

Burlington Development Review Board

149 Church Street, City Hall

Burlington, VT 05401

www.burlingtonvt.gov/pz/DRB

Telephone: (802) 865-7188

Fax (802) 865-7195

Brad Rabinowitz

AJ LaRosa

Springer Harris

Geoff Hand

Zoraya Hightower

Brooks McArthur

Kienan Christianson

Vacant, (Alternate)

Ravi Venkataraman, (Alternate)



BURLINGTON DEVELOPMENT REVIEW BOARD

Tuesday August 20th, 2019, 5:00 PM

PUBLIC HEARING NOTICE

The Burlington Development Review Board will hold a meeting on Tuesday August 20th, 2019, at 5:00 PM in Contois Auditorium, City Hall.

- 1. 19-0930CA; 221-223 Saint Paul Street (FD5, Ward 5S) Dennis Ailor**
Appeal administrative decision for request to re-grade and stabilize slope where prior retaining wall was removed.
- 2. 20-0037CA/MA; 266 College Street (FD5, Ward 8E) Hotel Y Burlington, LLC**
Building renovations and addition for hotel, below grade parking structure, and rooftop bar and restaurant.
- 3. 19-0980CA/MA; 110 Riverside Avenue (NACR, Ward 1E) Sisters & Brothers Investment Group, LLP**
57-unit apartment building with underground parking.
- 4. 20-0086CU; 37 Village Green (RL, Ward 7N) Jean D. C. O'Sullivan**
One-bedroom bed and breakfast.
- 5. 20-0102CA/CU; 132 Spruce Street (RL, Ward 6S) Karen Nordstrom & V. Ernesto Mendez**
Replace concrete driveway with gravel; construct a 20x24 two-story structure with garage below and an accessory dwelling unit above.
- 6. 20-0119CU; 68 Gazo Avenue (RL, Ward 7N) Sandra St. Louis**
Requesting change of use from residential to commercial for childhood education program.

Plans may be viewed in the Zoning Division Office, (City Hall, 149 Church Street, Burlington), between the hours of 8:00 a.m. and 4:30 p.m.

Participation in the DRB proceeding is a prerequisite to the right to take any subsequent appeal. Please note that ANYTHING submitted to the Zoning Division office is considered public and cannot be kept confidential.

This may not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/drdb/agendas or the office notice board, one week before the hearing for the order in which items will be heard.

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status, crime victim status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at (802) 540-2505.

The programs and services of the City of Burlington are accessible to people with disabilities.

Individuals who require special arrangements to participate are encouraged to contact the Department of Permitting and Inspections; Zoning Division at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188 (TTY users: 865-7142).

Printed on 100% Recycled Paper

Burlington Development Review Board

149 Church Street, City Hall
Burlington, VT 05401

www.burlingtonvt.gov/pz/DRB

Telephone: (802) 865-7188

Fax (802) 865-7195

Brad Rabinowitz

AJ LaRosa

Springer Harris

Geoff Hand

Zoraya Hightower

Brooks McArthur

Kienan Christianson

Vacant, (Alternate)

Ravi Venkataraman, (Alternate)



BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday August 20th 2019, 5:00 PM Contois Auditorium, City Hall, 149 Church St, Burlington, VT AGENDA

- I. Agenda**
- II. Communications**
- III. Minutes**
- IV. Consent**

- 1. 20-0030CA; 3090 North Ave (RL-W, Ward 7N) Winooski Valley Park District**
Create conservation park and canoe drop-off. Work to include access road repair, installation of gates and kiosk, and landscaping. (Project Manager: Ryan Morrison)

V. Public Hearing

- 1. 19-0930CA; 221-223 Saint Paul Street (FD5, Ward 5S) Dennis Ailor**
Appeal administrative decision for request to re-grade and stabilize slope where prior retaining wall was removed.

Appeal deferred to October 01, 2019

- 2. 20-0037CA/MA; 266 College Street (FD5, Ward 8E) Hotel Y Burlington, LLC**
Building renovations and addition for hotel, below grade parking structure, and rooftop bar and restaurant. (Project Manager: Scott Gustin and Mary O'Neil)
- 3. 19-0980CA/MA; 110 Riverside Avenue (NACR, Ward 1E) Sisters & Brothers Investment Group, LLP**
Continued review of 57-unit apartment building with underground parking. (Project Manager: Mary O'Neil)

Request for deferral to September 17th, 2019
- 4. 20-0086CU; 37 Village Green (RL, Ward 7N) Jean D. C. O'Sullivan**
One-bedroom bed and breakfast. (Project Manager: Ryan Morrison)
- 5. 20-0102CA/CU; 132 Spruce Street (RL, Ward 6S) Karen Nordstrom & V. Ernesto Mendez**
Replace concrete driveway with gravel; construct a 20x24 two-story structure with garage below and an accessory dwelling unit above. (Project Manager: Ryan Morrison)
- 6. 20-0119CU; 68 Gazo Avenue (RL, Ward 7N) Sandra St. Louis**
Requesting change of use from residential to commercial for childhood education program. (Project Manager: Scott Gustin)

VI. Adjournment

*The programs and services of the City of Burlington are accessible to people with disabilities. Individuals who require special arrangements to participate are encouraged to contact the Zoning Division at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188 (TTY users: 865-7142).
Printed on 100% Recycled Paper*

Plans may be viewed in the Planning and Zoning Office, (City Hall, 149 Church Street, Burlington), between the hours of 8:00 a.m. and 4:30 p.m. Participation in the DRB proceeding is a prerequisite to the right to take any subsequent appeal. Please note that ANYTHING submitted to the Zoning office is considered public and cannot be kept confidential. This may not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/drb/agendas or the office notice board, one week before the hearing for the order in which items will be heard.

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status, crime victim status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at (802) 540-2505.

**Department of Permitting and Inspections
Zoning Division**

149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
vacant, Zoning Clerk
Theodore Miles, Zoning Compliance Officer
Charlene Orton, Administrator



TO: Development Review Board
FROM: Mary O'Neil
DATE: August 20, 2019
RE: ZP20-0037CA/MA; 266 College Street

=====

Note: These are staff comments only; decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.



Project
Cambria Hotel - Burlington

Date
06/05/2019

RENDERING SOUTHEAST - A16
3-DIMENSIONAL RENDERINGS PROVIDED FOR REFERENCE AND TO CLARIFY DESIGN INTENT ONLY. ELEVATIONS A11, A12, A13, AND A14 ARE DRAWINGS OF RECORD.

Zone: FD5 **Ward:** 8E

Owner/Applicant: Smith/Buckley Architects / Hotel Y Burlington LLC

Request: Major Impact/Conditional Use review for new hotel and below grade parking structure. Includes rooftop bar and restaurant.

Applicable Regulations:

Article 2 (Administrative Mechanisms), Article 3 (Applications and Reviews), Article 5 (Citywide General Regulations), Article 14 (Downtown Code)

Background Information:

The applicant proposes redevelopment of the current YMCA at 266 College Street. The proposal includes retention of the historic gable-roofed building at the corner of South Union Street and College Street, demolition of north (rear) components, and construction of a new addition and structured parking.

The subject building was designed by Frank Lyman Austin and constructed in 1934 to replace the organization's first building on Church Street, which burned in 1928. It is listed on the National Register of Historic Places within the Main Street – College Street Historic District. See attached narrative from the Federal Register.

The recent approval of a new YMCA a block east on College Street and the sale of this building has made this site available for redevelopment. The new owners propose a hotel (140-144 rooms) with a rooftop restaurant/bar.

The property is located entirely within the FD5 zone and is subject to review under the Downtown Code regulations of Article 14. As such, administrative checklists address much of the project review. This report focuses only on those items not included in the administrative checklists. Conditional use review is required only relative to outdoor eating areas, proposed along South Union Street and College Street. (Sec. 14.6.6, h).

The Design Advisory Board reviewed this proposal at their July 23, 2019 meeting, and made recommendations in two motions:

Motion by Matt Bushey: I move we recommend approval of the following:

1. *Partial building demolition*
2. *Modification to existing southwest corner (entry) acceptable;*
3. *Ceiling height relief granted in part due to existing condition of historic building;*
4. *Building height to 65' per DRB review, with alternative compliance for additional height, based on the step back of the 6th floor.*

2nd – Steve Offenhartz

Vote 4-0. Motion carries.

Motion by Steve Offenhartz:

I move the brick element on the northeast corner satisfies the intent for the Form Based Code in differentiating the vertical articulation of the ordinance required under 14.3.13 c) iii. The applicant's proposed distance to the planar change (<50' from the corner) is adequate and meets the 20% DRB alternative compliance option.

2nd – Ron Wanamaker

Vote 4-0.

Motion carries.

The Conservation Board reviewed this application on August 5, 2019 and unanimously recommended project approval. In their motion, the Board strongly encouraged installation of rooftop solar panels and that the building be designed so that rooftop solar panels can be installed. The Board further encouraged additional bike parking within the garage.

Background:

- **ZP13-0737SN**; new parallel, metal signage for the YMCA. February 2013.
- **Zoning Permit 12-0684SN**; two new parallel signs for annual Giving campaign on College Street and South Union Street elevations. January 2012.
- **Zoning Permit 12-0129AW**; changing graphics on existing awning for the Y. August 2011.

- **Zoning Permit 11-0149SN**; install two parallel signs for Catamount Physical Therapy. One on College St. elevation and one on South Union Street elevation. August 2010.
- **NA12-0239NA**; Non-Applicability of Zoning Permit Requirements; temporary artwork. August 2011.
- **Zoning Permit 08-130CA**; installation of three wood windows at 2nd level into infilled brick openings. August 2007.
- **Zoning Permit 00-071**; Amend previously approved zp99-272 to allow relocation of the cogeneration system exhaust pipe to the west side of the existing YMCA as described in the application letter. Pipe will not project above roof line of structure. August 1999.
- **Zoning Permit 99-272**; installation of natural gas fired cogeneration roof top equipment for the existent YMCA. Proposal includes an underground tank, misc. piping and the installation of a door. December 1998.
- **Zoning Permit 98-075**; reopen existing window openings on the south and west elevations of the existing YMCA. New windows to match existing. August 1997.
- **Zoning Permit 91-352 / COA091-071**; installation of shed style awning over entry on College Street with repairs to stairs included. Handicapped access ramp constructed in existing doorway on South Union Street for YMCA. May 1991.
- **Zoning Permit 91-194**; wood sign. December 1990.
- **Zoning Permit 92-154**; construction of a storage shed in brick, to match the existing YWCA building for the storage of chemicals for the swimming pool. October 1991.
- **Zoning Permit 83-60**; construct a 100' x 40'? (Numbers obscured) addition to the existing building to accommodate a new swimming pool. July 1983.

Recommendation: Major Impact, Conditional Use and Certificate of Appropriateness approval per the following findings and conditions:

I. Findings

Article 2: Administrative Mechanisms

Section 2.7.8, Withhold Permit

The subject property has expired zoning permits that have not received their required certificates of occupancy. These two permits must be closed out with certificates of occupancy (or relinquished or superseded) prior to issuance of a certificate of occupancy for any new zoning permit. **Affirmative finding as conditioned.**

Article 3: Applications, Permits and Project Reviews

Section 3.2.1 (d) Pre-Application Neighborhood Meeting

The proposal was presented at the May 8, 2019 Wards 1 & 8. Attendance and minutes have been submitted with a copy of the notary affidavit. **Affirmative finding.**

Part 3, Impact Fees

Section 3.3.2, Applicability

Impact fees will be due based on the net new building area. The applicant shall provide a final net new building area for staff to confirm the appropriate fees due.

Based on submitted area calculations, Draft Impact Fees are calculated to be as follows:

Removed building

SF of Project 45,148

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	30,971.53
Fire	0.202	9,119.90
Police	0.356	16,072.69
Parks	0.425	19,187.90
Library	0.000	0.00
Schools	0.000	0.00
Total	1.669	\$ 75,352.02

New area

SF of Project 174,567

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	119,752.96
Fire	0.202	35,262.53
Police	0.356	62,145.85
Parks	0.425	74,190.98
Library	0.000	0.00
Schools	0.000	0.00
Total	1.669	\$ 291,352.32

Difference **\$ 216,000.30**

Allocation by department

Enter Total Fee: \$216,000.31

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	88781.43
Fire	0.202	26142.64
Police	0.356	46073.16
Parks	0.425	55003.07
Library	0.000	0.00
Schools	0.000	0.00
Total	#REF!	\$ 216,000.30

Affirmative finding as conditioned.

Section 3.3.8 Time and Place of Payment

*(b) Existing buildings: Impact fees must be paid prior to issuance of a zoning permit, or if a building permit is required, within thirty (30) days of issuance of the building permit. **Affirmative finding as conditioned.***

Part 5, Conditional Use & Major Impact Review:

Section 3.5.6 (a) Conditional Use Review Standards

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

- 1. Existing or planned public utilities, facilities or services are capable of supporting the proposed use in addition to the existing uses in the area;*

The property is served by municipal utilities. A letter of capacity for water and sewer service from the Department of Public Works Water Division will be required prior to release of the permit. A State of Vermont wastewater permit will be required. The applicant is advised to inquire with VT DEC as to wastewater permit requirements. **Affirmative finding as conditioned.**

- 2. The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the municipal development plan;*

The property is located within the downtown, specifically within Form District 5. This zone is intended for a variety of high density building types that provide locally and regionally serving office, retail, service, hospitality, entertainment, and civic functions. The district is characterized by shallow front yard setbacks and active street frontages. The outdoor eating area along South Union Street and as proposed in the ROW on College Street helps to activate this street frontage and is consistent with the intent of the zone. **Affirmative finding as conditioned.**

- 3. The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*

The outdoor eating areas along College and South Union Streets will likely be seasonal. Insofar as it is directly across the street from residences on South Union Street, the zoning permit application should articulate days and hours of operation (and seasonality, if applicable) of this outdoor eating area. Times of operation should respect the nearby residential uses. **Affirmative finding as conditioned.**

- 4. The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation; safety for all modes; and adequate transportation demand management strategies;*

See Sec. 3.5.6 (b) 5 below.

and,

- 5. The utilization of renewable energy resources;*

No renewable energy utilization is included in this proposal. The Conservation Board made a strong recommendation for the installation of solar panels, and that the building be constructed with that available option. (Meeting August 5, 2019. Minutes attached.) The applicant is encouraged to consider the feasibility of rooftop solar. **Affirmative finding.**

and,

6. *Any standards or factors set forth in existing City bylaws and city and state ordinances;*

It is the applicant's responsibility to comply with other applicable city and state bylaws and ordinances. **Affirmative finding as conditioned.**

(b) Major Impact Review Standards

1. *Not result in undue water, air, or noise pollution;*

No significant air or noise pollution is anticipated as a result of this development. A state wastewater permit will be needed. A capacity letter from the Department of Public Works will be needed prior to obtaining the state wastewater permit. **Affirmative finding as conditioned.**

See Sec. 5.5.3 for stormwater management.

2. *Have sufficient water available for its needs;*

The development will be served by the city's water supply system. A capacity letter from the Water Division will be required to confirm availability and capacity. **Affirmative finding as conditioned.**

3. *Not unreasonably burden the city's present or future water supply or distribution system;*

A new wastewater line will be constructed as part of this project. The project intends to connect to the existing municipal water main on College Street in accordance with DPW requirements. Any changes will require review and approval by the Department of Public Works. **Affirmative finding as conditioned.**

4. *Not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result;*

See Sec. 5.5.3.

5. *Not cause unreasonable congestion or unsafe conditions on highways, streets, waterways, railways, bikeways, pedestrian pathways or other means of transportation, existing or proposed;*

A traffic impact assessment has been provided, shared and revised per comments submitted by the Department of Public Works. The assessment addresses standard items like trip generation, intersection capacity, and high crash locations. Additional detail and comments from the Department of Public Works are attached for review. DPW and the TIS consultant are in agreement on estimated trip generation and distribution figures: A total of 68 net new trips weekday mornings (peak) and 87 net new trips weekday evenings. Minimal additional delay at nearby intersections will result from the new development. LOS remains acceptable with little or no change in service due to the project. DPW acceptability of the revised TIS, with recommendations remains a condition of approval. **Affirmative finding as conditioned.**

6. *Not cause an unreasonable burden on the city's ability to provide educational services;*

No impacts on the city's educational system are anticipated as a result of this commercial development. **Affirmative finding.**

7. Not place an unreasonable burden on the city's ability to provide municipal services;
The proposed commercial development will generate additional impacts on city services; however, those impacts are expected to be relatively modest. Impacts will be mitigated by payment of impact fees based on the net new building area. **Affirmative finding as conditioned.**

8. Not have an undue adverse effect on rare, irreplaceable or significant natural areas, historic or archaeological sites, nor on the scenic or natural beauty of the area or any part of the city;
See Article 5 for historic buildings.

9. Not have an undue adverse effect on the city's present or future growth patterns nor on the city's fiscal ability to accommodate such growth, nor on the city's investment in public services and facilities;

The proposed development will bring additional hotel rooms and a rooftop public restaurant to the city's downtown. Within the downtown, the hotel will be located close to a variety of city attractions and services. Institutions are located nearby at the top of the hill. The project will not adversely impact the city's present or future growth patterns. The increase in intensity of development on this site is not expected to have an undue adverse impact on the city's ability to accommodate growth. **Affirmative finding.**

10. Be in substantial conformance with the city's municipal development plan;

The proposed redevelopment substantially complies with the municipal development plan.

This redevelopment intensifies the degree development on this property within the city's downtown. While doing so, it retains the historically significant building along College Street. Applicable standards will require that the present absence of stormwater management be replaced with comprehensive onsite stormwater management infrastructure that will significantly mitigate offsite discharge. (Distinctive City, Policies 1, 2, & 3).

The project will bring about additional economic development to the city's downtown, thereby strengthening the city's status as a regional growth center. Applicable energy efficiency standards will result in a much more energy efficient building than is presently the case (Dynamic City, Policies, 6 & 10).

The project's downtown location ensures access to a variety of transportation options, thereby lessening dependence on personal vehicle travel (Connected City, Policy 17). **Affirmative finding.**

11. Not have an undue adverse impact on the present or projected housing needs of the city in terms of amount, type, affordability and location;

The proposed commercial development will have no adverse impact on the present or projected housing needs of the city. **Affirmative finding.**

12. Not have an undue adverse impact on the present or projected park and recreation needs of the city.

Little impact on the city's park and recreation needs is expected as a result of this development. What impacts there are will be mitigated by payment of applicable impact fees. **Affirmative finding as conditioned.**

(c) Conditions of Approval:

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

This remains at the discretion of the Development Review Board.

1. Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area.

The hotel and rooftop restaurant will likely not generate offsite noise or glare substantial enough to require mitigation. **Affirmative finding.**

2. Time limits for construction.

No construction timeline or phasing are included in the sketch plans. The standard 3-year timeframe for zoning permits will apply unless the applicant submits a specific phasing schedule and construction timeline with the zoning permit application. **Affirmative finding as conditioned.**

3. Hours of operation and/or construction to reduce the impacts on surrounding properties.

Hours of operation are not applicable to the hotel project. This information should, however, be provided for the restaurant and for the outdoor seating areas. **Affirmative finding as conditioned.**

Unless specifically requested in advance and approved by the DRB, days and hours of construction shall be limited to Monday – Friday from 7:30 AM – 5:30 PM. Saturday construction may occur for interior work only. No construction activity on Sunday.

4. That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions;

Any future enlargement or alteration will be reviewed under the zoning regulations in effect at that time.

and,

5. Such additional reasonable performance standards, conditions and safeguards, as it may deem necessary to implement the purposes of this chapter and the zoning regulations.

See the recommended conditions.

Article 5: Citywide General Regulations

Sec. 5.2.3, Lot Coverage Requirements

See Form Code standards, Article 14 (below.)

Section 5.2.4 Buildable Area Calculation

Not applicable.

Section 5.2.5 Setbacks

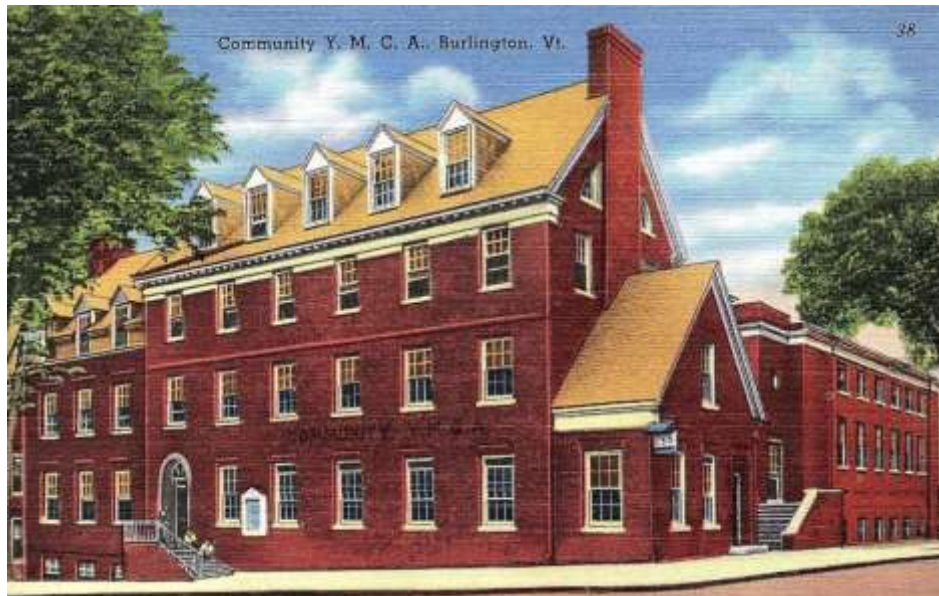
See Form Code standards, Article 14 (below.).

Section 5.2.6 Building Height Limits

See Form Code standards, Article 14 (below.).

Section 5.2.7 Density and Intensity of Development Calculations

Not applicable in FD5.



Sec. 5.4.8 Historic Buildings and Sites

The City seeks to preserve, maintain, and enhance those aspects of the city having historical, architectural, archaeological, and cultural merit. Specifically, these regulations seek to achieve the following goals:

To preserve, maintain and enhance Burlington's historic character, scale, architectural integrity, and cultural resources;

To foster the preservation of Burlington's historic and cultural resources as part of an attractive, vibrant, and livable community in which to live, work and visit;

To promote a sense of community based on understanding the city's historic growth and development, and maintaining the city's sense of place by protecting its historic and cultural resources; and,

To promote the adaptive re-use of historic buildings and sites.

(a) Applicability:

These regulations shall apply to all buildings and sites in the city that are listed, or eligible for listing, on the State or National Register of Historic Places.

266 College Street is listed on the National Register of Historic Places within the Main Street College Street Historic District.

(b) Standards and Guidelines:

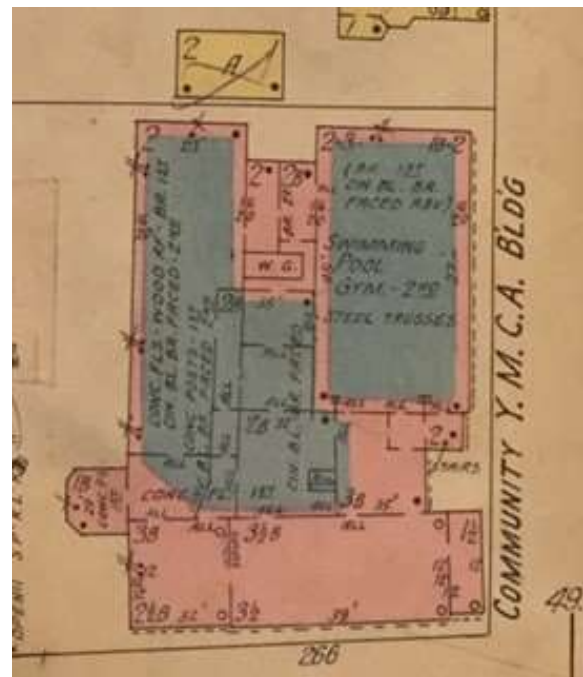
The following development standards, following the Secretary of the Interior's Standards for the Treatment of Historic Properties, shall be used in the review of all applications involving historic buildings and sites subject to the provisions of this section and the requirements for Design

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

The YMCA began as a welfare movement in London, but has branches all over the world. It is typically associated with use as a *hostel* for young men, which may include recreational facilities. Although the new use is no longer proposed to be centered on fitness/recreational activities, the short term residential occupancy associated with the original YMCA is similar to the residency of a hotel. In that manner, the use is not so dissimilar.

2. *The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.*

Both the central and northerly addition are proposed to be removed. **Affirmative finding if the DRB approves the Partial demolition of the structure under 5.4.8 (d), below.**



1942 Sanborn Map image.



3. *Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.*

Current Google image, above.

The building was originally constructed with the large pool which is now the 6 x 4 bay, blind window central addition. Both the central addition and north (1984) pool addition are proposed to be removed in this project.

Conjectural features from other properties are not proposed. The building addition is clearly a product of its own time and obvious in its new design. The 1934 F.L. Austin building (without northerly pool addition) will remain intact. **Affirmative finding.**

4. *Changes to a property that have acquired historic significance in their own right will be retained and preserved.*

The northerly pool and storage additions have garnered no merit on their own part, and are considered non-historic. The central addition is original to the Austin design; its proposed demolition sparks requirements of Section 5.4.8 (d).

The sheltered entrance on the east façade will be retained and utilized as a primary and focal entrance to the hotel. The existing masonry will be re-sheathed at this point; a window converted to a door. Although the Design Advisory Board reviewed these changes favorably, the alteration to the original building component including sheathing with metal panel) diminishes the historic integrity of the property. The applicant's assertion that the brick will be evident on the interior does not satisfy and therefore is contrary to this standard. **Affirmative finding if conditioned.**

5. *Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.*

The southeasterly building is proposed to be rehabilitated, with new windows, repointing of mortar, and installation of a new entryway within the corner structural component. While the majority of this discrete building component will remain true to its original design, the resheathing of the corner gabled-ended structure with metal panel eliminates the opportunity to understand this as a continuous, original masonry ell to the original. While introduction of a new hotel entrance can be considered at this location, the obscuration of the original materials is not supported by these standards. **Affirmative finding if conditioned.**

6. *Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials recognizing that new technologies may*

provide an appropriate alternative in order to adapt to ever changing conditions and provide for an efficient contemporary use. Replacement of missing features will be substantiated by documentary and physical evidence.

Windows are proposed to be replaced in the original corner building, matching the design and appearance of the existing windows. Specific treatments and alterations are detailed in the VHB memorandum, dated June 25, 2019. **Affirmative finding as conditioned.**

7. *Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.*

No chemical or physical treatments are identified within the submission materials.

8. *Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.*

There are no known archaeological deposits on this site; however the Y was built into the Burlington Ravine. Other than a brick sewer, there may be any kind of fill debris below the building site. Discovery of any resources during construction shall be reported to the Vermont Division for Historic Preservation for assessment, evaluation, and appropriate disposition.

Affirmative finding as conditioned.

9. *New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale, and proportion, and massing to protect the integrity of the property and its environment.*

The proposed addition is connected by a small hyphen from the north side of the existing building. The addition rises a full 6 stories; taller in height than the existing building. The project anticipates exploitation of the significant grade change (former ravine) to provide new opportunities for parking and service area. The northeasterly corner drops to four stories, creating a transition to buildings of smaller scale on South Union Street.

The sixth floor is proposed to be highly glazed; its appearance above the F.L. Austin corner building is visible, but unobtrusive as interpreted by the submitted modeling. As it is set back from both the College Street and South Union Street facades, it is less discernable by the passerby.

The westerly addition (attached to the College Street façade) is clearly modern in vocabulary and evident as new construction. Visibility of the west façade is largely obscured by other buildings and the changing grade of the street. The demolition of the central pool addition remains subject to an affirmative finding of Section 5.4.8 (d). **Affirmative finding if conditioned.**

10. *New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.*

While unlikely, it is conceivable that the new addition could be detached and removed from the existing YMCA building without negative impact to the historic resource. The original pool addition, however, is less likely so. The YMCA that faces College Street, however, embodies the essential form of the original use, and therefore the integrity of the property and its environment may be interpreted to be impaired to a lesser degree. **Affirmative finding.**

Section 5.4.8 (d) Demolition of Historic Buildings

The purpose of this subsection is:

- *To discourage the demolition of a historic building, and allow full consideration of alternatives to demolition, including rehabilitation, adaptive reuse, resale, or relocation;*
- *Provide a procedure and criteria regarding the consideration of a proposal for the demolition of a historic building; and,*
- *To ensure that the community is compensated for the permanent loss of a historic resource by a redevelopment of clear and substantial benefit to the community, region or state.*

1. *Application for Demolition.*

For demolition applications involving a historic building, the applicant shall submit the following materials in addition to the submission requirements specified in Art. 3:

- A. *A report from a licensed engineer or architect who is experienced in rehabilitation of historic structures regarding the soundness of the structure and its suitability for rehabilitation;*

The applicant is a licensed architect who proposes rehabilitation of a portion of the historic structure, and demolition of the northern additions.

- B. *A statement addressing compliance with each applicable review standard for demolition;*

The submission materials direct attention to the Standards of Review for Demolition.

- C. *Where a case for economic hardship is claimed, an economic feasibility report prepared by an architect, developer, or appraiser, or other person experienced in the rehabilitation and adaptive reuse of historic structures that addresses:*

- (i) *the estimated market value of the property on which the structure lies, both before and after demolition or removal;*

This has not been provided.

and,

- (ii) *the feasibility of rehabilitation or reuse of the structure proposed for demolition or partial demolition;*

Rehabilitation of the central pool building is not proposed. SBA memo Attachment 4 is made to support the redevelopment rather than rehabilitation of the northerly buildings.

- D. *A redevelopment plan for the site, and a statement of the effect of the proposed redevelopment on the architectural and historical qualities of other structures and the character of the neighborhood around the sites;*

The subject of this application is redevelopment of the site, with a partial demolition of the former YMCA. See VHB Memorandum and comments of Britta Tonn.

and,

- E. *Elevations, drawings, plans, statements, and other materials which satisfy the submission requirements specified in Art. 3, for any replacement structure or structures to be erected or constructed pursuant to a development plan.*

These have been included as part of the submission packet.

2. *Standards for Review of Demolition.*

Demolition of a historic structure shall only be approved by the DRB pursuant to the provisions of Art. 3, Part 5 for Conditional Use Review and in accordance with the following standards:

- A. *The structure proposed for demolition is structurally unsound despite ongoing efforts by the owner to properly maintain the structure;*

The applicant does not claim structural instability that would prevent occupancy, but rather the steep challenge of rehabilitation for a current use.

or,

- B. *The structure cannot be rehabilitated or reused on site as part of any economically beneficial use of the property in conformance with the intent and requirements of the underlying zoning district; and, the structure cannot be practicably moved to another site within the district;*

Moving the northerly sections of the building is not practically conceivable. Redevelopment that would consider rehabilitation of aging indoor pools and fitness areas would have intense structural concern with limited practical application.

or,

- C. *The proposed redevelopment of the site will provide a substantial community-wide benefit that outweighs the historic or architectural significance of the building proposed for demolition.*

The VHB memo underlines the high demand for quality hotel accommodations within the City, the creation of jobs, the opportunity to provide public gathering places (lobby, rooftop restaurant/bar), and enhanced tourism.

And all of the following:

- D. *The demolition and redevelopment proposal mitigates to the greatest extent practical any impact to the historical importance of other structures located on the property and adjacent properties;*

See VHB Memorandum, p. 7.

- E. *All historically and architecturally important design, features, construction techniques, examples of craftsmanship and materials have been properly documented using the applicable standards of the Historic American Building Survey (HABS) and made available to historians, architectural historians and others interested in Burlington's architectural history;*

The applicant team has committed to preparation of a Historic Resource Documentation Package, to be completed prior to the commencement of project activities. This shall be provided to the city for retention within the zoning file, as well as to the Vermont Division for Historic Preservation.

and,

F. *The applicant has agreed to redevelop the site after demolition pursuant to an approved redevelopment plan which provides for a replacement structure(s).*

- (i) *Such a plan shall be compatible with the historical integrity and enhances the architectural character of the immediate area, neighborhood, and district;*

The new addition will be contemporary in design, but utilizes building step-backs and differing materials to fit within the context of the neighborhood.

- (ii) *Such plans must include an acceptable timetable and guarantees which may include performance bonds/letters of credit for demolition and completion of the project;*

The YMCA is not expected to move to their new location until spring 2020; demolition of the north wings will begin thereafter with construction commencing within the required 6-month window. The entire project is estimated to take 18 months from start to finish; reasonably within the three year zoning permit window.

and,

- (iii) *The time between demolition and commencement of new construction generally shall not exceed six (6) months.*

See above.

This requirement may be waived if the applicant agrees to deed restrict the property to provide for open space or recreational uses where such a restriction constitutes a greater benefit to the community than the property's redevelopment.

The applicant does not propose deed restriction for open space or public recreation.

Affirmative finding as conditioned.

3. *Deconstruction: Salvage and Reuse of Historic Building Materials.*

The applicant shall be encouraged to sell or reclaim a structure and all historic building materials, or permit others to salvage them and to provide an opportunity for others to purchase or reclaim the building or its materials for future use. An applicant may be required to advertise the availability of the structure and materials for sale or salvage in a local newspaper on at least three (3) occasions prior to demolition.

