FINAL REPORT

Williston Road Transportation Study

Phase 1—Initial Technical Evaluation

Prepared for
Chittenden County Regional Planning Commission
City of South Burlington, Vermont

Prepared by
VHB

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November 2015

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Executive Summary

Study Purpose

The purpose of the study is to conduct an initial (Phase 1) technical evaluation to identify potential transportation improvements for the segment of Williston Road that extends from Dorset Street to Hinesburg Road. The objective is to identify actions that can accommodate the anticipated future build-out of the area while still meeting the City of South Burlington's multi-modal vision of a walkable community.

This initial technical evaluation is being provided to the Chittenden County Regional Planning Commission (CCRPC) and City of South Burlington at a technical planning evaluation level. Prior to advancing any of the potential actions described in this report, the City would proceed to a more detailed (Phase 2) scoping level study. The Phase 2 study would include a public outreach component, including soliciting input from corridor property owners.

The Need

The segment of Williston Road between Dorset Street and Hinesburg Road is an important transportation corridor that is heavily travelled and often congested. There are two principal influences that contribute to the operational and safety related deficiencies. The first factor is the Williston Road/Dorset Street intersection, which is capacity constrained - currently operating at a volume-to-capacity (v/c) ratio of 0.98 (98% of capacity) with vehicle queues often extending back to the adjacent Windjammer/DoubleTree signalized intersection. The Williston Road/Dorset Street intersection is also a high crash location.

The second factor is the lane configuration of Williston Road, which provides four general purpose lanes (two lanes per direction). The absence of exclusive left-turn lanes in combination with the numerous uncontrolled driveways and wide curb-cuts result in motorists stopping in the inside through lane while waiting to turn left into a driveway. This condition results in added delay to through vehicles while creating a potentially hazardous condition as motorists shift from one lane to another to avoid the stopped vehicles.

In addition to the traffic congestion and safety-related deficiencies, the existing layout of the corridor is not as conducive to the City's multi-modal walkable community vision as it could be. The absence of bike lanes force bicyclists to either use the high volume travel lanes or travel along the sidewalks, which has the potential to create conflicts with pedestrians. Walking across the four-lane cross-section of Williston Road, even at pedestrian actuated traffic signals, can be a daunting task for pedestrians.

Findings

To meet the City's multi-modal walkable community vision, the results of this initial investigation suggests that any proposed improvements should focus on actions that enhance the safe and efficient movement of people – that is all users of the transportation system, not just automobiles.

In general, these actions would look to introduce access management, improve connectivity, and enhance sidewalks, crosswalks, bike lanes, bike paths, and transit service. Specific actions that should be considered and evaluated in greater detail under the Phase 2 scoping study include:

- Providing a full or partial connector roadway north of the corridor
- Improving parcel connectivity south of the corridor
- Maintaining two through lanes per direction on Williston Road, but providing exclusive left-turn lanes at signalized intersections
- Installing a raised center median that extends between signalized intersections
- Ensuring that all properties have access to all least one traffic signal, so that all left-turns can be made at signalized intersections.
- Planning for the installation of an additional future traffic signal on Williston Road approximately half way between the existing DoubleTree intersection and the soon to be realigned Garden Street/White Street intersection
- Installing bike lanes along Williston Road
- Providing well-defined pedestrian crosswalks at each of the signalized intersections
- Upgrading and widening sidewalks
- Coordinating with and supporting the Chittenden County Transportation Authority (CCTA) in the CCTA's vision for expanded service along the corridor, including new technologies that provide real time passenger information and traffic signal priority systems.

It is important to note that the results of the evaluation show that the Williston Road/Dorset Street intersection, without some type of major reconstruction to the Exit 14 interchange or some other major regional transportation upgrade such as the construction of Exit 12B, would continue to operate over capacity with long delays. Nevertheless, the capacity deficiency at the Dorset Street intersection should not preclude the City from advancing the access management, improved connectivity, and pedestrian, bicycle, and transit enhancements identified in this report. These actions will benefit corridor operations while more regional solutions are being considered and will complement any long-term regional transportation solutions.

Additional detailed evaluation, however, should be conducted under the Phase 2 study to determine whether the identified connector roadway should extend to the Dorset Street intersection. Substantially increasing the volume of left-turns from Williston Road onto the new connector at that location would exacerbate the capacity deficiency at Dorset Street.

Introduction

Study Purpose

The City of South Burlington is in the midst of a transition away from the automobile-dependent suburban development patterns of the past to a more multi-modal urbanized vision of the future. A prime example of this new development pattern is the planned City Center project. City Center is a walkable downtown core development plan for the land located south of Williston Road, east of Dorset Street, and west of Hinesburg Road. To support the development of the new walkable downtown core, the City has established a Tax Increment Finance (TIF) District and has initiated the engineering and design of the supporting roadway infrastructure. Given the proximity of Williston Road (US Route 2) to the new planned downtown core, it is vital that the look, feel, and operation of Williston Road complement the City's multi-modal vision.

The purpose of the study is to conduct an initial (Phase 1) technical evaluation to identify potential transportation improvements to the Williston Road corridor, from Dorset Street to Hinesburg Road, that can accommodate the potential build-out of the area and complement the City's multi-modal vision of a walkable community. The City's objective is to realize this vision while avoiding "old school" solutions such as providing additional through lanes along Williston Road. The study corridor is depicted in **Figure 1**.

Study Process

Unlike other transportation planning studies, which would include a public outreach element, this initial screening of potential strategies, is being prepared for the Chittenden County Regional Planning Commission (CCRPC) and City officials, at a technical planning evaluation level. Prior to advancing any of the actions presented in this report, the City will proceed to a more detailed (Phase 2) scoping level study, which would include an extensive public outreach component.

This study included an initial data collection effort consisting of a field reconnaissance to observe traffic flow patterns, traffic operational issues, pedestrian and bicycle activity, multi-modal facilities, traffic control and physical roadway characteristics. This was followed by a review of available traffic volume counts as well as the receipt of updated counts conducted by the CCRPC. Crash data available through the Vermont Agency of Transportation (VTrans) were also compiled and reviewed. In addition to the existing transportation data collection effort, available information such as the locations of existing utilities, topography, and various environmental resources and constraints were compiled and mapped.

Having assessed the existing conditions, the study included an evaluation of future operations. A sub-area traffic model, based on the CCRPC's regional traffic model, was used to project future travel demand based on the City's anticipated land development build-out including the build-out assumed in the City's TIF District.

Lastly, recognizing the City's multi-modal vision for the future, a range of alternatives were evaluated to determine which actions and strategies best meet the vision and which should be pursued as part of the more detailed scoping study.

Throughout the course of the study, a series of coordination/progress meetings were held with CCRPC and City staff. These meeting included:

- July 15, 2014 – Project Kick-off

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 1
Study Area

0 300 600 Feet

- August 19, 2014 – Land Use Assumptions
- November 13, 2014 – Brainstorming Session
- March 3, 2015 – Preliminary Findings

Report Overview

The report includes an assessment of Existing and Future Conditions. This information provides the basis for identifying both existing and future issues and opportunities that should be addressed. The evaluation considers actions or strategies aimed at addressing defined issues while meeting the City's multi-modal vision. Note that the operational analyses presented in this report is a multi-modal analysis that allows the City to consider the operational quality of service from the perspective of the user. Multimodal users of Williston Road include pedestrians, bicyclists, transit riders, and motorists. Lastly, the identified actions are those that best meet the City's vison and should be considered for advancement to the scoping level study for further evaluation.

This report is presented in a concise, easy-to-read summary report format. The back-up material is being provided to in a separate technical appendix.

Existing Conditions

Williston Road

Williston Road (US Route 2) in South Burlington is classified by the Vermont Agency of Transportation (VTrans) as an Urban Principal Arterial. US Route 2 is the primary east-west connection between Williston and Burlington with access to I-89 at a full cloverleaf interchange (Exit 14) located immediately west of the study area. Within the project corridor, from Dorset Street to Hinesburg Road, Williston Road is a four-lane roadway (two travel lanes in each direction), with a posted speed limit of 35 miles per hour. Left-turn and right-turn lanes are only provided at the intersection of Dorset Street, while turn movements along the remainder of the corridor are made from the through travel lanes. In addition to a general lack of turn lanes along the corridor, there are numerous cub-cuts providing access and egress to a variety of commercial and residential land uses. The absence of defined turn lanes coupled with the numerous curb-cuts create an environment where mobility for all users of the corridor (motorists, pedestrians, bicyclists, and transit riders) is inefficient.

Traffic Volumes

A traffic volume count program was conducted to determine the existing traffic volume demands and flow patterns along the Williston Road corridor as well as the surrounding project study area. The count data conducted outside the Williston Road corridor was used to develop the sub-area traffic model, which is based on the CCRPC's regional traffic model. Recent counts conducted by VTrans and the City (the City's consultant Stantec) were supplemented with weekday morning (7:00 – 9:00 AM) and weekday evening (4:00 – 6:00 PM) peak period manual turning movement counts conducted by the Chittenden County Regional Planning Commission (CCRPC) during June, July, and August of 2014.

Historical traffic data from the closest VTrans permanent count station (P6D061), which is located on US Route 2 in Williston approximately 2.3 miles east of Hinesburg Road, was reviewed to identify monthly, daily, and hourly traffic variations.

An examination of the 2014 monthly data revealed that traffic volumes are highest along US Route 2 during the summer months. Count data from a typical week during the peak month of June reports fairly consistent weekday traffic with slightly higher volumes

on Friday and substantially lower volumes on Saturday and Sunday. An examination of the hourly data from a Wednesday in June shows a typical commuting pattern with a peak in the morning followed be slightly lower volumes throughout the midday and the highest peak in the early evening. The monthly, daily, and hourly traffic variations along US Route 2 just east of the study area are shown in **Figures 2** through **4**.

