

Bray Lake Residential

Township of Machar

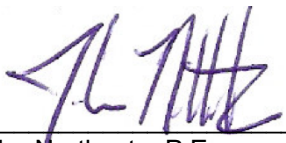
Traffic Brief

Polni Holdings

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1 Introduction

1.1 Background

Polni Holdings [The Client] is proposing a residential development located on the east side of Riding Ranch Road, along the shoreline of Bray Lake in the Township of Machar [Township]. The proposed development is anticipated to include 20 single-detached residential units.

The proposed development will include a single full-movement accesses onto Riding Ranch Road [Site Access]

The Client has retained **JD Engineering Inc.** [JD Engineering] to prepare this traffic brief in support of the proposed development.

1.2 Study Area

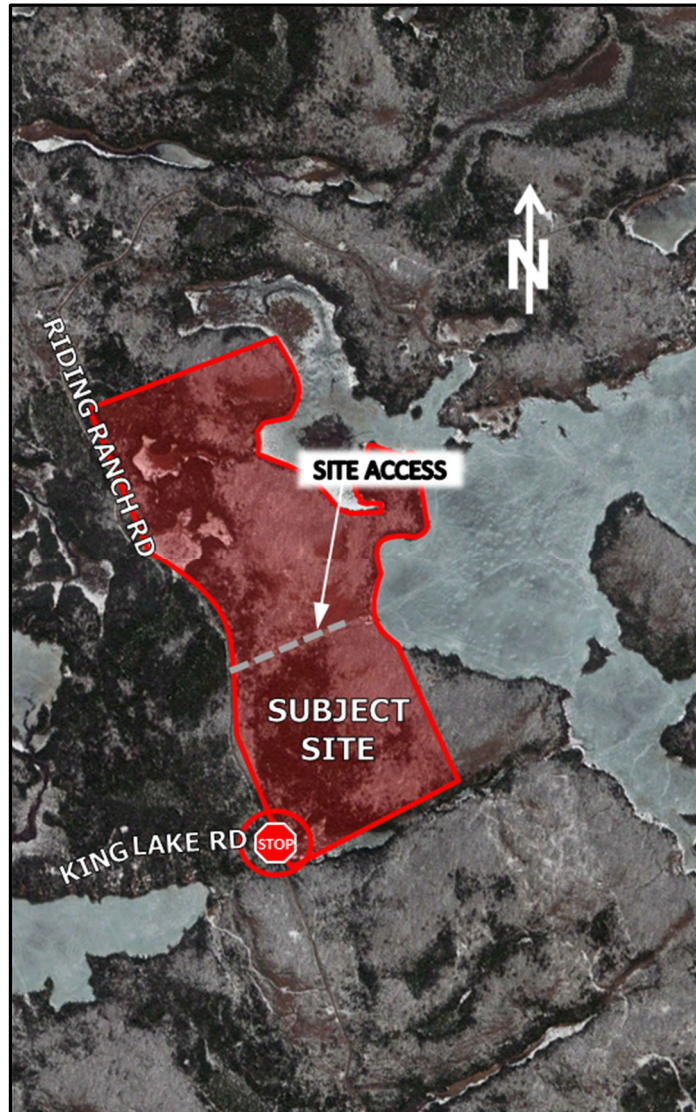
Figure 1 illustrates the location of the subject site and study area intersections, in relation to the surrounding area. The site plan provided by **Tulloch Geomatics Inc.** is included in **Appendix A**.

The subject site is bound by Riding Ranch Road to the west, Bray Lake to the east and undeveloped rural lands to the north and south.

The scope of this letter includes a functional review of the following intersection:

- Site Access / Riding Ranch Road

Figure 1 – Proposed Site Location and Study Area



1.3 Study Scope and Objectives

The purpose of this study is to identify the potential impacts to traffic flow at the site access and on the surrounding roadway network. The study analysis includes the following tasks:

- Determine existing traffic volumes and circulation patterns;
- Estimate future traffic volumes if the proposed development was not constructed, including the impact of additional proposed developments in the area;
- Estimate the amount of traffic that would be generated by the proposed development and assign to the roadway network;
- Complete a review of the impact of the proposed development traffic generation on the study area intersections;
- Complete a sight distance review for the proposed Site Access driveway;
- Comment on how the Site Access driveway will be maintained year round;
- Complete a site visit to determine if there any traffic hazards with the proposed Site Access; and
- Document findings and recommendations in a final report.