The applicant has offered to make building materials available for salvage. See VHB Memorandum, p. 9.

Affirmative finding.

Section 5.5.1, Nuisance Regulations

Nothing in the proposal appears to constitute a nuisance under this criterion.

Section 5.5.2 Outdoor Lighting

The applicant has provided photometrics (exterior, and garage deck interiors) and fixture information. A mixture of downlighting, wall mounts, and poles are proposed. Light levels are acceptable, but there are illustrated fixtures within the southerly canopy that extend into the public ROW. Sufficiently placed high above the sidewalk at the vertical access entry, they will need to be included within an encroachment agreement with the Department of Public Works and approved by City Council. Similarly, pole lights proposed within the ROW will require approval by the same bodies. **Affirmative finding as conditioned.**

Section 5.5.2 (F) Specific Outdoor lighting Standards

5. Parking Garage Lighting

Illuminance for the parking garage as provided is generally higher than recommended by IESNA RP-20-98. Parking floors are expected to have an overall illuminance of 5 fc (8-9 provided), with a 10:1 max/min horizontal uniformity ratio. Similarly, the entrance ramp should not exceed 50 fc (52.4 provided) as a transition from daylight to the interior of the facility. A revised photometric for the garage lighting shall be provided to reflect these standards, or any current standards of IESNA or similar. **Affirmative finding as conditioned.**

Section 5.5.3 Stormwater and Erosion Control

The submission includes a fully articulated stormwater management plan and construction site erosion prevention and sediment control plan that were forwarded to the Stormwater Engineering group for review. Approval of both documents will be a condition of approval. **Affirmative finding as conditioned.**

Article 14: Plan BTV Downtown Code

Section 14.6.4 Building Height

(f) Design and Public Space Standards Required for Additional Building Height

i. Design Standards: The maximum building height and mass is permitted By Right by the underlying Form District, as may be modified by the chosen Building Type and Frontage Type. However, there are a number of ways that building shape, articulations, and choice of materials can be used to reduce the perceived height and mass of taller buildings, and ensure a high quality of design that complements the character of the Downtown and Waterfront area. After consultation with the Design Advisory Board and a Public Hearing, the Development Review Board shall evaluate any proposal seeking additional Building height under each of the following additional design standards, and find affirmatively that:

- a. The proposed building presents a design that emphasizes slender, vertically-oriented proportions to assure a rich visually interesting experience as viewed within the context of the downtown skyline; reinforces opportunities for establishing points of reference for visual orientation; and provides visual interest and human scale at the pedestrian level through the use of a variety of scales, materials, fenestration, massing, or other architectural design techniques;*

The applicants are seeking a maximum height of 72.51' above the average grade. This form district allows 45' by right, with height up to 65'/6 stories with DRB review. There is also a provision (see below) allowing for up to 20% relief ($65' \times .20 = 13'$) from standards. Combined, these standards allow for consideration of the height requested.

The building elevations illustrate a vertical rhythm with fenestration in regular columns, building articulation that guides the eye upward, and changing materials in vertical segments. Human scale is addressed along the pedestrian level of South Union Street with a proposed Office front,

Doorway and Terrace building frontages, accentuated with easily identifiable entrances, landscaping, a canopied patio area, and generous glazing.

- b. *Step backs, horizontal and vertical variation, selection of materials, and/or other architectural design technics are used to reinforce the street wall, create transitions from buildings of a smaller mass and height, and reduce the perceived height and mass of upper stories from the street level;*

The plane of the new building varies along the streetfront, with the northeasterly corner extruded to the property frontage line abutting the pedestrian way. Corresponded recesses appear at the north elevation where building planes change again. Alternation is evident, again, in the manipulation of fenestration: regularly spaced in vertical columns along the east and north elevations, yet banded in the uppermost floor. The beltcourse of the Austin building is echoed in the smaller (yet similarly scaled and sheathed) northeasterly corner. Pronounced cornice lines cap each building mass.

The southwesterly component of the addition is smaller in scale; deferential to the existing Austin building and set back from the streetfront (also to accommodate garage access.) The larger addition is firmly set behind the historic streetfront building.

and,

- c. *Upper story proportions of the building are oriented and tapered and/or separated into separate masses in order to retain sky view between individual building elements from the public thoroughfare.*

Due to the rising grade of College Street and the relatively flat plane of South Union Street, it is unlikely that views between individual building elements will be afforded from the public thoroughfare. The roof planes are, however, differentiated and articulated at differing elevations, varying the sky view between these building components.

The DRB may condition approval of additional building height by reducing the By-Right building mass by no more than 10% of the total floor area of the new floors enabled by granting the additional building height. In no case shall the maximum By-Right building height be reduced.

Affirmative finding, if DRB concurs.

ii. Active Public Space and Restrooms

A minimum of 20 sf/1,000 sf of the gross floor area above 85 feet shall be dedicated to active and publicly accessible upper story rooftops and terraces, and/or street-level public restrooms as follows....

Not applicable. The building is not proposed to exceed 85'.

Section 14.7.3 (b) Alternative Compliance Granted by the Development Review Board

- i. *DRB Alternative Compliance: Relief from any non-numerical standard by no more than 20% of such requirement or an additional 10% beyond any Administrative Relief permit above, may be granted by the Development Review Board after review and recommendation by the Design Advisory Board and a Public Hearing. Decisions by the DRB regarding any Alternative compliance granted shall be made in writing and upon affirmative findings that:*
 - A. *The relief sought is necessary in order to accommodate unique site and/or Building circumstances or opportunities;*

The project applicant is requesting relief from the 65' maximum height; instead proposing 72.51' above the average grade. The difference (7.51') is less than the 20% maximum relief allowance (13'), measuring 11.55%% deviation. The applicant has offered that the significant changing grade of the site, situated well into Burlington's ravine, to present a unique challenge. Coupled with the topography, the existing building has 20 different vertical levels, which the plan seeks to remediate in the expansions.

A second area of relief requested is in the Floor-to-Floor height of the first floor. **Article 14, Section 14.4.10 – Mixed Use Building** type; Required ground floor height, floor to floor = 14' minimum.) The plan proposes 12' 5 3/4" in order to align new floors with existing floors. 12' maximum administrative relief is afforded in Table 14.7.3-A, with the caveat that *The relief is necessary to better align floors with pre-existing adjacent Building*. DRB relief is an additional 10% beyond administrative relief. 14' required, - 1 ft. admin relief – (10% 13' or 1.3') = 12.4'. 12' 5 3/4" proposed.

- B. *The relief if granted is the minimum necessary to achieve the desired result;*
In trying to reconcile floors that do not align, the ravine, and the opportunity of below grade parking, the applicant feels the request for relief in both building height and floor-to-floor height would be well exercised in this plan.
- C. *The property will otherwise be developed consistent with the purpose of this ordinance, the intent of the Form District, the intent and purpose of the section that the relief is being sought, and all other applicable standards;*
The application seeks compliance in all other matters of Plan BTV Downtown Code. Confirmation of compliance with the FBC Checklists will be the task of staff.
- D. *The relief if granted will not impose an undue adverse burden on existing or future development of adjacent properties;*
There are no known adverse impacts introduced to neighboring properties or future development of adjacent properties.
And
- E. *The relief, if granted will yield a result equal to or better than strict compliance with the standard being relieved.*
This site is among the most challenging in the city. The intent of Plan BTV Downtown Code is to utilize physical form as the organizing principle in shaping new development. Burlington's unique characteristics, including significantly changing grades, sometimes tests parameters of dimensional standards, like average building height. Consideration of relief in this area, as allowed by this section, will acknowledge the challenges of context while respecting the goals of the Plan.
Affirmative finding with DRB concurrence.

II. Conditions of Approval

1. The subject property has expired zoning permits that have not received their required certificates of occupancy. These two permits must be closed out with certificates of

occupancy (or relinquished or superseded) **prior to issuance of a certificate of occupancy** for any new zoning permit.

2. Impact fees will be due based on the net new building area. Based on submitted area calculations, the following is an estimate of those fees:

Removed building

SF of Project 45,148

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	30,971.53
Fire	0.202	9,119.90
Police	0.356	16,072.69
Parks	0.425	19,187.90
Library	0.000	0.00
Schools	0.000	0.00
Total	1.669	\$ 75,352.02

New area

SF of Project 174,567

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	119,752.96
Fire	0.202	35,262.53
Police	0.356	62,145.85
Parks	0.425	74,190.98
Library	0.000	0.00
Schools	0.000	0.00
Total	1.669	\$ 291,352.32

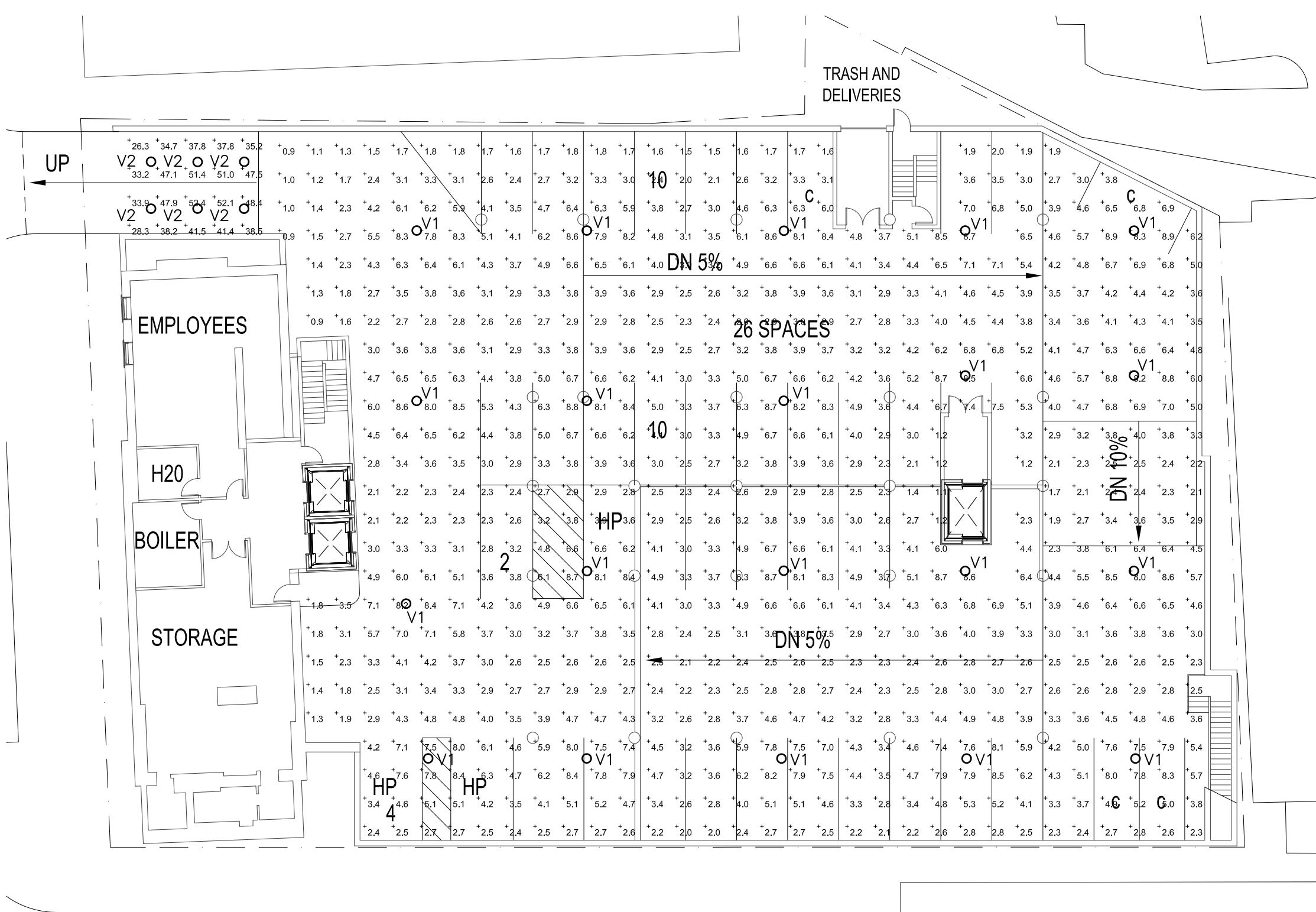
Difference **\$ 216,000.30**

Allocation by department

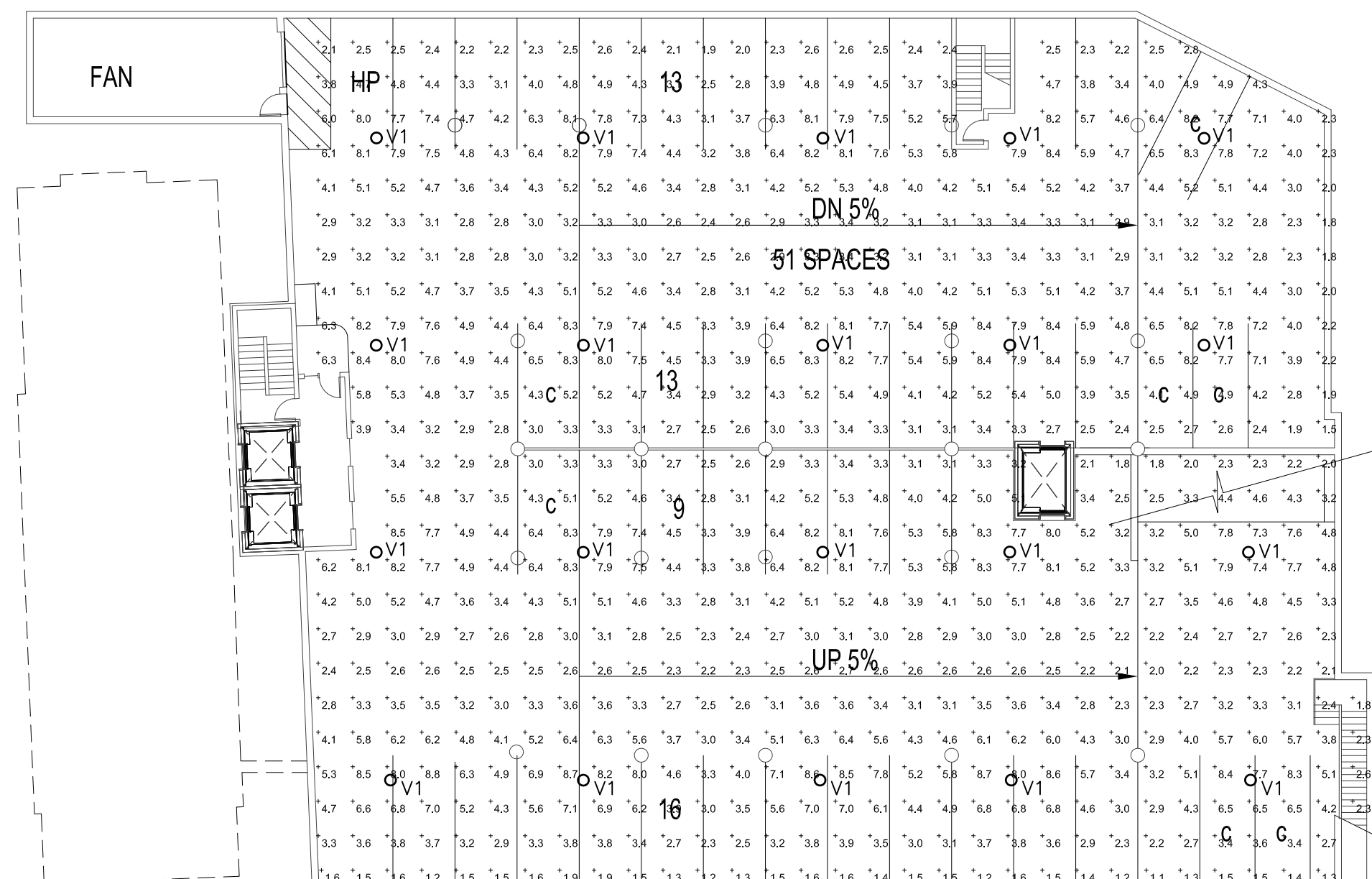
Enter Total Fee: \$216,000.31

Department	<u>Offices & Other</u>	
	Rate	Fee
Traffic	0.686	88781.43
Fire	0.202	26142.64
Police	0.356	46073.16
Parks	0.425	55003.07
Library	0.000	0.00
Schools	0.000	0.00
Total	#REF!	\$ 216,000.30

3. Impact fees must be paid prior to issuance of a zoning permit, or if a building permit is required, within thirty (30) days of issuance of the building permit.
4. The applicant shall define the days and hours of operation of any outdoor seating (with inclusion of intended seasons) for review and approval by the Board.
5. A State Wastewater permit will be required. It is the obligation of the applicant/owner to secure such permit.
6. Conditions and recommendations of the Department of Public Works relative to the submitted Traffic Impact Study are incorporated into Conditions of Approval.
7. Unless specifically requested and approved by the DRB, **days and hours of construction** shall be limited to Monday – Friday from 7:30 AM – 5:30 PM. Saturday construction may occur for interior work only. No construction activity shall occur on Sundays.
8. As the corner masonry component on the southeasterly corner is original to the structure, the resheathing with modern metal material is not supported by Section 5.4.8. Revised plans for this section of the building will be necessary to illustrate the retention of the masonry at this corner.
9. Discovery of any archaeological resources within the ravine during construction shall be reported to the Vermont Division for Historic Preservation for assessment, evaluation, and appropriate disposition.
10. A Historic Resource Documentation Package will be completed prior to the commencement of development, and provided to the City for retention within zoning project files. This HRDP shall also be provided to the Vermont Division for Historic Preservation.
11. **Prior to release of the zoning permit**, a revised photometric plan for the garage lighting shall be provided to reflect adjusted light measurements consistent with IESNA RP-20-98, or current edition of IESNA or similar lighting manual.
12. Standard Permit Conditions 1-15.



UPPER LEVEL
GARAGE LIGHTING PHOTOMETRIC
SCALE: 1" = 20'



LOWER LEVEL
GARAGE LIGHTING PHOTOMETRIC
SCALE: 1" = 20'



VCPG LED Parking Garage

Specifications
Diameter: 19"
Height: 3.75"
Weight (max. with no options): 18 lbs

Ordering Information

EXAMPLE: VCPG LED V4 P4 40K 70CRI TSM MVOLT SRM DNAXD

Series	LED Light Options	Package	Color Temperature	Color Rendering Index	Bi-directional	Voltage	Shipped In
VCPG LED	V4 4 Light V4 8 Light V4 16 Light	P1 P2 P3 P4 P5 P6 P7	30K 3000K 35K 3500K 40K 4000K 50K 5000K	70CRI 80CRI	TSM Type V (medium) TSM Type V (rectangular) TSE Type V (very) LANE Line line	MVOLT 347 480	Shipped In P1 Pend: mount (24-inch length supply length) SRM Surface mount (24-inch length supply length) Shipped separately V4 "True Ambient" mount

Options

Shipped separately	Standard Sensor Controls	Finish
UPL1 Up-light 500 lumens	PR Motion/ambient sensor for 8-15' mounting heights	DNAXD White
UPL2 Up-light 700 lumens	PRH Motion/ambient sensor for 15-30' mounting heights	DNAXD Aluminum
EWVC Emergency battery backup, CEC compliant (8% -20°C only)	PR3FCV Motion/ambient sensor for 8-15' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
EDWH Emergency battery backup, CEC compliant (8% -20°C only)	PR3FCV2 UL924 Listed motion/ambient sensor for emergency circuit for 8-15' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
HA High ambient (50°C, only P1-P4)	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
SF Single face (1200, 2700, 3400)	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
DF Double face (2000, 2400, 4000)	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
SP100V 100V Surge Pack	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
LD56 36in (3M) lead length	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
LD52 72in (6M) lead length	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
LD51 108in (9M) lead length	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
DAG External 0-10V leads (no controls)	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
WG Wire Guard	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
WG Wire Guard	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
BOS Bird Shield	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook
HS Fixture Size Shield	PR3FCV24 UL924 Listed motion/ambient sensor for emergency circuit for 15-30' mounting heights, pre-programmed to 30% and 35% light output	DOBX Dark brook

LITHONIA LIGHTING One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com
© 2018-2019 Acuity Brands Lighting, Inc. All rights reserved.

VCPG LED Rev. 11/15/18

Ordering Information Cont.

Accessories

NOTES

Performance Data

Lumen Output

Up-light Lumen Output

Lumen Multiplier for 80CRI

Lumen Ambient Temperature (LAT) Multipliers

Projected LED Lumen Maintenance

Electrical Load

LITHONIA LIGHTING One Lithonia Way • Conyers, Georgia 30012 • Phone: 800.279.8041 • www.lithonia.com
© 2018-2019 Acuity Brands Lighting, Inc. All rights reserved.

VCPG LED Rev. 11/15/18

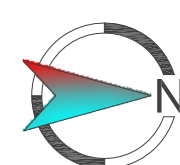
LIGHTING FIXTURE SCHEDULE						
TYPE	MANUFACTURER & MODEL NO.	DESCRIPTION	LAMPS	WATTS	LUMENS	VOLTS
V1	LITHONIA VCPG V4P1 40KTSR MVOLT SRM PIR DOBXD	SURFACE MOUNT	LED	27	3690	MVOLT
V2	LITHONIA VCPG V4P2 40KTSR MVOLT SRM PIR DOBXD	SURFACE MOUNT	LED	34	4716	MVOLT

Calculation Summary					
Label	Avg	Max	Min	Avg/Min	Max/Min
Entry Ramp	41.2	52.4	26.3	2.0:1	1.6:1
Lower Level Parking Garage	4.4	8.8	1.2	7.3:1	3.7:1
Upper Level Parking Garage	4.2	8.9	0.9	9.9:1	4.7:1

PROJECT NAME:
CAMBRIA HOTEL
BURLINGTON, VT

SHEET TITLE:
GARAGE LIGHTING PHOTOMETRIC PLAN

DATE: 6/25/19
SCALE: AS NOTED
JOB NO:
DRAWN BY: CLD
APPROVED BY: ASG
DWG. NO.



ISSUED FOR PERMIT

6/25/19

SE1.1



To: Hotel Y Burlington, LLC
266 College Street, Burlington

Date: June 25, 2019

Memorandum

Project #: 58153.00
From: Britta Tonn, Preservation Planner
Re: Historic Buildings and Sites
Burlington Citywide General Regulations, Sec. 5.4.8

This is an application for zoning approval to develop a property containing an historic building at 266 College Street, pursuant to Article 5.4.8 of the Citywide General Regulations, as well as an application to demolish a portion of said historic building, pursuant to Article 5.4.8(d). The building at 266 College Street is the YMCA building, which was constructed in 1934 with a pool addition completed in 1984. The building is listed on the National Register of Historic Places as a contributing resource to the Main Street – College Street Historic District (listed in the National Register on October 13, 1988), although the 1984 pool addition is considered non-contributing to the historic district due to age.

PROJECT DESCRIPTION

The proposed project involves the construction of a new, 142-room hotel at 266 College Street ("Project"). The Project will preserve the gabled south block ("south block") of the historic YMCA building and demolish the gymnasium and pool wings to the north in order to accommodate a new, six-story addition. The interior of the south block will be remodeled and converted into public space on the ground level and hotel rooms above. The main entrance to the building is proposed to be located through the gabled, east wing of the south block. The proposed north addition will be contemporary in style and will connect to the south block with a three-story, one-bay wide, brick hyphen which will utilize one bay of the existing historic, two-bay wide hyphen. The new addition will house hotel rooms, a fitness center, and a restaurant with a west-facing patio on the sixth floor. The addition will rest on a new, two-level, underground parking garage offering 77 parking spaces. Please refer to the attached elevations, plans and renderings of the replacement structure, included as Attachments 1 and 2.

STANDARDS AND GUIDELINES (5.4.8[b])

The following narrative describes the Project within the context of the Secretary of the Interior's Standards for Rehabilitation, codified in 36 CFR 67, which are used by the City of Burlington in the review of all applications involving historic buildings and sites subject to the provisions of Article 5.4.8 and the requirements for Design Review. The memo in Attachment 4, prepared by Smith Buckley Architects ("SBA"), lists the various treatments for the historic building that will be rehabilitated and incorporated into the new hotel. Each of the ten (10) standards are addressed below in the order that they appear in Article 5.4.8 of the Citywide Ordinance:

1. ***A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.***

The YMCA was an organization founded to provide safe boarding for young men and to foster a sense of community. Eventually, the YMCA's mission expanded to offer community services to all types of people and particularly to families, which included facilities and programming to develop healthy habits and foster a sense of community. The current Burlington YMCA facility was constructed in 1934, with the hostel originally occupying the second through fourth floors of the south block. When it was built, the hostel was supplemented by several large, community gathering spaces which included: a gymnasium with an elevated



Memorandum

track; a pool; a bowling alley; squash courts; meeting rooms; a ballroom/ event space; a community kitchen; locker rooms for men and women; parlors; and game rooms. In the mid-1970s, the childcare center was established and in 1984, a new pool was built to the north.

For many years, the YMCA retained its boarding house in the south block. After WWII, the building was utilized as a GI dormitory. By the 1960s and 1970s, however, the YMCA began to focus its attention on serving families. Today, the YMCA no longer provides rooms for rent; the former hostel rooms are occupied by offices, and the former parlors and game rooms on the first floor are used as classrooms for the childcare center.

The building's proposed new use is compatible with its historic use. The proposed hotel essentially returns the south block of the YMCA building to its original use of providing rooms for short-term residential occupancy, as well as public gathering spaces. Likewise, the plan for the new building will include community gathering spaces such as a public lobby and a restaurant, bar and meeting space on the top floor.

2. ***The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.***

The historic character of the south block of the building will generally be retained and preserved. The Applicant's intent is for this portion of the building to express its historic and architectural character as a Colonial Revival-style YMCA building, rooted in its historic neighborhood. Most of the building's exterior rehabilitation work will involve the repair of historic features. The Project proposes to introduce two modern features to this portion of the building; however, despite these alterations, the building will still clearly express its Colonial Revival style. The canopy and entrance ramp on the College Street side are essential to allow for access into the building that is safe and clear of snow, and it will replace a non-compatible awning which currently obscures the arched entrance. The east, gabled wing will be remodeled as a primary entrance with the expansion of the doorway, the installation of an awning, and the sheathing of the brick exterior with metal. Although the appearance of this entrance will be altered, the historic character of its gable form, as well as its slate roof and gable window, will be retained. Furthermore, the brick walls of the building will be visible in the interior of the entrance vestibule.

The north wings that will be demolished to make way for the new addition are portions of the building that retain less historic integrity. Although the central gymnasium / pool addition is original to the building's 1934 design and function, it prohibits the redevelopment of the property due to multiple challenges which are outlined in the SBA memo included in Attachment 4. Likewise, the 1984 pool addition to the north is not historic due to its age. However, preserving and incorporating the historic south block is a solution that allows for important character-defining features of the building to remain, while also giving the site a new use that is relevant for today.

3. ***Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.***

No changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will be undertaken. The new hotel addition will be contemporary in its design and clearly distinguishable as dating from a different era than the south block that will remain. The



Memorandum

south block will retain its Colonial Revival style, which was common when it was constructed in the 1930s and was widely embraced by the YMCA for its early-20th century facilities.

4. ***Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.***

No changes have occurred to the YMCA building which have acquired historic significance. The northerly, 1984 pool addition is not yet 50 years old and lacks exceptional historic or architectural significance. Another major change to the property is the infilling of the windows in the central gymnasium/ pool addition, which likely occurred prior to 1965. While this change may be considered historic because it is over 50 years old, it is not significant because it was a utilitarian change that removed character-defining features of the building. The awning and entrance steps above the College Street entrance were installed in 1991 and therefore are not historic.

5. ***Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.***

Distinctive materials, features, finishes and construction techniques and examples of craftsmanship that characterize the south block of the building will be preserved. These include the following character-defining features, all of which express the building's Colonial Revival style: the recessed, arched College Street entrance and fanlight; the existing wood trim at the eaves; the south-facing dormers and the two northeast dormers; the quarter fanlights in the east gable which flank the exterior chimney; the slate roof; the exterior masonry walls; and the wood gabled sign box next to the College Street entrance, which was likely installed in the 1940s. Although the wooden and vinyl sash windows will be removed, they will be replaced with aluminum clad windows with insulated glass. These replacement windows will match the 6/6 light division of the existing sash windows and the frame profiles will match the existing windows as closely as possible.

6. ***Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.***

Where possible, the deteriorated historic features of the south block of the building will be repaired rather than replaced. The following treatments for exterior historic features are proposed:

- Repair and repoint the masonry walls with a mortar selected for its compatibility with the historic mortar;
- Strip and paint the existing wood trim at the eaves, repair any damaged areas, and, only if necessary, replace the trim to match the existing;
- Maintain and repair the slate roofs as necessary;
- Because the existing wooden windows are in fair to poor condition and, in many places severely damaged, it is the professional opinion of both SBA and VHB's Preservation Planner that it is unfeasible to effectively refurbish these windows. The wooden sash windows throughout will be replaced with aluminum clad wood windows with insulated glass. New window frame profiles will be selected to match the existing windows as closely as possible, and the lights will have the same 6/6 divisions as the existing. The existing windows on the fourth floor are vinyl windows that are inappropriate in materials and design and the replacement windows will be more historically



Memorandum

compatible with the original wooden windows. In addition, a bricked-in window opening on the second level of the hyphen will be opened and a new window installed.

- The quarter fanlights in the east gable will be restored rather than replaced.

Non-structural elements of the south block interior will be almost completely removed and replaced with new partitions, systems and finishes. Much of the building's interior has already been substantially altered and partitioned and, while there is some historic fabric left, it is in large part obscured. Because the existing YMCA building is a contributing element to a National Register Historic District, its character-defining features are limited to those of the exterior. While the athletic facilities which defined the building will be removed, most of the important, character-defining features of the exterior Colonial Revival portion of the building will be retained, despite the significant remodeling proposed for the interior.

7. ***Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.***

For the portion of the building materials that will remain, no treatments that may cause damage to historic integrity are proposed.

8. ***Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.***

Archaeological resources have not yet been identified at the site. The Project will undergo review by the Vermont Division for Historic Preservation ("VDHP") under Act 250 prior to commencement. An archaeologist at the VDHP will have the opportunity to comment on the Project and ensure that measures are undertaken to identify, protect, preserve, and/or mitigate any potential archaeological resources.

9. ***New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.***

The new hotel addition is proposed to be six stories high and will be connected to the south block of the building via the existing, historic brick hyphen. The hyphen will create a transition between the old and the new construction in a way that is compatible with the historic building and will not constrict the appearance and form of the south block. The new addition will be contemporary and therefore differentiated in style from the south block. However, the proposed design references aspects of the historic building, such as the symmetrical placement of fenestration and the selection of a brick that will complement the color of the bricks on the historic block.

The addition has been thoughtfully designed to be compatible with the historic south block. For example, step-backs on the fourth, fifth and sixth floors of the building will break up the mass of the addition and allow it to appear smaller and more in scale with the historic building and neighborhood. The use of a neutrally colored cladding on the addition near where it will interact with the historic building will allow the addition to recede to the background so that it does not interfere with the historic appearance. The glazing over most of the sixth floor will further reduce the perceived size of the addition in relation to other buildings in the area.



Memorandum

Finally, the placement of HVAC equipment inside the sixth floor mass will reduce the visual clutter and minimize the salience of the building.

10. ***New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.***

The new hotel addition will be undertaken in such a manner that, in the unlikely event that it is removed in the future, the essential form and integrity of the historic property and its environment would remain relatively intact. The historic south block of the building will be almost fully retained due to the incorporation of the brick hyphen which will serve as a buffer between the addition and the historic building.

5.4.8(d): DEMOLITION OF HISTORIC BUILDINGS (5.4.8[d])

1. APPLICATION FOR DEMOLITION

A. *The structure proposed for demolition is structurally unsound and unsuitable for rehabilitation.*

Please refer to the SBA memo in Attachment 4, prepared by Smith Buckley Architects ("SBA"), for a discussion of how the rear wings of the YMCA building are unsuitable for rehabilitation. In addition, the "Standards for Demolition" section below elaborates on the unfeasibility of rehabilitating the existing structure for the proposed Project.

B. *Statement addressing compliance with each applicable review standard for demolition.*

Please refer to the "Standards for Demolition" section below which addresses compliance with each of the applicable review standards for demolition.

C. *Economic feasibility report*

N/A – the proposed demolition of portions of the building is not a result of economic hardship.

D. *Redevelopment plan for the site and the effect of the proposed redevelopment on the architectural and historical qualities of other structures and the character of the neighborhood around the sites.*

The Applicant proposes to construct a new, six (6)-story, contemporary hotel wing in the location of the YMCA gymnasium and pool additions which are proposed to be demolished. The proposed redevelopment of the site will introduce a contemporary building to the historic YMCA property itself and to the surrounding Main Street – College Street National Register Historic District. Recognizing that the project will change the appearance of the historic property, the new hotel wing has been thoughtfully designed to be economically viable while having the least amount of impact on the historic importance of the site and the adjacent properties. The preservation of the iconic south block of the YMCA building will lessen the impact on the historic character of the immediately surrounding neighborhood. The south block has, and will continue to, define a prominent corner of the intersection of College Street and South Union Street, and its relationship to other important historic buildings, such as the College Street Congregational Church, will be preserved.



