Memorandum

To: Project Folder

Date: 9/29/23

Project #: 58982.00

From: Jenn Conley, PE, PTOE

Re: Preliminary Evaluation of Traffic Implications of Redeveloping Proposed Site

Existing Transportation Context

VHB conducted an assessment of the transportation conditions associated with the potential development of the site located on the north side of VT 15 between the Maplefields/Mobil located opposite Billie Butler Drive and Old Stage Road. The two signalized intersections are located approximately 1000 feet apart. The traffic signal at VT 15 at Billie Butler Drive and the access point to the Maplefields/Mobil is only approximately 450 feet to the east of VT 289, however. VT 289 provides connection to other communities in the region. VT 15 extends from Winooski in the west to Danville in the east. In the project area, VT 15 consists of a single lane in each direction that widens at signalized intersections to provide turn lanes.

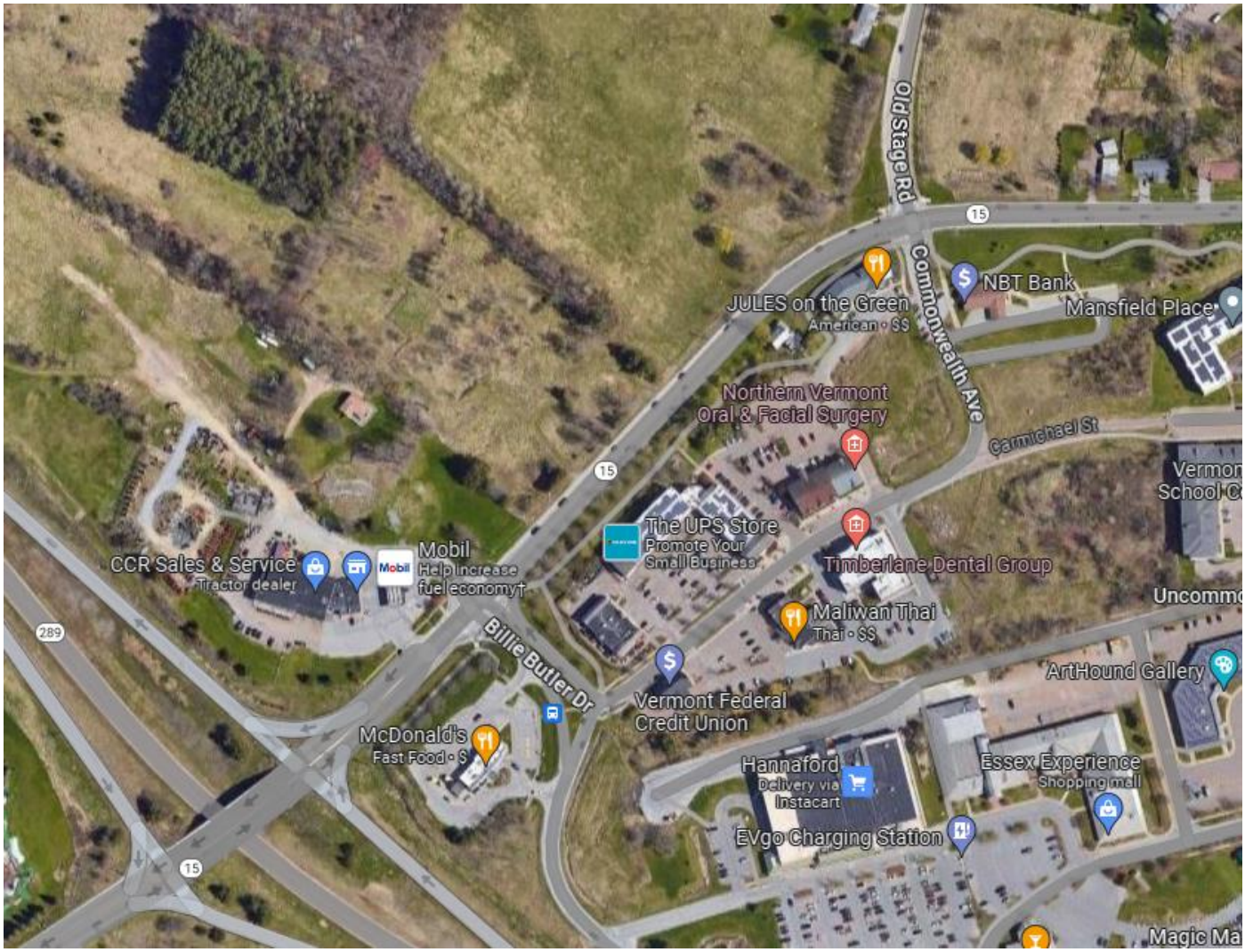
At Billie Butler Road, there are left turn lanes on both VT 15 approaches as well as an eastbound right turn lane into Billie Butler Road. The north leg of this intersection provides a stub that currently provides access to the Maplefields/Mobil on the northwest corner of the intersection, but with a straight alignment opposite Billie Butler could provide access to the property to the northeast. Bicyclists are accommodated in this area with bike lanes on both sides of VT 15 east of Billie Butler. Pedestrians are accommodated at the intersection with a crossing of the west leg of the intersection. Although there is a sidewalk along the Maplefields/Mobil site on the north side of VT 15, there is no crossing of the wide Maplefields/Mobil driveway. There is also a pedestrian crossing on Billie Butler, but because of the large turning radii and numerous islands, this actually consists of multiple crossings even though only one pedestrian indicator is provided. The large crossing distance results in a lengthy pedestrian phase.