1.4 Analysis Periods

The weekday morning [AM] and afternoon [PM] peak hour has selected as the analysis periods for this study.

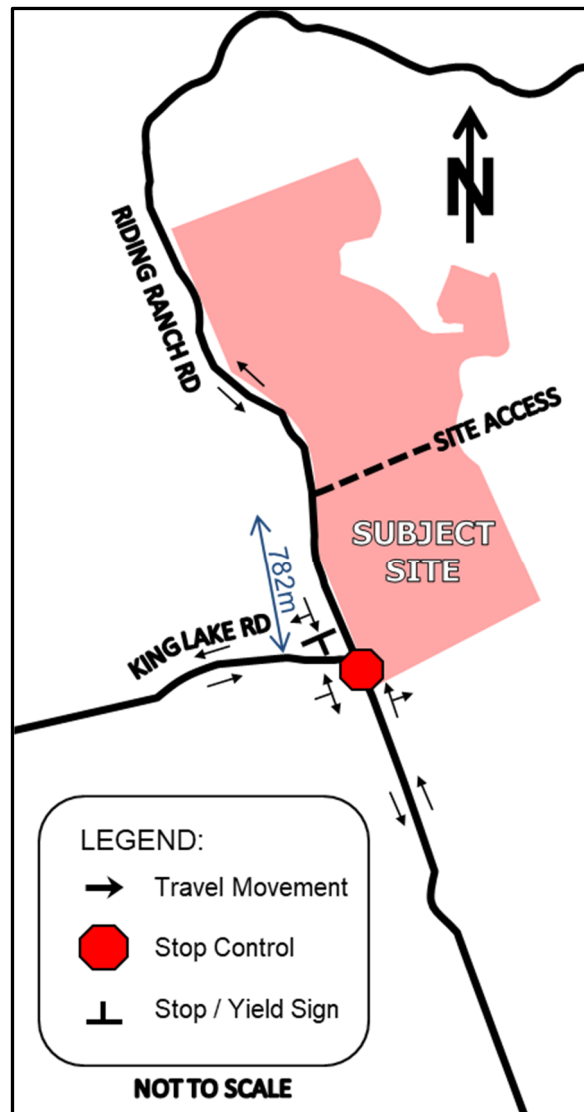
2 Information Gathering

2.1 Street and Intersection Characteristics

Riding Ranch Road is a two-lane local road (year-round maintained gravel roadway) with a rural cross-section and gravel shoulders. Riding Ranch Road has an unposted (assumed) speed limit of 50 km/h and under jurisdiction of the Township.

The existing intersection spacing and lane configuration within the study area is illustrated in **Figure 2**.

Figure 2 – Existing Intersection Lane Configuration within Study Area



2.2 Local Transportation Infrastructure Improvements

Based on a review of the Township's 2020 Capital Budget and the Township's 10-year Asset Management Plan Roads and Bridges (2014-2024) there are no infrastructure improvements planned that would impact traffic in the study area.

2.3 Transit Access

There is no municipal transit available near the study area.

3 Proposed Development Traffic Generation and Assignment

3.1 Traffic Generation

The traffic generation for the subject site has been based on the Institute of Transportation Engineers [ITE] Trip Generation Manual (11th Edition) [ITE Trip Generation Manual]. The following ITE land uses have been applied to estimate the traffic from the proposed:

- ITE land use #210 (Single-Family Detached Housing) – General Urban/Suburban

The estimated trip generation for the proposed development is illustrated below in **Table 1**. The AM and PM peak traffic generation for the proposed development is not expected to exactly align with the AM and PM peak hour; consequently, we have applied the peak hour of adjacent street traffic values provided in the ITE Trip Generation Manual.