Memorandum

As addressed in Article 5.4.8[b] above, the new addition, although larger in scale, has been designed to minimize impacts and compliment the historic south block and other adjacent properties within the Main Street – College Street Historic District. Please refer to the discussion in Article 5.4.8[b] above and the discussions in the Standards for Review of Demolition section below for more details about how the new building has been designed to be compatible with the historical qualities of other structures and the character of the neighborhood around the sites.

E. Elevations, drawings and plans for the replacement structure.

Please refer to the attached elevations, plans and renderings of the replacement structure, included as Attachments 1 and 2.

2. STANDARDS FOR REVIEW OF DEMOLITION

A. The structure proposed for demolition is structurally unsound despite ongoing efforts by the owner to properly maintain the structure;

Although the existing YMCA gymnasium and pool additions proposed for demolition are not structurally unsound to the degree that they are unsafe for occupation and beyond repair, the SBA memo included in Attachment 4 contains information about how these portions of the building are structurally unable to accommodate rehabilitation without substantial disturbance of the existing structure.

B. The structure cannot be rehabilitated or reused on site as part of any economically beneficial use of the property in conformance with the intent and requirements of the underlying zoning district; and, the structure cannot be practicably moved to another site within the district; or,

The existing YMCA gymnasium and pool additions are not suitable to incorporate into a redevelopment of the property. The interior of these additions contains approximately 20 different vertical levels that are poorly organized, difficult to navigate, and nearly impossible to provide with wheelchair access. Even if these additions were gutted – which would necessarily result in the loss of historic, character-defining features such as the pool and gymnasium – it would not be feasible to rehabilitate these north wings. The success of this project is contingent upon the ability to provide on-site parking, which is only possible by constructing a two-level, underground parking garage beneath the building. The current configuration of the subterranean pool and its structural implications would not allow for two levels of parking to be constructed underneath the existing addition. Without providing ample on-site parking, no redevelopment project could be successful on this property.

Another consideration preventing the rehabilitation of the existing wings is their inability to enhance or activate South Union Street. Currently, the gymnasium/ pool addition and the later, one-story north pool addition are lacking in fenestration (the windows on the historic addition have been infilled with brick). The new design responds to the goals of Plan BTV and the newly adopted form-based code district by creating an active and engaging streetscape with outdoor seating, vegetation, a large and inviting public entrance, and ample window openings in contrast to the opaque wall surfaces of the existing building.



Memorandum

It would not be feasible to move the YMCA additions to another location due to the size and masonry construction of the existing building, as well as other structural challenges such as the 20 different vertical levels and large expanses of interior space for the gymnasium and pools.

Please refer to the SBA memo in Attachment 4 for further discussion related to the feasibility of rehabilitating the existing structure.

C. *The proposed redevelopment of the site will provide a substantial community-wide benefit that outweighs the historic or architectural significance of the building proposed for demolition.*

There is strong demand for high-quality hotel rooms in Burlington, and this hotel will contribute substantially to the local economy through job creation and captured tourist and business travel revenue. When the new and much more functional, accessible and modern YMCA facility opens in winter 2020, the existing YMCA facilities will be rendered irrelevant and unnecessary. As such, these gymnasium and pool facilities at 266 College Street will no longer provide a substantial community-wide benefit. A new use for this property – particularly one that will provide public gathering spaces, such as the lobby and sixth floor restaurant/bar – is essential for the property to provide a community-wide benefit in downtown Burlington.

As explained in (B) above, it is almost impossible to repurpose the existing historic structure to accommodate a new use. Furthermore, the redevelopment of this property will be accomplished by preserving the most distinctive portion of the historic building – the south block – which will be a tribute to the YMCA's community-building presence at this location on College Street for 85 years.

D. *The demolition and redevelopment proposal mitigates to the greatest extent practical any impact to the historical importance of other structures located on the property and adjacent properties;*

This Project has been thoughtfully designed to be economically viable while having the least amount of impact on the historic importance of the site and the adjacent properties. The preservation of the iconic south block will lessen the impact on the historic character of the immediately surrounding neighborhood. This building has, and will continue to, define a prominent corner of the intersection of College Street and South Union Street, and its relationship to other important historic buildings, such as the College Street Congregational Church, will be preserved.

As addressed in Article 5.4.8[b] above, the new addition, although larger in scale, has been designed to minimize impacts and compliment the historic south block and other adjacent properties within the Main Street – College Street Historic District. For example, step-backs on the fourth, fifth and sixth floors of the building will break up the mass of the addition and allow it to appear smaller and in scale with the historic building and neighborhood. The use of a neutrally colored cladding on the addition near where it will interact with the historic building will allow it to recede to the background so that it does not interfere with the historic appearance of the historic building. Likewise, the color scheme of this cladding references the colors of other historic buildings in the area, such as the tan of the College Street Congregational Church. The glazing over most of the sixth floor will further reduce the perceived size of the addition in relation to other buildings in the area.



Memorandum

The retention of the historic brick hyphen connecting the south block to the north gymnasium/ pool additions will create an appropriate transition between the old and the new construction. It will allow the new addition to be set back from the historic south block, preserving the gabled form of the south block almost in its entirety.

E. All historically and architecturally important design, features, construction techniques, examples of craftsmanship and materials have been properly documented using the applicable standards of the Historic American Building Survey (HABS) and made available to historians, architectural historians and others interested in Burlington's architectural history;

An Historic Resource Documentation Package ("HRDP")¹ will be completed prior to the commencement of Project activities. This HRDP, which has been developed by the Vermont Division for Historic Preservation ("VDHP") via their updated "Photographic Documentation Requirements for Historic Resources," is comparable to the documentation standards of HABS and will include all historically and architecturally important design, features, construction techniques, craftsmanship and materials of the historic building. The VDHP will upload the completed HRDP to the Online Resource Center² for public access.

F. The applicant has agreed to redevelop the site after demolition pursuant to an approved redevelopment plan which provides for a replacement structure(s):

i. Such a plan shall be compatible with the historical integrity and enhances the architectural character of the immediate area, neighborhood, and district;

The proposed new hotel building which will replace the historic structure has been designed to be compatible with the immediate urban area, neighborhood and surrounding Historic District. The new building will have a contemporary design that is distinguishable from historic buildings in the area but references its historic surroundings with repetitive and symmetrical fenestration, exterior brick accent walls, and neutrally-colored panels that share a color scheme with surrounding buildings (such as the tan exterior of the College Street Congregational Church to the south).

The new hotel building will utilize step-backs on the fourth through sixth floors to create a transition between its six-story height and the surrounding residential neighborhood, which generally contains two and three-story buildings. In addition, the design for the new hotel building responds to the goals of Plan BTV and the newly adopted form-based code. This is accomplished by activating and engaging the streetscapes along College Street and South Union Street, both of which are relatively uninviting and monotonous due to the opaqueness of the existing YMCA buildings. The design of the new hotel building includes limited outdoor seating along both streets, interesting architectural features such as broad canopies, and landscaping around the east elevation of the building which references the verdant character of the adjacent neighborhood to the east.

¹ https://accd.vermont.gov/sites/accdnew/files/documents/HP/HRDP%20Guidance_April%202016.pdf

² <https://orc.vermont.gov>



Memorandum

ii. *Such plans must include an acceptable timetable and guarantees which may include performance bonds/letters of credit for demolition and completion of the project;*

Currently, the YMCA is operating in their existing location at 266 College Street until their new building can be occupied. The current construction schedule for the new YMCA indicates their new facility will be ready by February of 2020. At that point, the YMCA will vacate 266 College Street and move to their new building.

This project's construction activities are anticipated to begin in spring 2020, with construction of the new wing beginning as soon as the removal of the existing gymnasium and pool wings are complete. Construction of the new hotel wing will begin within the six (6) month time period between demolition and commencement of new construction. It is currently estimated that the entire redevelopment project will take 18 months.

iii. *The time between demolition and commencement of new construction generally shall not exceed six (6) months.*

Please see the discussion under item ii above.

3. DECONSTRUCTION: SALVAGE AND REUSE OF HISTORIC BUILDING MATERIALS

The Applicant agrees to sell or permit others to salvage or purchase any historic building materials that will be removed from the building. These may include but are not limited to windows, interior finishes such as flooring and tiles, and interior wooden beams.

ATTACHMENTS

Attachment 1: Architectural Plans

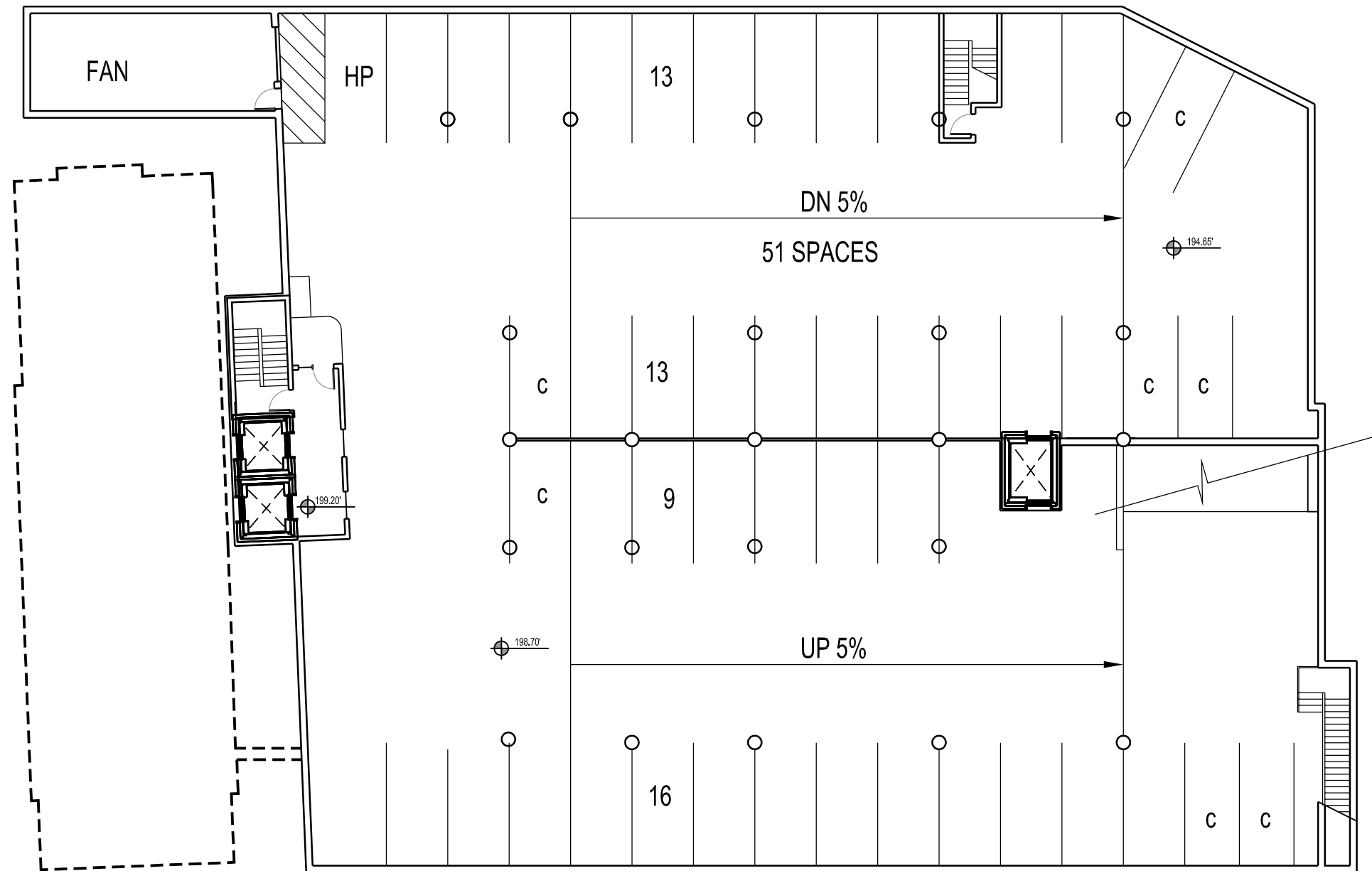
Attachment 2: Architectural Elevations and Renderings

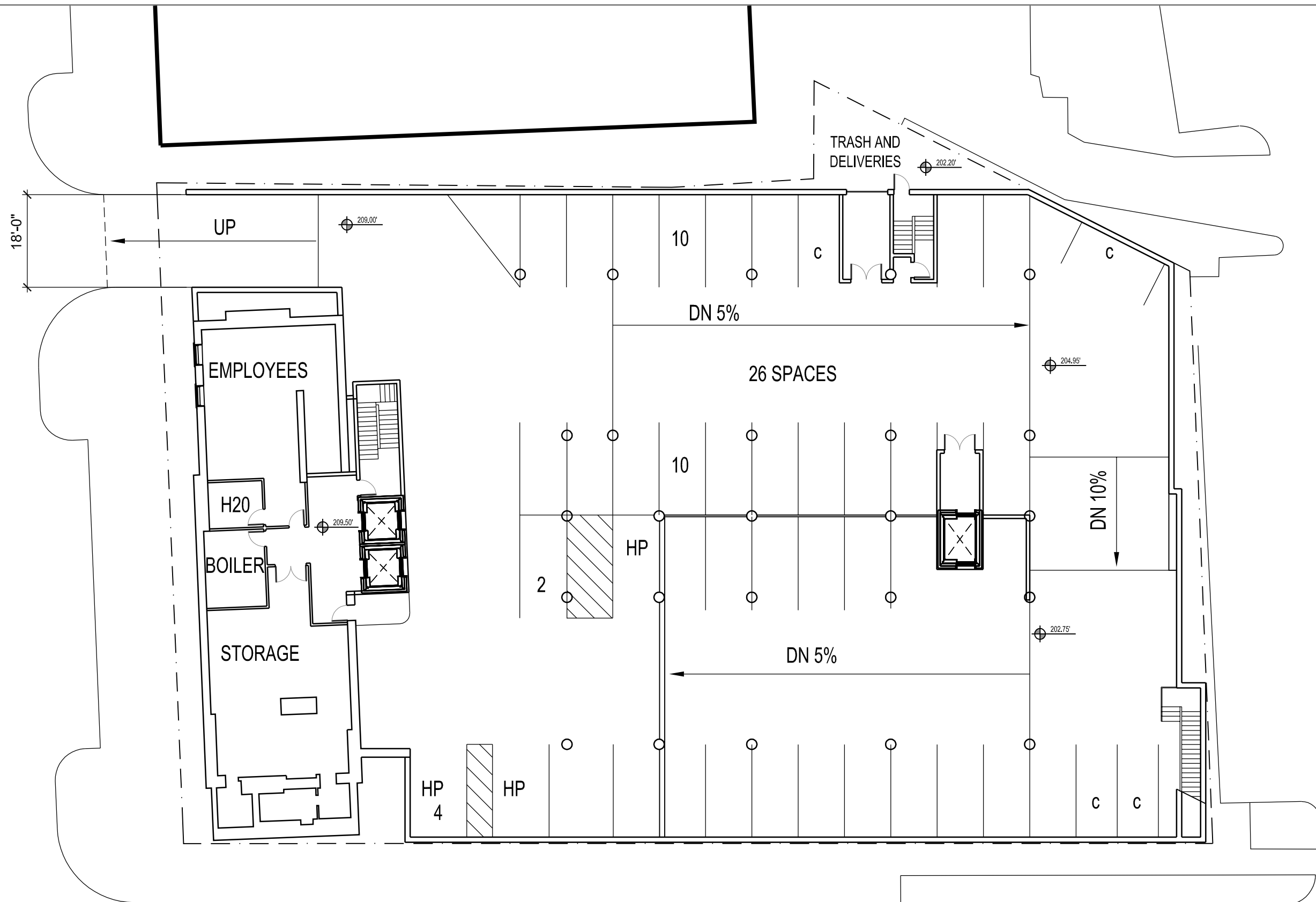
Attachment 3: Project Location and Historic Properties Map

Attachment 4: Demolition and Adaptive Reuse Memorandum by SBA

Attachment 5: Photographs

Attachment 6: Figures





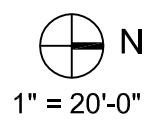
COLLEGE

SOUTH UNION



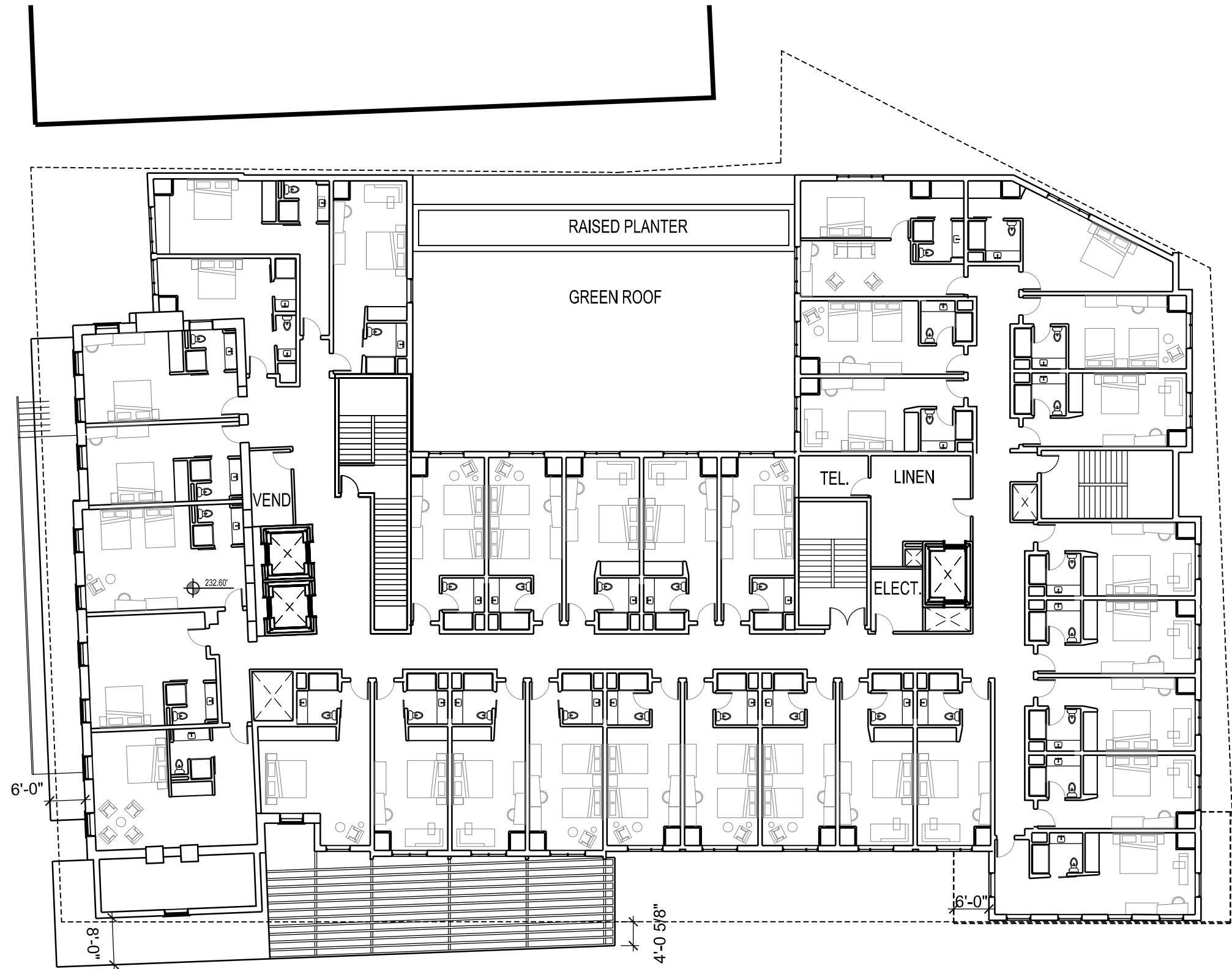
Smith / Buckley Architects
431 Pine St. Ste. 210
Burlington, VT 05401
802-540-0323