Figure 2 – Monthly Variations
2014 Average Weekday Traffic US Route 2 Williston, VT

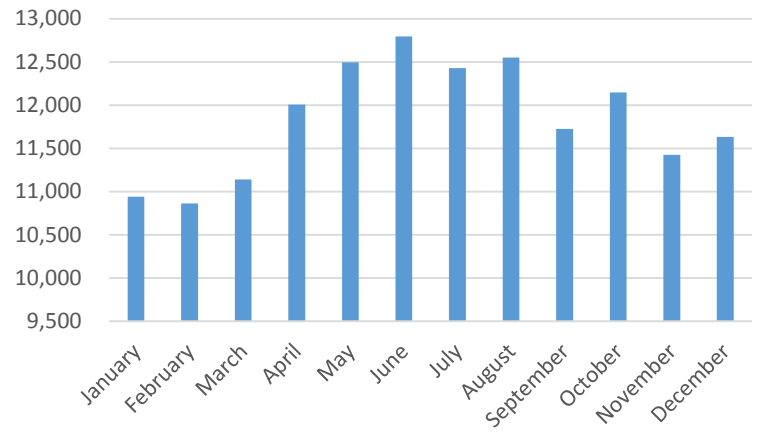


Figure 3 – Daily Variations
June 2014 US Route 2 Williston, VT

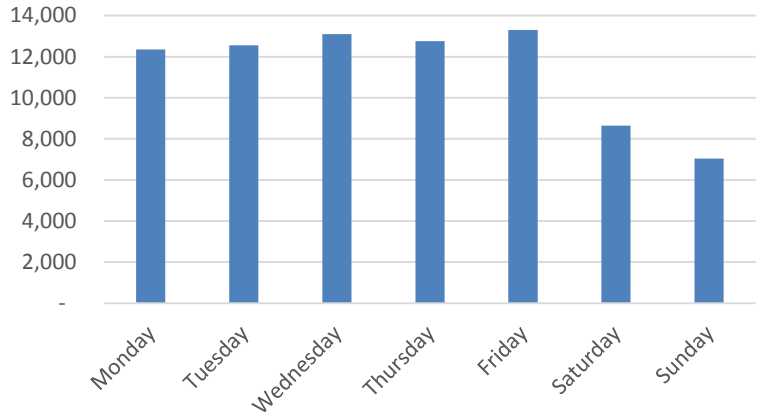
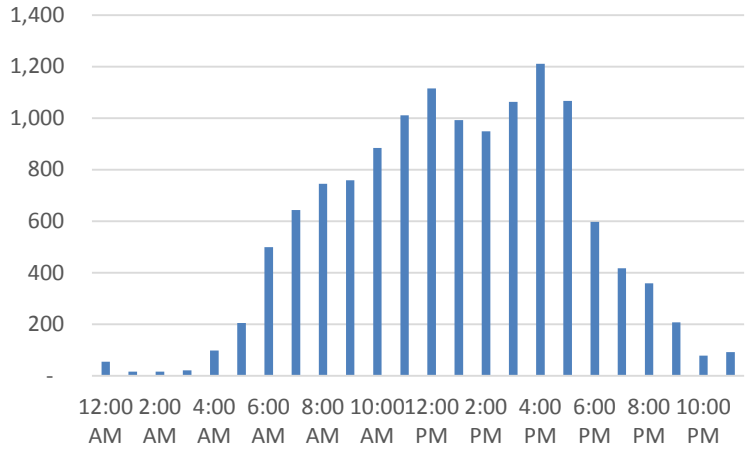


Figure 4 – Hourly Variations
June 2014 US Route 2 Williston, VT



The unit of measure used to evaluate and design roadway facilities is an hourly traffic volume measured in vehicles per hour (vph). However, because hourly traffic volumes can vary during the course of a day, and throughout the year, it is necessary to select an appropriate design hour volume (DHV) condition. The hourly traffic volume used for the purpose of design should not be exceeded very often or by very much. However, it should not be so high that the traffic volume would rarely be high enough to make full use of the facility. It is wasteful to design a facility based on the maximum peak hour traffic of the design year, yet the use of the average hourly traffic may result in an inadequate design. For this reason, VTrans guidelines recommend the use of the 30th highest hour volume.

Historical data from the three closest VTrans permanent traffic count stations (P6D001 - VT Route 127 in Burlington, P6D040 - US Route 7 in Colchester, and P6D061 - US Route 2 in Williston) were reviewed to establish an appropriate DHV condition. Listings of the 200 highest hours at these three permanent counts stations were reviewed to identify what peak periods best represent a DHV condition (30th highest hour).

Both Weekday morning and weekday evening peak hours were consistently identified within the highest 60 hours at the Burlington count station and weekday evening peak hours were identified within the highest 60 hours at the Colchester and Williston count stations; indicating that both the weekday morning and a weekday evening peak hours are reflective of a DHV condition. Therefore, the average adjustment factor calculated from the three stations was used to estimate the DHV conditions. The following DHV adjustments were applied to the weekday morning and weekday evening raw turning movement counts:

- A 1.03 DHV adjustment was applied to the June data;
- A 1.09 DHV adjustment was applied to the July data; and
- A 1.06 DHV adjustment was applied to the August and September data.

Detailed calculations for the Design Hour Volume adjustments are provided in the Appendix.

The 2014 weekday morning and weekday evening peak hour traffic volume networks were developed by applying the DHV adjustments to the raw traffic volumes and applying an average annual growth rate of 1.0 percent per year, which was based on regression analysis for the urban highway group conducted by VTrans. Eastbound and westbound volumes along the corridor were compared at adjacent intersections and balancing adjustments were made only where appropriate. The 2014 weekday morning and weekday evening peak hour traffic volumes, which were used in both the intersection and multimodal operational analyses, are shown in **Figures 5** and **6**.

Crash Research

Crash data was compiled from the records of the Vermont Agency of Transportation (VTrans) for the most recent 5-year period extending from 2009 to 2013. A review of the data revealed a total of 491 crashes occurring along Williston Road from Dorset Street through Hinesburg Road for the 5-year period. Of the 491 total crashes, 203 (41 percent) were reported as rear-end crashes, 134 (27 percent) were sideswipes crashes, 101 (21 percent) were broadside crashes, 13 (3 percent) were head-on crashes, and the remaining 40 crashes were classified as other/unknown crashes (including one angular and 8 single vehicle crashes). A summary of the crash types is depicted graphically in **Figure 7**.

Note that VTrans has identified the intersections of Williston Road at Dorset Street, White Street/Midas Drive, and Patchen

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 5

Existing Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

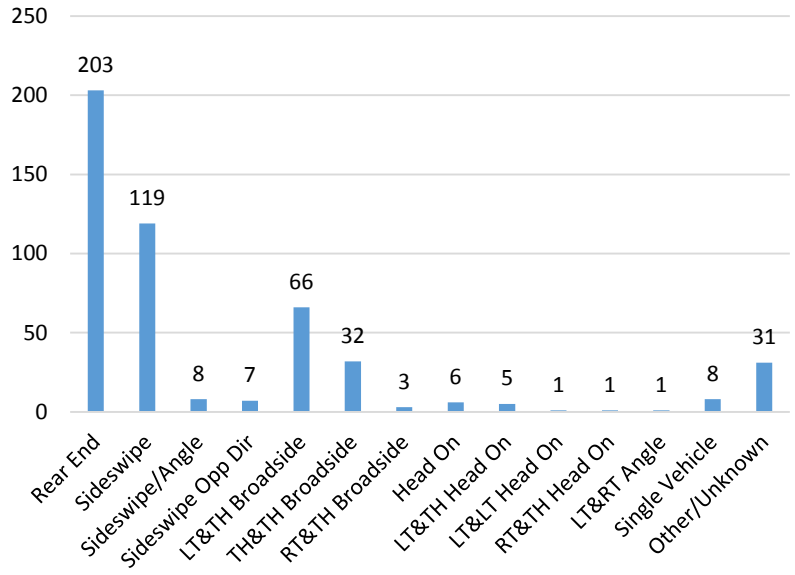
Figure 6

Existing Weekday Evening Peak Hour Traffic Volumes

0 300 600 Feet

Road/Hinesburg Road as High Crash Locations (HCL) with 95, 63, and 48 reported crashes respectively over the 5-year period. The intersections of Williston Road at Best Western Windjammer Inn/DoubleTree and Mary Street recorded 13 and 32 crashes respectively, between 2009 and 2013. The remaining 240 crashes occurred along segments of Williston Road between these intersections.

Figure 7 – Crash Summary
5-Year Period from 2009 to 2013



Transit

Chittenden County Transportation Authority (CCTA) provides bus service along the Williston Road corridor in South Burlington. The primary existing CCTA route that services Williston Road is the Williston/Williston-Essex/Williston Village (Route No. 1/1E/1V). This route currently makes four runs during the weekday morning peak hour and five runs during the weekday evening hour. Information provided by CCTA indicating that this primary route typically runs at occupancy rates of between 13 and 20 percent. The route also runs on-time (within 6 minutes of schedule) between 80 and 98 percent of the time.

Other secondary routes that serve the Williston Road corridor include the South Burlington Circulator (Route No. 12), and the 116 Commuter (Route No. 46). The South Burlington Circulator makes two runs during the weekday morning peak hour and three runs during the weekday evening hour. The 116 Commuter makes one run during each of the morning and evening peak hours.

The CCTA's Transit Development Plan (TDP) identified the replacement of the Cherry Street Station by a new Downtown Transit Center as the most needed facility investment in the CCTA system. Based on other case studies throughout Chittenden County this improvement could lead to a 30 percent jump in ridership. More details on all route schedules can be found at: http://cctaride.org/bus-routes-schedules/.