At Old Stage Road, VT 15 consists of left turn lanes as well as thru/right lanes on each approach. The Old Stage Road approach to VT 15 consists of a left/thru lane in addition to a right turn lane. Commonwealth Avenue, which forms the fourth leg of this signalized intersection similarly includes a left/thru lane in addition to a right turn lane. Bicycle lanes travel thru this intersection along both directions of VT 15 and pedestrian crosswalks are provided across all legs of the intersection.

Between the two intersections, a winding shared use path is provided on the south side of the intersection. Although this provides an enjoyable, shaded path to walk and bike, if traveling as a commuter with limited time, this route is certainly less direct. In addition, the lack of full, or direct connections at the intersection with Bille Butler Drive add travel time for pedestrians and cyclists.

A review of typical traffic indicators on google maps indicates that some delay is present along VT 15 during the peak commuter periods. Field visits indicate that queuing is created at the intersection of VT 289 Westbound ramps at VT 15 that meters the traffic through this study area and keeps delays and queues lower at these two locations.

Memorandum



Potential Redevelopment

The Town is considering purchasing and redeveloping the site. Under current zoning, the following is allowed on the site:

- 40,000 sf for a municipal facility
- 43,315 sf Fire Department
- 64 dwelling units
- 20,000 sf commercial space.

Depending on the pieces included in the municipal building and the different anticipated tenants of the commercial space, this development would likely generate on the order of 350 trips (170 in and 180 out) during the weekday PM peak hour.

The site is also contemplating a rezoning for this area which would increase the development potential up to the following program:

- 40,000 sf for a municipal facility (includes: administrative building, library, multi-use gym, senior center, Community Justice Center.
- 43,315 sf Fire Department
- 200 dwelling units
- 25,000 sf commercial space.

As indicated above, in this scenario, the uses in the commercial space would likely drive the trip generation. If there were a coffee shop for example, a high AM peak hour trip generation would be expected. If there were a high turnover dining (faster food), that would drive the PM peak hour higher. However, even using a general retail land use code in combination with the municipal uses and residential units results in 440 trips (almost evenly split in and out) during the weekday PM peak hour. Such an increase is contingent on the entire front of the property being developable (see other documentation for development potential). As indicated above, the number of trips could be even higher if certain land uses are contemplated for the site, however, with a mixed use development (places to live, places to work and commercial places), you can expect trips to occur between uses that do not impact the adjacent street. In addition, a significant development is located across the street from this site which would act to reduce vehicular traffic and increase walking, biking and even transit trips between the proposed site and Essex Experience (which includes transit stops for two GMT routes. As a result of these trips internal to the development and the alternative mode trips, a reduction of vehicular impact is anticipated.