CAMBRIA HOTEL
266 College Street, Burlington, VT

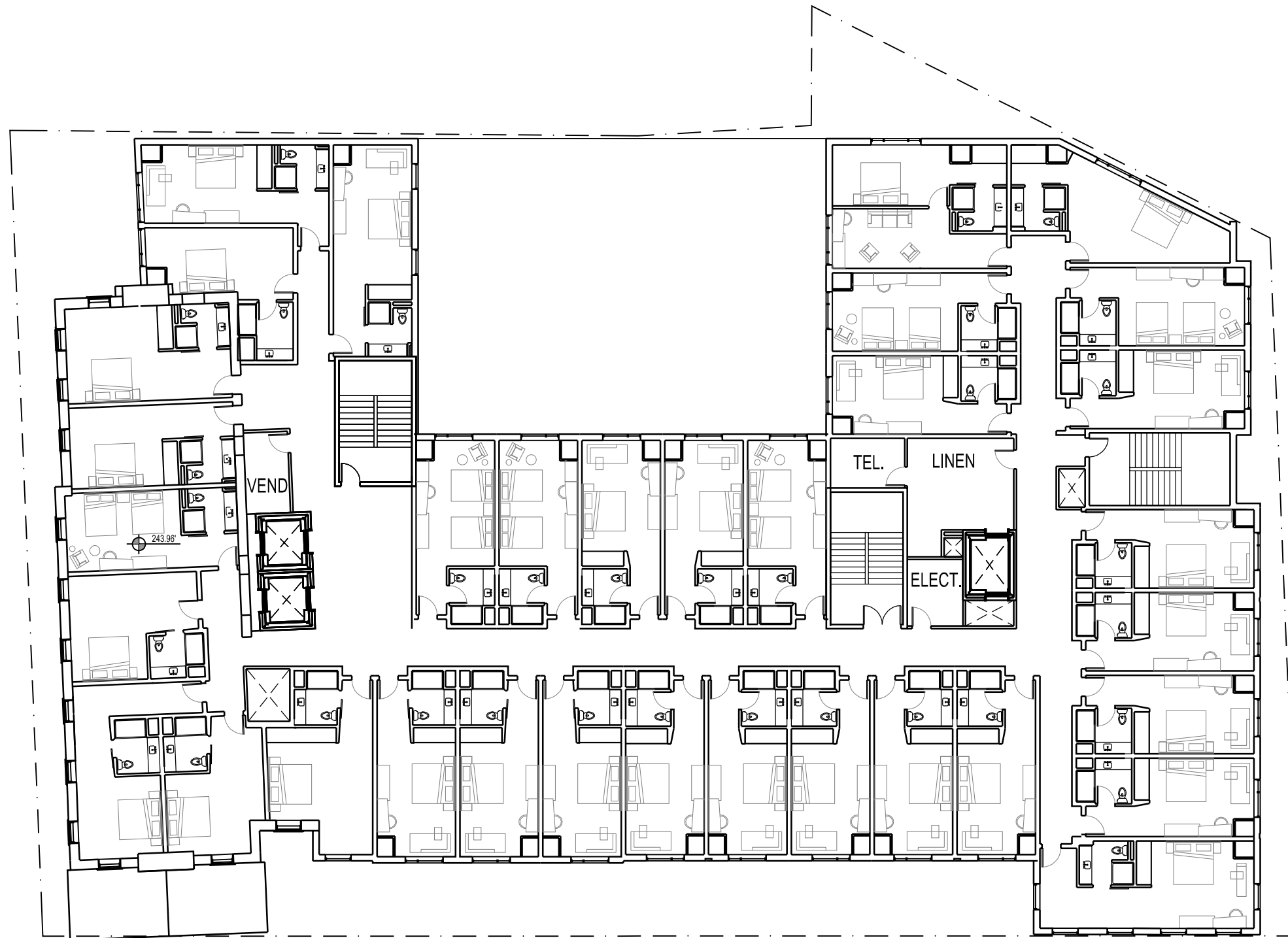


LEVEL 1 - A

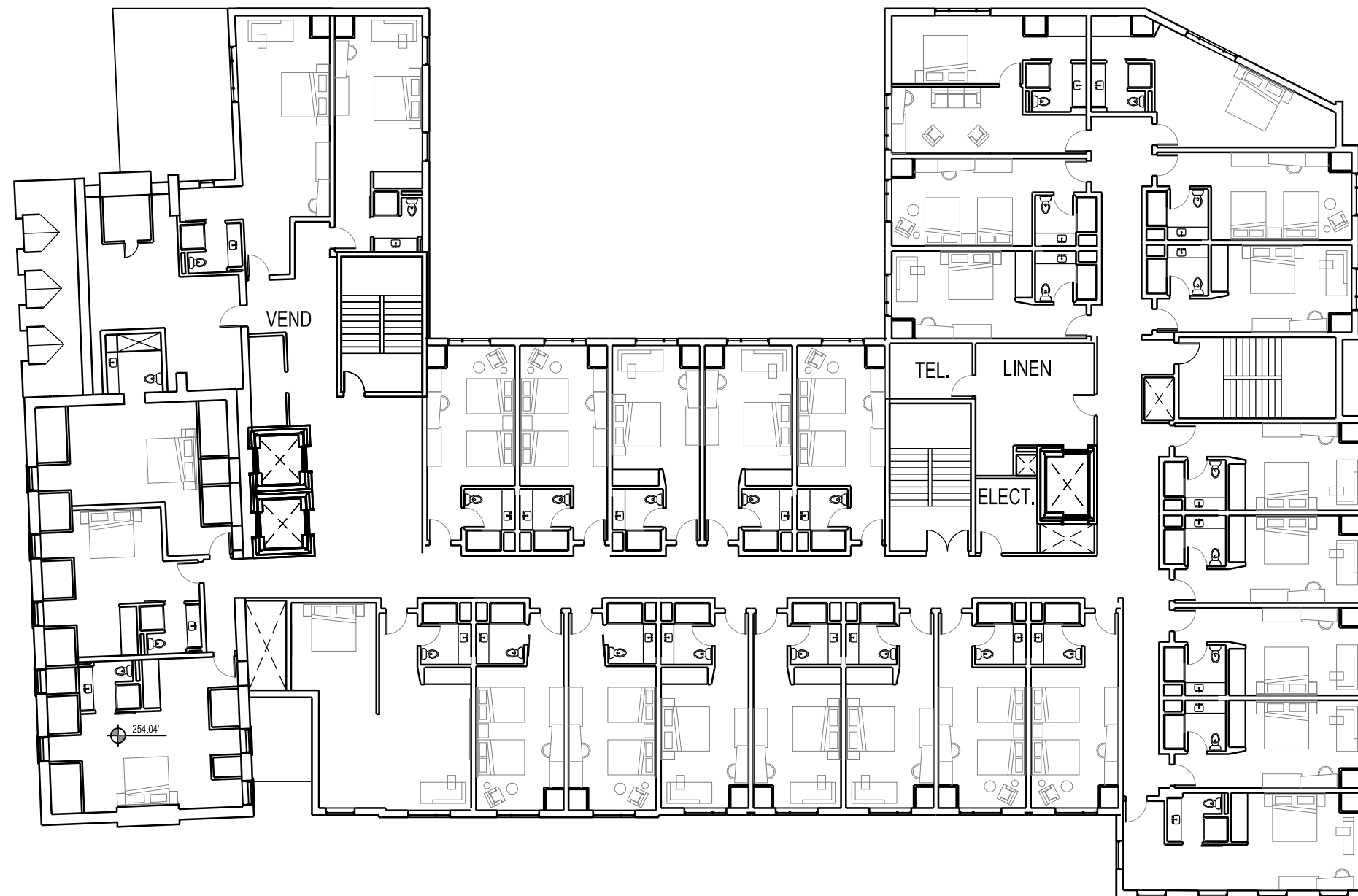
June 5, 2014



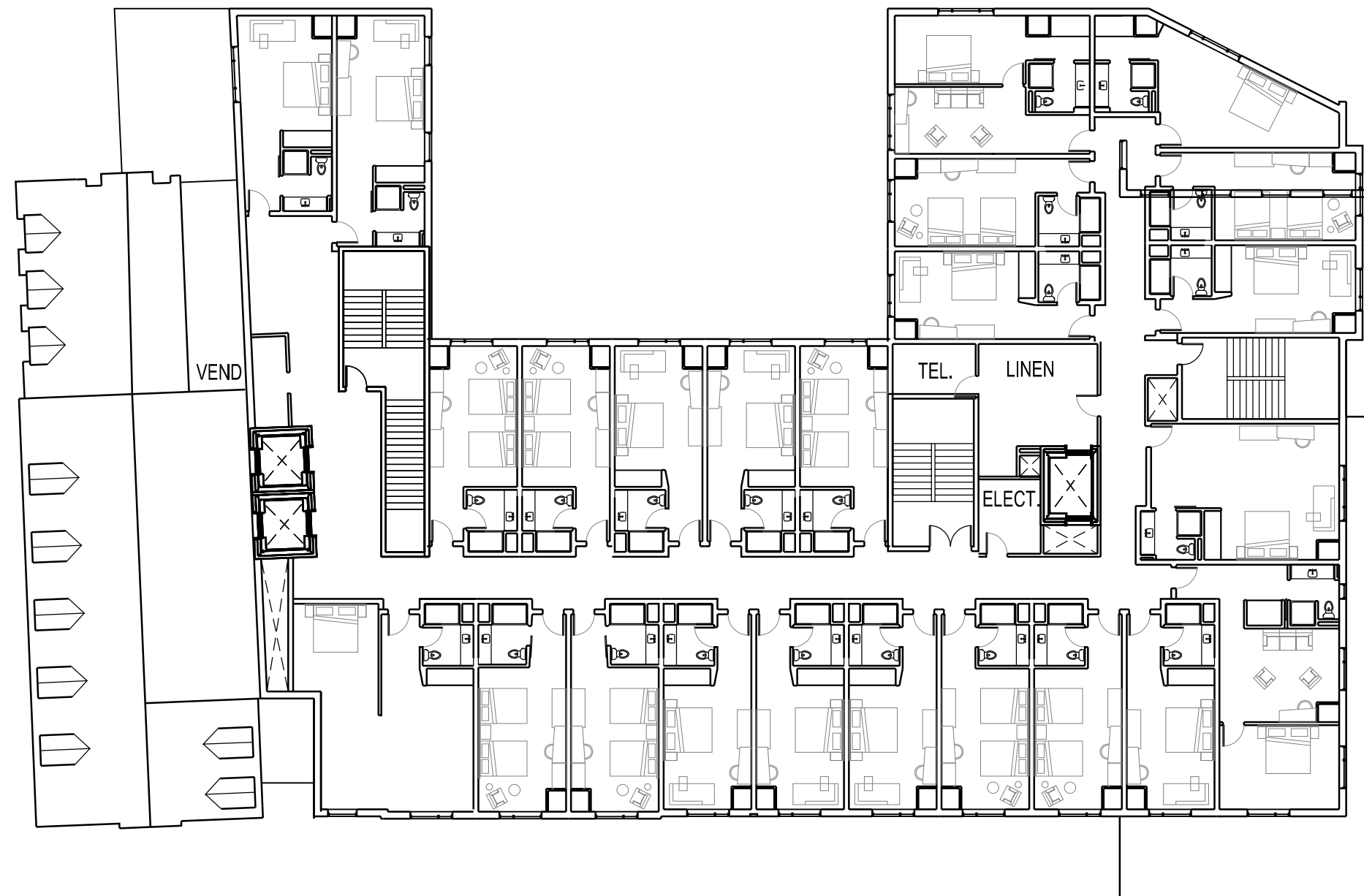
33 ROOMS



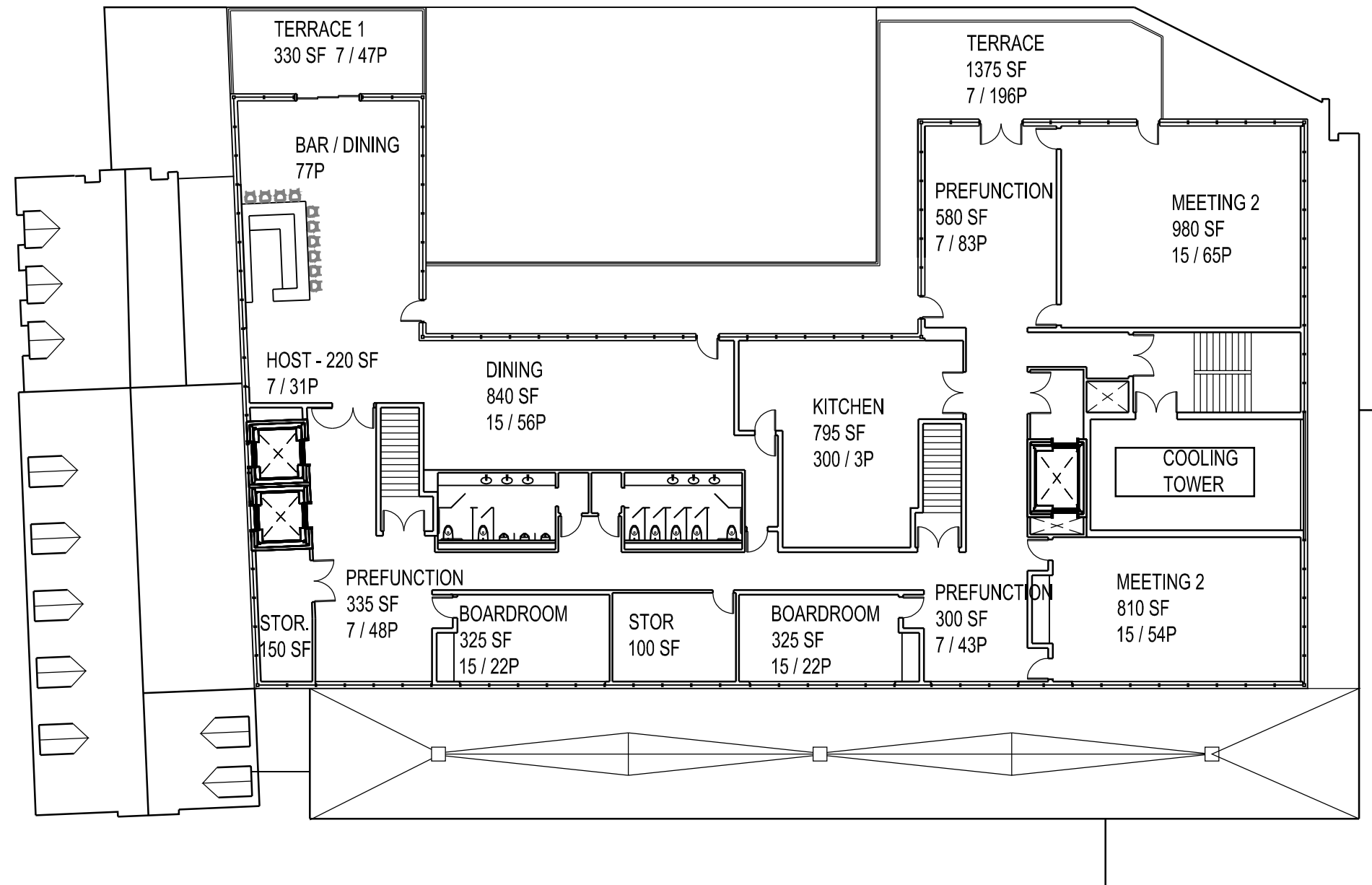
34 ROOMS

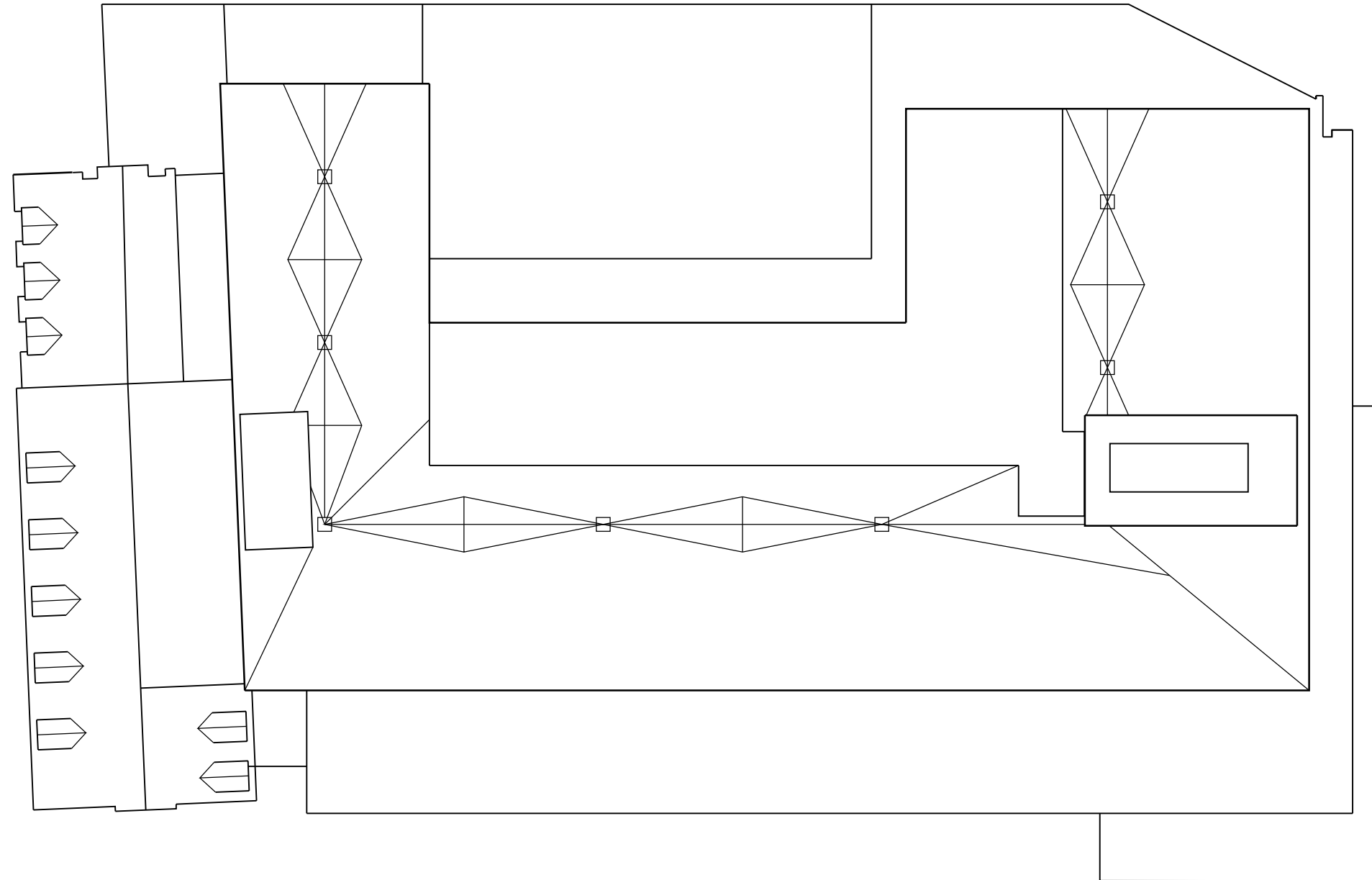


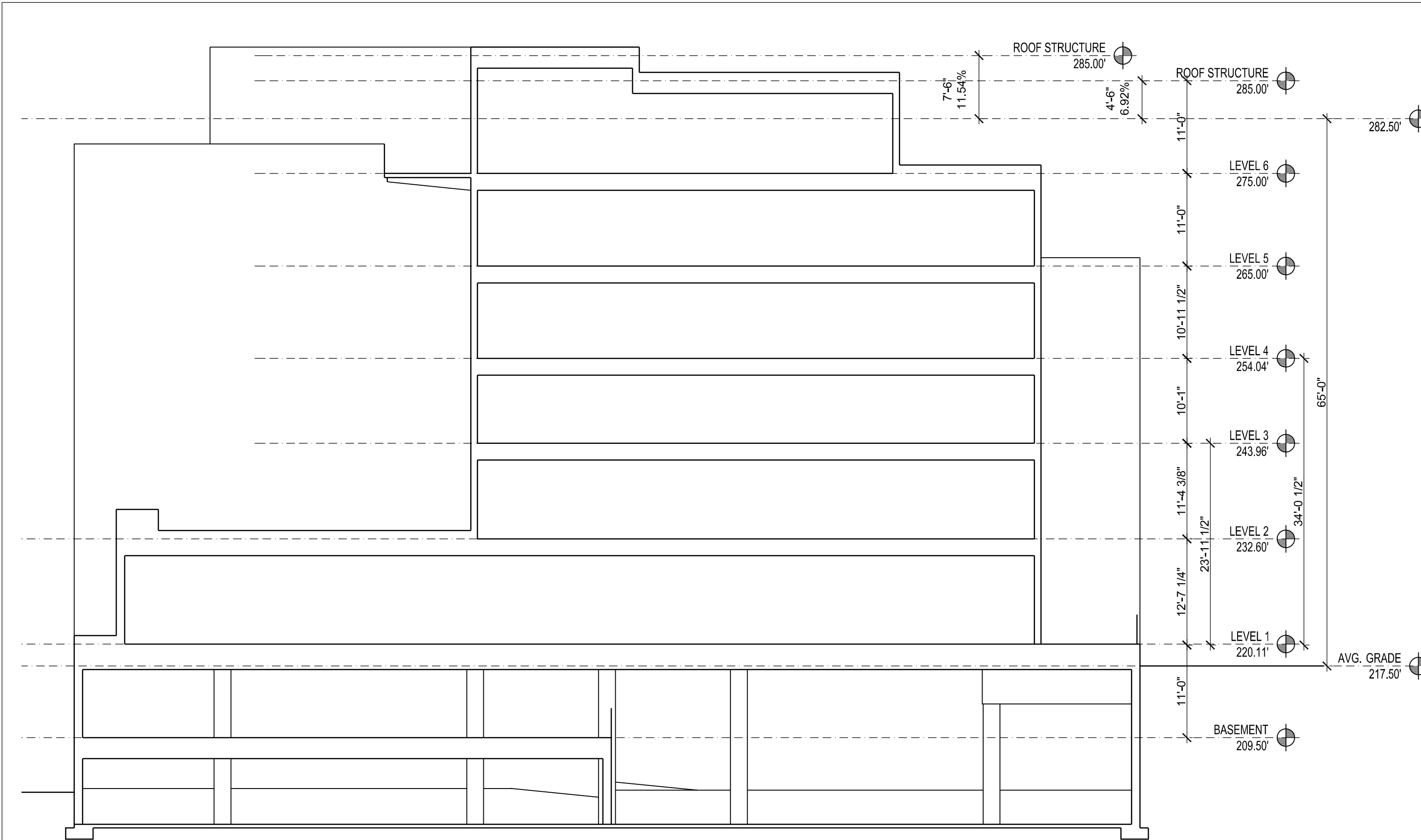
29 ROOMS



24 ROOMS







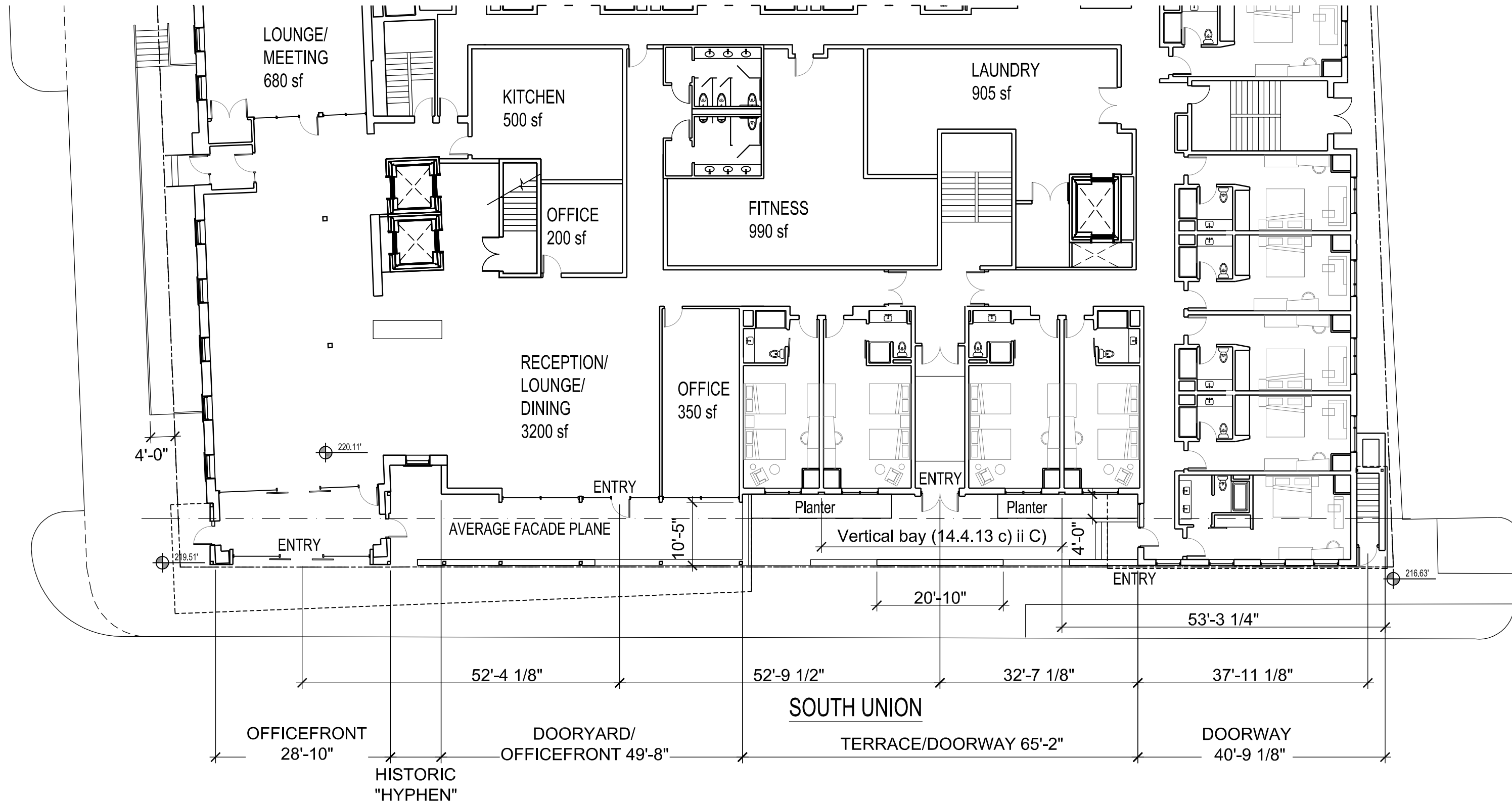
Smith / Buckley Architects
431 Pine St. Ste. 210
Burlington, VT 05401
802-540-0323

CAMBRIA HOTEL
266 College Street, Burlington, VT

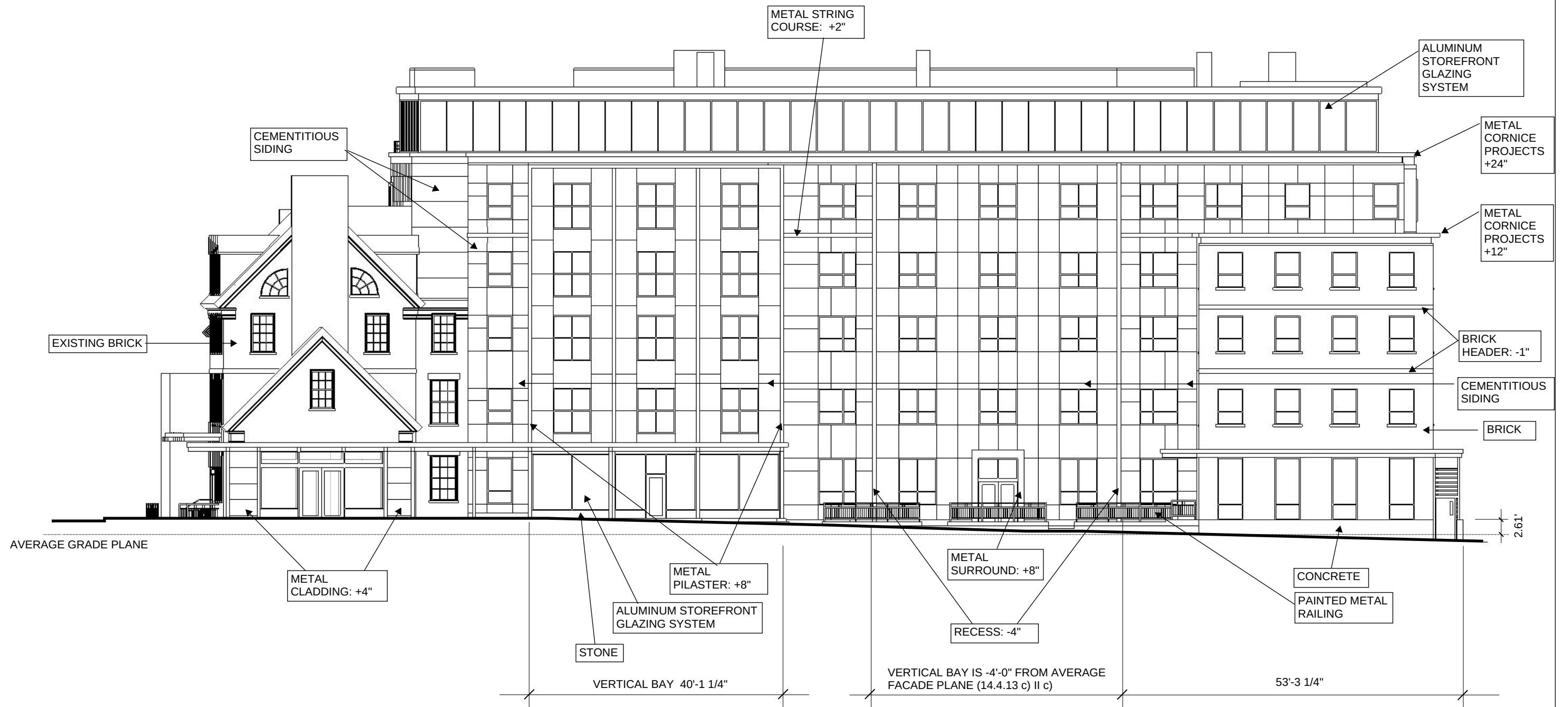
3/32" = 1'-0"

SECTION - A

June 5, 2011

























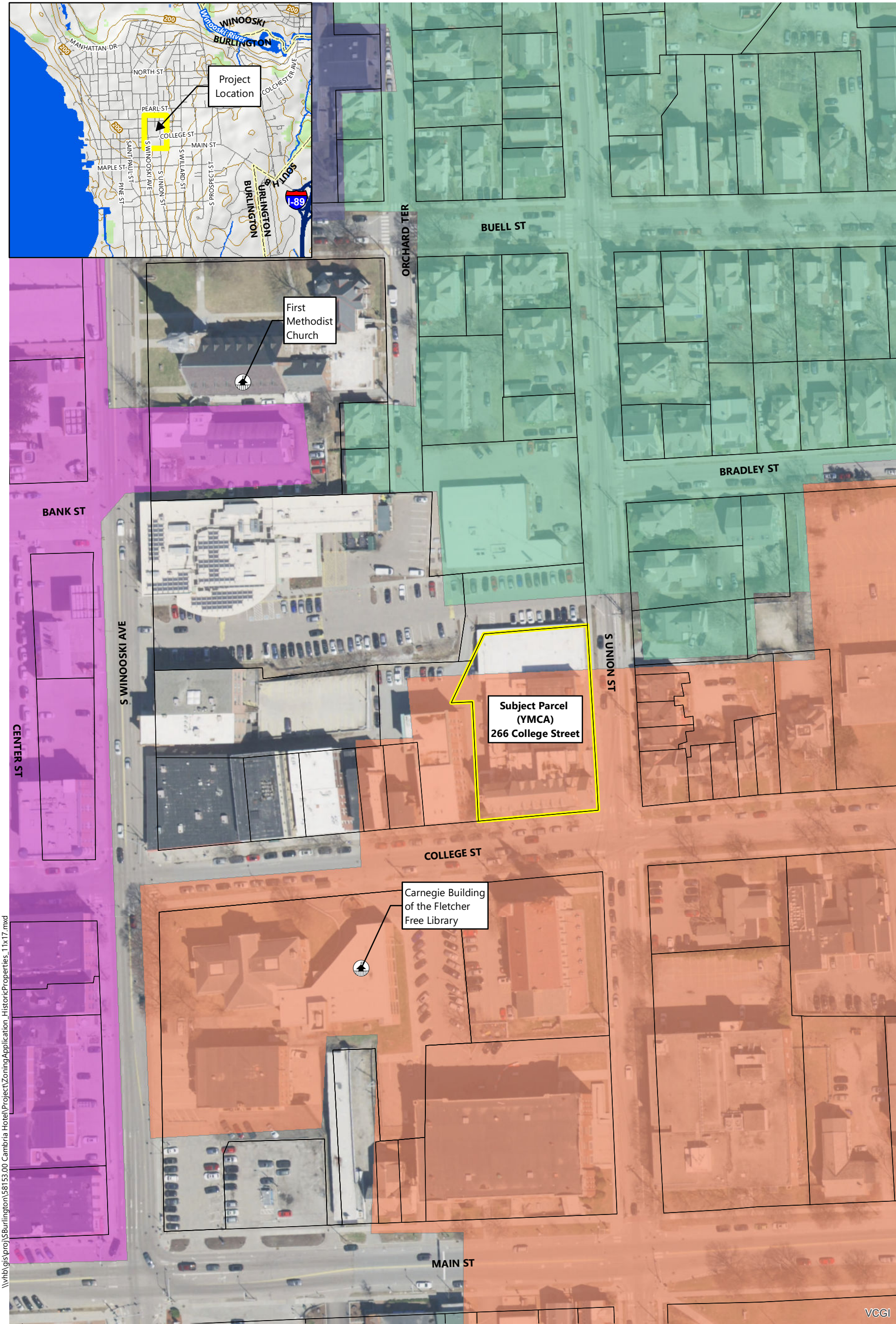












\\vhb\gis\proj\Burlington\58153.00 Cambria Hotel\Project\ZoningApplication_HistoricProperties_11x17.mxd



Cambria Hotel - 266 College Street

Burlington, Vermont

- 

Individually Listed Resource
(National Register Listed; BOD)
- 

Parcel Boundary (VCGI)
- Burlington Historic Districts (National Register Listed; BOD)**

 -  Buell and Bradley District
 -  Church Street Historic District
 -  Main Street / College Street District
 -  Pearl Street District

Historic Properties Map

Sources:
Background Imagery by VCGI (Collected in 2018)
BOD (Burlington Open Data - 2017)
VCGI (Vermont Center for Geographic Information - 2018)

SMITH BUCKLEY ARCHITECTS

Department of Planning and Zoning
City Hall
149 Church Street
Burlington, VT 05401

June 7, 2019

Re: 266 College Street Historic Structure Demolition and Adaptive Reuse

Department of Planning and Zoning;

The following is provided in support of the zoning permit application to create a new hotel at 266 College Street on the site of the historic YMCA (Y) building. The design for this project includes saving and occupying a portion of the existing structure at the corner of College and S. Union Streets, and demolishing the remainder of the existing structure.

Demolition:

The portion of the existing structure that we propose to demolish was purpose-built to be an athletic facility.

The following reasons make adaptive reuse infeasible:

- This section of the building contains numerous floor levels that do not support a hotel occupancy, and to which it will be difficult, if not impossible to provide wheelchair access.
- The building has been renovated and altered since it was first built, including removal of all street facing windows and openings filled in with brick.
- Even if windows remained, the openings are located well above or below street level, which creates an opaque street wall, which is inconsistent with the stated goals of the City's Form District zoning.
- Documentation of the existing foundations does not exist, so adding additional floors and building weight will require installing new foundations/footings which cannot be done without substantial disturbance of the existing structure.
- The site currently only provides 6-7 parking spaces that are used by YMCA staff. These spaces are below the requirements for the existing use, and are insufficient to support any economically viable development of this property. There is no space on this site to provide parking outside of the building footprint, so we propose to create a new below-grade garage for 77 cars. Constructing this garage requires excavating below current foundations and building right up to both east and west property lines, with a footprint larger than that for the existing building. There is no technologically and economically viable way to provide parking on this site without removing the portion of the existing building we propose to demolish.

Adaptive Reuse:

Most of the portion of the existing Y that will be kept is located along College Street, and can be identified by its gabled roofs. In addition, a portion of the flat roofed building just north of the gabled structure, (approximately 9' long "hyphen") will be retained to provide a transition between old and new construction. Historic construction will be incorporated into the current project, with an enlarged main hotel entrance created in the east face where an accessible entry now exists. The ground floor will be used as part of the hotel lobby and check in area, and upper floors will be converted into guest rooms. Using the Y for lodging is consistent with historic use, which included providing temporary lodging for young men. The lowest below-grade level will continue to be used for mechanical and back-of-house functions.

SMITH BUCKLEY ARCHITECTS

The approach proposed for renovating this structure includes:

- Repair/repoint exterior masonry walls
- Replace existing wood and vinyl (on upper level) windows with aluminum clad wood windows with insulated glass. The existing wood windows are severely damaged and our assessment is that they cannot be effectively refurbished. New window frame profiles will be selected to match existing as closely as possible, and lights will have the same divisions (6 over 6) as existing. New windows will not have storm windows.
- The bricked in window opening on level 2 in the hyphen will be opened, and a new window will be installed
- Fire escapes will be completely removed
- Existing wood trim at eaves will be stripped and painted, and any damaged areas will be replaced/repainted to match existing.
- Slate roofs will be maintained and repaired as necessary. A canopy is proposed to be installed on the College Street facade in order to address a long standing problem with snow and ice falling from the gabled roof onto the sidewalk below.
- Existing south facing dormers and 2 dormers on northeast corner will be retained and utilized to provide daylight to upper hotel rooms.
- The existing arched entrance on College Street will remain as an active secondary entrance to the hotel.
- Existing wood gabled sign box next to the college street entrance appears to be original, and will be saved and kept in place.
- Non-structural elements of the interior of this structure will be almost completely removed and replaced with new partitions, systems, and finishes
- The building will be reinforced to bring it into compliance with current structural building codes

We believe the approach to developing this site outlined above is responsible and respectful of the existing historic structure. We have designed a project that will contribute positively to the City, and we anticipate the historic portion we intend to keep and renovate will become a valuable feature that helps define the identity of the new hotel.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Cleary Buckley', with a stylized flourish extending to the right.

Cleary Buckley, Architect
cb@sbavt.net

Photographs



Photograph 1: South elevation of YMCA building.



Photograph 2: South elevation of YMCA building

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 3: Vinyl replacement windows visible on fourth floor of the south elevation. The slate roof will be repaired as needed following the Secretary of the Interior's Standards for the Treatment of Historic Properties



Photograph 4: West wing of the main block of the building. The new hotel building addition will extend to the west (left) of this wing but will be set back from the main façade.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 5: Existing fanlight above main entrance of south elevation; this will be preserved and will be more visible once the awning is removed and replaced with a higher canopy.



Photograph 6: Detail of replacement windows on basement of south elevation, as well as modern entrance stairs and awning on south elevation

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 7: Overview of south elevation, looking east. Proposed for this elevation are a canopy, ramp and raised seating area to activate the streetscape. The entrance to the parking garage will be in the foreground, where the western portion of the new hotel building addition is proposed.



Photograph 8: South and east elevations of the YMCA building.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 9: East elevation of YMCA building. The gabled wing at left will be remodeled to serve as the primary entrance. The quarter fan lights will be preserved. One bay of the hyphen (at center) will be preserved to connect the historic building to the new hotel addition, which will replace the existing gymnasium at right. The fire escape will be removed.



Photograph 10: North elevation of gabled east entrance wing. This wing will be retained, but it will be remodeled with new siding applied over the brick. The masonry will be repaired and repointed as needed following the Secretary of the Interior's Standards for the Treatment of Historic Properties.



Photograph 11: East elevation of the 1934 gymnasium and pool wing along S. Union Street. The windows were infilled with brick sometime before the mid-1970s. This addition is proposed to be removed and replaced with the new hotel building.



Photograph 12: East elevation of the gymnasium and pool wing and the one-story pool wing added in 1984. Both of these wings will be removed and replaced with the new hotel building. The College Street Congregational Church steeple is visible beyond and will still be visible from this vantage point after the new hotel building is erected.



Photograph 13: North elevations of the 1934 and 1984 pool/ gymnasium wings. Note the infilled windows on the north façade of the gymnasium. Beyond is the College Street Congregational Church steeple.



Photograph 14: North elevations of the building, beyond which is the College Street Congregational Church steeple.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 15: North and west elevations of the building. The north additions in the foreground will be removed and replaced with the new hotel building, which will extend further west than the existing building.



Photograph 16: North and west elevations of the building. Note the replacement windows on the west façade of the gymnasium wing, which are not compatible with the Colonial Revival style of the historic building.



Photograph 17: Existing driveway and parking area along the west façade of the YMCA building. The new building will extend further west than the existing building.



Photograph 18: Detail of altered west elevation of the gymnasium addition. Note the infilled windows and replacement windows. The new building will extend further west in the location of the existing parking spaces.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 19: Detail of existing boiler room entrance on the west elevation. Note the one remaining, historic, multi-light casement window; most of these were removed at some point and the openings infilled with brick.



Photograph 20: Additional view of the west elevation of the gymnasium addition. The parking spaces mark the approximate edge of the proposed new building. The small wing at far right will also be removed and replaced with the new building.



Photograph 21: Looking south from the west edge of the property towards College Street. The entrance to the new underground parking garage will be in this approximate location.



Photograph 22: View of the west elevation of the south block of the building. The exterior chimney, visible at center right, will be retained, and the new hotel building addition will extend to the north from the chimney. The entrance to the new underground parking garage will be in this approximate location.



Photograph 23: View of the upper west elevation of the south block of the building. The new addition will extend north from about the middle of the existing exterior chimney.



Photograph 24: Interior of the lobby of the east gabled wing. The wing will be retained as the primary entrance, but the interior will be remodeled.



Photograph 25: Interior of the main hallway on the ground floor of the existing YMCA building's south block. The interior will be completely remodeled for the hotel.



Photograph 26: Interior of main lobby accessed via College Street entrance at center. The interior will be completely remodeled, although this entrance will remain.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 27: Interior view of representative wooden sash windows on the first floor of the south elevation. The historic wooden, sash windows are in fair condition throughout and are proposed to be replaced.



Photograph 28: Example of broken sash cord on an historic wooden window on south elevation. Many of the historic windows have deteriorated or broken sash cords.



Photograph 29: Example of deteriorated historic window at the south elevation interior.



Photograph 30: Example of deteriorated historic wooden window on the south elevation.



Photograph 31: Example of deteriorated historic wooden window on the south elevation.



Photograph 32: Interior of existing, 1934 gymnasium wing proposed to be replaced by the new hotel building. Note the contrasting tiles and painted concrete located in the former window openings.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 33: Interior of the existing, basement-level pool in the 1934 gymnasium/ pool wing. Note the contrasting tile in the former window openings. This wing is proposed to be replaced by the new hotel building and two levels of underground parking.



Photograph 34: Interior of the one-story, 1984 north pool wing which is proposed to be replaced by the new hotel building.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019

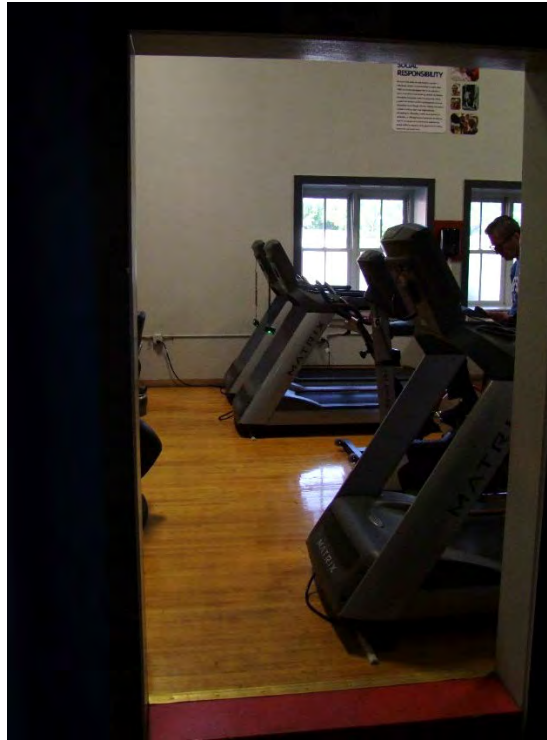


Photograph 35: Interior of the women's locker room of the 1934 pool/ gymnasium wing to be removed. The locker room appears to be in its historic location and features some historic finishes.

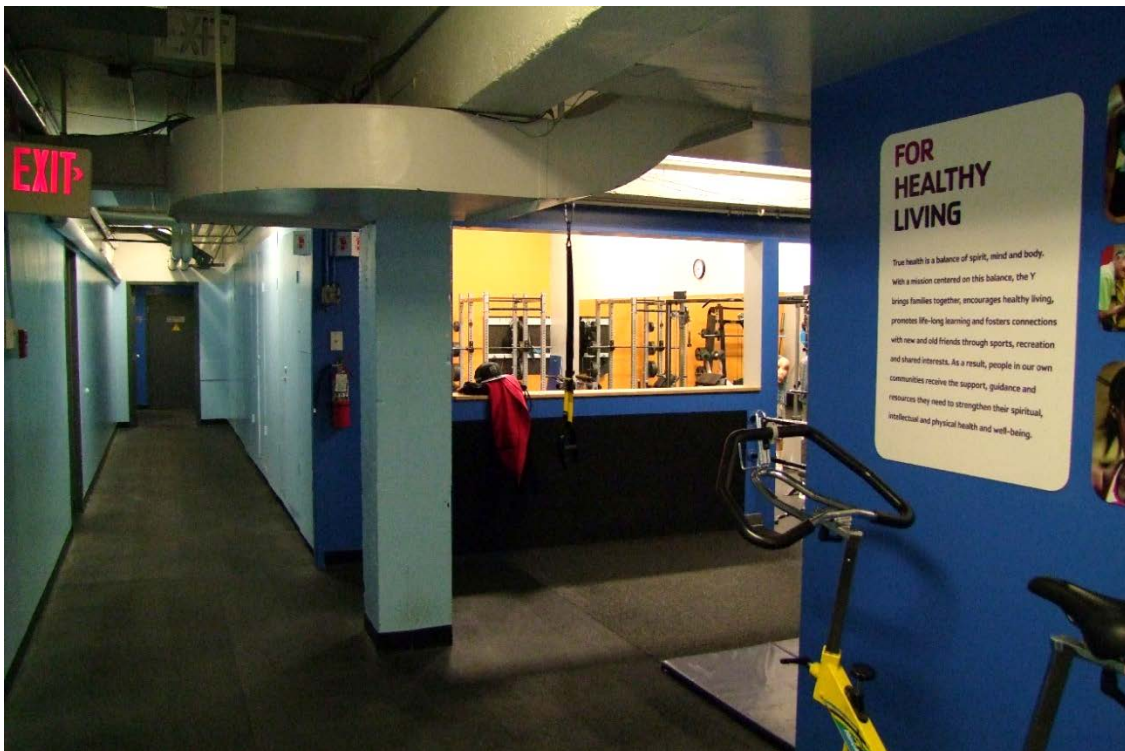


Photograph 36: Former bowling alley converted into a fitness center in the basement of the 1934 pool/ gymnasium wing proposed to be replaced by the new hotel building.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 37: Former squash court converted into a fitness center with replacement windows in the 1934 pool/ gymnasium wing to be replaced by the proposed hotel building.