Multimodal Operations Analysis

As described previously, it is important to evaluate transportation services along Williston Road from a multimodal perspective. Improvements to non-automobile modes will help the City move toward a multimodal urbanized vision consistent with the City Center project. As such, planning level multimodal analyses were performed for the Williston Road corridor within the study area between Dorset Street and Hinesburg Road.

Levels of service (LOS) were calculated based on the criteria published in the 2010 Highway Capacity Manual (Chapter 17 Urban Streets Segments) and NCHRP Report 616 (Project 3-70) Multimodal Level of Service for Urban Streets. Multimodal level of service describes the quality of service from the perspective of the user by letter grade levels (A through F). Multimodal users of the corridor include pedestrians, bicyclists, transit riders, and motorists. The automobile LOS criteria is based on a combination of through movement capacity, vehicular speed, vehicular stops, and left-turn lanes as identified in the NCHRP Report 616 methodology. LOS A represents primarily free-flow operation and LOS F is characterized by congested flow (stop and go) at extremely low speeds.

The criteria for the pedestrian, bicycle, and transit modes are based on scores reflecting the user's perception of service quality. These perception link scores, which determine the LOS, are calculated according to the methodology provided in the HCM 2010 using numerous factors including, but not limited to: traffic volume, lane configuration, travel speed, on-street parking, shoulder/bike lane, pavement condition, sidewalks, sidewalk-roadway separation, bus frequency, bus load factor, and bus on time performance. All of these factors, which often vary by direction of flow and roadway segment play a role in determining LOS.

Automobile, bicycle, pedestrian, and bus operational analyses were conducted for three segments along Williston Road:

1. Dorset Street to/from Best Western Windjammer Inn/DoubleTree,
2. Best Western Windjammer Inn/DoubleTree to/from White Street/Midas Drive, and
3. White Street/Midas Drive to/from Patchen Road/Hinesburg Road.

The results of the multimodal analysis are provided in **Table 1** and summarized as follows. The automobile operations along the Williston Road corridor segments ranged from LOS C to D. It should be noted that the westbound segment between the Best Western Windjammer and Dorset Street is just under capacity with a v/c ratio of 0.97 during the weekday evening peak hour.

The pedestrian operations along Williston Road eastbound ranged from LOS B to C during the weekday morning and weekday evening peak hours; the westbound segments operate at LOS C during the weekday morning peak hour and LOS C and D during the weekday evening peak hour. The absence of designated bike lanes or striped shoulders along the Williston Road corridor results in less than desirable operations for bicyclists. Specifically, the bicycle operations along all segments of Williston Road operated at LOS D with the exception of the eastbound segment from White Street/Midas to Patchen Road/Hinesburg Road, which operates at LOS C during the weekday morning peak hour. The bus operations along all segments of Williston Road operate at LOS B with the exception of the westbound segment from Best Western Windjammer/DoubleTree to Dorset Street, which operates at a LOS C during the weekday evening peak hour.

Table 1 - Multimodal Analysis Summary
Williston Rd (US Route 2) - 2014 Existing Conditions

Segment (Eastbound)		Weekday Morning Peak Hour										Weekday Evening Peak Hour									
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Dorset St	Windjammer / Best Western	0.43	3.62	D	4800	3.21	C	3.96	D	2.30	B	0.45	3.62	D	1800	3.25	C	3.91	D	2.11	B
Windjammer / Best Western	White St / Midas Dr	0.39	3.07	C	4800	3.19	C	4.01	D	2.50	B	0.34	3.07	C	3600	3.07	C	3.88	D	2.28	B
White St / Midas Dr	Hinesburg Rd / Patchen Rd	0.51	3.77	D	4627	2.55	B	3.31	C	2.62	B	0.37	3.77	D	3470	2.48	B	3.25	C	2.25	B

Segment (Westbound)		Weekday Morning Peak Hour										Weekday Evening Peak Hour									
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Hinesburg Rd / Patchen Rd	White St / Midas Dr	0.36	3.89	D	4493	2.76	C	3.70	D	2.42	B	0.52	3.89	D	3370	3.03	C	3.50	D	2.19	B
White St / Midas Dr	Windjammer / Best Western	0.44	3.03	C	4800	3.34	C	4.09	D	2.32	B	0.61	3.03	C	3600	3.82	D	4.23	D	2.19	B
Windjammer / Best Western	Dorset St	0.55	3.35	C	4800	3.04	C	3.51	D	2.47	B	0.97	3.35	C	1800	3.52	D	3.68	D	2.80	C

Note:
1. Pedestrian space is reported in square feet per pedestrian (ft^2/ped)
Source: NCHRP Project 3-70 Multimodal Level of Service For Urban Streets and Highway Capacity Manual 2010, Chapter 17

Signalized Intersection Analysis

In addition to the multi-modal analysis, an operational analysis was conducted at each of the study corridor's four existing signalized intersections. Intersection levels of service range from A to F, which are based on varying levels of delay. LOS A describes operations with very little delay and a low volume-to-capacity ratio (v/c), while LOS F describes operations with long control delays and/or a v/c greater than 1.0. In urban environments, overall intersection operations as low as LOS E may be considered satisfactory during the peak hours of the day. In fact, more and more communities are willing to accept an LOS F operation where facility upgrades could severely impact the environment and/or other resources or negatively affect other modes of transportation (e.g., increase pedestrian crossing time due to a wider roadway).

The results of the signalized intersection analysis, which are summarized in **Table 2** revealed a PM peak hour LOS D operation at the Dorset Street intersection. More telling, however, is that the intersection currently operates at a v/c ratio of 0.98 or 98 percent of capacity. With the intersection operating so close to capacity, operations can be unstable resulting in long vehicle queues. In, fact the average vehicle queue on the westbound approach is calculated at 444' (a summary of all vehicle queues is provided in the technical appendix), which indicates that the queue periodically backs up to and through the adjacent DoubleTree signalized intersection. This result was confirmed by field observations.

The DoubleTree intersection operates at capacity (v/c of 1.01) during the PM peak hour and although as an isolated intersection, the overall calculated delay and LOS shows to be acceptable, when the queue from the Dorset Street intersection reaches the Doubletree intersection, the intersection effectively operates at LOS F.

Table 2 - 2014 Existing Signalized Intersection Analysis

Intersection	Peak Hour	V/C	Delay	LOS
Dorset St/Holiday Inn	AM	0.66	25	C
	PM	0.98	40	D
Doubletree/Windjammer	AM	0.70	5	A
	PM	1.01	11	B
White St/Midas Way	AM	0.45	10	A
	PM	0.61	15	B
Hinesburg Rd/Patchen Rd	AM	0.55	27	C
	PM	0.79	31	C

Field Observations

In addition to conducting the technical operational analyses, field observations consisting of driving and walking the study corridor were made in effort to gain a better understanding of how the corridor functions. The following are some of the noted observations.

- Vehicles do queue from Dorset back to and through the DoubleTree signalized intersection
- Motorists turning left into the Windjammer driveway at the DoubleTree signalized intersection at times needed to wait through more than one signal cycle.

- Although some bicyclists were observed traveling in the travel lane along Williston Road, most bicyclists chose to ride their bicycles along the sidewalk.
- Pedestrians crossing Williston Road at signalized intersections experienced long wait times for the pedestrian actuated phase to be called. Some crossed without waiting for the pedestrian phase.
- Motorists turning left onto one of the many driveways and curb cuts often stopped in the inside through lane while waiting for a gap in the stream of traffic. This frequently resulted in through vehicles queuing behind the stopped vehicle while others shifted lanes to avoid the delay.

Mapped Resources

In addition to the existing transportation data collection effort, available base mapping resources were compiled to support the study efforts. The information, which is depicted on **Figure 8**, includes the location of study area utilities, topographic information, and various environmental resources and constraints. Specifically, the mapped information includes:

- Property lines
- 2’ topographic contours
- Water lines
- Storm water lines
- River/streams
- Wildlife habitat
- Floodplain
- Wetlands
- Hazardous waste sites

This information was used when considering various physical modifications, such as locating a potential connector roadway. Note the steep slopes and wetland area to the rear of the properties located on the north side of Williston Road that can influence the location of any future connector roadway. This information will provide a useful base for the more detailed environmental evaluation to be conducted under the Phase 2 scoping study.

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

- Water Line
- Stormwater Line
- Sanitary Sewer Line
- River/Stream (VCGI)
- NHI Uncommon Species Location (Wandering Glider, observed 1968)
- VT Habitat Blocks and Ecological Corridors
- FEMA 500-Yr Floodplain
- Wetland Resource Area (South Burlington)
- Hazardous Waste Sites
- Facilities Generating Hazardous Waste
- Property Lines
- 2-ft Contours
- 10-ft Index Contour

0 300 600 Feet

Figure 8

Existing Conditions

vhb

Future Conditions

To evaluate future travel demands within the study area, future year 2025 and 2035 traffic volume conditions were developed for both the weekday morning peak hour and the weekday evening peak hour. The future year traffic volume projections were developed through the use of the CCRPC's regional traffic model and the development of a sub-area traffic model for the immediate study area.

Working closely with CCRPC and City staff, a comprehensive land use build-out review was conducted in order to estimate future travel demand and consider future needs along the study corridor. For the purpose of this evaluation traffic volumes were estimated for the 2025 and 2035 future year conditions. The estimates were determined by first reviewing and then updating the land use assumptions included in the CCRPC's regional traffic model. Once any needed adjustments were made, a sub-area traffic model reflecting the immediate study area was developed.

The development of the subarea traffic model included the incorporation of greater roadway network detail and the incorporation of more and smaller traffic analysis zones (TAZs).