Potential Access Points

A number of access points were evaluated as a part of the redevelopment. First, connection to area roadways was contemplated. As outlined above, the signalized intersection at Billie Butler Road is well designed to accommodate additional development on the northeast corner as the Maplefields/Mobil is oriented to the west of the north leg of that signal. If an easement agreement was made with property owner (either of the Maplefields/Mobil owner (Ehlerville LLC) to the rear of that site or the site to the east (Ehler Properties LLC), an access could be designed to connect to the subject parcel. This signalized intersection appears to have the capacity to accommodate additional traffic on the north leg. In addition, during field visits, low traffic volumes and queues were noted utilizing the left turn lane into Maplefields/Mobil indicating capacity to accommodate additional site related traffic for that movement, however, some modifications would be recommended at this signalized intersection:

- Design of both north and south legs would be modified to reduce the ability for right turn movements to be made at high speed and more consistently yield to pedestrians. Tightening these movements (and elimination of splitter islands on Billie Butler) will create a safer environment and reduce delays associated with lengthy pedestrian crossing times.
- Incorporate pedestrian accommodation on the north and east leg of the intersection to allow for better pedestrian connections from the proposed site to area businesses and services to the south of VT15. To further encourage walking as a mode choice, a sidewalk is recommended between this signalized intersection and Old Stage Road on the north side of VT15.

With the close proximity between the signalized intersection at Bille Butler and the signal at the VT 289 westbound, the queuing between the two locations should be further evaluated as the final buildout of this site is contemplated to determine if the signal can accommodate the entirety of the site traffic at this existing location. As such, a separate,

signalized access for the proposed site was evaluated. The existing signalized intersections at Billie Butler and Old Stage are 1000 feet apart. The additional intersection would be located between them. Sight lines are generous between the two signalized intersections.

VT 15 traffic volumes were pulled from VTrans Transportation Data Management System (TDMS). Based on a count taken in July 2022 located on VT 15 just west of Billie Butler Drive, approximately 1500 vehicles travel on VT 15 during the weekday PM peak hour (5:00 to 6:00 PM) with 910 northbound and 590 southbound. Based on the order of magnitude trip generation analysis conducted (430 total trips 215 in and 215 during the PM peak hour), a signal at this location would warrant a traffic signal based on the peak hour warrant. VTrans does not typically install a traffic signal based solely on the peak hour warrant. The minimum volume requirements for the four-hour warrant for the likely lane configuration at this location are 1000 vehicles per hour on VT15 and 80 vehicles exiting the site per hour for at least four hours. Based on the VTrans TDMS data, the volume on VT 15 is over 1000 vehicles per hour for 11 hours. With the variety of uses on the site, a volume over 100 is anticipated for more than four hours. With the existing volumes on VT 15 and the uses on the site that will generate peak traffic exiting at different hours of the day, the volume thresholds for eight-hour warrant condition B will likely also be met.

An access point via Old Stage Road was also considered. Similar to the other locations, this signalized intersection could likely accommodate additional volumes, however, as outlined above, adding traffic to an existing signalized intersection will create operations closer to capacity than introducing a new signalized location.

Act 145 Impacts

The potential Act 145 implications of the site development were reviewed. There are three projects in the area that project trips may impact:

STPG 030-1(22) –new traffic signal at the intersection of VT15 and Sandhill Rd - $415 per PM peak hour trip

STP 5400(7) – new traffic signals and improvements at VT289/VT2A/Susie Wilson Bypass - $241 per PM peak hour trip

STP 5300(13) – new road (Crescent Connector) between VT2A and VT117 - $2,788 per PM peak hour trip

STP HES 5500(12) – safety improvements along VT2A in Williston - $189 per PM peak hour trip

The scope of this evaluation does not include a detailed trip distribution to determine the path of every potential site trip, however, the majority of site related trips could pass through one of these locations. For the purposes of this analysis, 50% of calculated trips (after taking a reduction for internal capture and alternate mode trips) were estimated to pass through one of these locations. Based on the calculations performed above, this corresponds to a trip impact of 200 trips passing through any one of these locations. The locations have an average fee of approximately $900 per PM peak hour trip. As a result of these calculations, an Act 145 fee would be on the order of magnitude of $180,000. As indicated above, these are assumptions and would be fine-tuned as the development program is further advanced and trips estimated and distributed to the network.

Recommendations

A detailed Traffic Impact Study will need to be conducted once the final building program is determined as the specific impacts at the area intersections will need to be calculated. As outlined above, VHB has evaluated whether access can be provided via a separate access point along VT15 and found that with the development program proposed, a signal is likely warranted and that intersection spacing would safely allow for that installation. In addition,

VHB has found that the adjacent signalized intersections have available capacity, as well as appropriate geometrics, and could accommodate some of the site traffic. Due to the number of Act 145 projects in the project area, it is likely that a sizeable fee would be required as part of permitting the project.