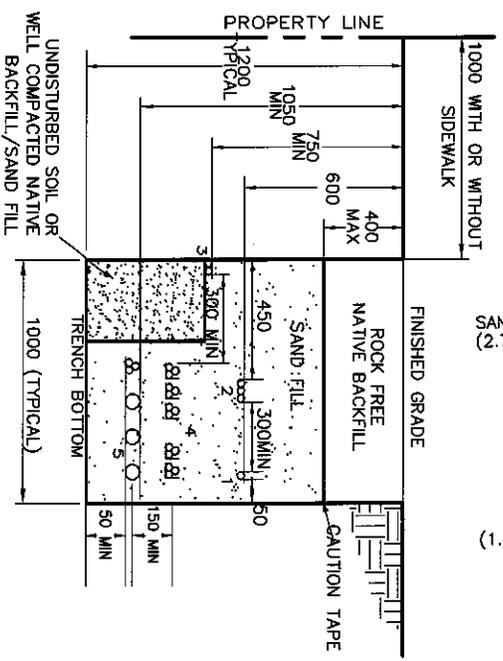
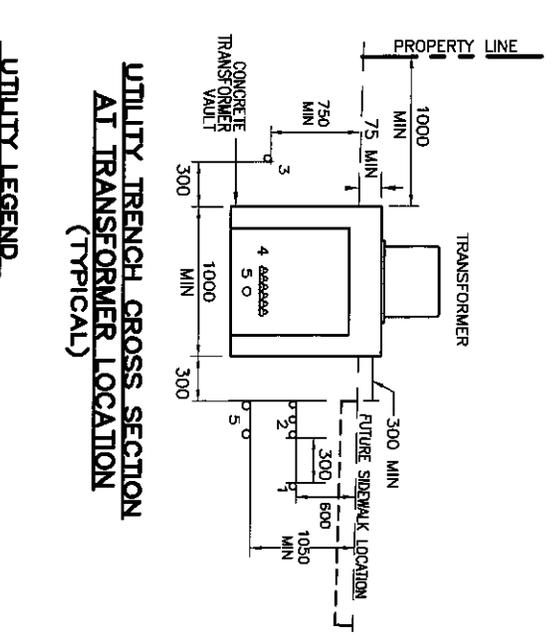
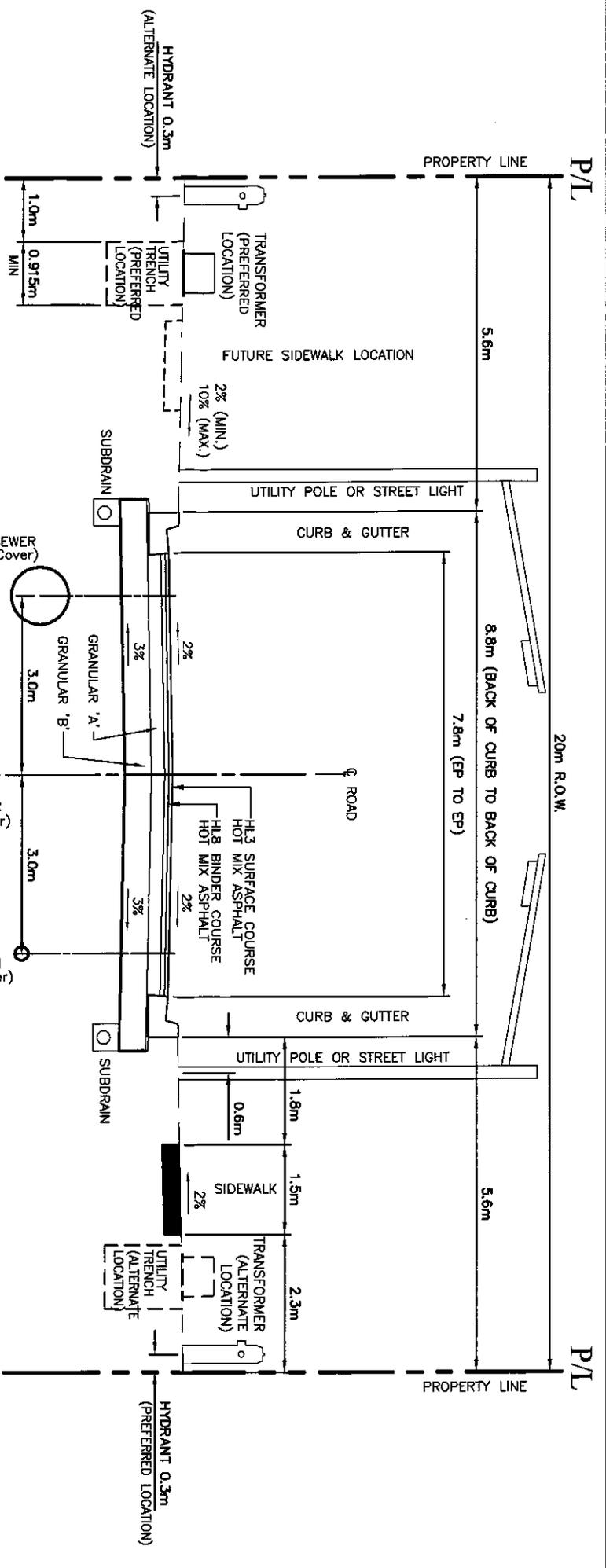
PART 2, 21R-18796