The additional roadway network detail that was not included in the regional model, but was incorporated into the subarea model included the following streets and driveways:

- Richard Terrace, Hanover Street and Dumont Ave
- Driveways along the north side of Williston Road
- Mary Street

The approach and exiting volumes were calculated for each intersection and the links were then connected directly to the TransCAD geographic file. Additional available counts (not from study area intersections) were also included in the calibration to help confirm that the correct number of trips entered, exited and traveled through the sub-area model. The sub-area model was calibrated for both the weekday morning and evening peak hours.

The following projects were added to the future networks:

- Midas Drive / White Street intersection realignment – Future
- Garden Street Extension - Future
- Central School Road between Williston Road and Garden Street Extension

Once the future no-build models were run and resulting turn movements were created the model was run for three build alternatives for both 2025 and 2035. The alternatives consisted of:

- New 12B Interchange
- New parallel road north of Williston Road connecting Hilton Driveway to Patchen Road.
- New parallel road and New 12B Interchange

In addition to the above improvements a connection between Tilley Drive and Community Drive was also included in the scenarios with the new 12B interchange.

The weekday morning and evening, 2025 and 2035, No Build and Build traffic volume networks can be found at the end of the report in **Figures 11 through 20**. The No Build conditions reflect only the anticipated future traffic growth by either the year 2025 or 2035 with no modifications to the roadway network. The Build condition reflects the identified potential actions that are being evaluated. An additional condition (2035 Build with Exit 12B) was developed to reflect the additional traffic diversions if Exit 12B was constructed.

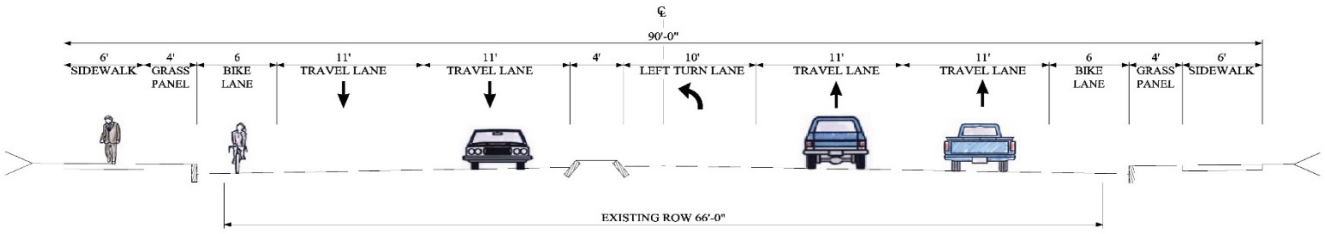
Alternatives Evaluation

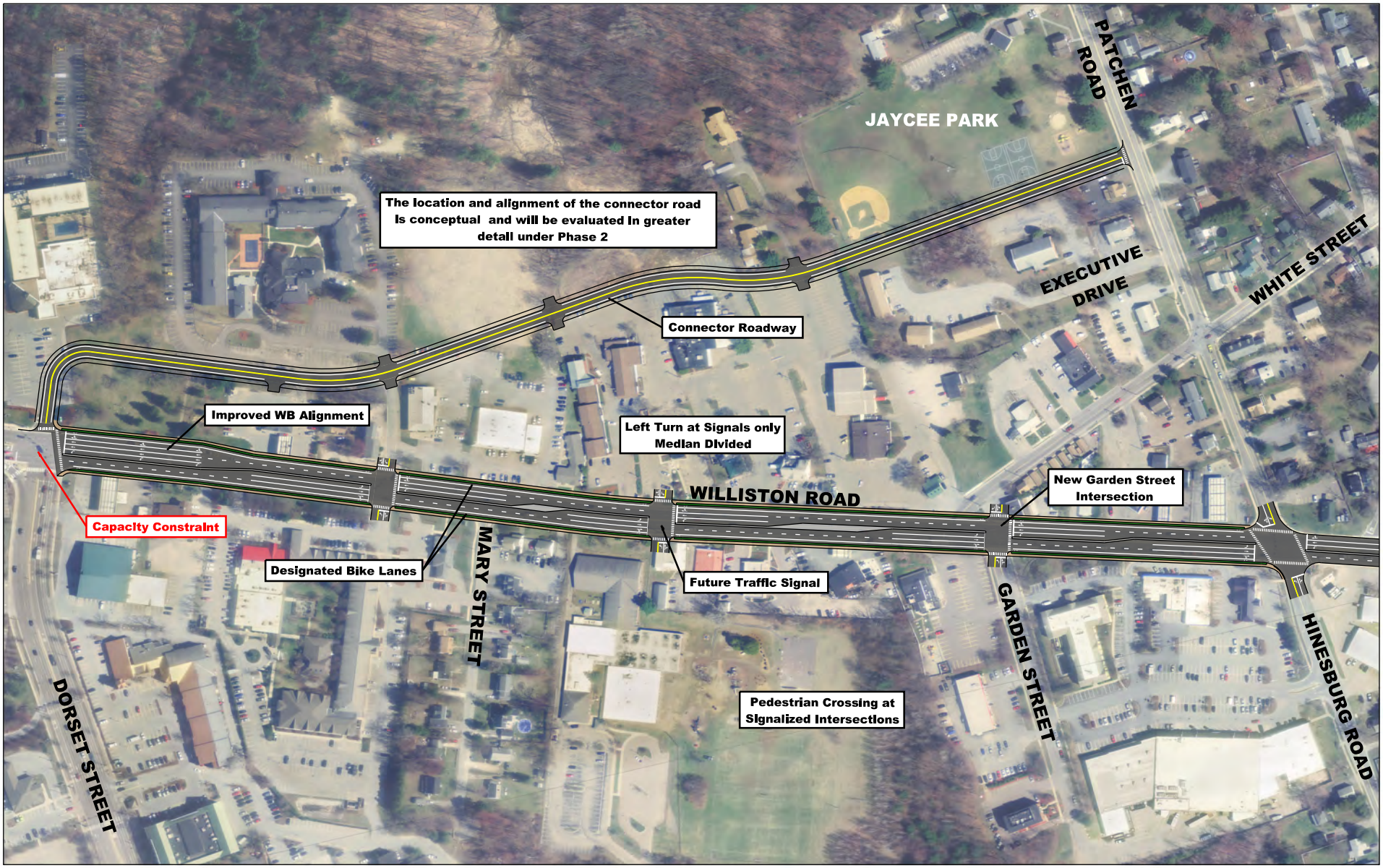
In recognition of the City's vision of a multi-modal walkable community and the City's desire to avoid solutions that consider adding through lanes to Williston Road, the considered actions focus on enhancing the safe and efficient movement of people – not just automobiles. The actions look to introduce access management, improve connectivity, and enhance sidewalks, crosswalks, bike lanes, bike paths, and transit service.

The key to enhancing mobility and efficiency is to define corridor access points so that all users of the corridor (motorists, pedestrians, bicyclists, and transit riders) have the same expectations has to how mobility occurs on the corridor. To do this the plan calls for Williston Road to provide two 11-foot wide through lanes as well as a 6-foot wide bike lane in each direction. The roadway would be median divided with 10-foot wide exclusive left-turn lanes provided at each signalized intersection. The corridor would also provide a consistent 6-foot wide sidewalk and 4-foot wide grass panel on each side of the roadway. The primary corridor access points would be at the signalized intersections of Dorset Street, DoubleTree, Garden Street, and Hinesburg Road. In addition, the City should consider one additional signalized intersection (primary access point) located approximately half way between the DoubleTree and Garden Street intersections. All left turn movements for motor vehicles as well as all pedestrian and bicycle crossing of Williston Road would occur at one of these primary signalized access points.

For the access management plan to be efficient and effective, all properties on both the north and south sides of Williston Road need to have access to at least one of the signalized intersections. To do this, the plan calls for consideration of a connector roadway that would extend to the rear of properties on the north side of Williston Road. The City is already planning good connectivity for properties on the south side of Williston Road with its plans for City Center. However, the City should continue to encourage these types of connections. The proposed Williston Road cross-section and conceptual layout are depicted in **Figures 9 and 10.**

Figure 9 – Proposed Williston Road Cross-section





Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 10
Conceptual Improvement Plan

0 300 600 Feet

Multimodal Operations Analysis

A multimodal level of service analysis, similar to that conducted for the existing conditions, was conducted for the 2025 No Build and Build, and 2035 No Build, Build, and Build with Exit 12B conditions. Again the 2025 and 2035 No Build conditions reflect the continuation and perpetuation of the existing corridor layout with the only change being the anticipated traffic growth. The Build condition reflects the identified potential actions that are being evaluated while the 2035 Build with Exit 12B condition reflects the same identified potential action in addition to a new Exit 12B interchange being constructed. The results are summarized in **Tables 3, 4 and 5**. To minimize the number of tables, the 2025 summary tables are provided in the technical appendix.

The results of the analyses reveal significant improvement in operations from the perspective of pedestrians, bicyclists, and transit users when comparing the No Build to the Build (with proposed actions) conditions. Pedestrian operations improve from LOS C and D under the No Build to LOS B and C under the Build. Bicycle operations improve from nearly all segments operating at LOS D under the No Build to LOS A under the Build. Similarly, Transit operations show improvement from LOS C and D under the No Build to mostly LOS A and B under the Build.

Note that the results of the multi-modal analysis doesn't show a significant improvement for the automobile mode as the segment operations continue to operate at similar levels of service under the No Build and Build. However, the benefits of the improved efficiency and safety associated with controlling all left-turns at the signalized intersection is not reflected in the analysis. Also, operations for motor vehicles continue to be influenced by the capacity constrained Dorset Street intersection.

Also, similar to what was conducted for the existing condition, in addition to the multimodal analysis, an operational analysis of each of the signalized intersections was conducted. The results of that analyses is summarized in **Table 6**. The results of the 2035 Build analyses do show operational improvements over the 2035 No Build for each of the signalized intersections. In fact, with the exception of the Dorset Street intersection, each of the other signalized intersections show good operations of LOS C or better. However, the Dorset Street intersection continues to be problematic with the weekday evening peak hour operating at LOS F with long delays.