Photograph 38: Interior of the remodeled fitness center within the 1934 pool/ gymnasium wing to be replaced by the new hotel building.



Photograph 39: Representative interior hallway within the main south block of the YMCA building. This portion of the building, which historically contained boarding rooms, will be preserved and converted into hotel rooms. The interior will be remodeled for the new hotel.



Photograph 40: Interior of an existing office on the fourth floor in the east portion of the main south block of the YMCA. The existing quarter fanlight will be preserved.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019

The following four photographs were captured by a drone operated by VHB on March 25, 2019:



Photograph 41: Birds-eye view of the existing YMCA building, looking southwest. The two wings – the 1934 central wing and the 1984 north wing – are clearly visible. This photo displays the existing building within its neighborhood context.



Photograph 42: Bird's-eye view of the existing YMCA building, looking northwest. This photo displays the existing building within its neighborhood context.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019



Photograph 43: Bird's eye view of the YMCA building, looking east-northeast. The multiple stories and additions on the north gymnasium and pool additions of the building are clearly visible from this location, as is the neighborhood context.



Photograph 44: Birds-eye view of the YMCA building, looking south. Clearly visible are the multiple additions and rooflines of the 1934 pool/ gymnasium addition proposed to be replaced by the new hotel building.

Photographer: Britta Tonn and Jeff Zweber, VHB
Photographs Taken: June 7 and May 31, 2019

Figures

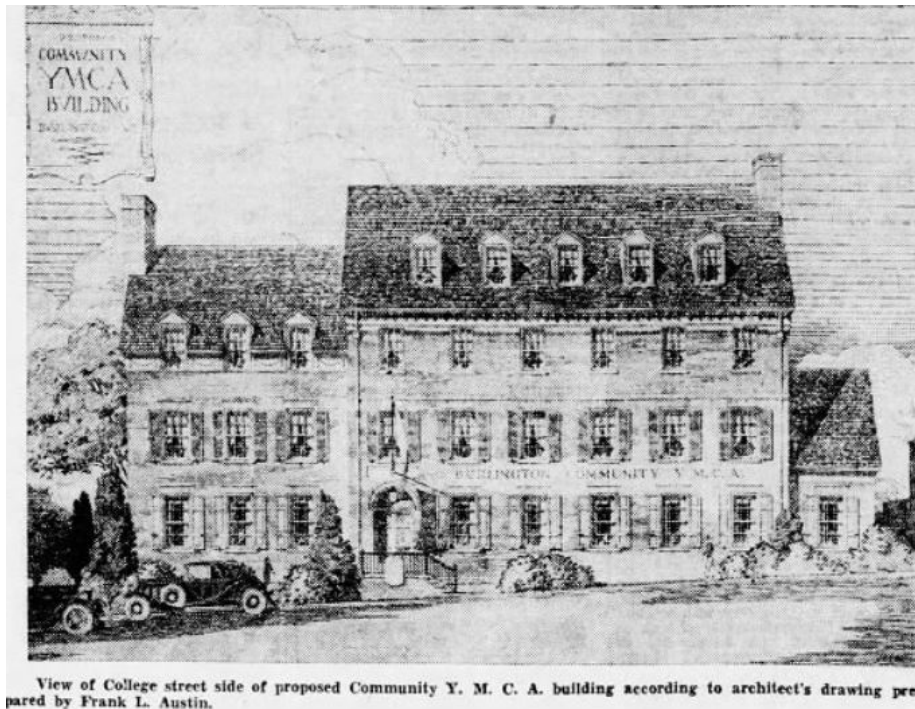


Figure 1: Drawing of the proposed new YMCA building by Architect Frank L. Austin, published in the *Burlington Free Press* on June 5, 1933. Figure courtesy of newspapers.com (www.newspapers.com/image/197389544, accessed June 21, 2019)



Figure 2: 1934 photograph of the new YMCA building, published in the *Burlington Free Press* on December 10, 1934 following the building's dedication on December 9. Figure courtesy of newspapers.com (<https://www.newspapers.com/image/197359734>, accessed June 21, 2019)



Figure 3: Circa 1940 postcard of the YMCA building. Figure courtesy of Greater Burlington YMCA.



Figure 4: October 7, 1939 photograph of the rear gymnasium wing of the YMCA (indicated by arrow) when the gymnasium windows were still extant. Photo courtesy of Henry Sheldon Museum via UVM Landscape Change Program (#LS16522).

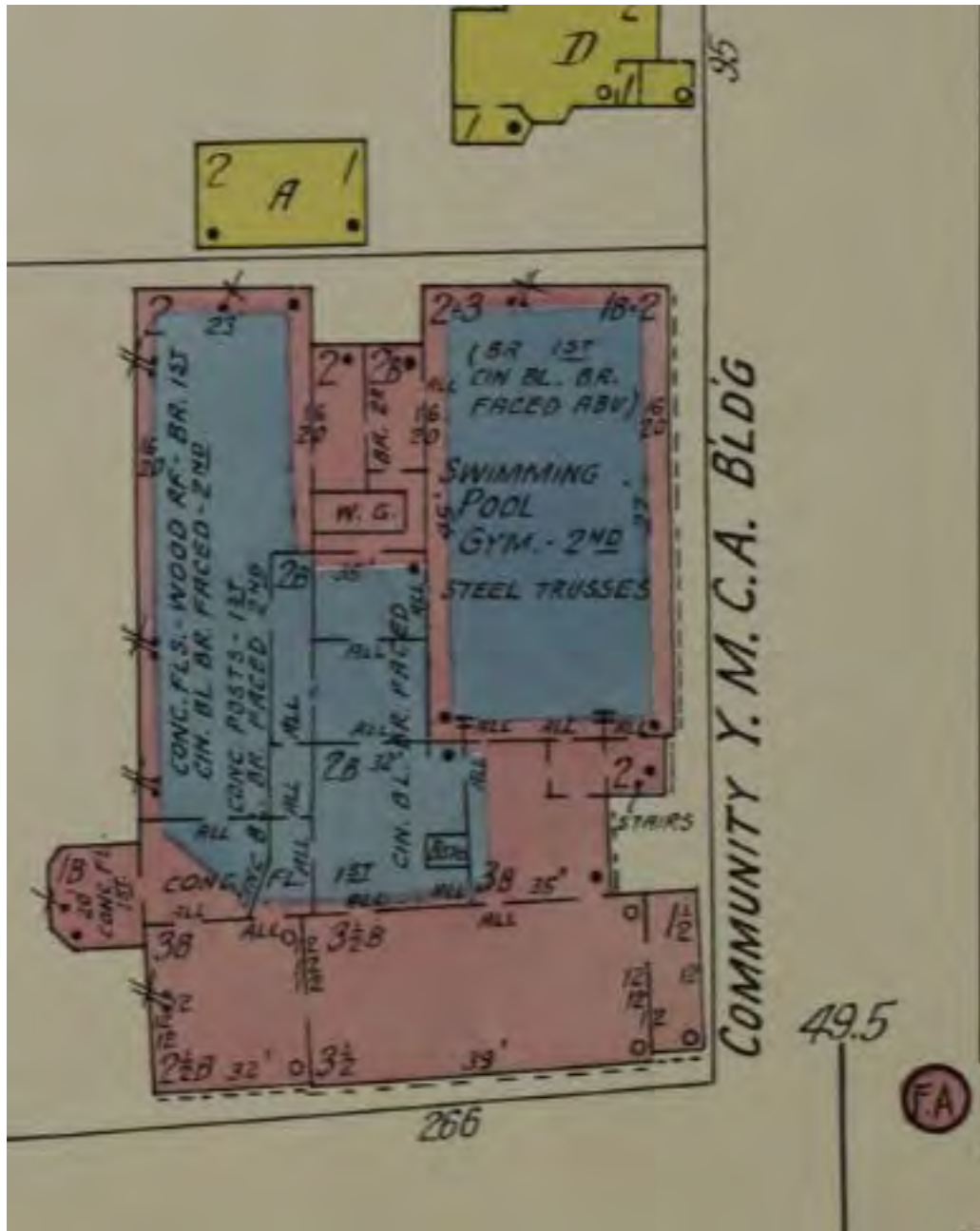


Figure 5: 1942 Sanborn Fire Insurance Company map of the Community YMCA Building. Map courtesy of Vermont Historical Society.



Figure 6: Circa 1930s photograph of the YMCA gymnasium interior by Louis McAllister. Photo courtesy of UVM Special Collections Louis McAllister Photograph Collection, Box A1, Folder 4, Item 8.

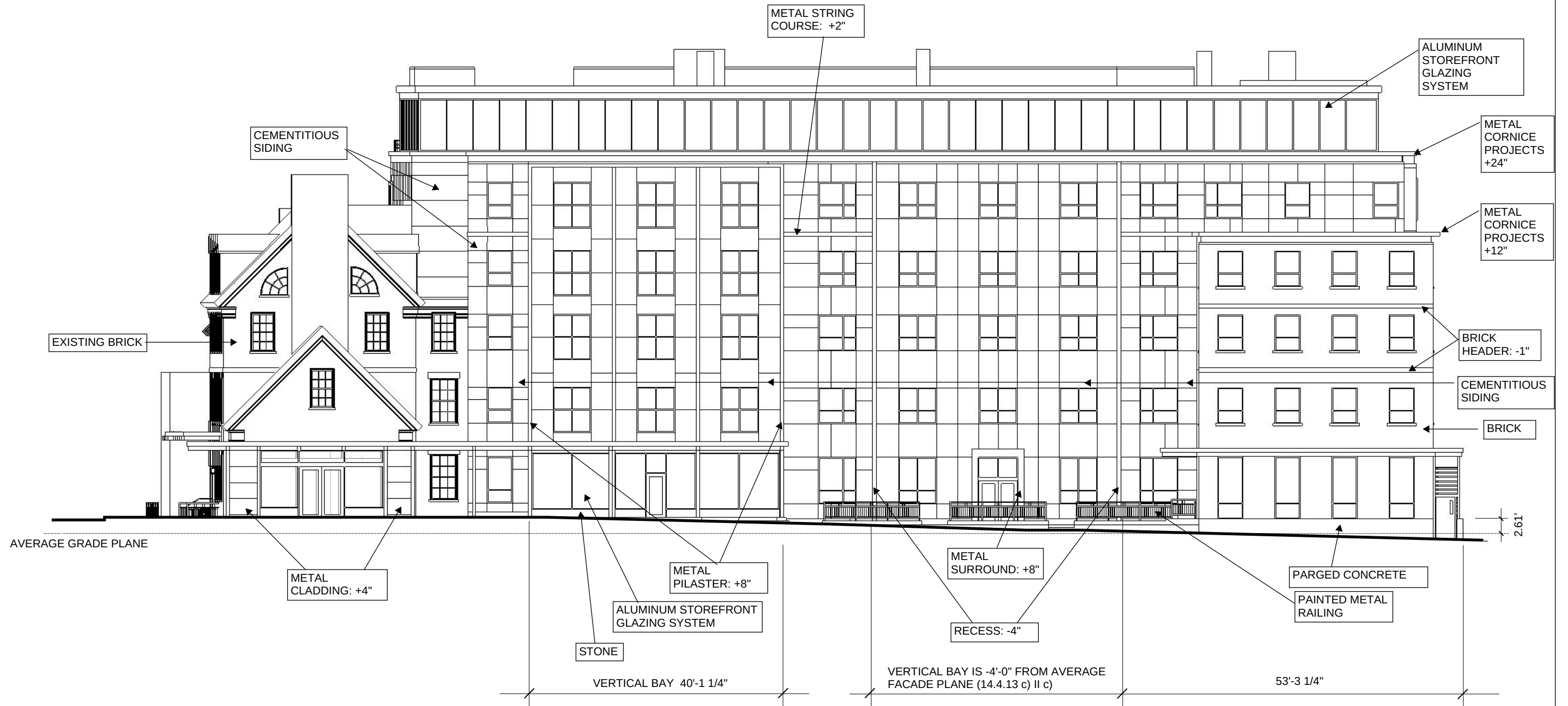


Figure 7: March 24, 1965 aerial photograph depicting the YMCA building with the gymnasium windows infilled with brick (see arrow). Image courtesy of UVM Special Collections via UVM Landscape Change Program (#LS37426).

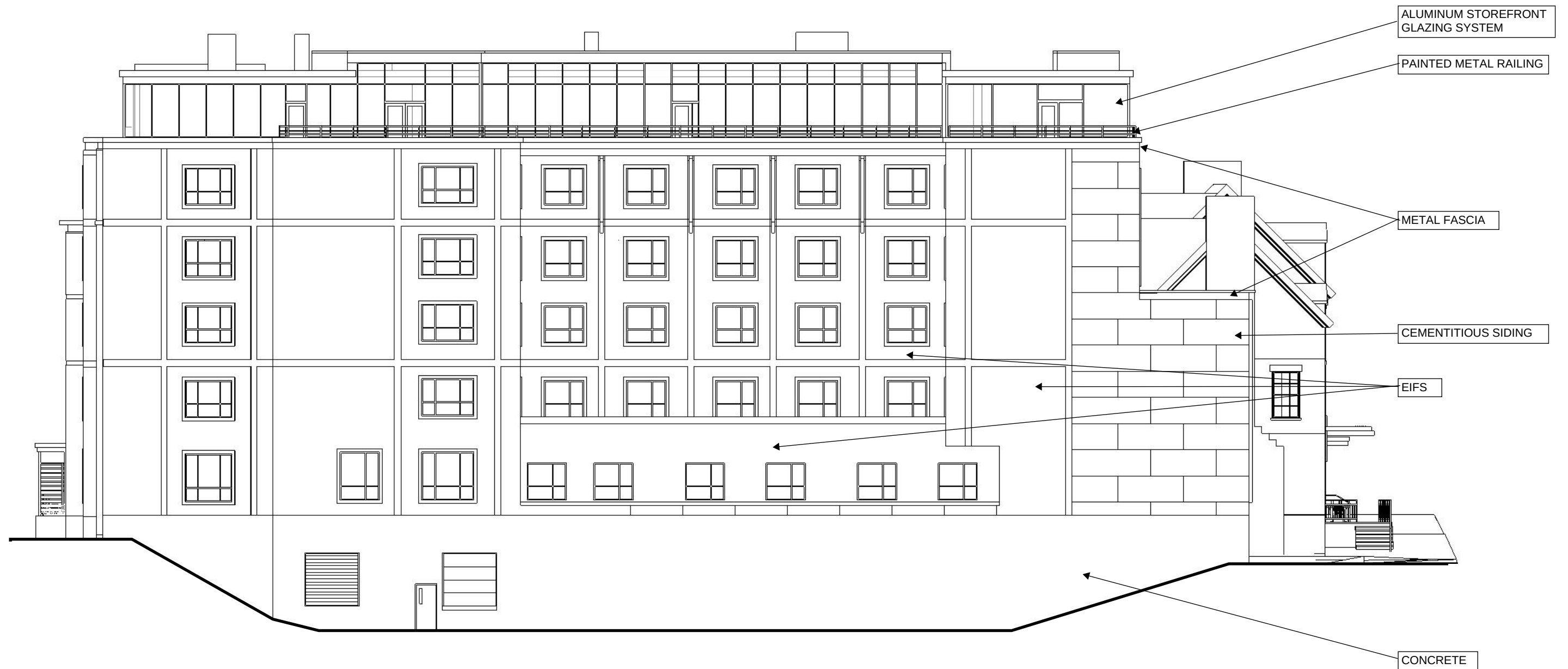


Figure 8: 1988 photograph of the YMCA from the Main Street – College Street Historic District National Register nomination. Photo courtesy of Vermont Division for Historic Preservation.

















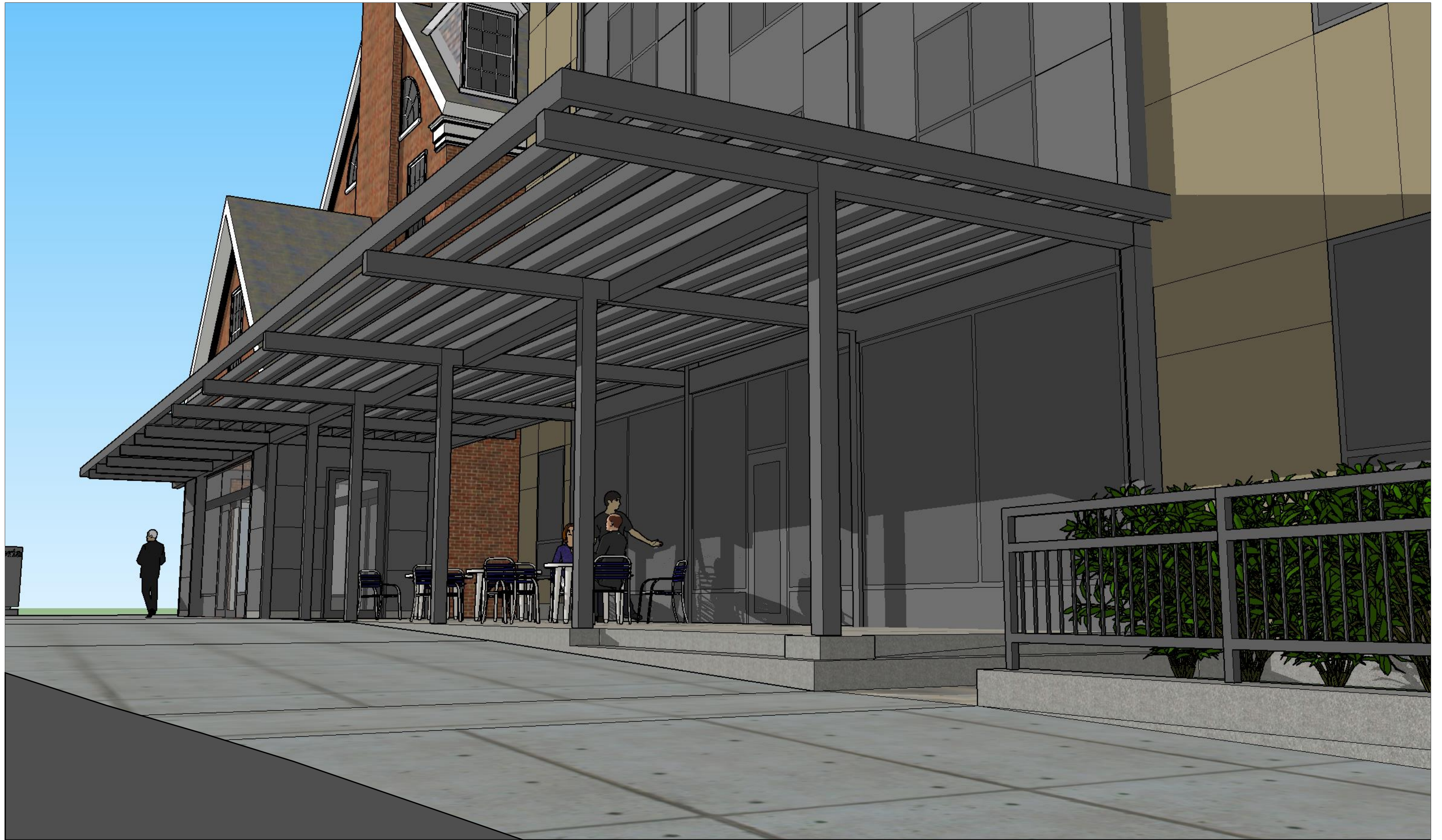






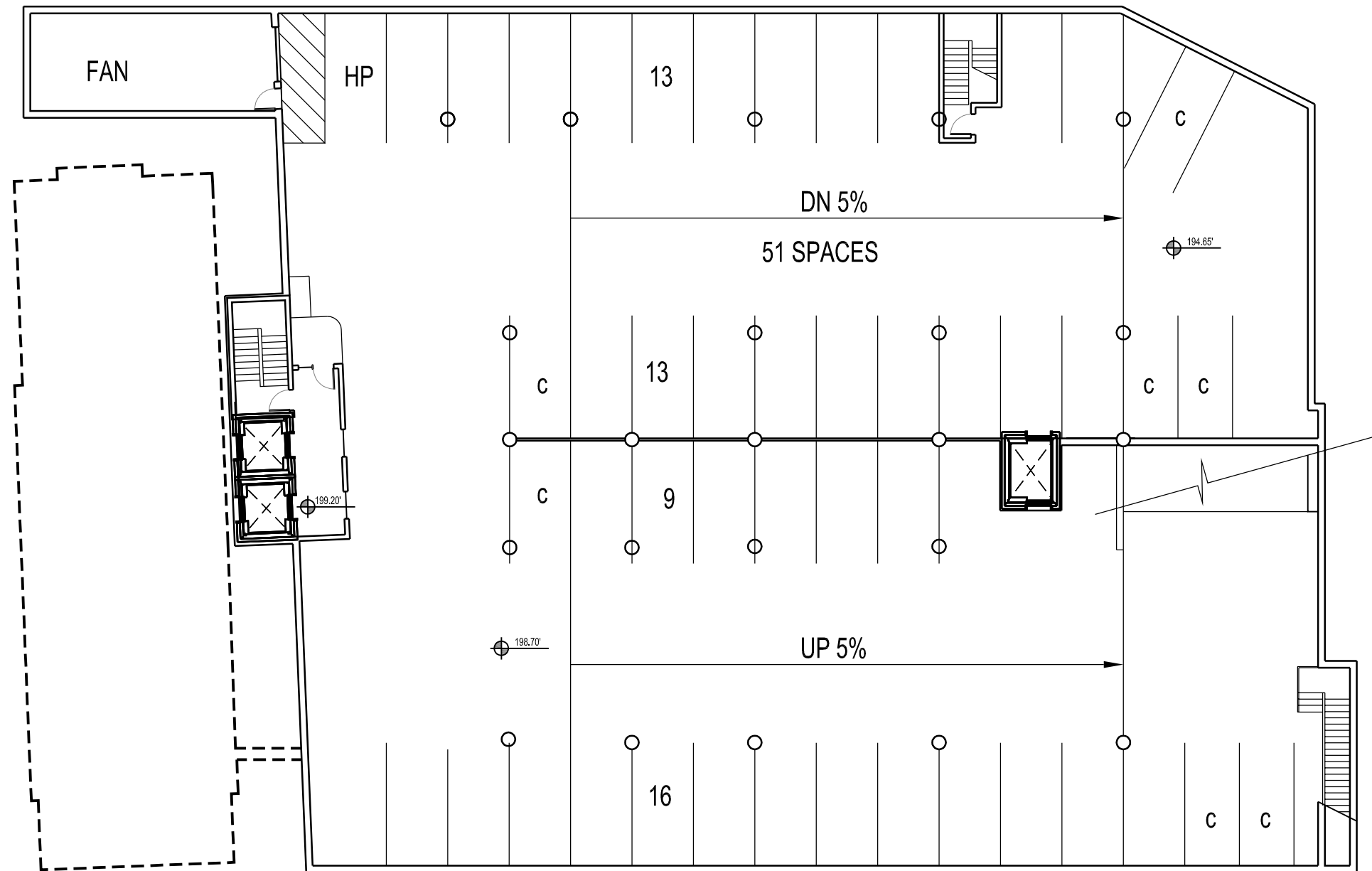


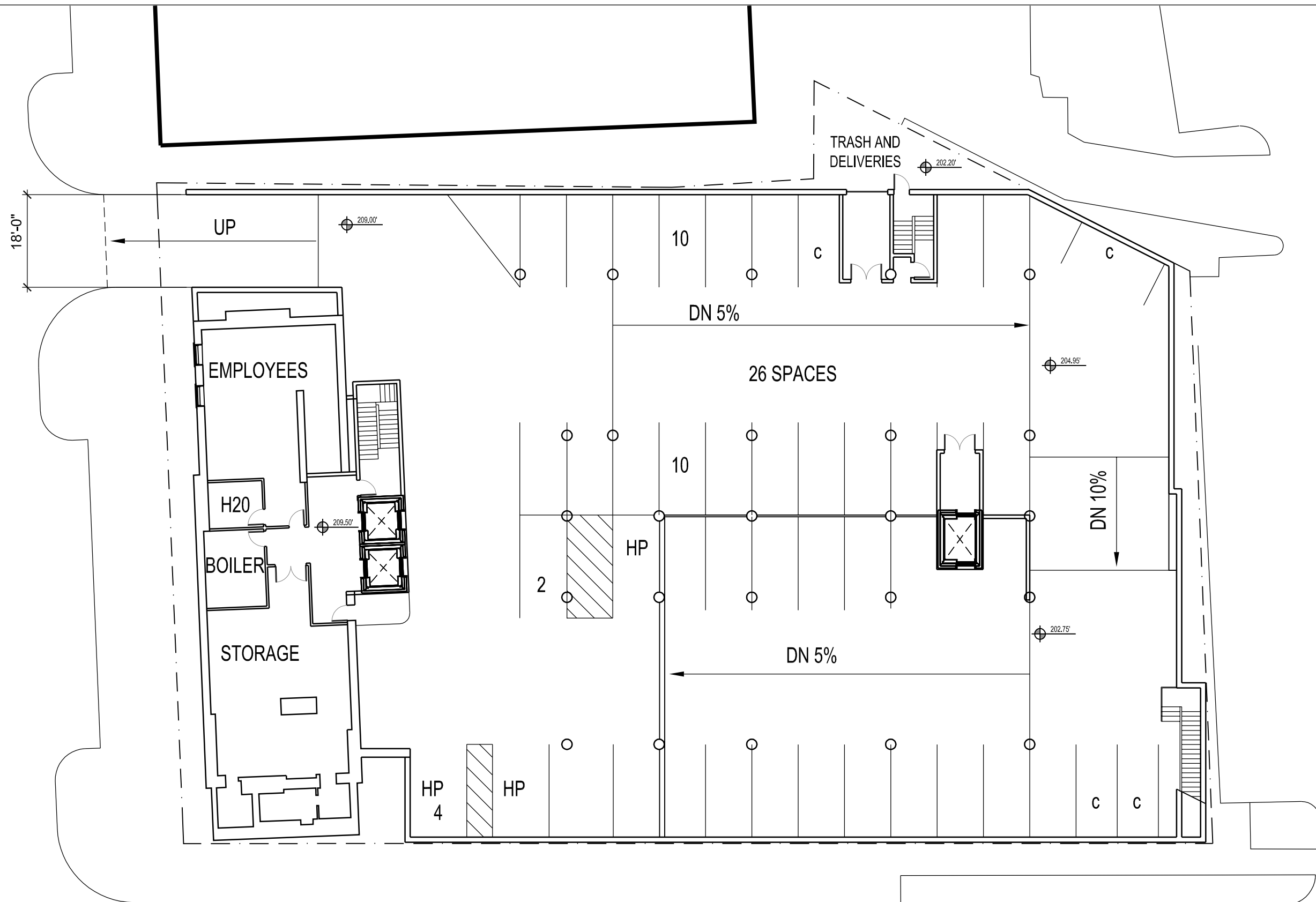












COLLEGE

SOUTH UNION

LOUNGE/
MEETING
680 sf

KITCHEN
500 sf

OFFICE
200 sf

FITNESS
990 sf

LAUNDRY
905 sf

RECEPTION/
LOUNGE/
DINING
3200 sf

OFFICE
350 sf

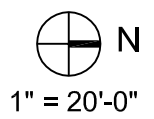
Planter

Planter



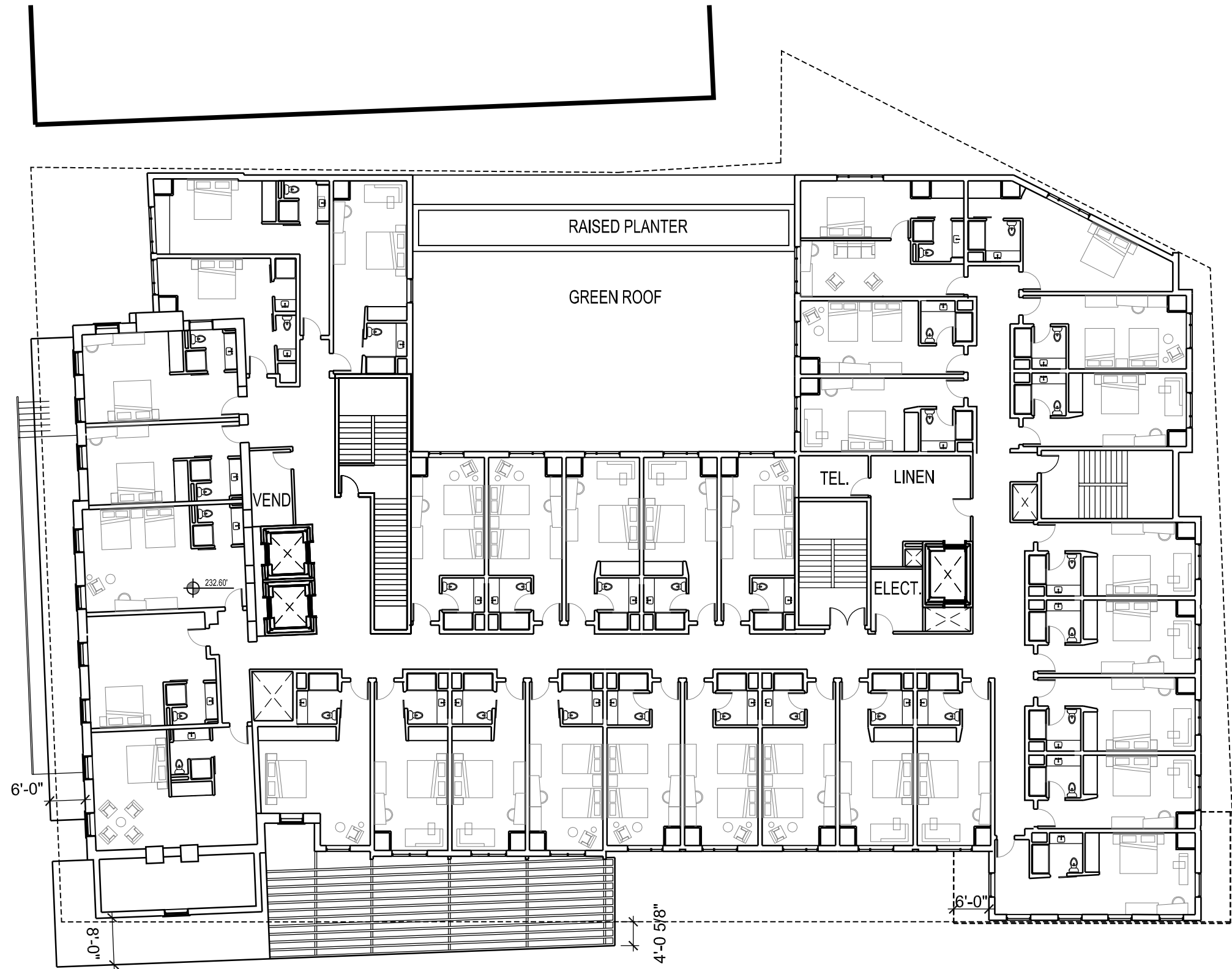
Smith / Buckley Architects
431 Pine St. Ste. 210
Burlington, VT 05401
802-540-0323

