SEBAGO TECHNICS

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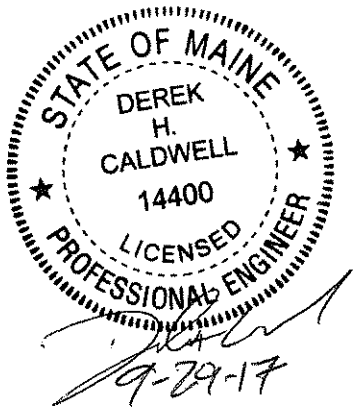
Memorandum



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To: **Owens McCullough, P.E.**

From: **Derek Caldwell, P.E., PTOE**

Date: **September 29, 2017**

Subject: **O'Neil Street Public Works Redevelopment**
South Portland

Introduction

The existing South Portland Public Works facility located on O'neil Street is scheduled to be removed and the land redeveloped for residential use. In order to understand the potential traffic impact of this redevelopment we have collected data on existing traffic in the area and calculated what the new trip generation would be.

Existing Traffic

Automated Traffic Recorder (ATR) data was collected for the 48 hour period from Tuesday September 19th to Wednesday September 20th, 2017 at the following three locations:

1. Cottage Road between O'Neil Street and Clemons Street
2. O'Neil Street between Cottage Road and the DPW Facility
3. Pitt Street between Walnut Street and Hillside Avenue

The ATR data includes directional traffic counts given in 15 minute intervals and the measured speed of each vehicle. This information is summarized below in Table 1 and shown on the attached plan.

Table 1 – Traffic Data Summary

ATR	*Location*	*ADT (veh)*	*K (%)*	*D (%)*	*85th Percentile Speed (MPH)*
1	Cottage Road	16,146	8.3%	65.5%	35
2	O'Neil Street	458	10.9%	52.0%	23
3	Pitt Street	304	11.5%	68.6%	22

Where:
ADT=Average Daily Traffic
K=Percentage of ADT occurring during Peak Hour
D=Directional Distribution Percentage of Peak Hour

A MaineDOT traffic count (Count Station 01504) conducted in 2016 on Cottage Road southeast of S. Richland Street had an AADT (Average Annual Daily Traffic) of 14,630 vehicles.

Traffic observations were performed in the area on Tuesday September 26th and Wednesday September 27th 2017 from 7:00 AM to 8:30 AM. The main focus of these observations was the Cottage Road westbound approach to the signalized intersection at Highland Avenue and South Richland Street. Maximum queues on this approach were observed to form back to the intersection with O'Neil Street, a distance of approximately 550 feet. Any formed queue was dissipated within one cycle of the signal. This queue was inconsistent and did not form every signal cycle. A large number of pedestrians, assumed to be students headed for Mahoney Middle School, would often actuate the exclusive pedestrian phase. When this phase is active, it would be expected for all vehicular approaches to experience a short duration of increased queues.

Trip Generation

Two different scenarios of residential development were calculated using the 10th Edition of the Institute of Transportation Engineers Trip Generation Manual. The first is 42 duplex units and and the second 30 single family homes. While other configurations of development are being considered, these two provide the most conservative results. Tables 2 and 3 show the results of the trip generation calculation.

Table 2 – Trip Generation
42 Duplex Units
LUC 220 – Low Rise Residential

Time Period	*Equation*	*Total Trips*	*Entering*	*Exiting*
Weekday	T=7.56(X)-40.86	277	138	139
AM Peak Hour	Ln(T) = 0.94 Ln(X) - 0.29	25	7	18
PM Peak Hour	T=0.66(X)+1.41	29	17	12

T=Total No. of Trips X=No. of Units

Table 3 – Trip Generation
30 Single Family Homes
LUC 210 – Single Family Detached Housing

Time Period	*Equation*	*Total Trips*	*Entering*	*Exiting*
Weekday	Ln(T) = 0.92 Ln(X) + 2.71	344	172	172
AM Peak Hour	Ln(T) = 0.91 Ln(X) + 0.20	27	7	20
PM Peak Hour	Ln(T) = 0.94 Ln(X) + 0.34	34	22	12

T=Total No. of Trips X=No. of Units

As shown in Table 3, if the area were to be redeveloped with 30 single family homes, 344 new trips could be expected to be added to the area roadway network during a weekday. If all of this traffic were to utilize Cottage Road, it would represent an approximately 2% increase in total daily traffic.

It should also be noted that a significant portion of the traffic currently utilizing O'Neil can be directly attributed to the DPW facility. The exact number of trips to and from the DPW facility is not quantified

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in this report, but based upon the collected traffic counts it can be expected that a residential use of the proposed magnitude would have an equal or lesser amount of trip generation. Similarly, a portion of the existing traffic on Pitt Street can be attributed to the DPW facility. Any addition of traffic due to the residential development would not be large enough to create new capacity issues on Pitt Street or the other surrounding local roadways.

Attachment:

Traffic Summary Plan

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