It may very well be that the result of this projected capacity constraint at the Dorset Street intersection may result in the actual volume of traffic being less than projected. The reason for this is that this constraint may result in peak hour spreading (more motorists choosing to travel outside the peak hours) and/or more people choosing to use other modes of travel such as taking the bus, riding a bike, or walking. This is an important aspect of the City's planned transition away from an automobile-dependent transportation system to a more multi-model vision.

Note that traffic operations along the corridor, and specifically at the Dorset Street intersection, show improvement under the condition where a new Exit 12B interchange is constructed as this type of regional transportation system modification would serve as a relief valve for the traffic volume demand in the Dorset Street area. This question of how much traffic congestion is needed, and acceptable by the community and other agencies, in order to encourage motorists to use other modes of travel needs to be consider further under the Phase 2 scope study.

Table 3 - Multimodal Analysis Summary
Williston Rd (US Route 2) - 2035 No Build Conditions

Segment (Eastbound)		Weekday Morning Peak Hour										Weekday Evening Peak Hour									
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Dorset St	Windjammer / Best Western	0.52	3.62	D	4800	3.40	C	3.62	D	2.41	B	0.54	3.62	D	1800	3.50	C	3.68	D	3.45	C
Windjammer / Best Western	White St / Midas Dr	0.58	2.83	C	4800	3.20	C	3.57	D	2.34	B	0.61	2.83	C	3600	3.17	C	3.58	D	2.21	B
White St / Midas Dr	Hinesburg Rd / Patchen Rd	0.53	3.77	D	4627	2.76	C	3.41	C	2.60	B	0.44	3.77	D	3470	2.79	C	3.41	C	2.25	B

Segment (Westbound)		Weekday Morning Peak Hour										Weekday Evening Peak Hour									
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Hinesburg Rd / Patchen Rd	White St / Midas Dr	0.73	3.62	D	4493	2.65	B	3.38	C	2.74	B	0.99	3.62	D	3370	2.96	C	3.52	D	3.02	C
White St / Midas Dr	Windjammer / Best Western	0.54	3.03	C	4800	3.54	D	4.14	D	2.34	B	0.71	3.03	C	3600	4.03	D	4.24	D	2.22	B
Windjammer / Best Western	Dorset St	0.91	3.35	C	4800	3.33	C	3.63	D	2.83	C	1.45	3.35	F	1800	3.90	D	3.79	D	3.80	D

Note:
1. Pedestrian space is reported in square feet per pedestrian (ft^2/ped)
Source: NCHRP Project 3-70 Multimodal Level of Service For Urban Streets and Highway Capacity Manual 2010, Chapter 17

Table 4 - Multimodal Analysis Summary
Williston Rd (US Route 2) - 2035 Build Conditions

Segment (Eastbound)		Weekday Morning Peak Hour									Weekday Evening Peak Hour								
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Dorset St	Windjammer / Best Western	0.48	3.35	C	5184	3.00	C	2.03	B	1.94	A	0.50	3.35	C	1944	3.29	C	2.25	B	1.86	A
Windjammer / Best Western	New Signalized Intersection	0.63	3.86	D	5184	2.68	B	1.57	A	2.21	B	0.63	3.86	D	3888	2.62	B	1.54	A	2.07	B
New Signalized Intersection	White St / Garden St	0.59	3.51	D	5184	2.69	B	1.57	A	1.95	A	0.66	3.51	D	3888	2.67	B	1.57	A	1.79	A
White St / Garden St	Hinesburg Rd / Patchen Rd	0.71	3.78	D	5184	2.71	B	1.80	A	1.99	A	0.68	3.78	D	3888	2.68	B	1.79	A	1.83	A

Segment (Westbound)		Weekday Morning Peak Hour									Weekday Evening Peak Hour								
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Hinesburg Rd / Patchen Rd	White St / Garden St	0.52	3.51	D	5184	2.60	B	1.75	A	1.90	A	0.86	3.51	D	3888	2.93	C	1.88	A	1.68	A
White St / Garden St	New Signalized Intersection	0.64	3.51	D	5184	2.89	C	1.87	A	1.78	A	0.89	3.51	D	3888	3.37	C	2.02	B	1.71	A
New Signalized Intersection	Windjammer / Best Western	0.65	3.86	D	5184	2.70	B	1.58	A	2.09	B	1.04	3.86	F	3888	3.22	C	1.76	A	2.01	B
Windjammer / Best Western	Dorset St	0.98	3.35	C	5184	2.90	C	1.64	A	2.01	B	1.63	3.35	F	1944	3.28	C	1.80	A	3.07	C

Note:
1. Pedestrian space is reported in square feet per pedestrian (ft^2/ped)
Source: NCHRP Project 3-70 Multimodal Level of Service For Urban Streets and Highway Capacity Manual 2010, Chapter 17

Table 5 - Multimodal Analysis Summary
Williston Rd (US Route 2) - 2035 Build (with Exit 12B) Conditions

Segment (Eastbound)		Weekday Morning Peak Hour									Weekday Evening Peak Hour								
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Dorset St	Windjammer / Best Western	0.40	3.35	C	5184	2.74	B	1.93	A	1.91	A	0.44	3.35	C	1944	2.98	C	2.02	B	1.81	A
Windjammer / Best Western	New Signalized Intersection	0.50	3.86	D	5184	2.42	B	1.45	A	2.17	B	0.53	3.86	D	3888	2.43	B	1.46	A	2..05	B
New Signalized Intersection	White St / Garden St	0.45	3.51	D	5184	2.47	B	1.69	A	1.87	A	0.57	3.51	D	3888	2.50	B	1.49	A	2.77	A
White St / Garden St	Hinesburg Rd / Patchen Rd	0.55	3.78	D	5184	2.44	B	1.67	A	1.95	A	0.51	3.78	D	3888	2.39	B	1.65	A	1.78	A

Segment (Westbound)		Weekday Morning Peak Hour									Weekday Evening Peak Hour								
		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode		Auto Mode			Pedestrian Mode			Bicycle Mode		Transit Mode	
From	To	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS	V/C Ratio	LOS Score	LOS	Ped Space[1]	LOS Score	LOS	LOS Score	LOS	LOS Score	LOS
Hinesburg Rd / Patchen Rd	White St / Garden St	0.40	3.51	D	5184	2.35	B	1.63	A	1.86	A	0.67	3.51	D	3888	2.52	B	1.50	A	1.68	A
White St / Garden St	New Signalized Intersection	0.50	3.51	D	5184	2.57	B	1.74	A	1.73	A	0.71	3.51	D	3888	2.98	C	1.90	A	1.65	A
New Signalized Intersection	Windjammer / Best Western	0.52	3.86	D	5184	2.45	B	1.47	A	2.05	B	0.82	3.86	D	3888	2.87	C	1.64	A	1.96	A
Windjammer / Best Western	Dorset St	0.83	3.35	C	5184	2.78	C	1.95	A	1.96	A	1.63	3.35	F	1944	2.99	C	1.71	A	2.37	B

Note:
1. Pedestrian space is reported in square feet per pedestrian (ft^2/ped)
Source: NCHRP Project 3-70 Multimodal Level of Service For Urban Streets and Highway Capacity Manual 2010, Chapter 17

Table 6 - 2014 Existing Signalized Intersection Analysis

		2025 No Build			2025 Build			2025 Build w/ Exit 12 B		
Intersection	Hour	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Dorset St/Holiday Inn	AM	0.85	26	C	0.84	28	C	-	-	-
	PM	1.25	100	F	1.34	133	F	-	-	-
Doubletree/Windjammer	AM	1.12	21	C	0.55	18	B	-	-	-
	PM	1.55	95	F	0.78	22	C	-	-	-
New Intersection	AM	-	-	-	0.47	19	B	-	-	-
	PM	-	-	-	0.73	26	C	-	-	-
White St/Garden St	AM	0.60	25	C	0.53	27	C	-	-	-
	PM	0.86	44	D	0.70	33	C	-	-	-
Hinesburg Rd/Patchen Rd	AM	0.55	26	C	0.67	31	C	-	-	-
	PM	0.83	29	C	0.69	34	C	-	-	-

		2035 No Build			2035 Build			2035 Build w/ Exit 12B		
Intersection	Hour	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Dorset St/Holiday Inn	AM	0.93	32	C	0.94	34	C	0.77	28	C
	PM	1.35	131	F	1.41	154	F	1.18	82	F
Doubletree/Windjammer	AM	1.34	59	E	0.60	21	C	0.53	21	C
	PM	1.66	122	F	0.85	34	C	0.75	25	C
New Intersection	AM	-	-	-	0.50	19	B	0.43	22	C
	PM	-	-	-	0.76	27	C	0.63	26	C
White St/Garden St	AM	0.68	27	C	0.60	31	C	0.52	31	C
	PM	0.93	52	D	0.76	34	C	0.68	34	C
Hinesburg Rd/Patchen Rd	AM	0.62	27	C	0.74	32	C	0.58	30	C
	PM	0.93	36	D	0.73	31	C	0.64	32	C

Findings

The purpose of this study is to conduct an initial (Phase 1) technical evaluation to identify potential transportation improvements to the Williston Road corridor, from Dorset Street to Hinesburg Road, that can accommodate the potential build-out of the area and complement the City's multi-modal vision of a walkable community. The City's objective is to realize this vision while avoiding "old school" solutions such as providing additional through lanes along Williston Road.

This initial technical evaluation is being provided to the Chittenden County Regional Planning Commission (CCRPC) and City of South Burlington at a technical planning evaluation level. Prior to advancing any of the potential actions described in this report, the City would proceed to a more detailed (Phase 2) scoping level study. The Phase 2 study would include a public outreach component, including soliciting input from corridor property owners.