Table 1 – Estimated Traffic Generation of Proposed Development

Land Use	Size	AM Peak Hour			PM Peak Hour		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Single-Family Detached Housing ITE Land Use: 210	20 units	5	13	18	14	8	22

3.2 Traffic Assignment

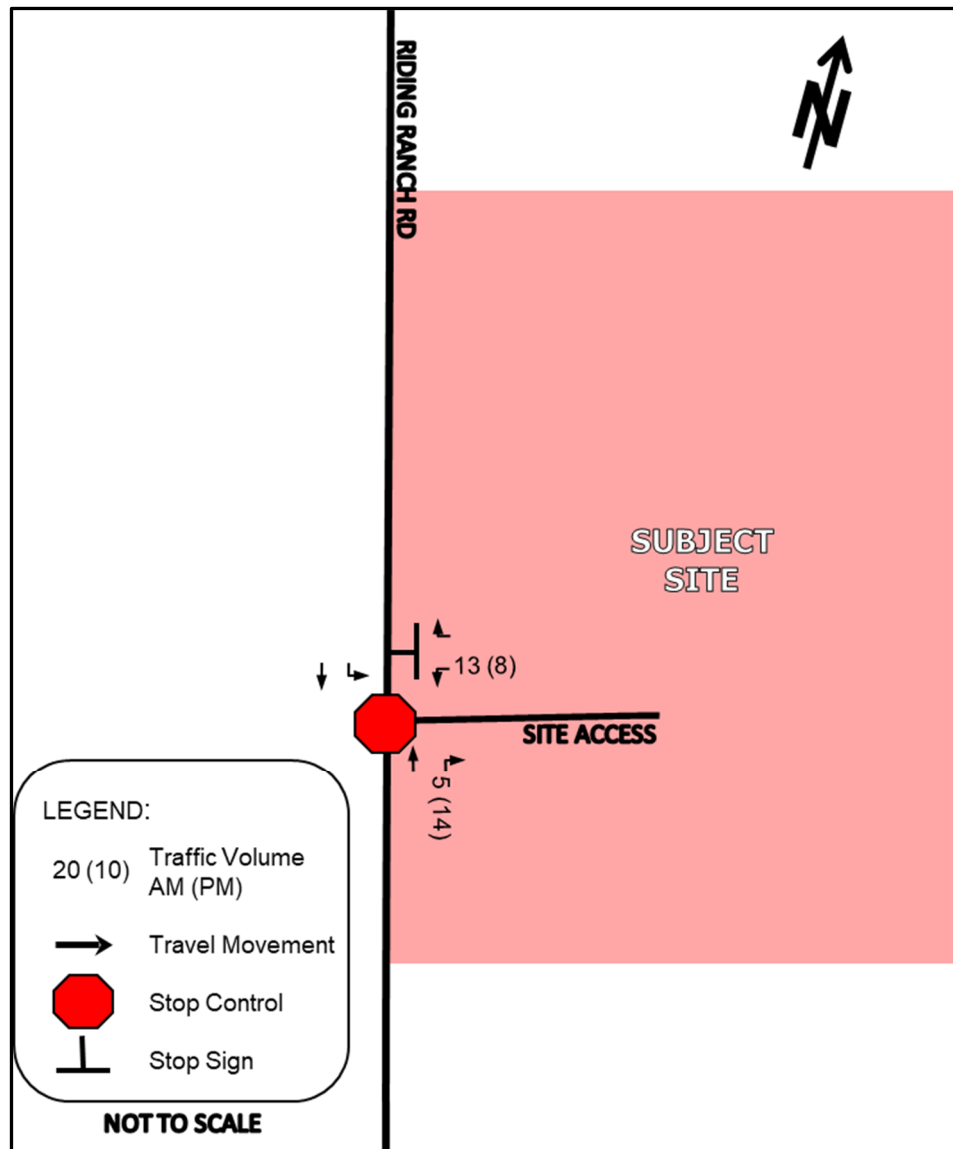
For the purposes of this study, it has been assumed that all traffic generated by the proposed development will be new traffic and would not be in the study area if the development was not constructed.

