LLEWELLYN - HOWLEY

INCORPORATED

MEMORANDUM

To: Mr. Peter Erb, Zoning Administrator

Fr: Rick Bryant, Llewellyn Howley

Re: Proposed Hannaford Bros. Supermarket
Hinesburg, VT

Dt: March 25, 2011

Per your request we have reviewed the traffic information submitted to the Town of Hinesburg in support of the above referenced project. In general the *Updated Traffic Impact Assessment for a Hannaford Supermarket* submitted by Lamoureux & Dickinson (L&D) dated February 28, 2011 has been prepared in accordance with industry standards. Additionally, the study provides a reasonable baseline for the evaluation of project-related traffic impacts and traffic mitigation.

Herein we provide: a review of the L&D traffic report; our own observations of traffic conditions in the site vicinity; and, a response to comments made at the public hearing on March 15, 2011.

Project Description

The L&D study considers a proposal to construct a 36,783 square feet Hannaford Bros. supermarket on Lot 15 of Commerce Park in Hinesburg, Vermont. Commerce Park is a commercial subdivision located in the fork between VT Route 116 and Mechanicsville Road on the north end of Hinesburg village. Commerce Street was constructed to provide access from both Route 116 and Mechanicsville Road to the lots in Commerce Park. Lot 15 is accessed from Commerce St. via a 50 ft wide by 250 ft long right-of-way (Commerce St. Ext.) situated between Lot 12 (Dark Star) and Lot 13 (National Bank of Middlebury). This right-of-way is presently used by the National Bank of Middlebury for its entering traffic.

Traffic Impact Study Review

The following is a summary of information presented in the traffic impact report.

- The L&D study evaluates the impact of the proposal at seven intersections in the site vicinity. Opening year (2012) PM peak hour traffic patterns are defined for these seven intersections. AM peak hour conditions are defined for two of the study area intersections.
- Approximately 1000 vehicles travel along Route 116 past Commerce Street during the PM peak hour with most of this traffic headed southbound. During the morning peak hour approximately 1100 vehicles pass Commerce Street with the peak flow headed northbound.

- 2012 "No Build" traffic volume conditions are defined which include existing volumes grown by one percent (to account for historic growth trends) plus anticipated traffic from three other planned development projects in Hinesburg.
- Intersection capacity analyses for the 2012 No Build conditions reveal that all intersections in the study area operate below capacity during the peak hours studied without the supermarket built. However, long delays are calculated for traffic entering Route 116 from Mechanicsville Road and long queues are reported on Route 116 southbound at Charlotte Road for PM peak hour conditions. The results for the Charlotte Road intersection reflect adjustments made by L&D to account for turning movements being made into the Lantman's driveway located just south of the intersection.
- The proposed supermarket is expected to generate up to 386 PM peak hour vehicle trips and 64 percent of these trips are expected to be new trips on the roadway network.
- Pass-by trips to the supermarket were assigned in accordance with existing traffic patterns at the site reflecting the existing PM peak hour southbound peak commuter flow. New trips were assigned with 36 percent oriented to/from the north via either Route 116 or Mechanicsville Road.
- Based on the above trip assignments, traffic volumes at the Shelburne Falls Road/Route 116 intersection will increase by 2.8 percent due to the project in the PM peak hour and by 9.5 percent at the Charlotte Road/Route 116 intersection.
- Traffic operations in the study area will worsen measurably under Build conditions (with the proposed supermarket) relative to No Build conditions. All intersections are projected to continue to operate below capacity under Build conditions. However, long delays and/or long queues under Build conditions are noted for the following movements:
    - Left turns from Commerce Street westbound to Route 116 southbound
    - Left turns into Farmall Drive from Route 116 northbound
    - All traffic entering Route 116 from Mechanicsville Road
    - All southbound traffic on Route 116 at Charlotte Road
    - All traffic entering Route 116 from Silver Street
- Potential traffic mitigation measures described by L&D are as follows:
    - Commerce Street/Route 116
        - Increase the signal cycle length from 89 to 110 seconds
        - Restripe the westbound approach to include an exclusive left-turn lane (converting the existing right-turn lane to a shared lane)
        - Extend the proposed westbound share lane from 25 feet to 200 feet
        - Extend the southbound left-turn lane from 75 feet to 175 feet
    - Charlotte Road/Route 116
        - Increase the signal cycle length from 89 to 110 seconds
    - Commerce Street/Hannaford Drive
        - Increase corner radius to accommodate trucks

Observations

1. Existing PM peak hour traffic operations observed by Llewellyn Howley (see field notes below) are more severe than those reported in the traffic study for the No Build condition for the Charlotte Road/Route 116 intersection. The reported *95th percentile* southbound queue on Route 116 under 2012 No Build conditions (no existing condition results were reported) is 1150 feet. The observed *average* queue during much of the peak hour under existing conditions was approximately 1100 feet.

