



FUSS & O'NEILL

September 21, 2021

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review – Traffic Study Review
Friars Drive Industrial Facility Site Plan, 161 Lowell Road
Tax Map 209 Lot 1; Acct. #1350-975
Reference No. 20030249.2060

Dear Mr. Groth:

Fuss & O'Neill, Inc. has reviewed the Traffic Impact and Access Study prepared by TF Moran (TFM) dated September 7, 2021, for the proposed warehouse development on Friars Drive at the north end of the Sagamore Industrial Park in Hudson, New Hampshire (Parcel 209-001-000). The project proposes the development of a 504,000 square foot (sf) high-cube transload and short-term storage warehouse on the currently vacant land. Access and egress to the site will be provided via a proposed driveway on the north side of Friar's, with a channelized right turn lane and a receiving lane for left turns for access. For egress, a stop-controlled shared left turn/through lane and a stop-controlled, channelized right turn lane will be provided.

Please note that site plan, stormwater, and other project related review comments were provided under a separate letter dated August 27, 2021.

4. Traffic

In review of the TFM report, we have the following comments:

- a. According to the Town of Hudson, NH Zoning Ordinance 334-11, Pelham Road is classified as a collector road. Pelham Road's classification should be revised in the report.
- b. The report lists the construction of an additional receiving lane on Wason Road eastbound to accept the two right-turning lanes from Lowell Road northbound as a traffic mitigation improvement from the CMAQ and HLC projects. As the northbound Lowell Road approach currently exists, only one right-turn lane is provided. If the CMAQ and HLC projects propose to construct an additional right-turn lane at the northbound Lowell Road approach or restripe the approach, it should be clarified in the report.
- c. Additionally, the report lists the construction of an extra lane from Flagstone Drive to Sagamore Bridge as part of the CMAQ project, which will also involve moving a mast arm.

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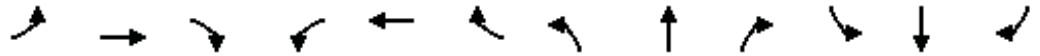
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Analyzing the provided Synchro reports, it appears that the southbound approach at the Lowell Road and Flagstone Drive intersection was modeled with an additional lane under No-Build conditions. The report should clarify whether the extra lane from Flagstone Drive to Sagamore Bridge is this additional southbound lane.

- d. The westbound Executive Drive approach signal timings seem to have been modeled with 3 seconds of lost time in the 2022 AM No-Build and Build conditions, as well as 2022 and 2032 PM No-Build and Build conditions. It appears that the timings in the Langan traffic impact study for the HLC project, which are the timings used for the No-Build conditions in the TFM report, also had this same lost time. While the TFM report signal timings, at this approach, does correctly match the timings proposed by the Langan traffic impact study for the HLC project, the reasoning behind this lost time is unclear. If there is a reason this lost time has been included in the signal timings for this intersection, it should be provided. See attached PDF.
- e. Similarly, the southbound Lowell Road approach at its intersection with Pelham Road signal timings seem to have been modeled with 13 seconds of lost time under all No-Build and Build conditions. It appears that the timings in the Langan traffic impact study for the HLC project, which are the timings used for the No-Build conditions in the TFM report, also had this same lost time. While the TFM report signal timings at this approach do correctly match the timings proposed by the Langan traffic impact study for the HLC project, the reasoning behind this lost time is unclear. If there is a reason this lost time has been included in the signal timings for this intersection, it should be provided. See attached PDF.
- f. Overall, the procedures that the TFM report uses are reasonable and use appropriate ITE trip generation information for the scenario provided. We agree that although the Sagamore Bridge interchange is expected to operate over-capacity in the Build condition, the proposed warehouse development will contribute almost negligibly to this and should not be responsible to propose further mitigation. The mitigation proposed at the Lowell Road and Executive Drive intersection, one of the major access points to the proposed development, for the 2022 AM peak hour is reasonable and should suffice in relieving any potential issues there. We concur with TFM's overall conclusion that, given the relatively low increase in site-related trips (50 trips during the weekday morning peak hour and 55 trips during the weekday afternoon peak hour) compared to the existing traffic volumes on Lowell Road in this area, there should be minimal observable impacts on traffic operations at any of the study area intersections as a result of the proposed development.

