TRANSMITTAL

December 4, 2023 File: 101335.007 – Rev0

Peck's Marina
[redacted]

Attention: Greg Robichaud

Re: Pavement Condition and Traffic Impact Assessment
Fitzsimmons Road, Township of Leeds and Thousand Islands, Ontario

INTRODUCTION

Plans are underway for the construction of a boat storage facility at the southeast corner of Fitzsimmons Road and Granite Ridge Road in the Township of Leeds and Thousand Islands, Ontario. Concerns have been raised regarding the potential impact of the increased traffic along Ftizsimmons Road to access the proposed facility.

GEMTEC Consulting Engineers and Scientists Limited (GEMTEC) has been retained by Fotenn to conduct a traffic impact assessment of the boat storage facility on Fitzsimmons Road and provide an opinion on the potential impacts to the road.

METHODOLOGY

Site Visit

A site visit was carried out on November 10, 2023, by a member of our engineering staff to visually evaluate the roadway condition. The visual pavement condition survey was carried out in general accordance with the Ministry of Transportation's (MTO) *SP-021 Manual for Condition Rating of Surface-Treated Pavements*. Pavement condition, subgrade material and bedrock presence was noted along the road, as applicable.

Desktop Study

The potential impact of additional boat traffic on Fitzsimmons Road has been assessed using boat size and frequency data provided by Peck's Marina. Local well records and geological maps have been used to assess the subgrade and ground water conditions. Existing traffic data and pavement structure data have been provided by the Township.

EXISTING CONDITIONS

At present, Fitzsimmons Road is considered a low-class bituminous road (LCB) as per the Township of Leeds and the Thousand Islands. The road was last reconstructed in 2016 and a seal coat was installed in 2022. As per the MTO Pavement Rehabilitation Manual, the anticipated service life of a surface treated road is around seven (7) years.

Ministry of Environment well records suggest that the local subgrade conditions consist of brown sandy fill overlying clay. Granite bedrock is noted at or near ground surface near the Northern limits of the project scope. In the Southern portion of Fitzsimmons Road, bedrock was found between two (2) to four (4) metres below ground surface.

Ditches are present alongside the road to provide pavement surface drainage.

A traffic count completed in July of 2023 reports the Summer Average Daily Traffic (SADT) on Fitzsimmons Road was 591 vehicles. At the time of this investigation, no commercial vehicle traffic data was available.

PAVEMENT CONDITION ASSESSMENT

A visual pavement condition survey was performed on Fitzsimmons Road, from Thousand Island Parkway to Granite Ridge Road, consisting of approximately 850 metres of roadway. Fitzsimmons Road is presently a surface treated road.

Based on the assessment, the existing pavement is in good overall condition with a Pavement Condition Rating (PCR) of 75 and a Ride Condition Rating (RCR) of 8.5. The existing pavement exhibits slight intermittent loss of cover aggregate in the wheel paths and slight intermittent streaking. No surface deformation or cracking was observed during the site visit.

Photographs of the pavement condition along Fitzsimmons Road are included in Appendix A.

TRAFFIC IMPACT ASSESSMENT

It is understood that the storage facility is to service approximately 150 small to medium sized boats which will be brought along Fitzsimmons Road twice a year. The boats are to be hauled on a trailer fitted with tandem axles and dual tires. Typical boats and their assumed frequency and weight, as provided by Pecks Marina, is detailed in Table 1. A Load Equivalency Factor (LEF) has been assigned to each boat based on the weight and the wheel configuration according to tables provided in the *AASHTO Guide for Design of Pavement Structures.*

Table 1 – Anticipated Boats and Frequencies

	Typical Boat	Weight (lb)	Anticipated Frequency	Load Equivalency Factor (LEF)
Maximum	Sea Ray 440	23000	5%	0.160
Average	-	18000	75%	0.07
Minimum	Four Winds 358	16200	20%	0.044

The LEFs and frequency distribution of boat sizes has been used to estimate the Equivalent Standard Axle Loads added to the road traffic due to the proposed storage facility. It is expected that the facility will add approximately 30 ESALS per year to the road.

It is assumed that the only commercial traffic experienced on Fitzsimmons Road are boats being hauled to a similar facility North of Granite Ridge Road. Based on discussion with the Marina owner, the existing storage facility services approximately the same number and size boats as the proposed facility. It is therefore assumed that the existing traffic is similar to that calculated for the new facility, approximately 30 ESALs per year.

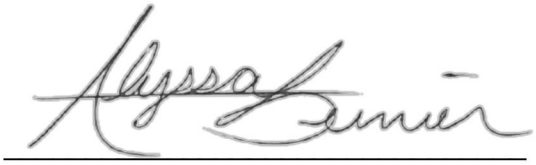
RECOMMENDATIONS

Based on the above study, it is estimated that the new storage facility will double the yearly ESALs from 30 to 60. With the limited data available, it is our opinion that the boat traffic will not appreciably shorten the service life of Fitzsimmons Road.

LIMITATIONS

The opinions presented within the scope of this work are dependent on engineering judgement and available resources. The accuracy of the opinions presented are limited to the accuracy of the information provided to GEMTEC.

Sincerely,



Alyssa Bernier, M.A.Sc.

William (Bill) Cavers, P.Eng.
Principal Geotechnical Engineer

Enclosures
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APPENDIX A

Site Photographs

Figure A1 – Pavement Condition of Fitzsimmons Road

Figure A2 – Pavement Condition of Fitzsimmons Road

Figure A3 – Pavement Condition of Fitzsimmons Road