2. Existing PM peak hour traffic operations observed by Llewellyn Howley are less severe than those reported in the traffic study for the No Build condition for the Mechanicsville Road/Route 116 intersection and the Silver Street/Route 116 intersection. The reported 95th percentile sides street queues under 2012 No Build conditions range from 150 to 225 feet. Observed queue lengths were generally one to three cars (25 to 75 feet). The short queues on Mechanicsville Road resulted from stopped traffic on Route 116 southbound letting traffic enter from Mechanicsville Road after a very short wait time.

3. Existing PM peak hour traffic operations observed by Llewellyn Howley are comparable to those reported in the traffic study for the No Build condition for the Commerce Street/Route 116 intersection and the Commerce Street/Mechanicsville Road intersection. Both locations operated below capacity with very limited delays and vehicle queues.

4. Application of Institute of Transportation Engineers (ITE) trip rates as conducted by L&D is appropriate for this project and the projected trip generation (326 to 386 PM peak hour trips) is reasonable.

5. The original Act 250 permit for the Commerce Street subdivision assigned a traffic "budget" of 259 PM peak hour trips for the entire Commerce Street commercial subdivision. The permit was later amended to increase this budget to 389 trips. Under 2017 Build conditions the L&D study projects 982 PM peak hour vehicle trips entering or exiting Commerce Street.

6. The assumed trip distribution for supermarket traffic is inconsistent with patterns observed at the existing Lantman's supermarket in the initial traffic study prepared by L&D. The assumed split for Hannaford Bros. has 36 percent of the new site traffic oriented to/from the north compared to 57 percent at the Lantman's driveways.

7. The projected 95th percentile vehicle queue on Commerce Street westbound at Route 116 under 2017 PM peak hour Build conditions is approximately 300 feet.

Recommendations

Based on the above, additional information should be provided by the applicant. Consideration of the new information could lead to the definition of a revised and more comprehensive traffic mitigation plan for the project. Specific recommendations are listed below.

1. Provide updated traffic mitigation plans for the Commerce Street/Route 116 intersection along with "Build with Mitigation" condition capacity analysis results. The plans should consider:

    a. Reassignment of traffic from Mechanicsville Road southbound to Commerce Street eastbound assuming that no mitigation is provided at the Mechanicsville Road/Route 116 intersection. (Projected delays at the Mechanicsville Road/Route 116 intersection could cause traffic to divert to Commerce Street.)

    b. Saturday midday peak hour traffic conditions, the peak hour of traffic generation for the proposed supermarket and potentially the peak hour for other retail businesses along Commerce Street.

    c. The assumed site traffic distribution and a second distribution based on observed conditions at the Lantman's driveways.

d. Installation of a raised median for a distance of approximately 150 feet along Commerce Street east of the proposed STOP bar on this approach to Route 116. (This will preclude left turning traffic into and out of commercial driveways along Commerce Street from impacting the signalized intersection operations. Discussions would need to be held with representatives of the Town to understand the impact of a median on snow removal. Likewise, discussions would need to be held with representatives of Firehouse Plaza to determine if the existing site access could be modified to work with the raised median.)

e. The adequacy of the single westbound lane on Commerce Street to accommodate trucks turning into Commerce Street.

2. Identify potential traffic mitigation strategies at other study area intersections where the project will have significant impacts and operational concerns are anticipated. Operational analyses of the strategies should be provided along with any commitments by the applicant to assist in implementing the strategies. Areas of concern identified in the L&D study include:

    a. Long delays for all traffic entering Route 116 from Mechanicsville Road

    b. Long queues southbound on Route 116 at Charlotte Road

    c. Long delays for all traffic entering Route 116 from Silver Street

    Field observations suggest that the most critical location is the Charlotte Road and Route 116 intersection.

Field Notes

The following notes reflect observations of evening peak hour traffic conditions made by Llewellyn-Howley, Incorporated on March 10 and 15, 2011.

Tuesday, March 15, 2011

Charlotte Road/Route 116 Intersection

- Traffic in the southbound direction was backed up to a point just north of the canal (Mechanicsville Road) from approximately 5:30 to 5:50 PM. The queue length was approximately 1100 feet. (This queue length matches the 95th percentile queue reported in the L&D traffic report for 2010 No Build conditions.)

- The time to move from the back of the southbound queue to the center of the intersection was measured twice at 72 second and 80 seconds.

- The signal was operating on an 83 to 87 second cycle length. Within this cycle 54 to 60 seconds were allocated as green time to the southbound movement.

- As noted in the L&D report, traffic moves slowly on the southbound intersection approach for various reasons. The actual saturated flow rate is most likely much lower than the default rate of 1900 vehicles per hour assumed in the capacity analysis software used by L&D. (L&D adjusted this value down to 1700 vph.)