PART 2, 21R-18796
VACANT LAND

174 MAITLAND DRIVE
CITY OF BELLEVILLE

FIGURE 2
CONCEPT PLAN





- UTILITY LEGEND**
1. STREET LIGHT WIRE IN 50mm DIA. LIGHT GRAY DUCT
 2. COMMUNICATION CABLES
 3. NATURAL GAS PIPELINE
 4. SECONDARY ELECTRICAL CABLES
 5. PRIMARY ELECTRICAL CABLES

- UTILITY TRENCH CROSS SECTION (TYPICAL)**
- UNDISTURBED SOIL OR WELL COMPACTED NATIVE BACKFILL/SAND FILL
- FINISHED GRADE
- ROCK FREE NATIVE BACKFILL
- SAND FILL
- CAUTION TAPE
- TRENCH BOTTOM
- 1000 (TYPICAL)
- 150 MIN
- 50 MIN
- 300 MIN
- 450
- 300 MIN
- 300 MIN
- 600
- 750 MIN
- 1050 MIN
- 1200 TYPICAL
- 1000 WITH OR WITHOUT SIDEWALK

ALL DIMENSIONS IN mm UNLESS NOTED OTHERWISE



City of Belleville
ENGINEERING AND DEVELOPMENT
SERVICES DEPARTMENT

REVISIONS	NO.	REVISIONS	APR'D	DATE
R2	REVISE UTILITY TRENCH / REMOVE TREE	R.K.		08/09
R1	UTILITY TRENCH AND SIDEWALK LOCATION			05/02