The segment of Williston Road between Dorset Street and Hinesburg Road is an important transportation corridor that is heavily travelled and often congested. There are two principal influences that contribute to the operational and safety related deficiencies. The first factor is the Williston Road/Dorset Street intersection, which is capacity constrained - currently operating at a v/c ratio of 0.98 (98% of capacity) with vehicle queues often extending back to the adjacent Windjammer/DoubleTree signalized intersection. The Williston Road/Dorset Street intersection is also a high crash location.

The second factor is the lane configuration of Williston Road, which provides four general purpose lanes (two lanes per direction). The absence of exclusive left-turn lanes in combination with the numerous uncontrolled driveways and wide curb-cuts result in motorists stopping in the inside through lane while waiting to turn left into a driveway. This condition results in added delay to through vehicles while creating a potentially hazardous condition as motorists shift from one lane to another to avoid the stopped vehicles.

In addition to the traffic congestion and safety-related deficiencies, the existing layout of the corridor is not as conducive to the City's multi-modal walkable community vision as it could be. The absence of bike lanes force bicyclists to either use the high volume travel lanes or travel along the sidewalks, which has the potential to create conflicts with pedestrians. Walking across the four-lane cross-section of Williston Road, even at pedestrian actuated traffic signals, can be a daunting task for pedestrians.

To meet the City's multi-modal walkable community vision, the results of this initial investigation suggests that any proposed improvements should focus on actions that enhance the safe and efficient movement of people – that is all users of the transportation system, not just automobiles.

In general, these actions would look to introduce access management, improve connectivity, and enhance sidewalks, crosswalks, bike lanes, bike paths, and transit service. Specific actions that should be considered and evaluated in greater detail under the Phase 2 scoping study include:

- Providing a full or partial connector roadway north of the corridor
- Improving parcel connectivity south of the corridor

- Maintaining two through lanes per direction on Williston Road, but providing exclusive left-turn lanes at signalized intersections
- Installing a raised center median that extends between signalized intersections
- Ensuring that all properties have access to all least one traffic signal, so that all left-turns can be made at signalized intersections.
- Planning for the installation of an additional future traffic signal on Williston Road approximately half way between the existing DoubleTree intersection and the soon to be realigned Garden Street/White Street intersection
- Installing bike lanes along Williston Road
- Providing well-defined pedestrian crosswalks at each of the signalized intersections
- Upgrading and widening sidewalks
- Coordinating with and supporting the Chittenden County Transportation Authority (CCTA) in the CCTA's vision for expanded service along the corridor, including new technologies that provide real time passenger information and traffic signal priority systems.

It is important to note that the results of the evaluation show that the Williston Road/Dorset Street intersection, without some type of major reconstruction to the Exit 14 interchange or some other major regional transportation upgrade such as the construction of Exit 12B, would continue to operate over capacity with long delays. Nevertheless, the capacity deficiency at the Dorset Street intersection should not preclude the City from advancing the access management, improved connectivity, and pedestrian, bicycle, and transit enhancements identified in this report. These actions will benefit corridor operations while more regional solutions are being considered and will complement any long-term regional transportation solutions.

Additional detailed evaluation, however, should be conducted under the Phase 2 study to determine whether the identified connector roadway should extend to the Dorset Street intersection. Substantially increasing the volume of left-turns from Williston Road onto the new connector at that location would exacerbate the capacity deficiency at Dorset Street.

The technical evaluation presented in this study identifies keys issues at a conceptual basis and should not be interpreted as a conclusive study of impacts or as a set of recommended actions. If accepted by the CCRPC and the City, the actions described in the study will next need to go through a formal scoping process.

The purpose of the scoping process is to arrive at safe and effective alternatives that are based on documented rational that meet the stated purpose and need while minimizing environmental impacts. The scoping process will result in a recommendation of a preferred alternative, which has local, regional and VTrans support. Steps in scoping process include the following:

- <u>Collect background information</u>
  The first step in scoping is to collect pertinent information such as site features, environmental conditions, social features, traffic and accident data, intersection evaluations, right of way limits, and other information relevant to the project. Note that much of the data and information

compiled for this initial technical evaluation will be useful in the scoping process.

- Local Concerns Meeting
  The Local Concerns Meeting is the first of two required public meetings. Additional public meetings may be included if desired. The purpose of the Local Concerns Meeting is to gather local and regional input about the problem being address by the project. It is not a forum to present solutions.

- Development of project alternatives
  Once background data has been collected and local concerns have been heard alternatives begin to be developed. The No Build alternative must be one of the alternatives considered.

- Alternatives Presentation Meeting
  The Alternatives Presentation Meeting is the second required public meeting. At this meeting alternatives are presented. A locally preferred alternative is selected at or after this meeting.

- Scoping Report
  The Scoping Report is prepared once a preferred alternative is selected. The Scoping Report includes the purpose and need of the project, methodology, environmental and traffic data, the alternatives considered and the solution recommended. The Scoping Report should also document the public involvement process.

- Project Acceptance
  Present the scoping report to VTrans and the South Burlington City Council and seek acceptance.

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 11

2025 No Build Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet

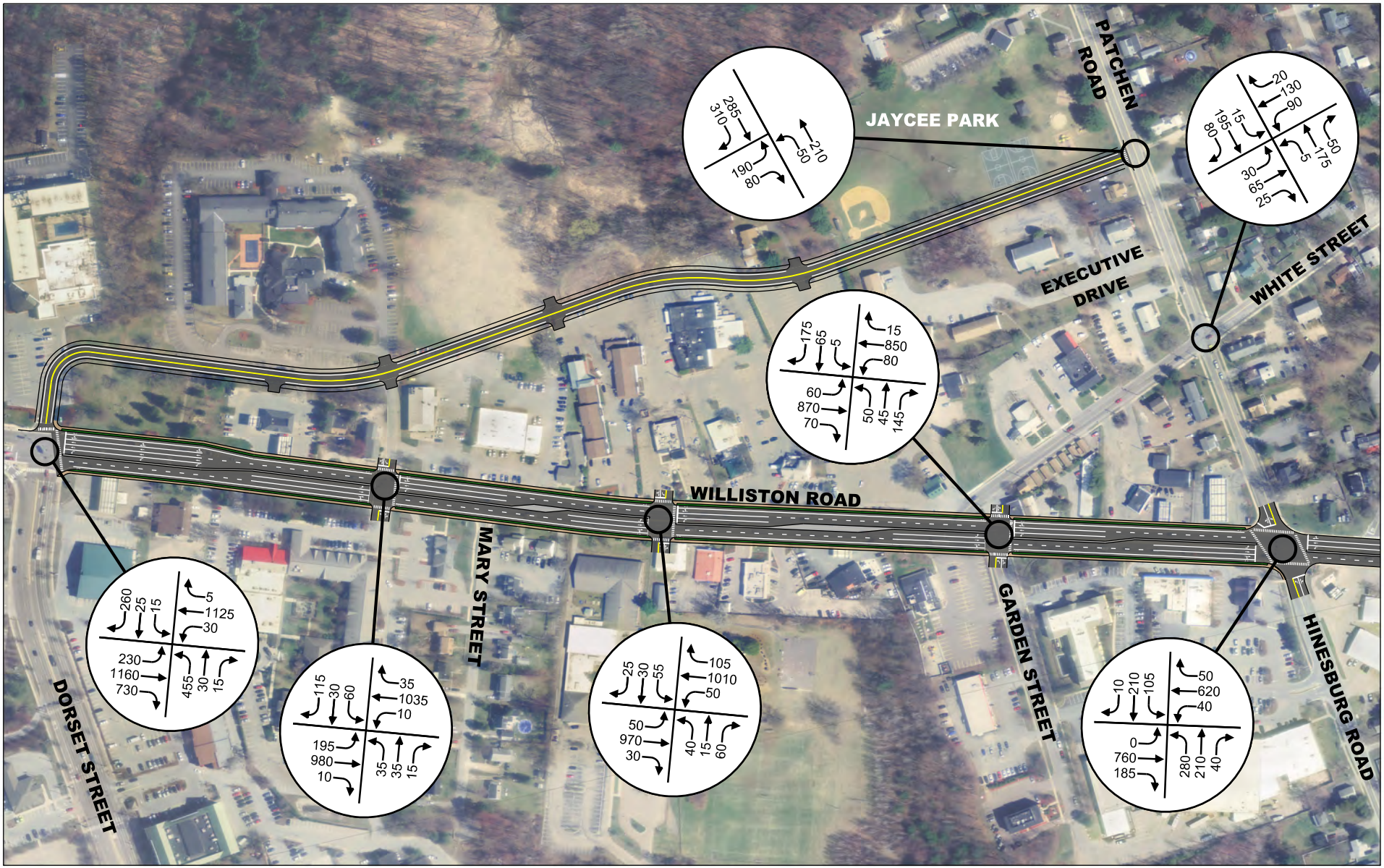
Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 12