- Queues on the Charlotte Road approach were nominal (generally one or two cars).

- Vehicles also appeared to exit Lantman's at a slow rate with four vehicles typically exiting per signal green phase.

Mechanicsville Road/Route 116 Intersection

- Short queues were observed on the Mechanicsville Road approach (one or two cars). When southbound traffic was stopped on Route 116 southbound motorists generally let traffic turning left from Mechanicsville Road "cut in" minimizing delays and queues on Mechanicsville Road.

Silver Street/Route 116

- The Silver Street approach exhibited short queues (one or two cars).

Commerce Street/Route 116

- This intersection generally operated with only minor delays.

Thursday, March 10, 2011

Charlotte Road/Route 116 Intersection

- Long back-ups were observed headed southbound on Rt 116.
- Traffic generally cleared in one signal cycle. Under the worst queue observed some cars may have waited two cycles.
- Operations were most influenced by traffic turning left into Lantman's blocking the southbound through lane.
- The Lantman's exit driveway also did not operate efficiently. It takes approximately 16 seconds to process four vehicles exiting. More typical operations would require only 12 seconds. The extra time affects overall intersection operations.
- The signal was operating at an approximate 60 second cycle. The Charlotte Road phase was skipped (no green time for Charlotte Road) on occasion due to a lack of demand.

Commerce Street/Route 116 Intersection

- No congestion noted. Back-ups from Charlotte Road did not reach this intersection.

Shelburne Falls Rd/Route 116 Intersection

- No severe congestion noted. Occasional long queues southbound and eastbound but traffic cleared the intersection in one cycle.

Silver Road and Mechanicsville Road Intersections with Route 116

- Queues waiting to enter were limited to two or three cars.

Public Hearing Comments

The following comments were generated by Town staff based on comments and questions heard at the March 15, 2011 public hearing regarding the project. Llewellyn Howely's responses follow each comment in italics.

1. At the intersection of Mechanicsville Rd, Commerce Street and Thornbush, when crosswalks, curbing, the new rec path etc are constructed next year how is this pedestrian traffic factored in since there is no actual signal with a pedestrian phase, but rather traffic having to yield to people in the crosswalks, which may interfere more. There could be significant ped use of the new rec path-sidewalk and this path is "permitted" i.e. it should be factored in just like Kinney's and other approved developments were. -- *Vehicular traffic volumes at this intersection are relatively light compared to volumes at other study area intersections. A modest increase in pedestrian volumes at this location would most likely not significantly impact the intersection capacity analyses results. We have not seen your recreational path/sidewalk plan but presume that it is designed to afford safe pedestrian movements. Arguably, the supermarket will induce more pedestrian crossings at this location. Hannaford could be asked to enhance this crossing when the store opens or at a future date if problems occur.*

2. There is a problem now and it will be getting worse regardless of LOS – is there a way to insist that regardless of the LOS, the situation should not be allowed to degenerate i.e. within the various levels – an intersection could be almost a B i.e. a very high C and Hannaford could be impacting it so that it just remains above the D threshold, which in terms of traffic engineering is not "significant" however on the ground it could be. -- *Typically, Town boards and State review authorities do not require mitigation where traffic operations are at LOS C or better. At the same time, projects can have significant impacts while intersection overall operations remain at LOS C or better. The L&D study focuses on overall intersection operations. However, it is appropriate to examine specific turning movements that may be operating at LOS D, E or F and require mitigation for these movements. A case in point is the long queue and the poor level of service on Route 116 southbound in the Town center. Mitigation should be offered to address the impacts of the project on the existing vehicle queues on this approach. The impacts of the proposed increased cycle length and/or other mitigation strategies should be documented.*

3. Average trips rate – Should Hannaford's traffic study also run the numbers (average delay, level of service, queue lengths) with a higher average trip rate than the 8.87 number from the study of the 10 Chittenden County supermarkets? With a standard deviation of 2.31, and with average delays for several intersections nearing the threshold for dropping a "grade" in the level of service, perhaps we should see how the numbers would play with a higher trip rate – perhaps using the nationwide ITE average trip rate of 10.5. -- *The L&D study does use the higher, (10.5 trips/1000 square feet of floor space), ITE trip rate. This analysis has already been provided.*

4. Projected traffic for this store – One suggestion made by an audience member was to estimate traffic generation from Hannaford's business plan (i.e., expected customer

base/traffic) rather than through ITE trip generation estimates. Is there a professional protocol for doing this, or is this simply not done? Would a more realistic alternative be a traffic study of actual traffic at a comparable Hannaford store that is already in operation? -- *The ITE data and VTrans data represent comparisons to 'comparable' stores. (We suspect that the VTrans data includes some existing Hannaford stores in Vermont.) We don't feel that additional counts are warranted. The Town, of course, could condition approvals on a post-build monitoring program to see how much traffic the Hinesburg store actually generates. Money for additional traffic mitigation might be held in escrow. The post-build monitoring would determine whether or not the money goes back to Hannaford or into further roadway improvements.*

Regarding the business plan or marketing study, the Town can certainly request a copy from the applicant. Hannaford may choose not to give it to you as it is proprietary information. It should show the amount of money people within a certain radius of this store are likely to spend on groceries in a year. If this information is made public, a competitor will have access to it and could use it to undermine the Hannaford proposal. Our experience has shown that the supermarket business is very competitive and lawsuits can arise between the major chains seeking to protect their markets.