CAMBRIA HOTEL
266 College Street, Burlington, VT

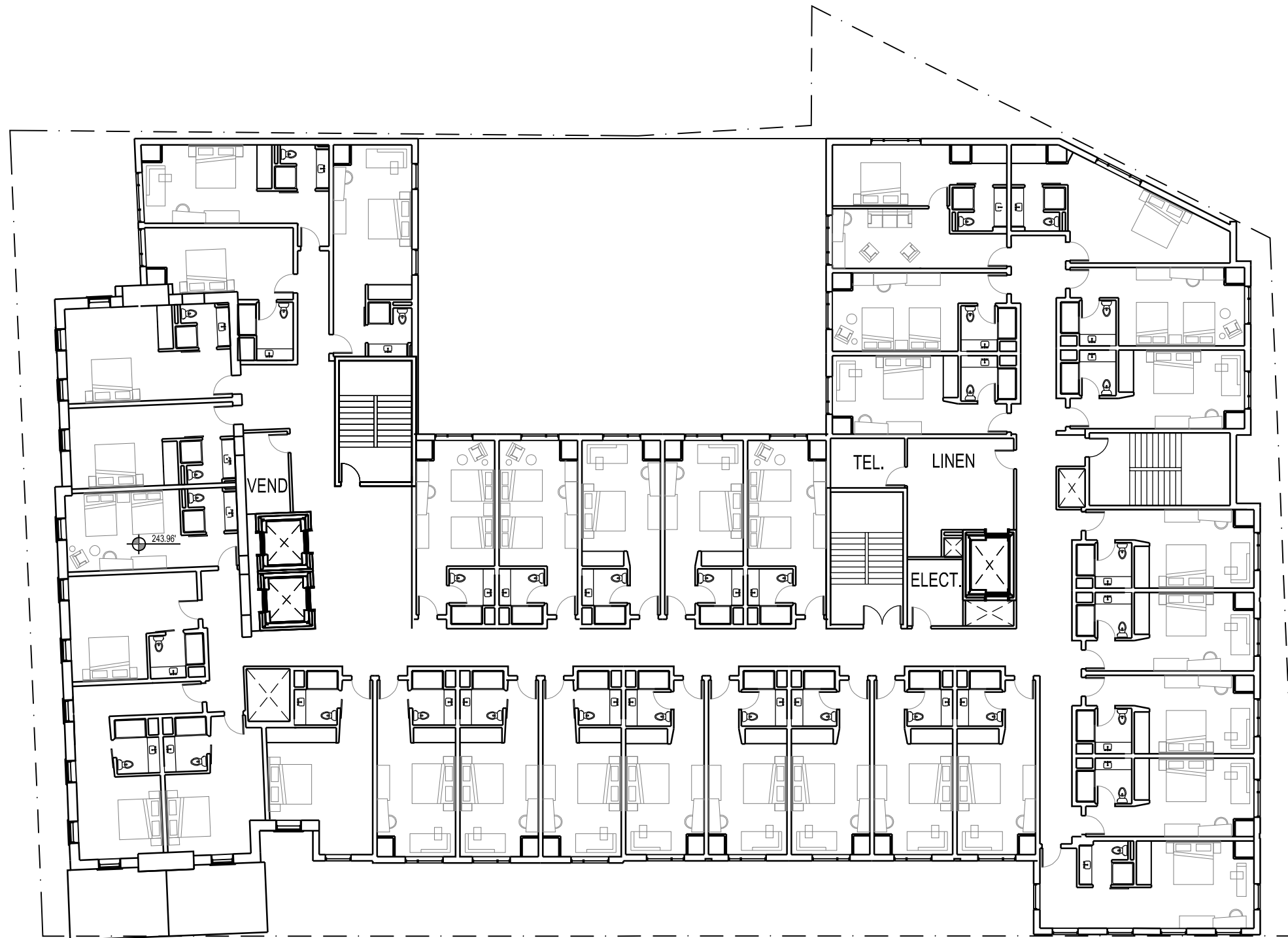


LEVEL 1 - A

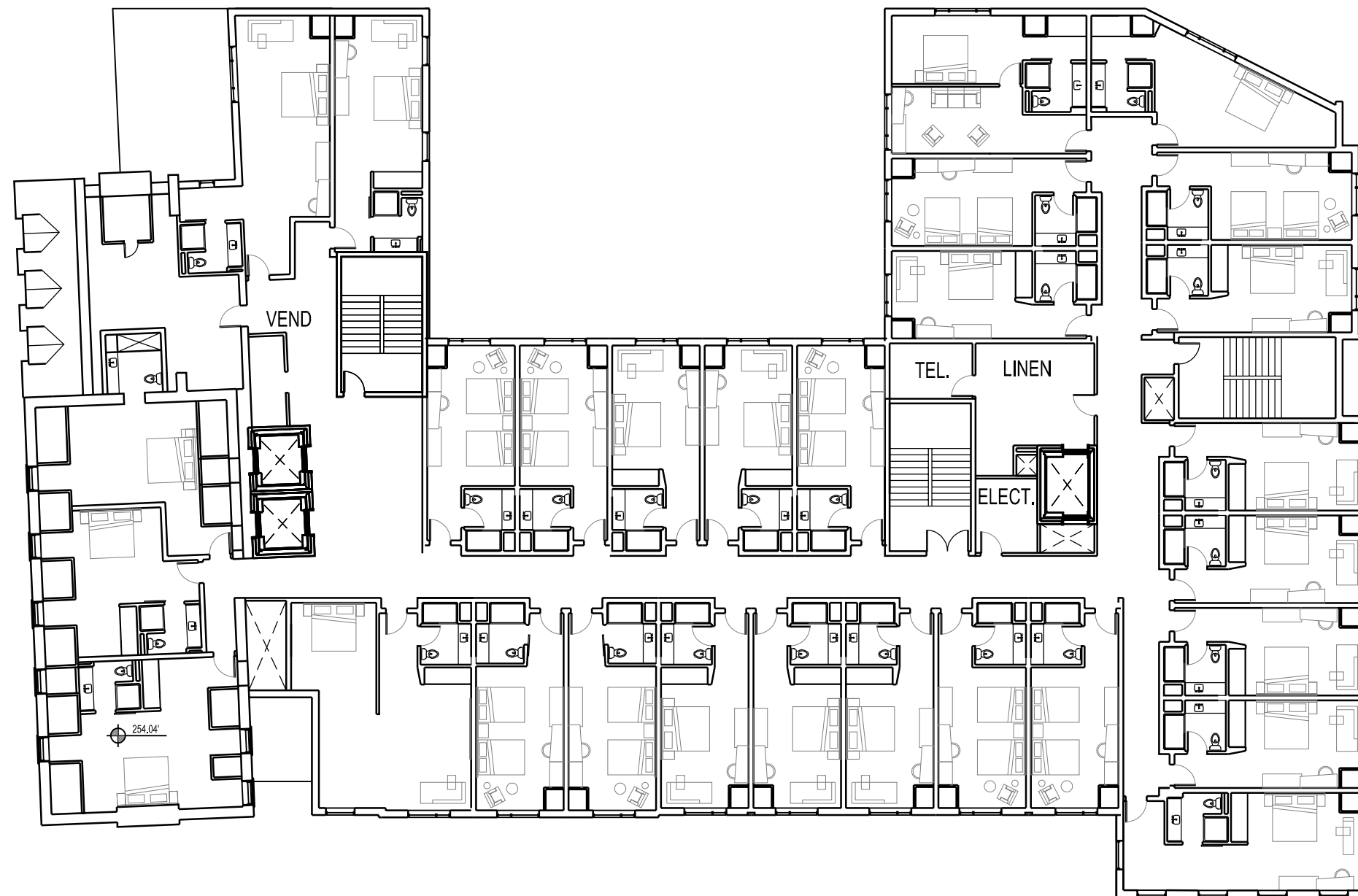
June 5, 2014



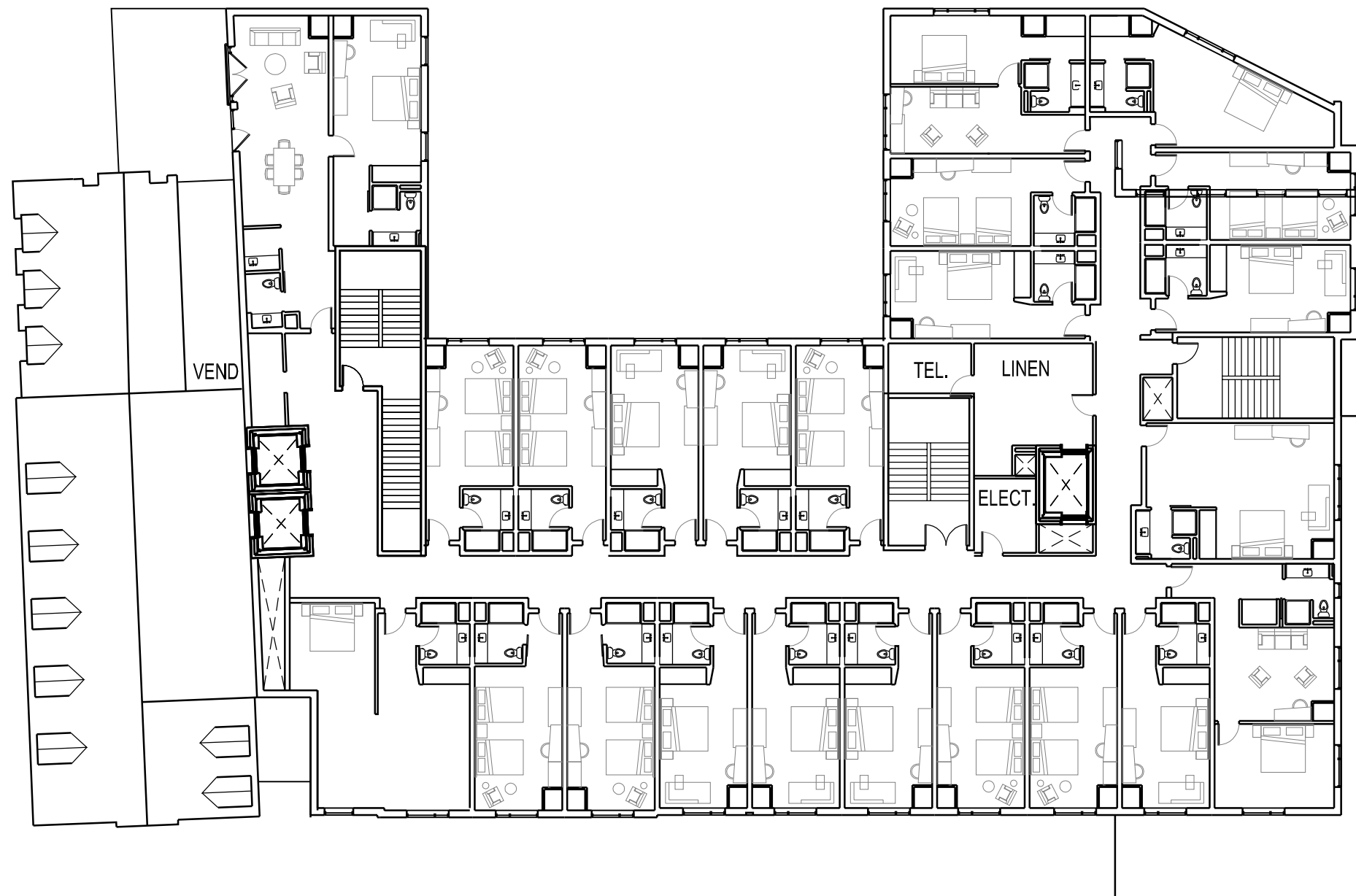
33 ROOMS



34 ROOMS



29 ROOMS

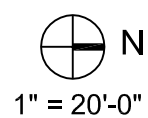


24 ROOMS



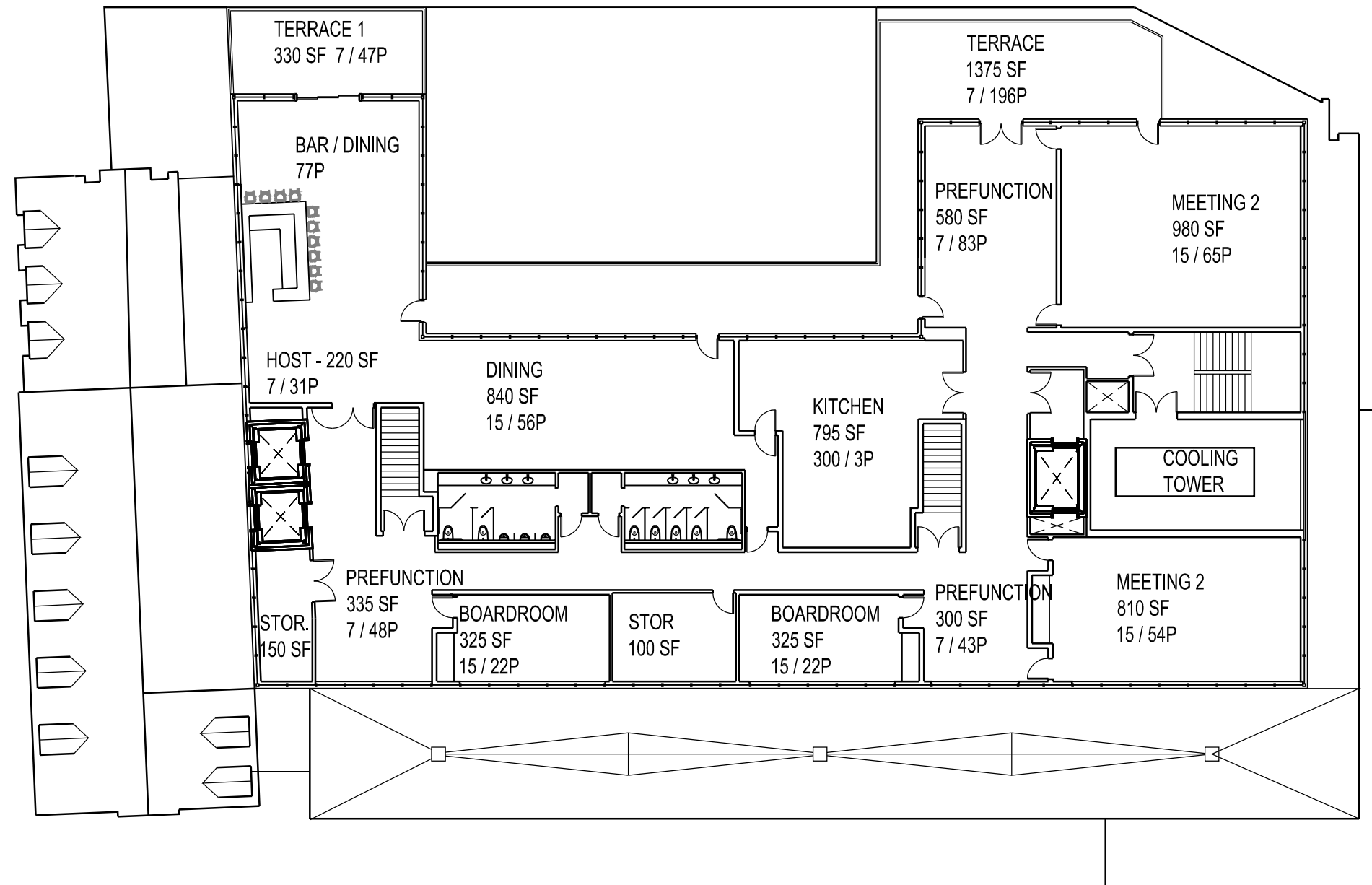
Smith / Buckley Architects
431 Pine St. Ste. 210
Burlington, VT 05401
802-540-0323

CAMBRIA HOTEL
266 College Street, Burlington, VT

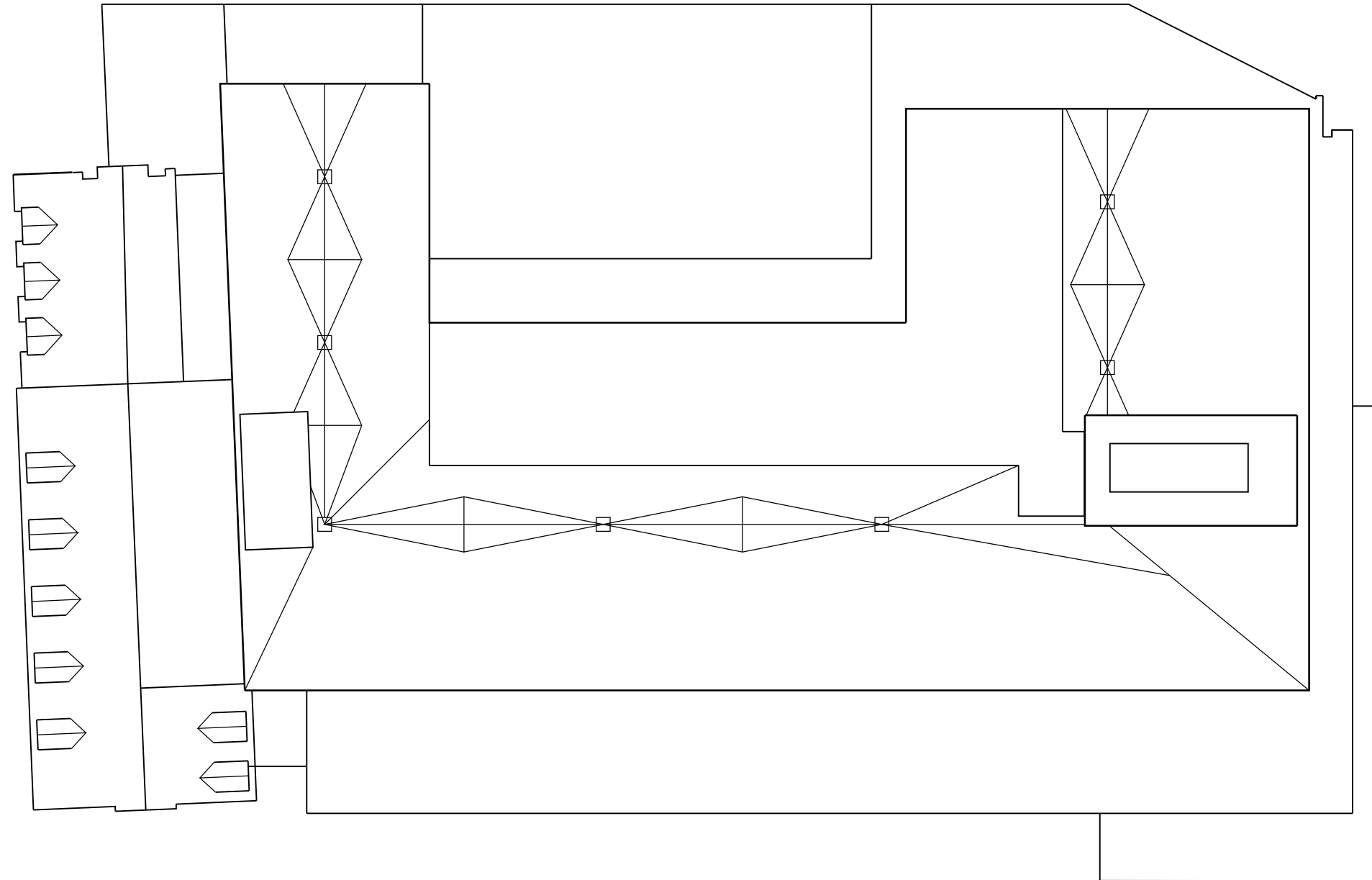


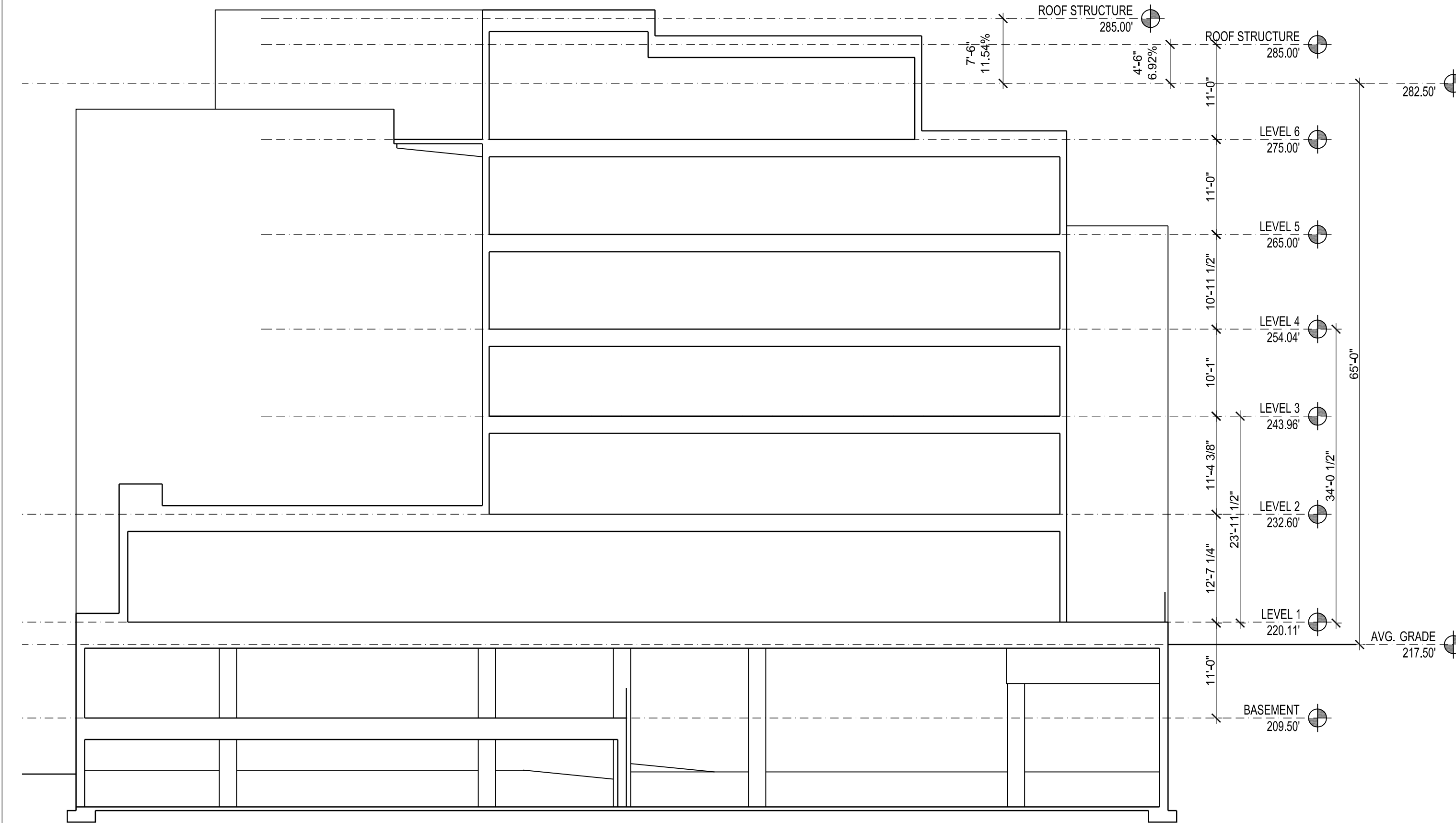
LEVEL 5 - A7

June 5, 2019



748 TOTAL
OCUPANTS





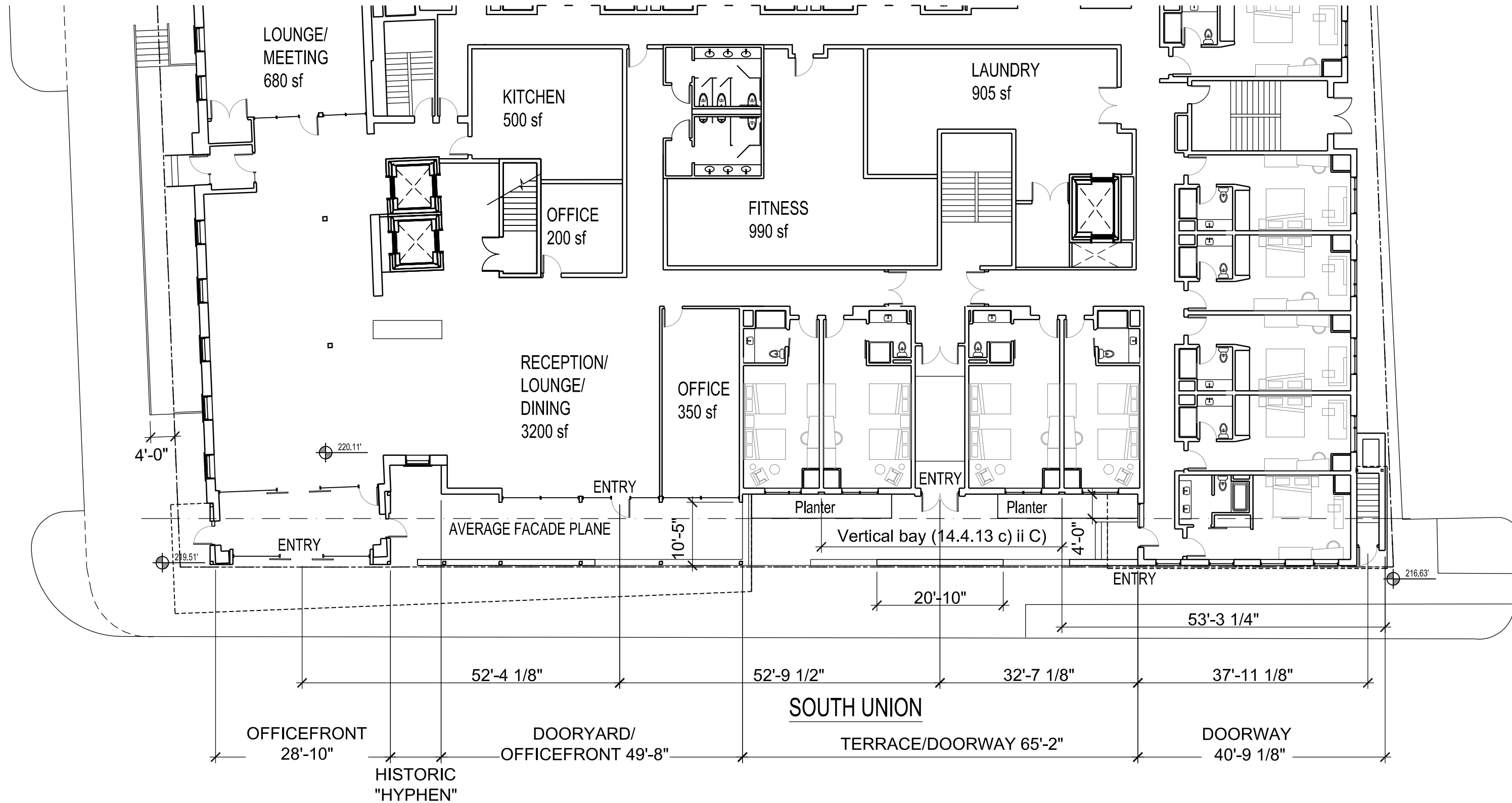
Smith / Buckley Architects
431 Pine St. Ste. 210
Burlington, VT 05401
802-540-0323

CAMBRIA HOTEL
266 College Street, Burlington, VT

3/32" = 1'-0"

SECTION - A

June 5, 2011



Site Plans

Issued for	Zoning Permit Application
Date Issued	June 26, 2019
Latest Issue	-

Cambria Hotel

266 College Street
Burlington, Vermont





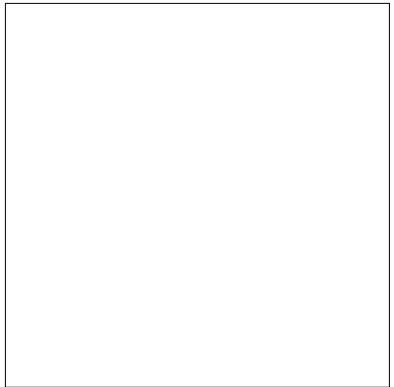
vhb.com

vhb

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Sheet Index		
No.	Drawing Title	Latest Issue
C-1.0	Legend and General Notes	June 26, 2019
C-1.1	Existing Conditions Plan	June 26, 2019
C-2.1	Site Plan	June 26, 2019
C-3.1	Grading and Drainage Plan	June 26, 2019
C-4.1	Utility Plan	June 26, 2019
C-5.1	Erosion Prevention & Sediment Control Plan	June 26, 2019
C-6.1	Storm Profile	June 26, 2019
C-7.1	Site Details 1	June 26, 2019
C-7.2	Site Details 2	June 26, 2019
C-7.3	Site Details 3	June 26, 2019
C-7.4	Erosion Prevention and Sediment Control Details	June 26, 2019
L-1.0	Landscape Plan	June 26, 2019
L-1.1	Landscape Details	June 26, 2019
L-1.2	Landscape Details	June 26, 2019
L-2.0	Lighting Plan	June 26, 2019
SW-1	Proposed Stormwater Management Plan	June 26, 2019
SW-2	Proposed Stormwater System Maintenance Plan	June 26, 2019

Reference Index		
No.	Drawing Title	Latest Issue
D-1	City of Burlington Water System Details	March 20, 2017



Legend

Exist.	Prop.		Exist.	Prop.	
		PROPERTY LINE			CONCRETE
		PROJECT LIMIT LINE			HEAVY DUTY PAVEMENT
		RIGHT-OF-WAY/PROPERTY LINE			BUILDINGS
		EASEMENT			RIPRAP
		BUILDING SETBACK			CONSTRUCTION EXIT
		PARKING SETBACK			
		BASELINE	27.35 TC x	27.35 TC x	TOP OF CURB ELEVATION
		CONSTRUCTION LAYOUT	26.85 BC x	26.85 BC x	BOTTOM OF CURB ELEVATION
		ZONING LINE	132.75 x	132.75 x	SPOT ELEVATION
		TOWN LINE	45.0 TW x	45.0 TW x	TOP & BOTTOM OF WALL ELEVATION
			38.5 BW x	38.5 BW x	
		LIMIT OF DISTURBANCE			TEST PIT LOCATION
		WETLAND LINE WITH FLAG			MONITORING WELL
		FLOODPLAIN			
		BORDERING LAND SUBJECT TO FLOODING			UNDERDRAIN
		WETLAND BUFFER ZONE			DRAIN
		NO DISTURB ZONE			ROOF DRAIN
		200' RIVERFRONT AREA			SEWER
					FORCE MAIN
		GRAVEL ROAD			OVERHEAD WIRE
		EDGE OF PAVEMENT			WATER
		BITUMINOUS BERM			FIRE PROTECTION
		BITUMINOUS CURB			DOMESTIC WATER
		CONCRETE CURB			GAS
		CURB AND GUTTER			ELECTRIC
		EXTRUDED CONCRETE CURB			STEAM
		MONOLITHIC CONCRETE CURB			TELEPHONE
		PRECAST CONC. CURB			FIRE ALARM
		SLOPED GRAN. EDGING			CABLE TV
		VERT. GRAN. CURB			
		LIMIT OF CURB TYPE			
		SAWCUT			
		BUILDING			BUILDING ENTRANCE
		LOADING DOCK			BOLLARD
		DUMPSTER PAD			SIGN
		DOUBLE SIGN			SEWER MANHOLE
		STEEL GUARDRAIL			CURB STOP & BOX
		WOOD GUARDRAIL			WATER VALVE & BOX
		PATH			TAPPING SLEEVE, VALVE & BOX
		TREE LINE			SIAMESE CONNECTION
		WIRE FENCE			FIRE HYDRANT
		FENCE			WATER METER
		STOCKADE FENCE			POST INDICATOR VALVE
		STONE WALL			WATER WELL
		RETAINING WALL			GAS GATE
		STREAM / POND / WATER COURSE			GAS METER
		DETENTION BASIN			ELECTRIC MANHOLE
		HAY BALES			ELECTRIC METER
		SILT FENCE			LIGHT POLE
		SILT SOCK / STRAW WATTLE			TELEPHONE MANHOLE
		MINOR CONTOUR			TRANSFORMER PAD
		MAJOR CONTOUR			UTILITY POLE
		PARKING COUNT			GUY POLE
		COMPACT PARKING STALLS			GUY WIRE & ANCHOR
		DOUBLE YELLOW LINE			HAND HOLE
		STOP LINE			PULL BOX
		CROSSWALK			MATCHLINE
		ACCESSIBLE CURB RAMP			
		ACCESSIBLE PARKING			
		VAN-ACCESSIBLE PARKING			

Abbreviations

General	
ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EX	EXISTING
FDN	FOUNDATION
FFE	FIRST FLOOR ELEVATION
GRAN	GRANITE
GTD	GRADE TO DRAIN
LA	LANDSCAPE AREA
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PERF	PERFORATED
PROP	PROPOSED
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TS	TOP OF SLOPE
TYP	TYPICAL
Utility	
CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
PIV	POST INDICATOR VALVE
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
SMH	SEWER MANHOLE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE

Notes

General

- CONTRACTOR SHALL NOTIFY "DIG-SAFE" (1-888-344-7233) AT LEAST 72 HOURS BEFORE EXCAVATING.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
- ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
- AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE 4 INCHES LOAM AND SEED.
- WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
- WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
- UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
- TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND MUNICIPAL STANDARDS.
- AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
- CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
- DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
- CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.

Utilities

- THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR ITS REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
- WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
- SET CATCH BASIN RIMS, AND INVERTS OF SEWERS, DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
 - PAVEMENTS AND CONCRETE SURFACES: FLUSH
 - ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
 - LANDSCAPE, LOAM AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
- THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
- CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
- UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:
 - WATER PIPES SHALL BE POLYVINYL CHLORIDE (PVC) C900-07 DR18
 - SANITARY SEWER PIPES SHALL BE POLYVINYL CHLORIDE (PVC) SEWER PIPE
 - STORM DRAINAGE PIPES SHALL BE HDPE
 - PIPE INSTALLATION AND MATERIALS SHALL COMPLY WITH THE STATE PLUMBING CODE WHERE APPLICABLE. CONTRACTOR SHALL COORDINATE WITH LOCAL PLUMBING INSPECTOR PRIOR TO BEGINNING WORK.

- CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEMARK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. SITE CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS.
- CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
- ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4" MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.

Layout and Materials

- DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
- CURB RADII ARE AS NOTED ON THE PLANS.