2025 No Build Weekday Evening Peak Hour Traffic Volumes

0 300 600 Feet



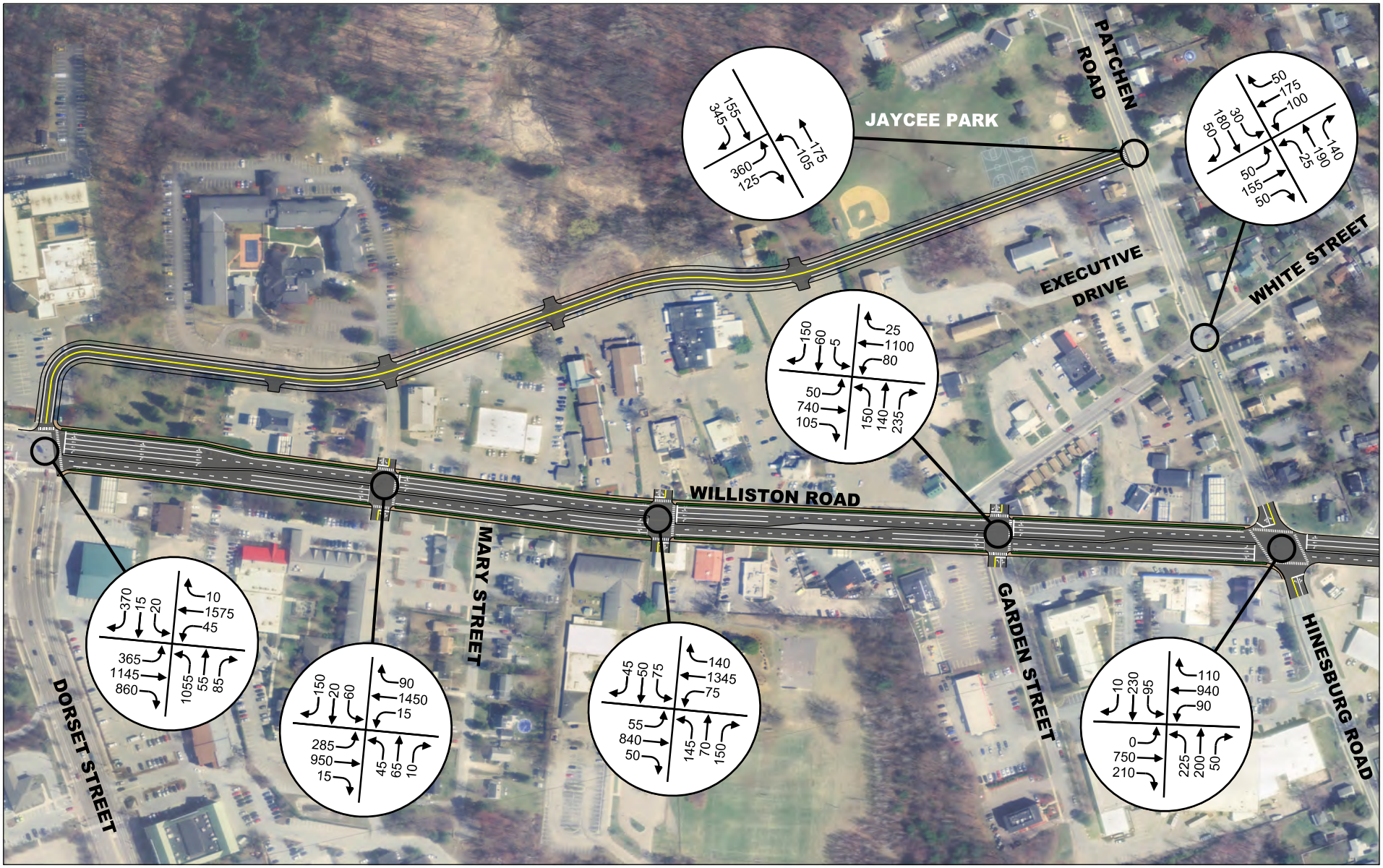
Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 13

2025 Build Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet



Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 14

2025 Build Weekday Evening Peak Hour Traffic Volumes

0 300 600 Feet

vhb

Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 15

2035 No Build Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet

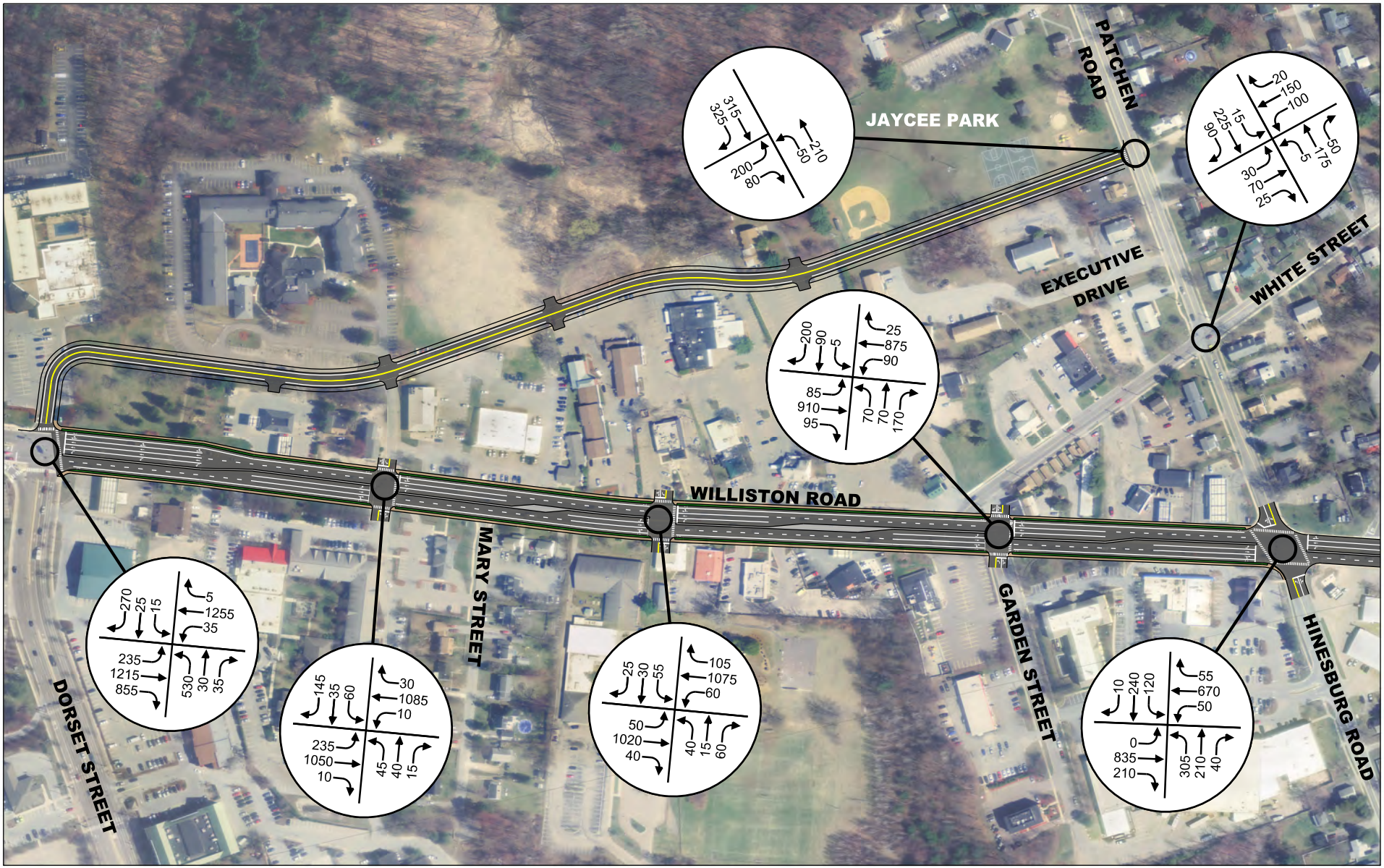
Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

0 300 600 Feet

Figure 16

2035 No Build Weekday Evening Peak Hour Traffic Volumes



Data Source: South Burlington, VTGIS

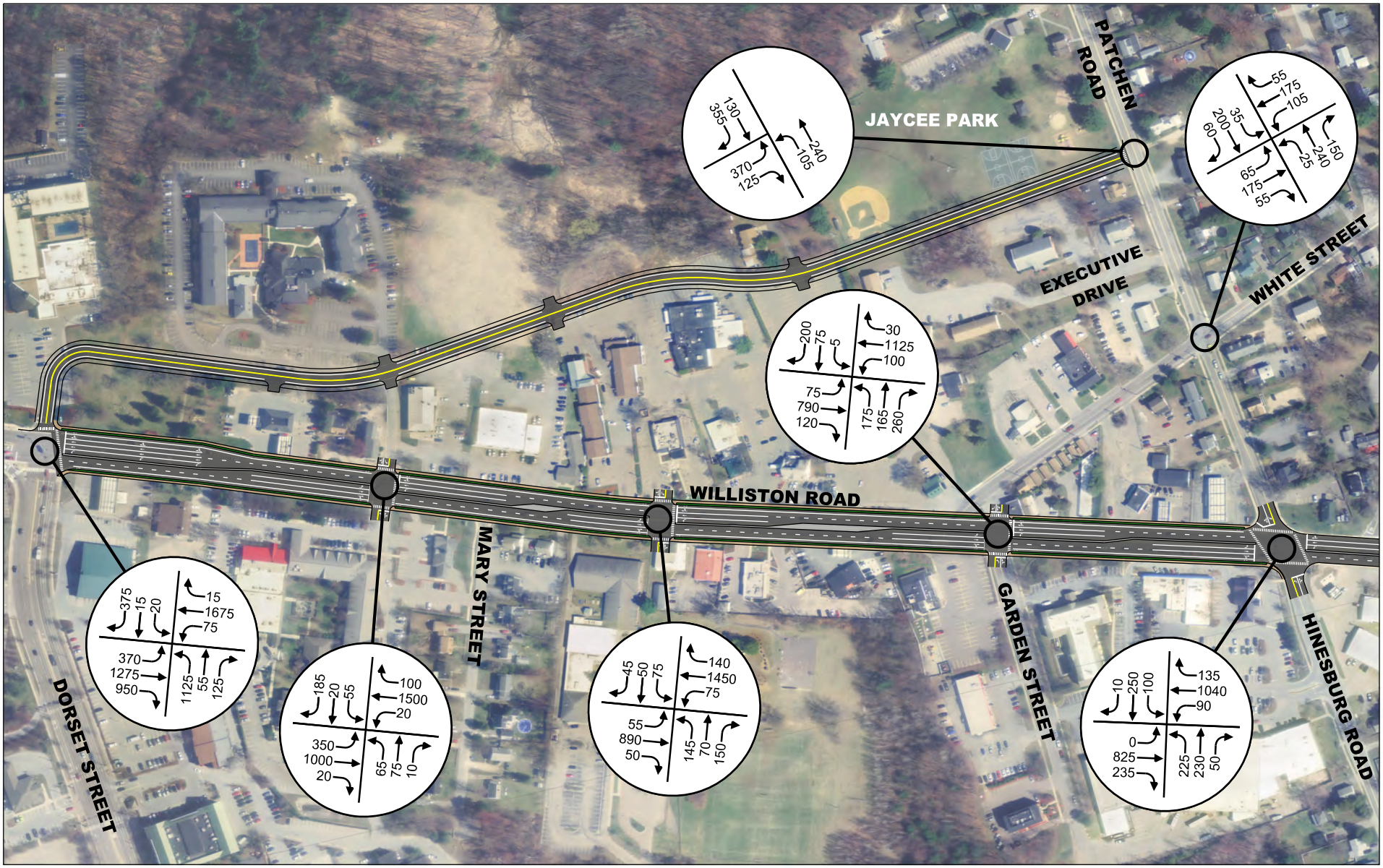
Williston Road Network Transportation Study, South Burlington, VT