The market study also, may not give the Town the information it's seeking. The study may say how many customers per year will show up and how much they will spend. It will not necessarily indicate the time of day they arrive; how long they stay; whether they drive alone or share a ride; whether or not they walk to the store, etc. All of these details would need to be known to translate the market study into a peak hour vehicle trip generation estimate.

Finally, Hannaford has already agreed to a reduced parking count at the site, one that is much lower than the industry standard. This suggests that they believe that this store will generate less traffic than the typical store represented in the ITE database.

5. Mechanicsville Road intersection impact & modeling – This project appears to have a significant impact on the average delay at the Mechanicsville Road, Route 116 intersection. The level of service starts out and remains at the bottom (F), but the increase in the average delay is large. This intersection may meet the warrants for a signal, but this is highly unlikely, and probably counterproductive for other reasons. Roger indicated at the meeting, that given the delay, some traffic headed to this intersection will divert and use Commerce Street instead. At the very least, shouldn't the traffic study make this assumption and increase the Commerce Street traffic accordingly*? -- Yes. The comments provided above suggest that the applicant reanalyze the Commerce Street/Route 116 intersection assuming that some diversions occur.* Beyond that, are there other potential solutions to this issue that the Town and the State should be considering? -- *Possibly, it depends on how the problem is defined. If the concern is traffic delays during peak hours, the solution for a motorist is to use Commerce Street to get to Route 116 via the traffic light. Providing extra width on Mechanicsville Road to allow left and right turns to stack in separate lanes may also help reduce delays. If safety is the concern, (people force their way into traffic under unsafe conditions resulting in crashes), then turn restrictions or one-way operation of Mechanicsville Road may help. According to L&D's research, this is not presently a high crash location. Here again, monitoring could come into effect. The Town could ask the applicant to monitor crash conditions after the store is open and commit to implement*

safety improvements if the data indicates a critical crash condition related to traffic increases caused by the proposed development. In the past, some have suggested making Mechanicsville Road one way near the intersection, so traffic could enter from Route 116 but couldn't exit to Route 116.

6. Firehouse Plaza & Mobil Station access conflicts – It seems clear that the extra traffic from Hannaford on Commerce Street will be problematic for use of the existing western access points to Firehouse Plaza and the Mobil Station during the peak PM time. The traffic study doesn't recognize this or propose any solutions other than pavement striping. Should Hannaford be working with these landowners to find a real solution? -- *Yes. Restricting left-turns into and out of these driveways would address the impacts these driveways have on intersection operations. Turn restrictions could be enforced by installing a raised median down the center of Commerce Street just east of the intersection with Route 116. Above we recommend that the applicant explore additional mitigation measures for this location. The raised median solution, if adopted, would require the Mobil station to restrict turns from its western driveway and force the Firehouse Plaza to modify its eastern driveway or provide another eastern driveway. The applicant should be working with these abutters to develop a feasible mitigation strategy.*

7. The owners of the Darkstar property, the blue metal building and empty lot to the west of Commerce Street Extension have an allocation of trips remaining from the original 250 approval which they want to retain. Have these trips been factored into the projected traffic counts? -- *These trips are not factored into the L&D study however; Darkstar testified that Act 250 allocated only 56 daily trips to Lot 15 and that their lot should be afford a similar number of trips. An estimated 56 daily trips allocated to the Darkstar lot is not significant relative to the thousands of trips per day expected to be generated by the supermarket.*

8. Are the lengths of trucks an issue when determining the necessary length of the stacking lanes i.e. one semi = 3-4 cars -- *The models that L&D are using consider truck lengths in the calculated queue lengths.*

9. Someone asked if the previous traffic studies have been found to be reliable predictors of the situation now. As I remember it none predicted that we would have any issues, so why do we? -- *"Previous studies" is a broad category. We asked VTrans to send the traffic forecasts that supported the signal installation at Charlotte Road. The study we received indicates that the signal was not warranted when it was installed and that the consultant who performed the signal warrant analysis warned that installation of the signal would increase total delays at the intersection and particularly on Route 116 southbound. These delays have been realized on Route 116 as predicted.*