It is anticipated that 6 of the 20 residential units will have access directly on Riding Ranch Road; however, for the purposes of this report, we have assumed that all new traffic in the study area will travel to / from the south on Riding Ranch Road, via the Site Access driveway.

The internal distribution of traffic at the Site Access driveway is based on the proposed internal driveway network for the subject site (illustrated in the Site Plan in **Appendix A**).

Figure 3 illustrates the traffic assignment for the proposed development.

Figure 3 – Traffic Assignment for Proposed Development



4 Intersection Operation with Proposed Development

4.1 Traffic Impact Analysis

A 45-minute traffic count on Riding Ranch Road at the Site Access was completed at 10:00 during a site visit on Tuesday, March 29th, 2022. The traffic counts were extrapolated to estimate the following peak hour volume:

- 1 northbound vehicles
- 0 southbound vehicles

The proposed development will add approximately 15 AM and 19 PM peak hour trips on Riding Ranch Road.

Based on the excess capacity available on Riding Ranch Road, the additional traffic generated by the proposed development will not adversely affect the traffic operations on Riding Ranch Road or result in any traffic safety issues with the study area. The existing road network can accommodate the additional traffic generated by the proposed development.

4.2 Sight Distance Review

A review of the available sight distance for the proposed Site Access driveway was completed as part of this analysis (sight distance site visit figures provided in **Appendix B**).

The sight distance north (85 metres) and south (137 metres) of the Site Access meets the minimum stopping sight distance requirements as identified in the Transportation Association of Canada *Design Guide for Canadian Roads* (2017) [TAC Guidelines] for a design speed of 60 km/h (85 metres).

Consequently, there are no issues with the sight distance available for the Site Access driveway.

4.3 Site Access

The Site Access driveways will operate efficiently as full-movement access driveways with stop control for egress movements. A single ingress and egress lane at the Site Access driveway will provide the necessary capacity to service the proposed development. It is recommended the Site Access driveway be maintained year-round to provide access to the residential lots.

Riding Ranch Road is a year-round maintained gravel roadway. Based on a review of the road conditions on Riding Ranch Road at the site access, vehicles travel at reduced speeds on the road due to the gravel road conditions and the vertical curvature. As noted in Section 4.2, there are no issues regarding the available sight distance at the proposed locations of the driveways. No improvements on Riding Ranch Road are required as a result of the proposed development.

The proposed spacing between the Site Access and King Lake Road (767 metres – measured centre of road to centre of driveway) is in excess of the minimum intersections spacing for a local road as identified in the TAC Design Guide for Canadian Roads (2017) [TAC Guidelines] – 40 metres.

5 Summary

Polni Holdings retained **JD Engineering** to prepare this traffic brief in support of the proposed residential development located on the east side of Riding Ranch Road, along the shoreline of Bray Lake in the Township of Machar. The proposed Site Plan is shown in **Appendix A**. This chapter summarizes the conclusions and recommendations from the study.

The proposed redevelopment is anticipated to include the development of 20 single-detached residential units.

1. The proposed addition is expected to generate 15 AM and 19 PM peak hour trips in the study area.
2. An estimate of the amount of traffic that would be generated by the Subject Site was prepared and assigned to the study area streets and intersection.
3. No additional infrastructure improvements are recommended within the study area as a result of the proposed development
4. The Site Access driveway will operate efficiently as full-movement access driveway with stop control for egress movements. A single ingress and egress lane at the Site Access driveway will provide the necessary capacity to service the proposed development.
5. The sight distance available for the Site Access driveway meet the minimum stopping sight distance requirements.
6. In summary, the traffic generation from the subject site will not cause any operational or traffic safety issues.

Appendix A – Site Plan

Appendix B – Sight Distance Site Visit Figures

Figure A – Sight Distance Available – Site Access (North)



Figure B – Sight Distance Available – Site Access (South)

