

**MEMORANDUM**

Ref: 2001A

To: Michael Sievert, P.E.  
MJS Engineering, P.C.

From: Stephen G. Pernaw, P.E., PTOE

Subject: Response to Dennis Meadows Questions dated December 20, 2020

Date: January 13, 2021

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On November 23, 2020 our office published a revised “Traffic/Parking Evaluation” memorandum for the proposed student housing parking lot at 19-21 Main Street in Durham, New Hampshire. We are now in receipt of several question from Professor Dennis Meadows, a town resident. The purpose of this memorandum is to summarize our responses to those questions.

Meadows Question 1: *“The pandemic has drastically increased the demand for residences in Durham. It has also altered commuting patterns. Why do you assume that historical patterns of traffic growth on Main Street will continue into the future with only minor growth?”*

**SGP & Co., Inc. Response:** The traffic data for this study area was collected on February 12<sup>th</sup>, 13<sup>th</sup>, & 15<sup>th</sup> and was not impacted by the pandemic. According to data from the NHDOT permanent traffic recorder station on US4 in Durham, traffic levels started to decline in March, bottomed out in April and have been gradually returning to normal. Our response to the historical pattern question is summarized below.

Meadows Question 2 – Part A: *“Alternately, you assume 1%/year growth in traffic, an increase by only 12% through 2031. What is your basis for that assumption?”*

**SGP & Co., Inc. Response:** Standard practice when conducting traffic impact studies in New Hampshire is to review and analyze available NHDOT count data to determine the annual growth rate that has occurred at a nearby count station(s). In this study, our research revealed that there are three count stations in the Durham area, and these stations exhibited annual growth rates of -4.4%, +0.0%, and +0.5%, resulting in an average rate of -1.3% per year. Based on our engineering judgment, and having attended many NHDOT scope meetings in recent years, we elected to increase the background growth rate from -1.3% to +1.0%, and to compound this rate annually. This information is included in Section F in our traffic memorandum.

Meadows Question 2 – Part B: *“Your entire analysis is driven by two observations. The first is historical data from the state of New Hampshire on 3 cloudy, drizzly days in February 2020. The second is your observation of students exiting the parking lot during a total of 10 hours on three days. Why do you assume those limited data give us useful information about the next 20 or more years that this parking lot will affect Durham’s overall traffic patterns?”*

**SGP & Co., Inc. Response:** As a point of clarification, the February 2020 intersection turning movement count data that is summarized on Figure 2 was collected by our office; not by the state of New Hampshire. Consistent with NHDOT procedures, these counts were conducted during a typical weekday and then factored to represent peak-month peak-hour traffic conditions in the horizon year (+10 years).

We elected to repeat these counts on a typical Saturday, given that University activities are quite different than during the week. Similarly, parking demand at the subject lot (and a similar nearby lot for concurrence) was monitored during a typical weekday and Saturday to determine its adequacy. The data collected was sufficient to arrive at the conclusion that the existing parking lot is over parked and additional supply is needed.

Meadows Question 3: *“Major policy decisions are normally based on a best case/worst case scenario. You did not provide them. Why not?”*

**SGP & Co., Inc. Response:** Analysis that is based on peak-month traffic volumes (higher than the remaining 11 months), peak hour conditions (higher than the remaining hours of the day), and traffic flow rates based on the highest 15-minute count interval (higher than the remainder of the peak hour) represents a worst-case scenario. The use of an annual growth rate that exceeds the historic growth rate also makes our findings conservative on the “high side.” A best-case scenario could be misleading.

Meadows Question 4: *“Why do you assume that the behavior of current students indicates the behavior of all people who will ever use the parking lot over the next several decades, given that the number of parking spaces will be increased by more than a factor of four?”*

**SGP & Co., Inc. Response:** Our charge was simply to evaluate the proposed expansion of an existing student housing parking lot; not any unforeseen hypothetical scenarios.

Meadows Question 5: *“You do not provide any estimate of the parking lot’s impact on the Main Street traffic flow. Why not?”*

**SGP & Co., Inc. Response:** The analysis of the study area intersection does provide information relative to the impact on the flow of through traffic on Main Street. For example, the Main Street left-turn movement into the subject driveway is considered to be a “Rank 2” movement as it is in conflict with the total opposing through and right-turn flow, and it also affects the flow of westbound vehicles on Main Street. Table 3 in the study shows that the delay associated with the left-turn arrival movement will increase from 10.6 to 10.7 seconds during the worst-case weekday PM peak hour period in 2031 as a result of the expanded parking lot. Vehicle queuing on the westbound approach to this intersection is not expected to change significantly. Similarly, the right-turn movement from Main Street into the subject driveway is considered to be a “Rank 1” movement as it does not encounter a conflicting traffic stream. Therefore, this movement does not have any delay associated with it.

Meadows Question 6: *“Specifically, you indicate that most cars exiting the parking lot will turn left. Why do you ignore the effect this will have on the Main Street traffic flow during rush hour? Do you assume every one using the parking lot will wait patiently until they can exit without slowing any of the on-coming cars?”*

**SGP & Co., Inc. Response:** The left-turn departure movement from the site driveway is classified as a “Rank 4” movement as it faces the most complex set of conflicting movements that requires a simultaneous gap in the two-way traffic flow on Main Street. The “Highway Capacity Manual” methodology takes many things into consideration, including a conservative critical headway for the left-turn and right-turn departure movements from the minor approach. The results indicate that all applicable turning movements will operate well below capacity through 2031 and beyond with the parking lot fully occupied. Nevertheless, the analysis shows that the left-turn departure from the site driveway will continue to encounter long delays during the weekday PM peak hour periods, similar to other streets and driveways on this corridor. The slowing of a vehicle on Main Street due to a minor-street departure is not considered to be a reasonable litmus test; our experience suggests that it is an “everyday” occurrence on most busy collector streets and arterial roadways.

Meadows Question 7: *“Your analysis is based on the assumption that the lot will be used only by students. UNH is currently hemorrhaging cash. It was losing \$10 million/year before the pandemic, and now one estimate of the annual loss is \$40 million/year. UNH is a great university, and it will certainly find a way to continue. But*

*the days of growth in residential students is gone. Why do you ignore the possibility that non students will use the lot?*

**SGP & Co., Inc. Response:** See response to Question 4.

Meadows Question 8: *“How would your results be changed, if you assumed that non-students were parking in the lot?”*

**SGP & Co., Inc. Response:** This is not known; the results would be dependent on the type and size of use that the parking lot serves.

Meadows Question 9: *“.....How much more will the average Durham driver be delayed while in driving in Durham, if the parking lot is permitted? To answer that question, a very different kind of study is required. It will be necessary to conduct some scenario studies on a traffic model that has been constructed specifically for Durham.”*

**SGP & Co., Inc. Response:** While the use of sophisticated traffic modeling is well beyond the scope of this site-specific traffic evaluation, the results of the intersection capacity and Level of Service analyses suggest that the increase in delay for through traffic due to the proposed parking lot expansion will be minimal. Stated another way, the “impact” that occurs on Main Street from one day to the next due to random traffic flow likely exceeds the impact that will result from the additional parking stalls that are proposed.