7: Lowell Road (3A) & Executive Drive/PMA Drive
Lanes, Volumes, Timings

2022 AM NoBuild.syn

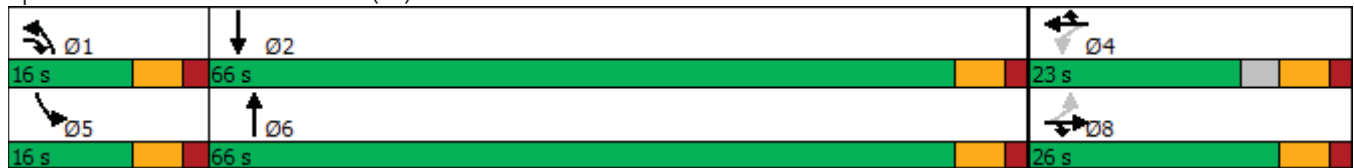


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-----|------|------|-----|------|------|------|------|-----|------|-----|------|
| Approach Delay | | 41.0 | | | 49.3 | | | 35.5 | | | | 25.2 |
| Approach LOS | | D | | | D | | | D | | | | C |
| Queue Length 50th (ft) | | 38 | 0 | | 122 | 12 | 109 | 92 | | 67 | | 324 |
| Queue Length 95th (ft) | | 82 | 12 | | #227 | 51 | #293 | 133 | | #172 | | 433 |
| Internal Link Dist (ft) | | 412 | | | 497 | | | 1711 | | | | 1088 |
| Turn Bay Length (ft) | | | 225 | | | 80 | 350 | | | 150 | | |
| Base Capacity (vph) | | 163 | 547 | | 298 | 436 | 189 | 2274 | | 191 | | 2303 |
| Starvation Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | | 0 |
| Spillback Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | | 0 |
| Storage Cap Reductn | | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | | 0 |
| Reduced v/c Ratio | | 0.44 | 0.04 | | 0.72 | 0.29 | 0.97 | 0.25 | | 0.62 | | 0.61 |

Intersection Summary

| | |
|---|------------------------|
| Area Type: | Other |
| Cycle Length: | 108 |
| Actuated Cycle Length: | 92.1 |
| Natural Cycle: | 80 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.97 |
| Intersection Signal Delay: | 31.7 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 76.2% |
| ICU Level of Service | D |
| Analysis Period (min) | 15 |
| # 95th percentile volume exceeds capacity, queue may be longer. | |
| Queue shown is maximum after two cycles. | |

Splits and Phases: 7: Lowell Road (3A) & Executive Drive/PMA Drive



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September 21, 2021
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Please feel free to call if you have any questions.

Very truly yours,



Steven W. Reichert, P.E.

Steven W. Reichert, PE

Digitally signed by Steven W. Reichert,
PE
DN: cn=Steven W. Reichert, PE, c=US,
o=Fuss & O'Neill, Inc., ou=Fuss &
O'Neill, Inc.,
email=sreichert@fando.com
Date: 2021.09.21 17:03:40 -0400

SWR:

Enclosure

cc: Town of Hudson Engineering Division – File
The Dubai Group – karl@thedubaygroup.com

9: Lowell Road (3A) & Pelham Road
Lanes, Volumes, Timings

2022 AM NoBuild.syn



| Lane Group | WBL | WBR | NBT | NBR | SBL | SBT | Ø9 |
|-------------------------|------|------|------|-----|-------|-------|----|
| Queue Delay | 0.0 | 0.0 | 2.4 | | 0.0 | 0.0 | |
| Total Delay | 74.7 | 34.6 | 31.4 | | 111.3 | 40.3 | |
| LOS | E | C | C | | F | D | |
| Approach Delay | 65.1 | | 31.4 | | | 44.2 | |
| Approach LOS | E | | C | | | D | |
| Queue Length 50th (ft) | 308 | 48 | 468 | | 82 | 1002 | |
| Queue Length 95th (ft) | #529 | 109 | 715 | | #210 | #1798 | |
| Internal Link Dist (ft) | 432 | | 469 | | | 1229 | |
| Turn Bay Length (ft) | | 75 | | | 150 | | |
| Base Capacity (vph) | 410 | 508 | 1100 | | 102 | 1281 | |
| Starvation Cap Reductn | 0 | 0 | 309 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.64 | 0.16 | 0.83 | | 0.66 | 0.90 | |

Intersection Summary

Area Type: Other
 Cycle Length: 190
 Actuated Cycle Length: 190
 Offset: 30 (16%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
 Natural Cycle: 150
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 43.7
 Intersection LOS: D
 Intersection Capacity Utilization 81.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 9: Lowell Road (3A) & Pelham Road





FUSS & O'NEILL

October 26, 2021

Mr. Brian Groth
Town Planner
Town of Hudson
12 School Street
Hudson, NH 03051

Re: Town of Hudson Planning Board Review – Traffic Study Review
Friars Drive Industrial Facility Site Plan, 161 Lowell Road
Tax Map 209 Lot 1; Acct. #1350-975
Reference No. 20030249.2060

Dear Mr. Groth:

Fuss & O'Neill, Inc. has reviewed the revised Traffic Impact and Access Study prepared by TF Moran (TFM) dated October 6, 2021, for the proposed warehouse development on Friars Drive at the north end of the Sagamore Industrial Park in Hudson, New Hampshire (Parcel 209-001-000). The project proposes the development of a 504,000 square foot (sf) high-cube transload and short-term storage warehouse on the currently vacant land. Access and egress to the site will be provided via a proposed driveway on the north side of Friar's, with a channelized right turn lane and a receiving lane for left turns for access. For egress, a stop-controlled shared left turn/through lane and a stop-controlled, channelized right turn lane will be provided.

We acknowledge that the revised traffic impact study has addressed all of our original comments and concerns and concur with TFM's overall conclusion that, given the relatively low increase in site-related trips (50 trips during the weekday morning peak hour and 55 trips during the weekday afternoon peak hour) compared to the existing traffic volumes on Lowell Road in this area, there should be minimal observable impacts on traffic operations at any of the study area intersections as a result of the proposed development.

Please feel free to call if you have any questions.

Very truly yours,

Steven W. Reichert, P.E.

SWR:

cc: Town of Hudson Engineering Division – File
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