ENGINEERING STANDARDS

**URBAN LOCAL ROAD
20m RIGHT OF WAY
STANDARD UTILITY LOCATIONS**

Drawn: DAC	Approved: PC	Plan No.
Scale: NTS	Date: 14/10/24	Spec: M-9

----- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW

..... TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

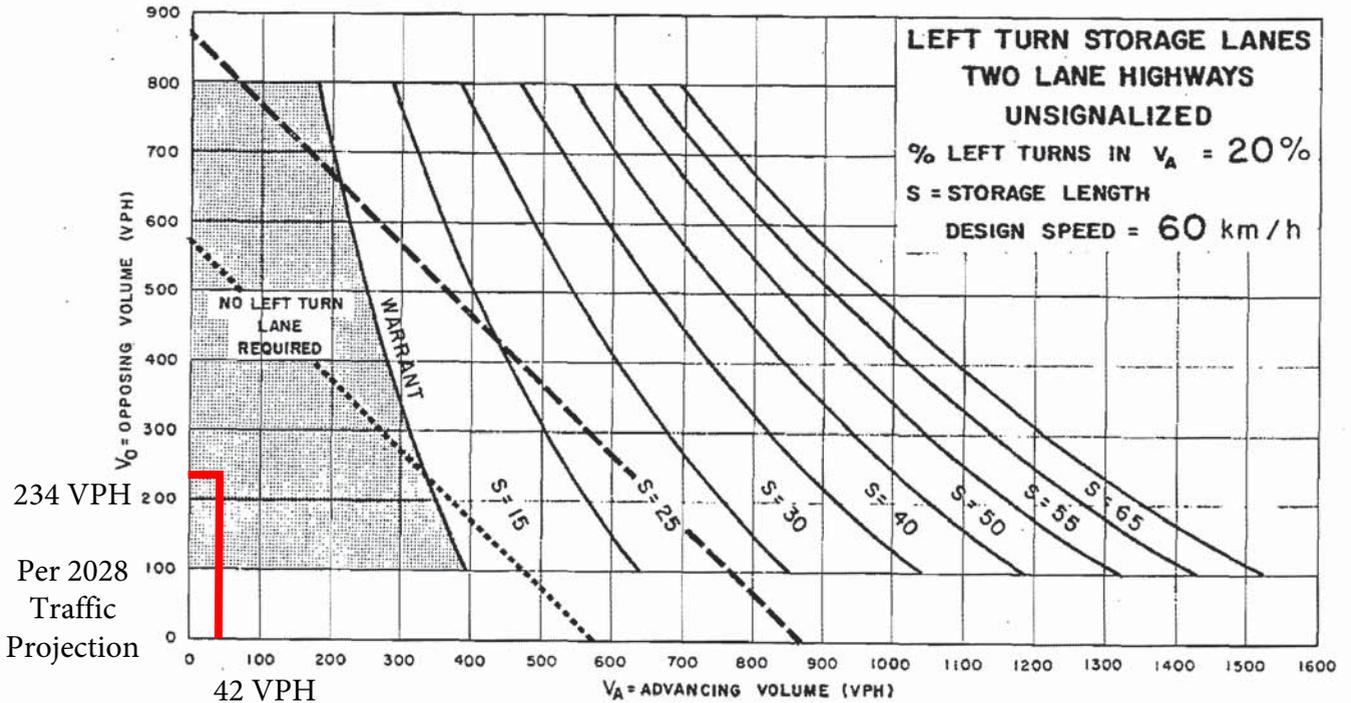


Figure EA-7

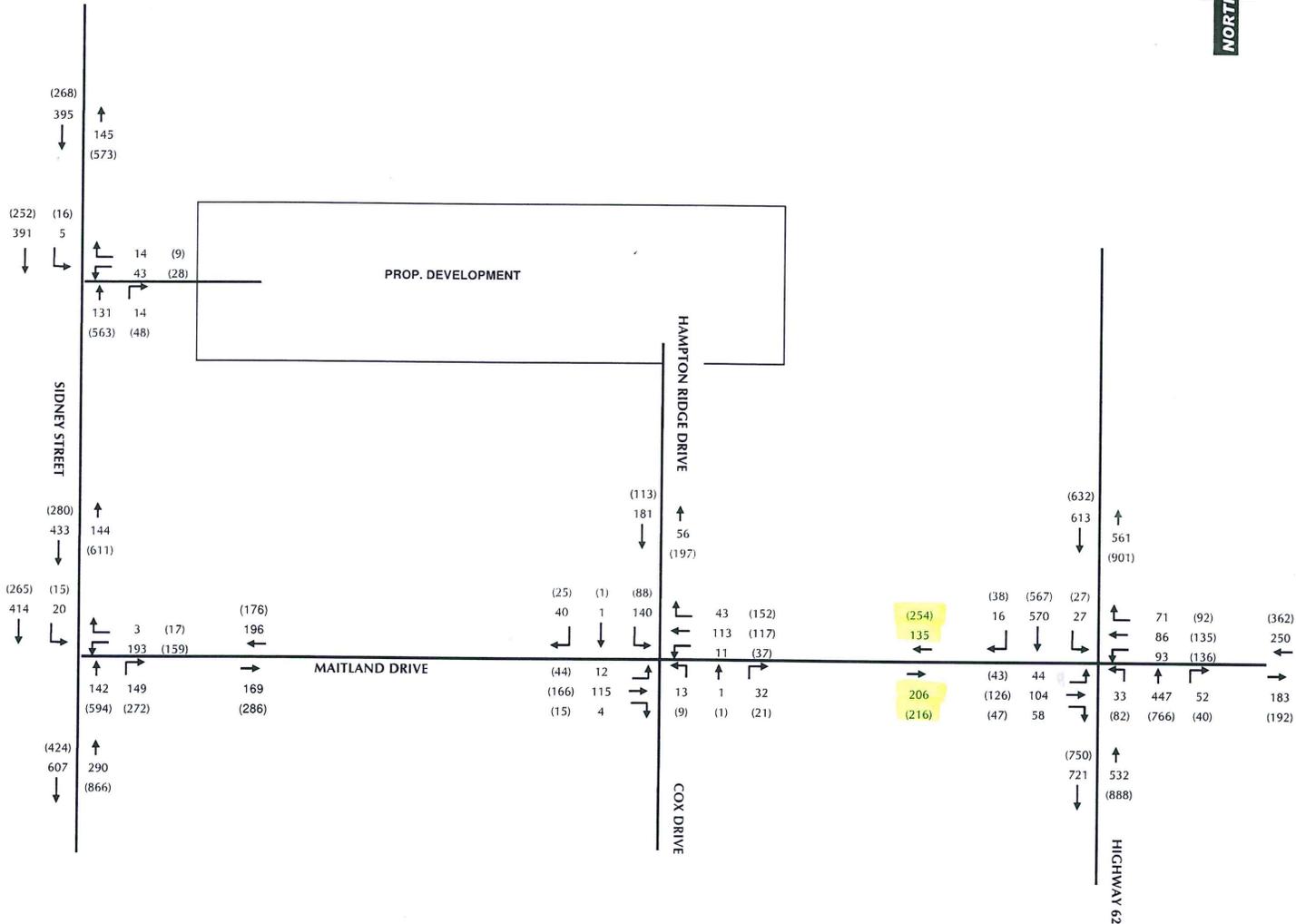


Figure 12
 2028 Total Traffic Volumes
 Settlers Ridge Phase 2 Traffic Impact Study Update
 City of Belleville