Figure 17

2035 Build Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet

vhb



Data Source: South Burlington, VTGIS

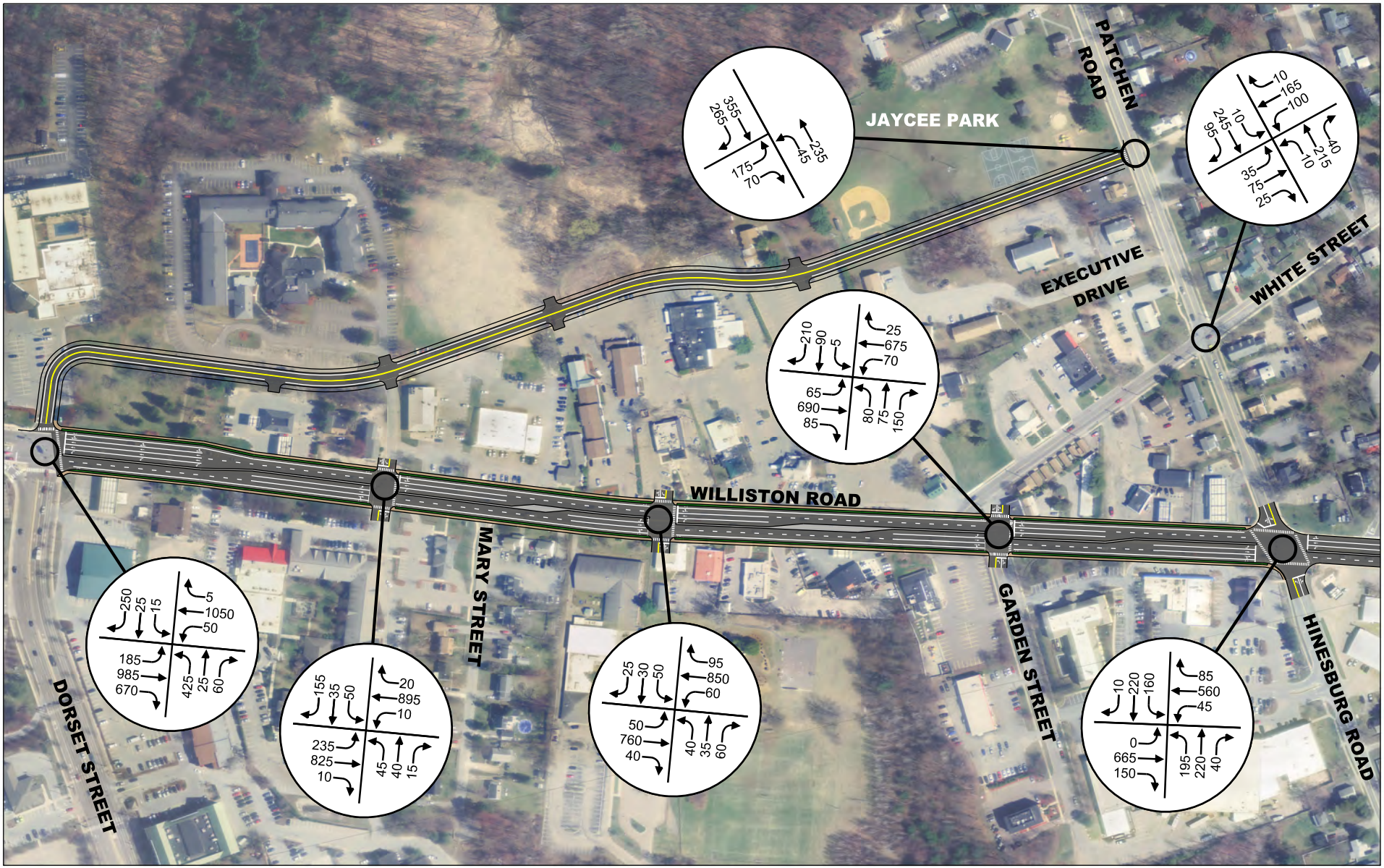
Williston Road Network Transportation Study, South Burlington, VT

Figure 18

2035 Build Weekday Evening Peak Hour Traffic Volumes

0 300 600 Feet

vhb



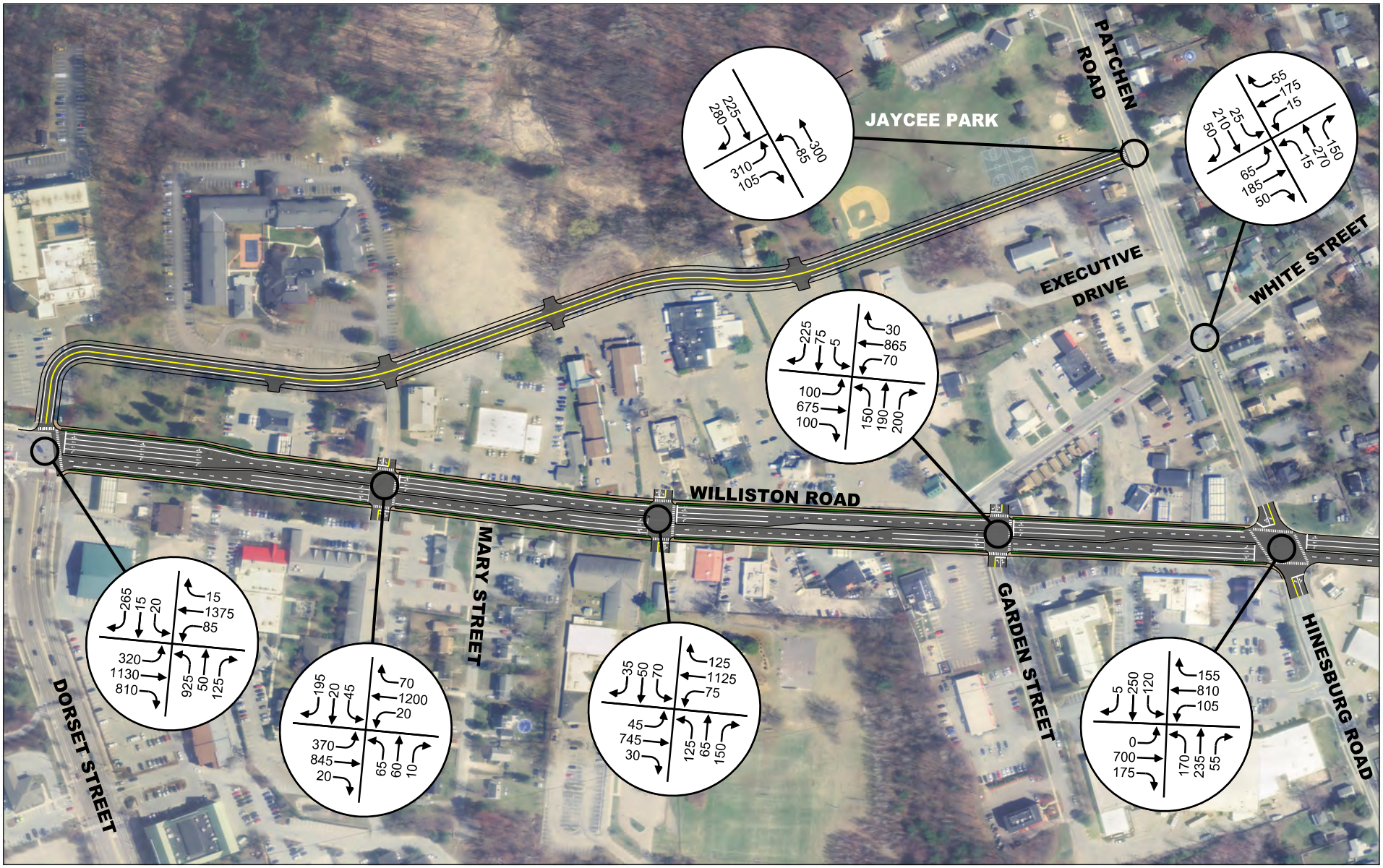
Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 19

2035 Build (With Exit 12B) Weekday Morning Peak Hour Traffic Volumes

0 300 600 Feet



Data Source: South Burlington, VTGIS

Williston Road Network Transportation Study, South Burlington, VT

Figure 20

2035 Build (With Exit 12B) Weekday Evening Peak Hour Traffic Volumes

0 300 600 Feet

vhb

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