- CURBING SHALL BE AS NOTED ON THE PLANS.
- SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
- PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.
- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.

Demolition

- CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS.
- EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
- CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
- THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
- UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH. MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

- PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE, AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
- CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES ON A WEEKLY BASIS (MINIMUM) OR AS REQUIRED PER THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP). THE CONTRACTOR SHALL ADDRESS DEFICIENCIES AND MAINTENANCE ITEMS WITHIN TWENTY-FOUR HOURS OF INSPECTION. CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT SUCH THAT IT DOES NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
- CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND, OR DIRECT DEPOSIT.
- CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED TO PREVENT EROSION.
- UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

- BASE PLAN: THE PROPERTY LINES SHOWN WERE DETERMINED BY A FIELD SURVEY CONDUCTED BY VHB. THE TOPOGRAPHY AND PHYSICAL FEATURES ARE BASED ON A FIELD SURVEY PERFORMED ON THE GROUND DECEMBER, 2018
- TOPOGRAPHY: ELEVATIONS ARE BASED ON NAVD83 FEET

Document Use

- THESE PLANS AND CORRESPONDING CADD DOCUMENTS ARE INSTRUMENTS OF PROFESSIONAL SERVICE, AND SHALL NOT BE USED, IN WHOLE OR IN PART, FOR ANY PURPOSE OTHER THAN FOR WHICH IT WAS CREATED WITHOUT THE EXPRESSED, WRITTEN CONSENT OF VHB. ANY UNAUTHORIZED USE, REUSE, MODIFICATION OR ALTERATION, INCLUDING AUTOMATED CONVERSION OF THIS DOCUMENT SHALL BE AT THE USER'S SOLE RISK WITHOUT LIABILITY OR LEGAL EXPOSURE TO VHB.
- CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.
- SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Cambria Hotel

266 College Street
Burlington, Vermont

No.	Revision	Date	Apprd.

Designed by	Checked by
—	—

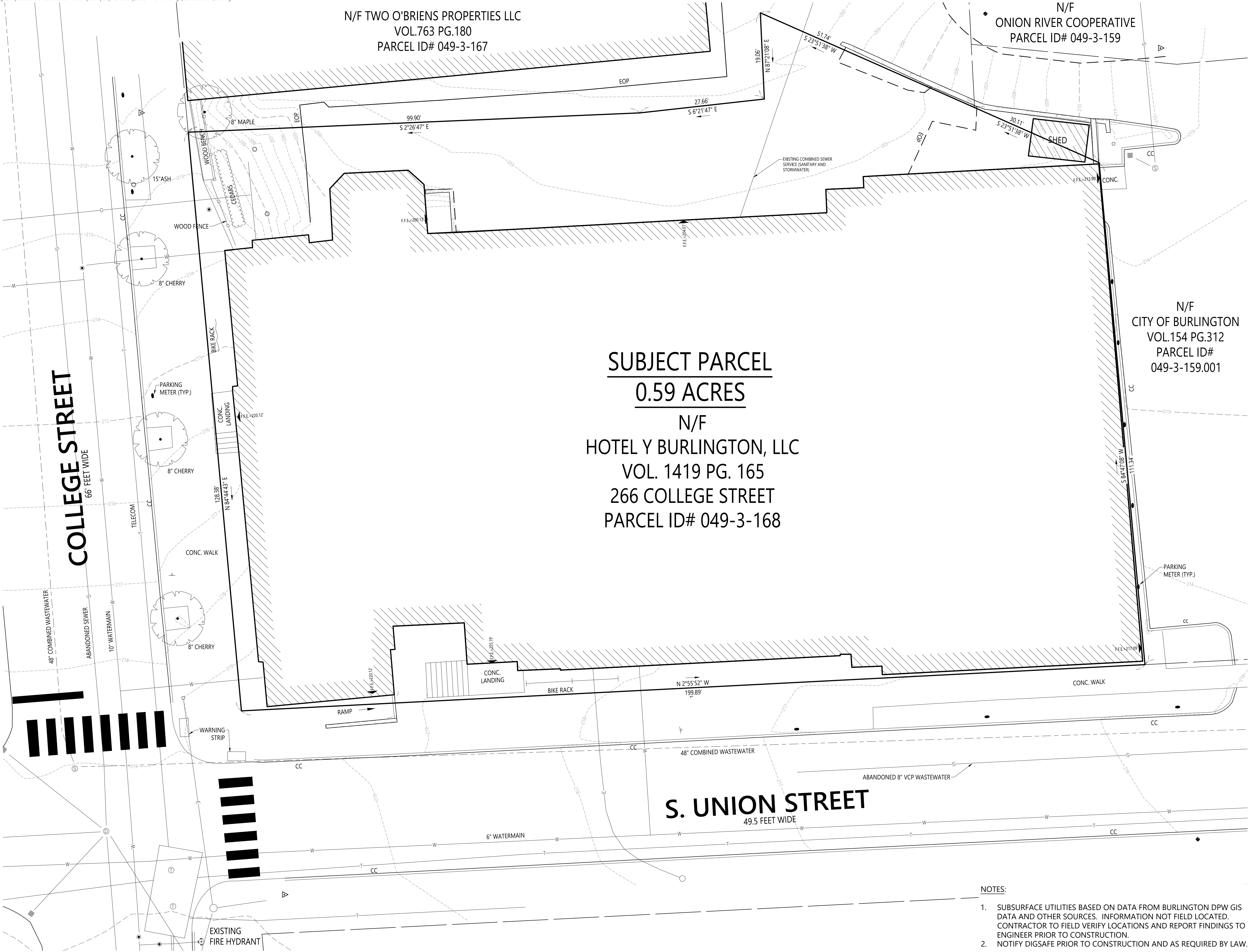
Issued for	Date
	June 26, 2019

Zoning Permit
Application
For Review Only

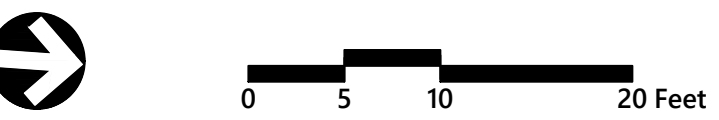
Legend and
General Notes

Drawing Number

C-1.0



vhb
40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by	Checked by
JRZ / JFV	PBS

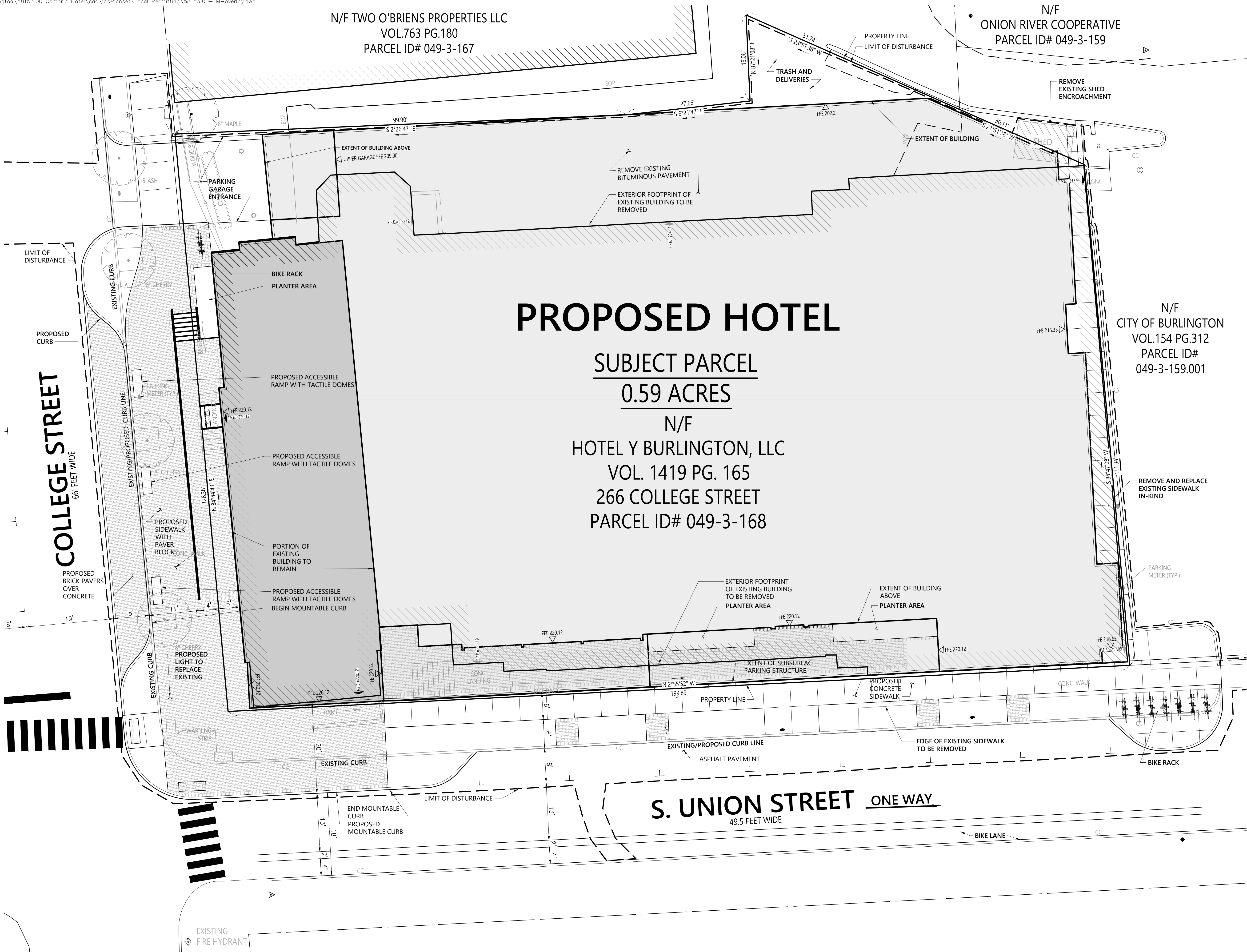
Issued for: **Zoning Permit Application**
Date: **June 26, 2019**
For Review Only

Existing Conditions Plan

- NOTES:
- SUBSURFACE UTILITIES BASED ON DATA FROM BURLINGTON DPW GIS DATA AND OTHER SOURCES. INFORMATION NOT FIELD LOCATED. CONTRACTOR TO FIELD VERIFY LOCATIONS AND REPORT FINDINGS TO ENGINEER PRIOR TO CONSTRUCTION.
 - NOTIFY DIGSAFE PRIOR TO CONSTRUCTION AND AS REQUIRED BY LAW.



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

**Zoning Permit
Application
For Review Only**

**SITE
PLAN**

Drawing Number

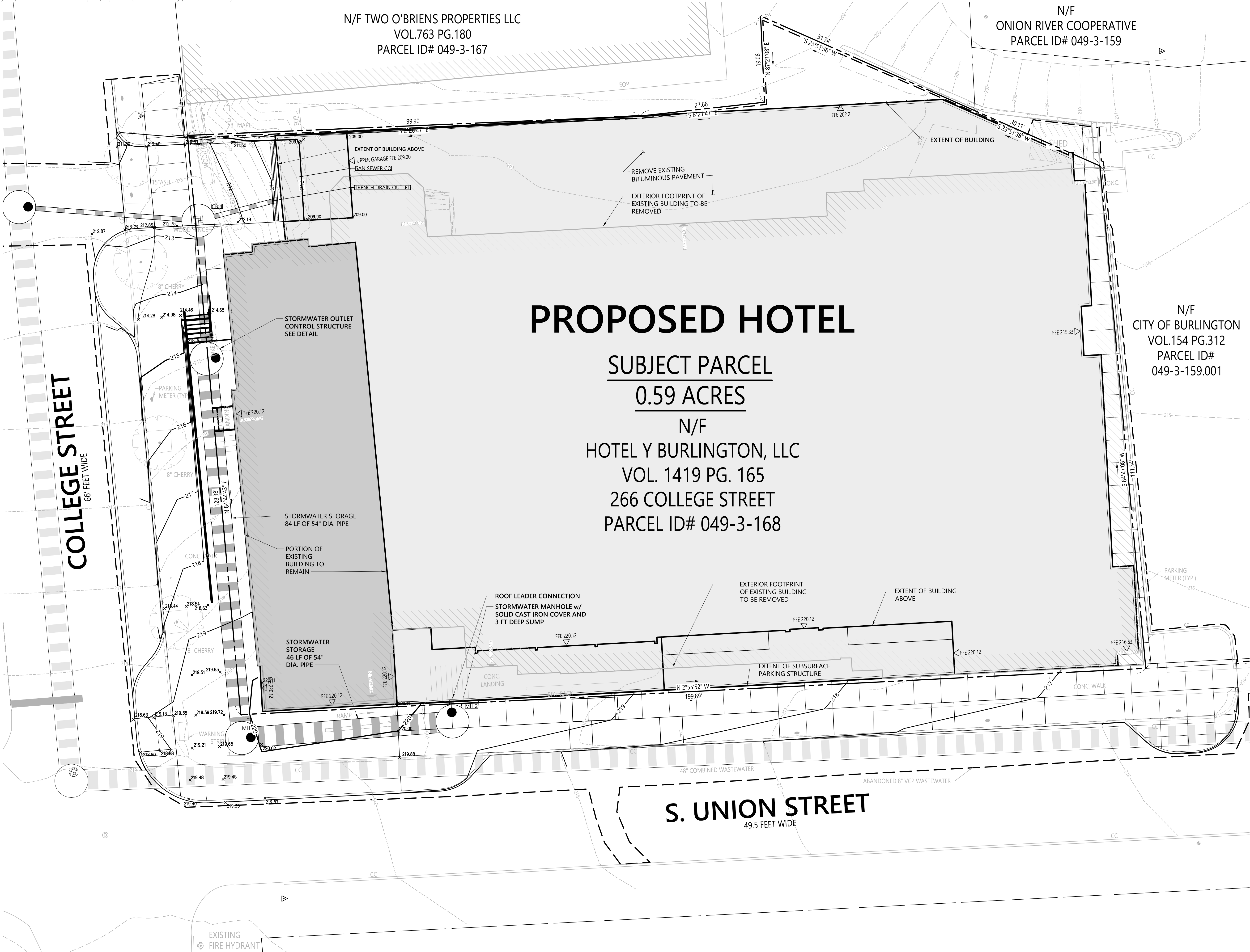
C-2.1

Sheet 3 of -

Project Number
58153.00



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Apprd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

**Zoning Permit
Application
For Review Only**

Drawing Title

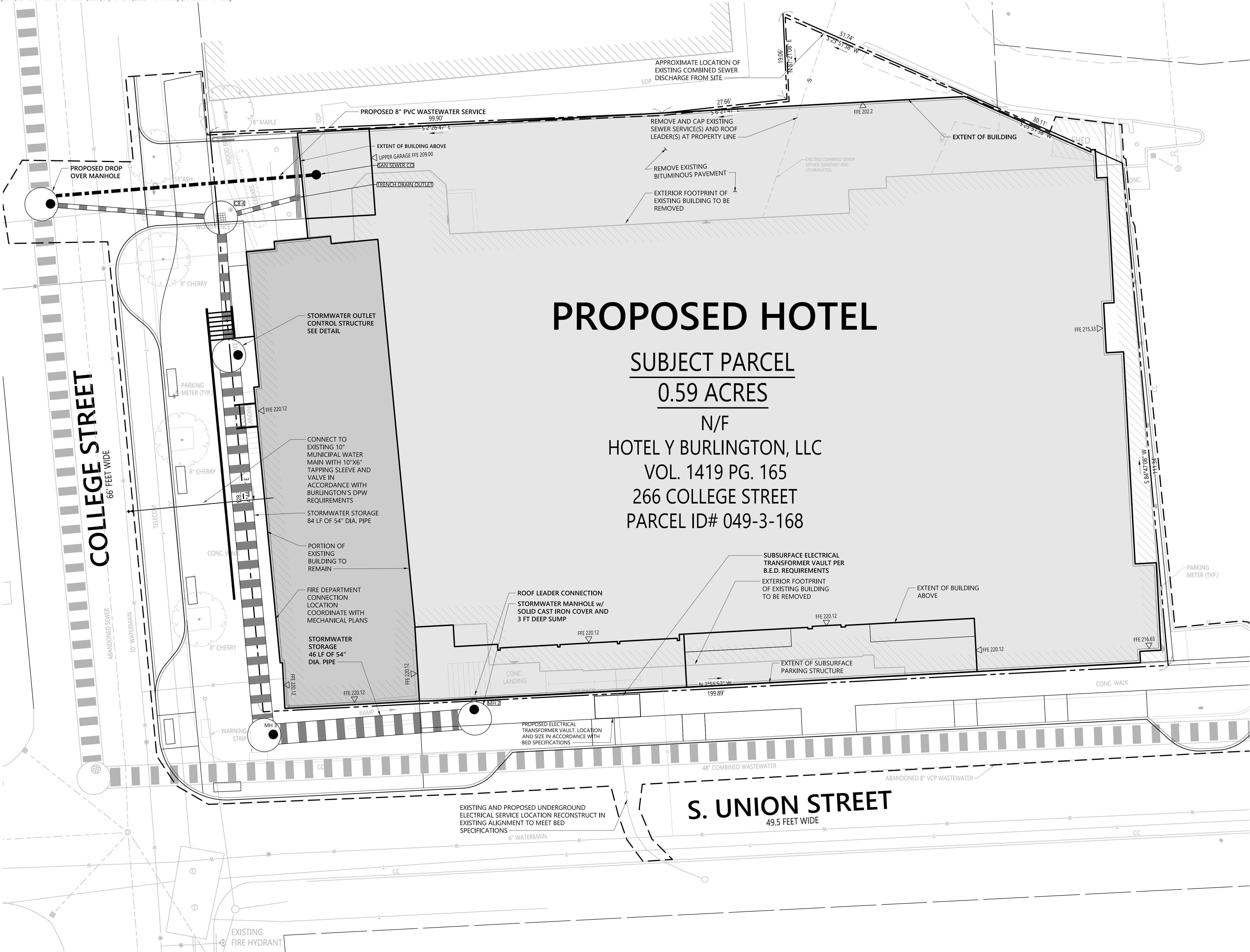
**Grading
and Drainage Plan**

Drawing Number

C-3.1

Sheet 4 of -

Project Number
58153.00



PROPOSED HOTEL
SUBJECT PARCEL
0.59 ACRES
N/F
HOTEL Y BURLINGTON, LLC
VOL. 1419 PG. 165
266 COLLEGE STREET
PARCEL ID# 049-3-168



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

Zoning Permit
Application
For Review Only
Utility Plan

Drawing Number

C-4.1

Sheet 5 of -

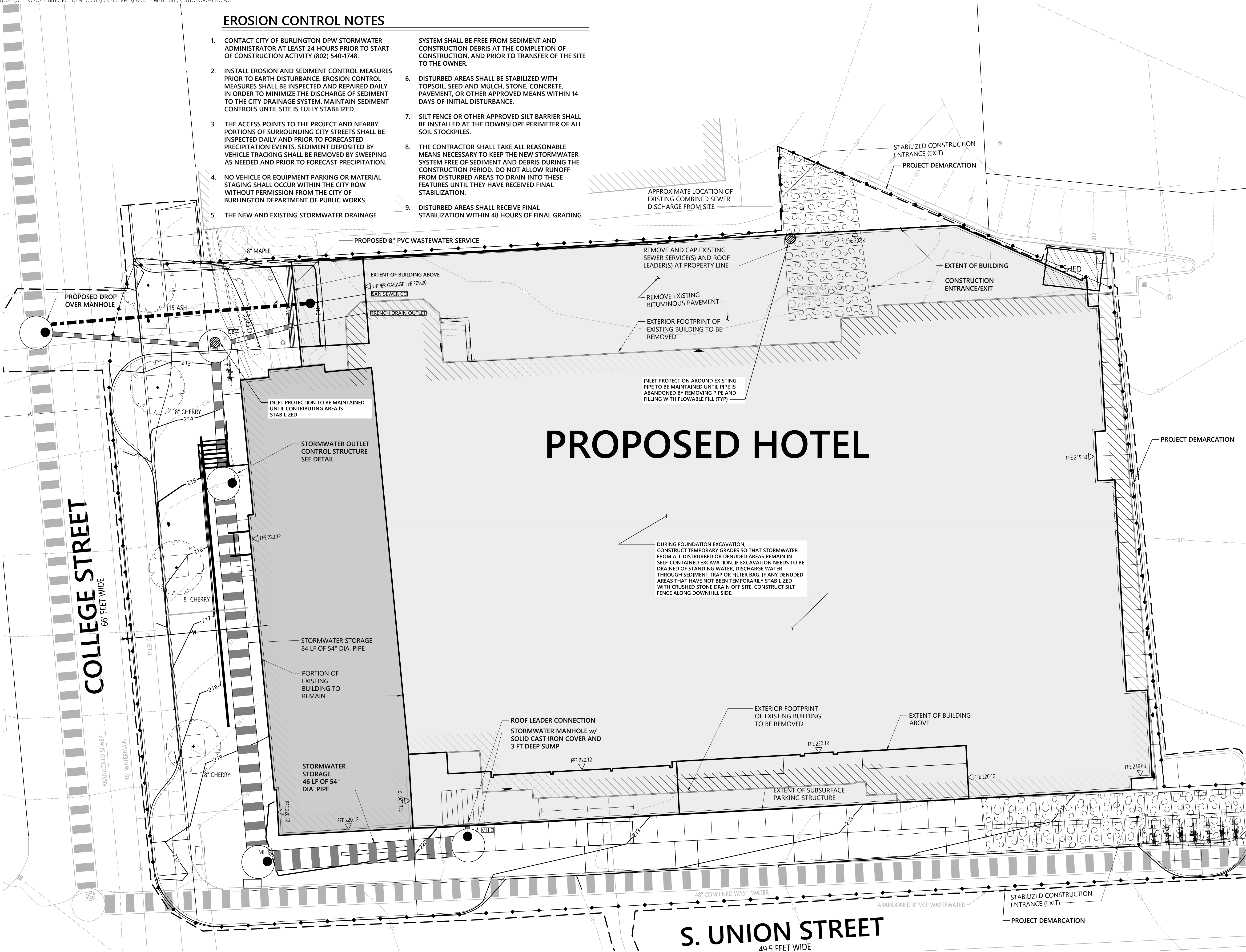
Project Number
58153.00



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

EROSION CONTROL NOTES

1. CONTACT CITY OF BURLINGTON DPW STORMWATER ADMINISTRATOR AT LEAST 24 HOURS PRIOR TO START OF CONSTRUCTION ACTIVITY (802) 540-1748.
2. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO EARTH DISTURBANCE. EROSION CONTROL MEASURES SHALL BE INSPECTED AND REPAIRED DAILY IN ORDER TO MINIMIZE THE DISCHARGE OF SEDIMENT TO THE CITY DRAINAGE SYSTEM. MAINTAIN SEDIMENT CONTROLS UNTIL SITE IS FULLY STABILIZED.
3. THE ACCESS POINTS TO THE PROJECT AND NEARBY PORTIONS OF SURROUNDING CITY STREETS SHALL BE INSPECTED DAILY AND PRIOR TO FORECASTED PRECIPITATION EVENTS. SEDIMENT DEPOSITED BY VEHICLE TRACKING SHALL BE REMOVED BY SWEEPING AS NEEDED AND PRIOR TO FORECAST PRECIPITATION.
4. NO VEHICLE OR EQUIPMENT PARKING OR MATERIAL STAGING SHALL OCCUR WITHIN THE CITY ROW WITHOUT PERMISSION FROM THE CITY OF BURLINGTON DEPARTMENT OF PUBLIC WORKS.
5. THE NEW AND EXISTING STORMWATER DRAINAGE SYSTEM SHALL BE FREE FROM SEDIMENT AND CONSTRUCTION DEBRIS AT THE COMPLETION OF CONSTRUCTION, AND PRIOR TO TRANSFER OF THE SITE TO THE OWNER.
6. DISTURBED AREAS SHALL BE STABILIZED WITH TOPSOIL, SEED AND MULCH, STONE, CONCRETE, PAVEMENT, OR OTHER APPROVED MEANS WITHIN 14 DAYS OF INITIAL DISTURBANCE.
7. SILT FENCE OR OTHER APPROVED SILT BARRIER SHALL BE INSTALLED AT THE DOWNSLOPE PERIMETER OF ALL SOIL STOCKPILES.
8. THE CONTRACTOR SHALL TAKE ALL REASONABLE MEANS NECESSARY TO KEEP THE NEW STORMWATER SYSTEM FREE OF SEDIMENT AND DEBRIS DURING THE CONSTRUCTION PERIOD. DO NOT ALLOW RUNOFF FROM DISTURBED AREAS TO DRAIN INTO THESE FEATURES UNTIL THEY HAVE RECEIVED FINAL STABILIZATION.
9. DISTURBED AREAS SHALL RECEIVE FINAL STABILIZATION WITHIN 48 HOURS OF FINAL GRADING



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

**Zoning Permit
Application
For Review Only**

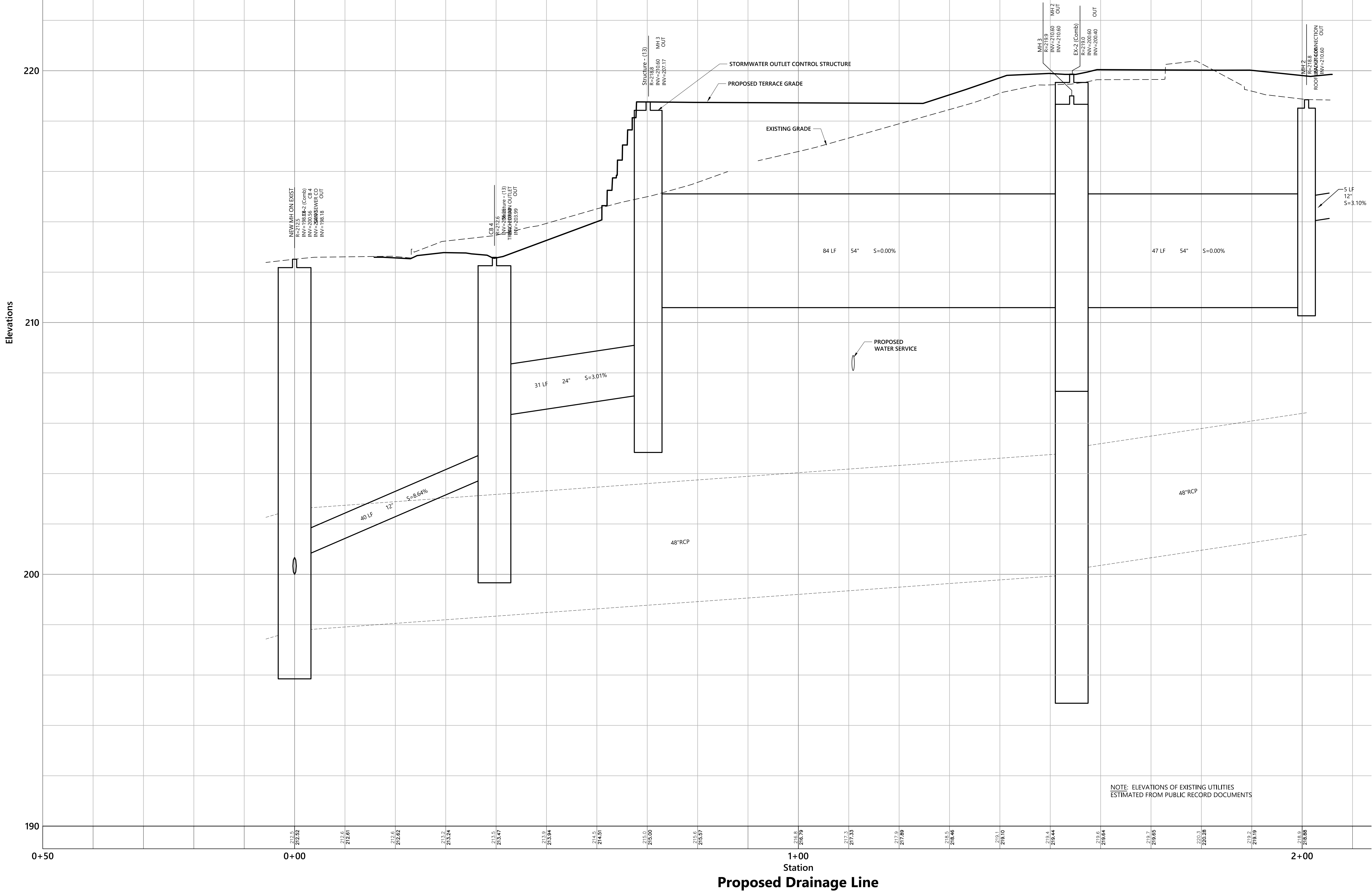
Drawing Title
**Erosion Prevention and
Sediment Control Plan**

Drawing Number

C-5.1

Sheet 6 of -

Project Number
58153.00



Cambria Hotel

266 College Street

Burlington, Vermont

No.	Revision	Date	Appr.

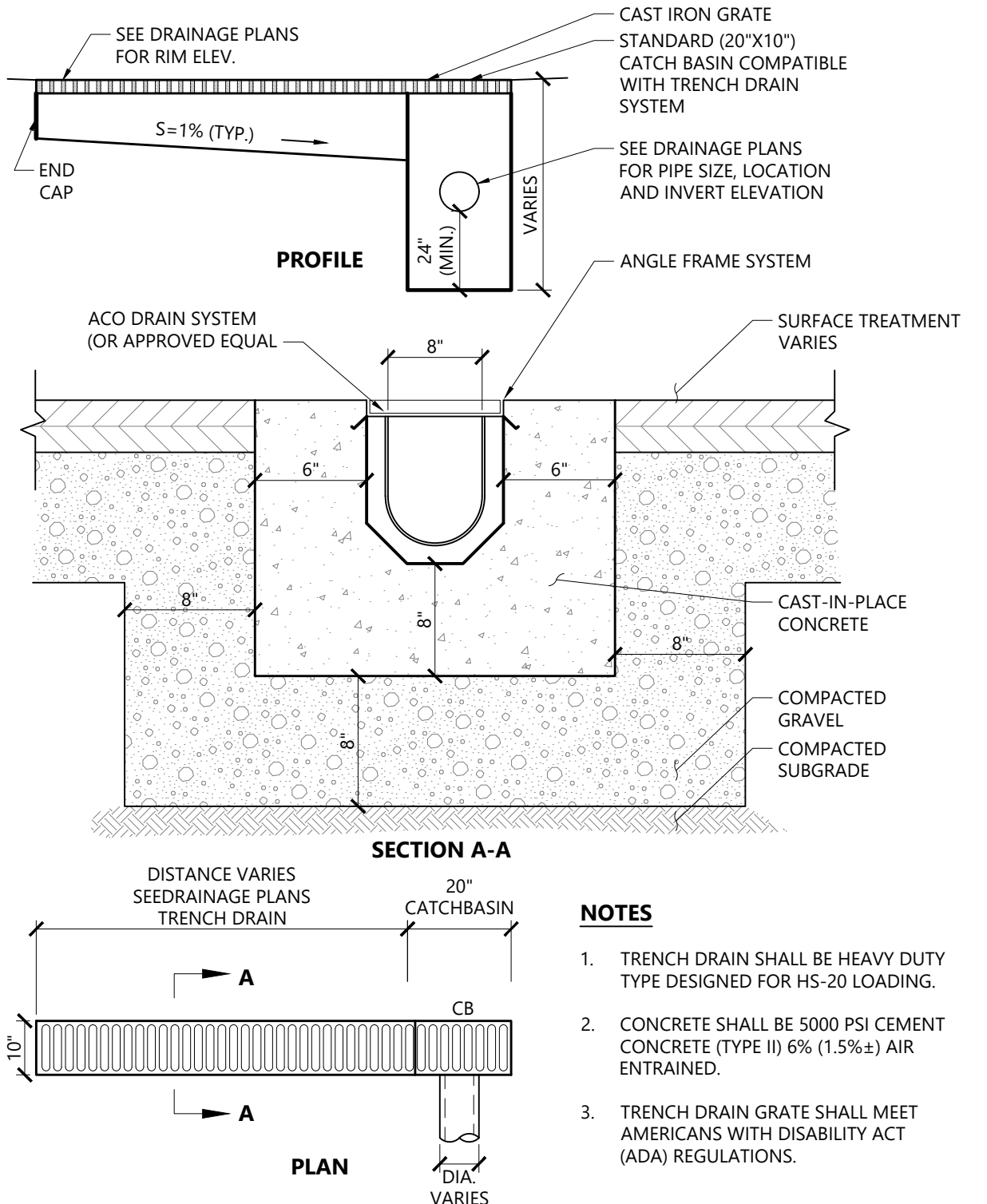
Designed by	JRZ	Checked by	PBS
Issued for	Date		
Zoning Permit Application		June 26, 2019	
For Review Only			
Drawing Title			
Storm Profile			

Drawing Number

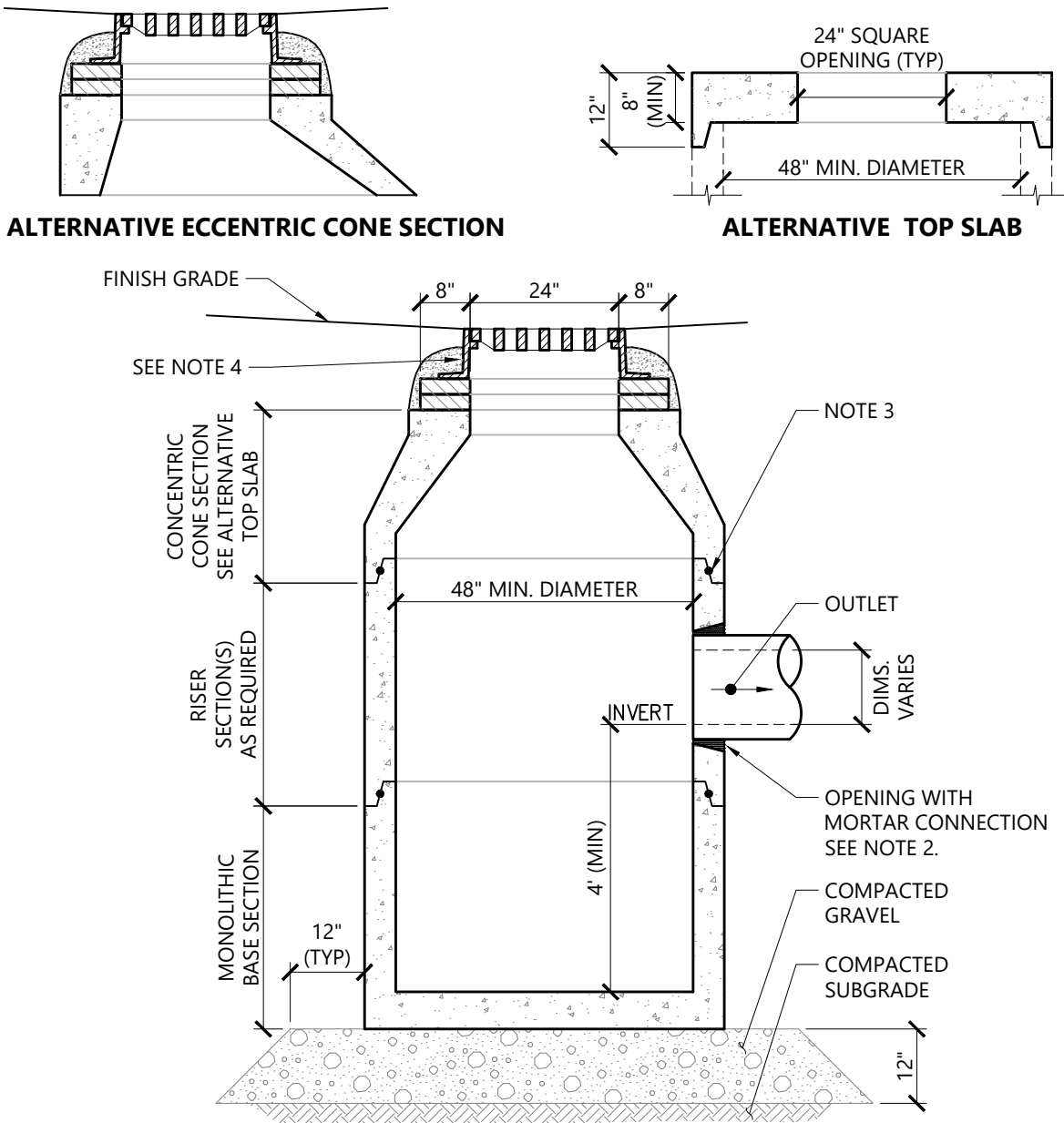
C-6.1

Sheet 7 of -

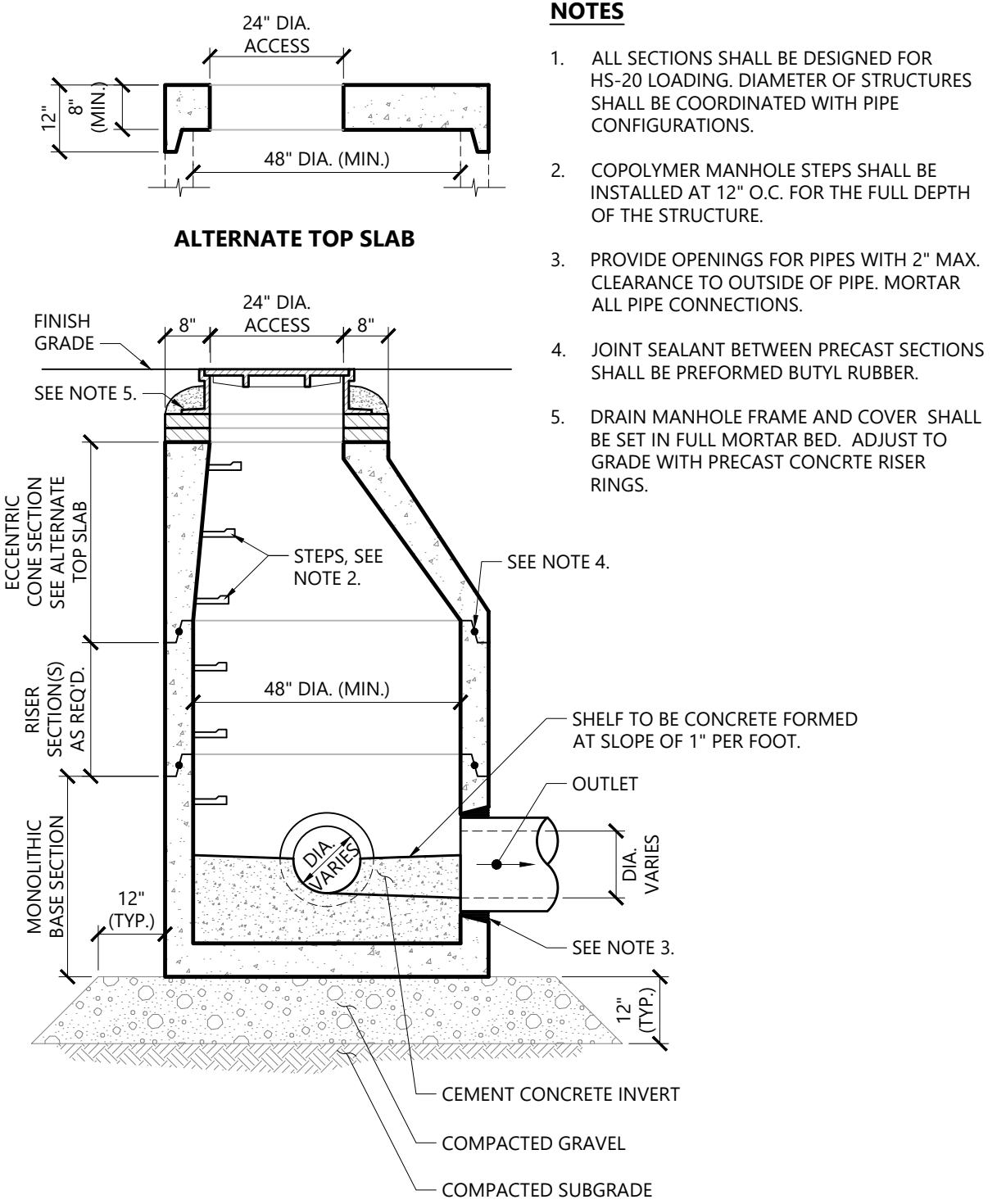
Project Number 58153.00



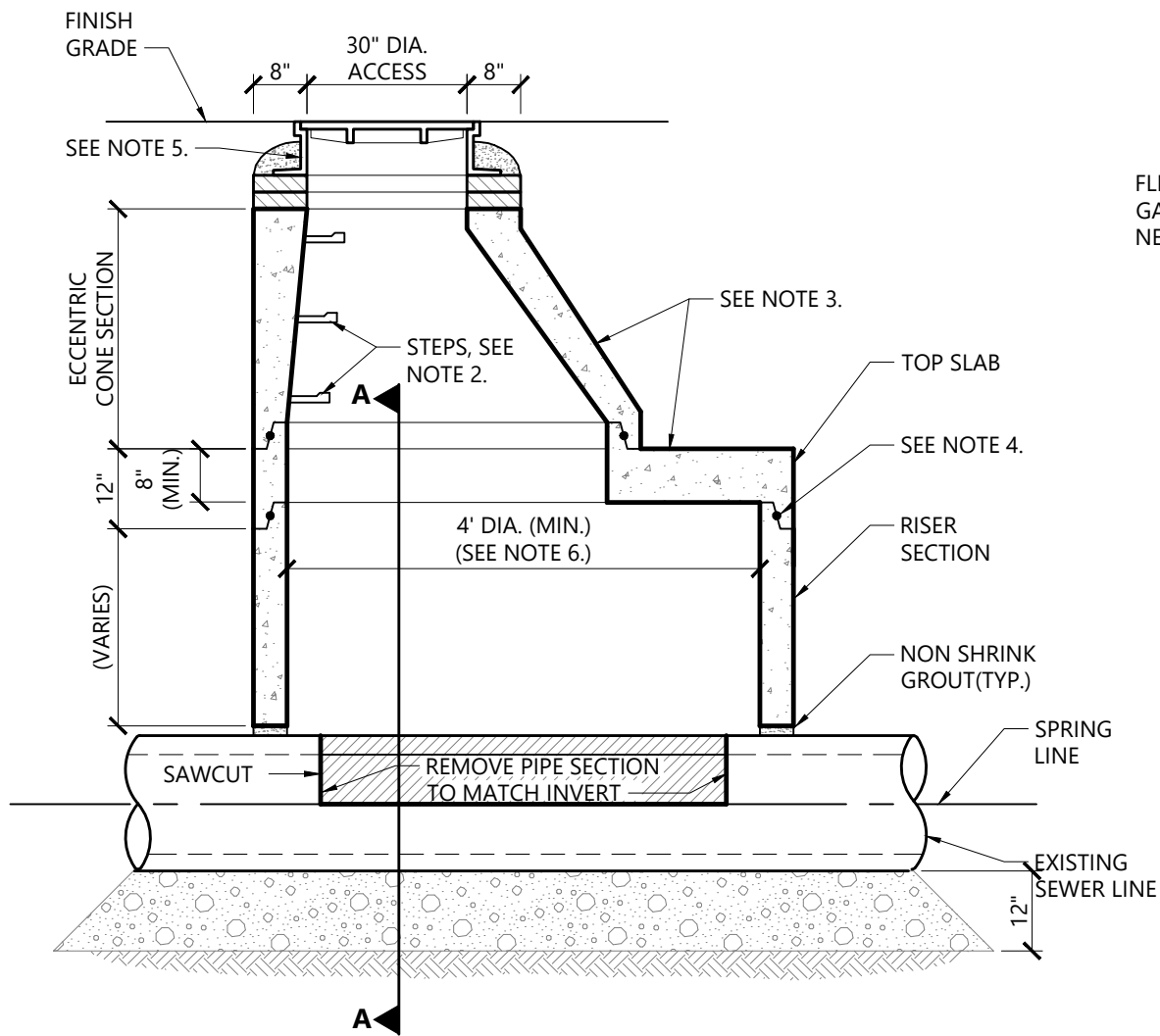
Trench Drain (Type A) 1/16
N.T.S. Source: VHB LD_190-A



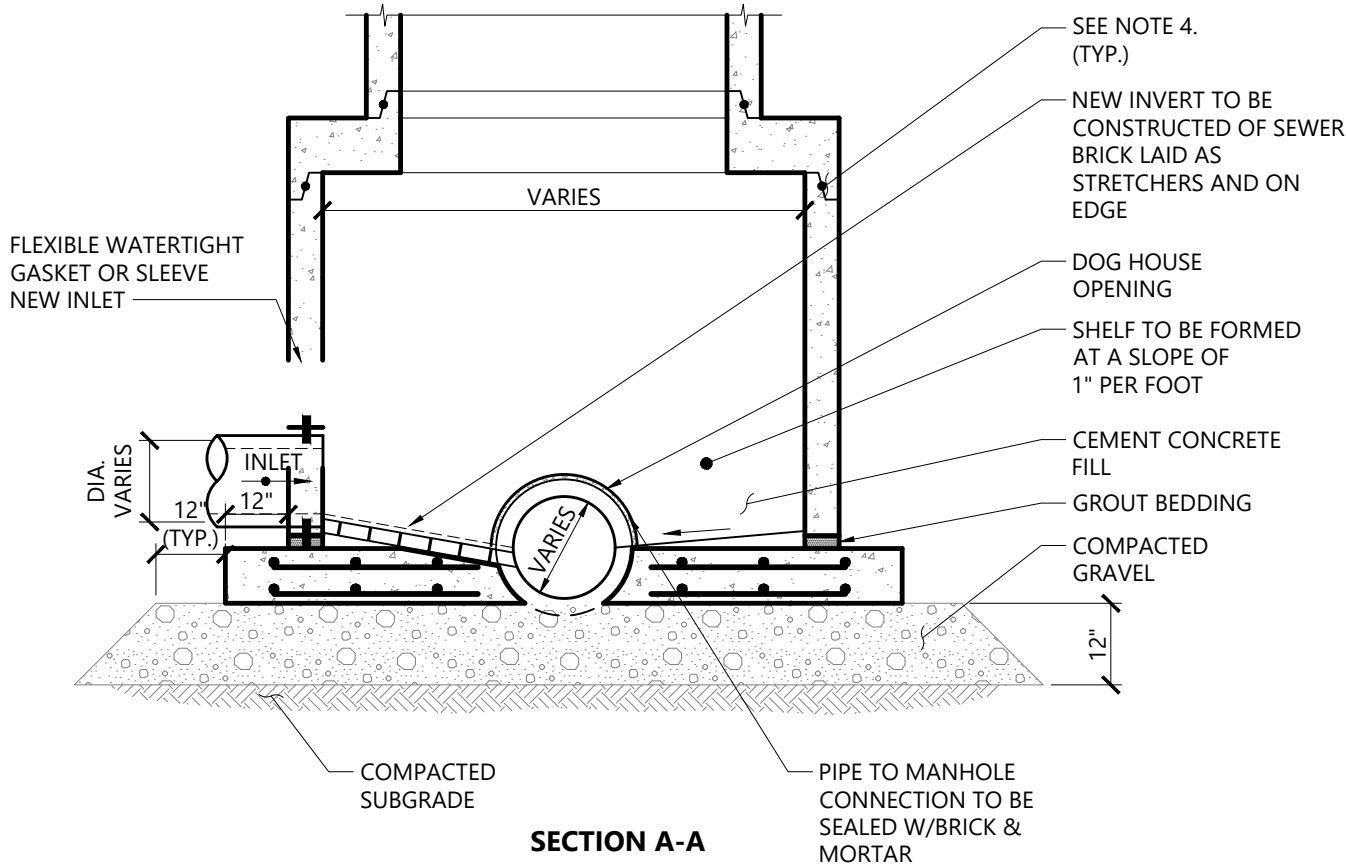
Catch Basin (CB) 1/16
N.T.S. Source: VHB LD_100



Drain Manhole (DMH) 1/16
N.T.S. Source: VHB LD_115



Drop Over Sewer Manhole (SMH) 1/16
N.T.S. Source: VHB REV LD_201



Drop Over Sewer Manhole (SMH) 1/16
N.T.S. Source: VHB REV LD_201

Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

**Zoning Permit
Application
For Review Only**

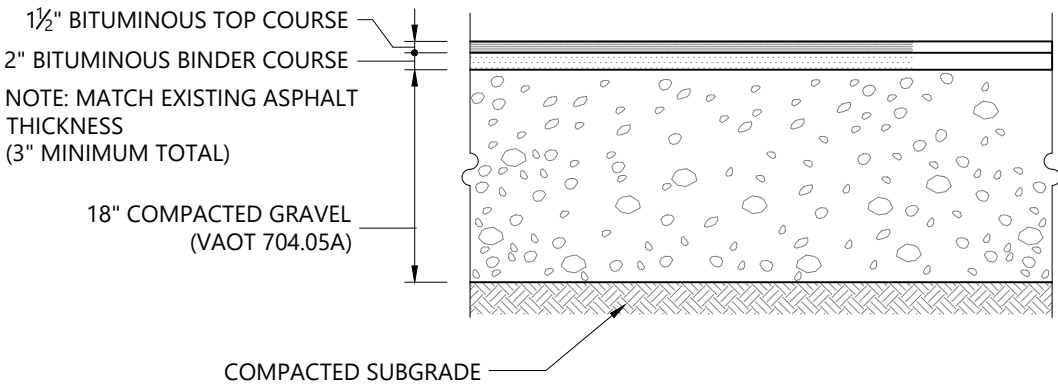
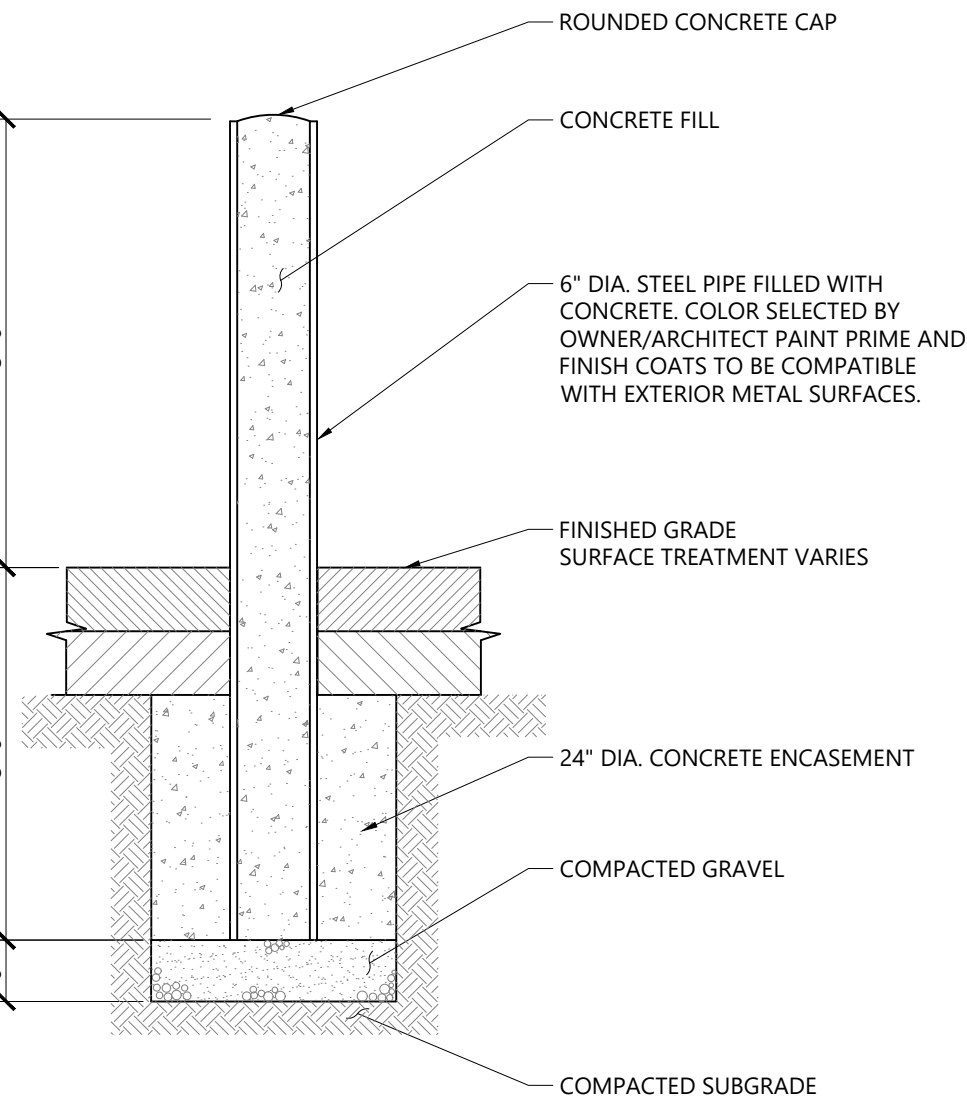
Drawing Title
Site Details 1

Drawing Number

C-7.1

Sheet 8 of -

Project Number
58153.00



Bollard

N.T.S. Source: VHB 1/16 LD_700

Standard Duty Flexible Pavement

N.T.S. Source: VHB 4/18 LD



vhb.com

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by
JRZ

Checked by
PBS

Issued for

Date

Zoning Permit
Application
For Review Only

June 26, 2019

Drawing Title

Site Details 3

Drawing Number

C-7.3

Sheet

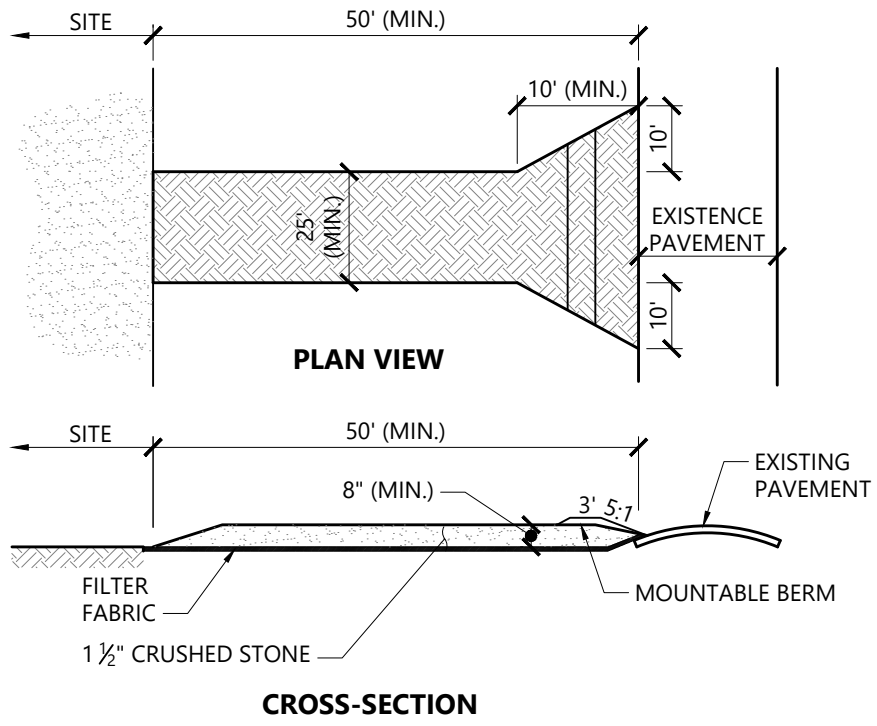
10

of

-

Project Number

58153.00

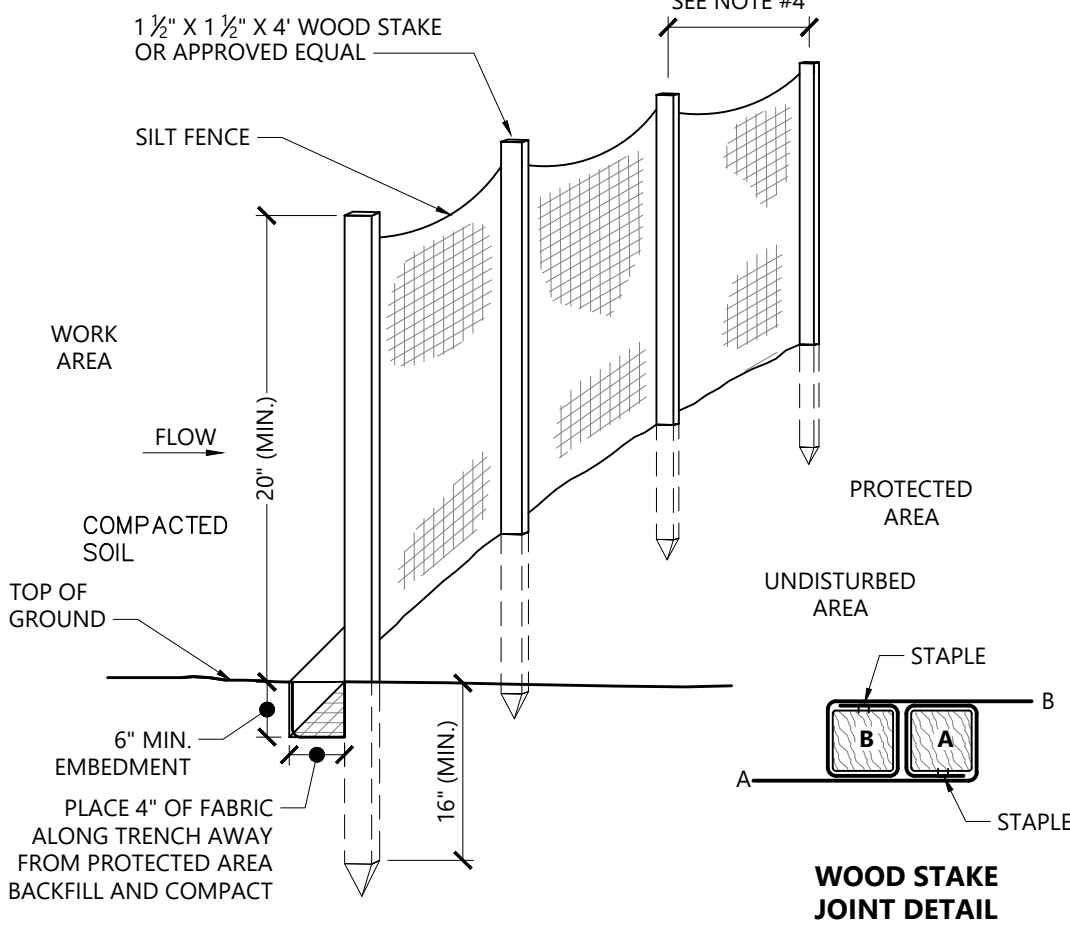


NOTES

1. AGGREGATE SIZE: USE A MATRIX OF 1 TO 4 INCH STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH: NOT LESS THAN 50 FEET (EXCEPT ON SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH APPLIES)
3. THICKNESS: NOT LESS THAN EIGHT (8) INCHES
4. WIDTH: TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT MINIMUM IF THERE IS ONLY ONE ACCESS TO THE SITE.
5. GEOTEXTILE MUST BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE
6. ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION EXITS SHALL BE PIPED BENEATH THE EXIT. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. THE EXIT SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED ACCORDING TO PERMIT REQUIREMENTS.

Stabilized Construction Exit

N.T.S. Source: VHB 1/16 LD_682-VT

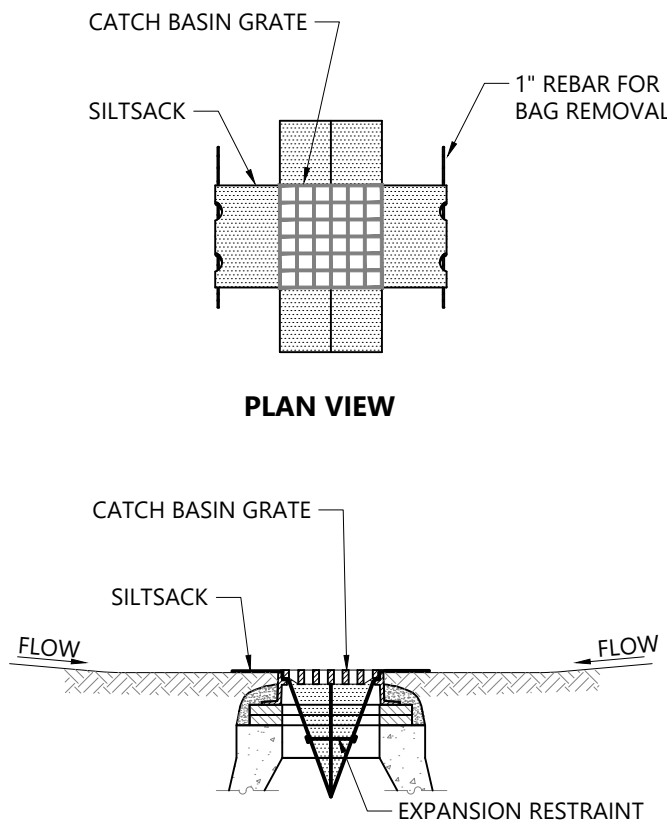


NOTES

1. WHERE REQUIRED FENCE SHALL BE WOVEN WIRE, MIN. 14 GAUGE WITH A 6\"
2. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N OR APPROVED EQUIVALENT.
3. POST SPACING FOR WIRE BACKED FENCE SHALL BE 10 FT. MAX. FOR FILTER CLOTH FENCE WHEN ELONGATION IS >50%, POST SPACING SHALL NOT EXCEED 4 FT. FOR FILTER CLOTH FENCE WHEN ELONGATION IS <50%, POST SPACING SHALL NOT EXCEED 6 FT.
4. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY 6 INCHES AND FOLDED.
5. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE OR APPROVED EQUIVALENT.
6. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN SEDIMENT REACHES HALF OF FABRIC HEIGHT.
7. SILT FENCE SHALL NOT BE USED TO DEMARCAT E LIMITS OF DISTURBANCE.

Silt Fence/ Reinforced Silt Fence Barrier

N.T.S. Source: VHB 08/16 LD_650-VT



SECTION VIEW

NOTES

1. INSTALL SILTSACK IN ALL CATCH BASINS WHERE INDICATED ON THE PLAN BEFORE COMMENCING WORK OR IN PAVED AREAS AFTER BINDER COURSE IS PLACED AND HAY BALES HAVE BEEN REMOVED.
2. GRATE TO BE PLACED OVER SILTSACK.
3. SILTSACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED. MAINTAIN UNTIL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED

Siltsack Sediment Trap

N.T.S. Source: VHB 1/16 LD_674

MULCH MATERIAL AND APPLICATION				
MULCH MATERIAL	QUALITY STANDARDS	PER 1,000 SQ-FT	PER ACRE	DEPTH OF APPLICATION
WOOD CHIPS (HEMLOCK/REDAR MIX)	AIR DRIED, FREE OF OBJECTIONABLE MATERIAL	500 - 900 LBS	10 - 20 TONS	2\"
STRAW	AIR-DRIED, FREE OF UNDESIRABLE SEEDS AND COARSE MATERIALS	90 - 100 LBS, 2-3 BALES	2 TONS (100-120 BALES)	COVER ABOUT 90% SURFACE
COMPOST	UP TO 3\"	3 - 9 CY	3 - 9 CY	1-3\"
Erosion Control Mix	WELL-GRADED MIXTURE OF PARTICLE SIZES, ORGANIC CONTENT BETWEEN 60-100% DRY WEIGHT. PARTICLE SIZE SHALL PASS 6\"	*SLOPES 3(HZ):1(VERT.) = 2 INCH DEPTH PLUS ADDITIONAL 1/2 INCH DEPTH PER 20 FT. OF SLOPE UP TO 100 FT. **SLOPES BETWEEN 3(HZ):1(VERT.) AND 2(HZ):1(VERT.) = 4 INCH DEPTH PLUS ADDITIONAL 1/2 INCH PER 20 FT. OF SLOPE UP TO 100 FT. ***SLOPES STEEPER THAN 2(HZ):1(VERT.) APPLICABILITY TO SPECIFIC SITE AND MULCH DEPTH TO BE REVIEWED AND APPROVED PRIOR TO USE BY GPSI OR GPSI SPECIALIST		

1. APPLY TACKIFIER AS NEEDED TO MINIMIZE POTENTIAL FOR MULCH TO BLOW AWAY.
2. MULCH MUST NOT CONTAIN INVASIVE PLANT SPECIES. (SEEDS OR SEEDLINGS)
3. TACKIFIER MAY BE WATER, NETTING, OR SIMILAR.

Mulching Notes and Specifications

N.T.S. Source: VHB 08/16 LD_VT

TEMPORARY SEEDING

1. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE.
2. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
3. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
4. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
5. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.

PERMANENT SEEDING

1. AREA TO BE SEEDED MUST BE ROUGH GRADED AND SLOPES PHYSICALLY STABLE; CHISELING OR DISKING MAY BE NEEDED IF SOIL IS COMPACTED.
2. SEEDING METHOD TO RESULT IN GOOD SOIL TO SEED CONTACT.
3. PERMANENT SEEDING TO OCCUR PRIOR TO SEPTEMBER 15TH UNLESS WEATHER PERMITS SEEDING BEYOND SEPTEMBER 15TH.
4. AFTER SEEDING, MULCH THE AREA WITH HAY OR STRAW AT 2 TONS/AC (APPROX 90 LBS/1,000 SF OR 2 BALES/1,000 SF); SEE MULCH DETAIL AND SPECIFICATIONS.
5. MULCH ANCHORING MAY BE NEEDED WHERE WIND OR AREAS OF CONCENTRATED WATER ARE POSSIBLE.
6. WOOD FIBER HYDROMULCH OR OTHER SPRAYABLE PRODUCTS APPROVED FOR EROSION CONTROL MAY BE USED IF APPLIED ACCORDING TO MANUFACTURERS' SPECIFICATIONS.
7. IRRIGATE AS REQUIRED BY WEATHER CONDITIONS TO FACILITATE GRASS GROWTH AND ESTABLISH ADEQUATE GRASS COVER.

Seeding Notes and Specifications

N.T.S. Source: VHB 08/16 LD_VT

Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd

Designed by	JRZ	Checked by	PBS
Issued for		Date	

Zoning Permit
Application
For Review Only

Erosion Prevention and
Sediment Control Details

Drawing Number

C-7.4

Sheet 11 of -

Project Number
58153.00

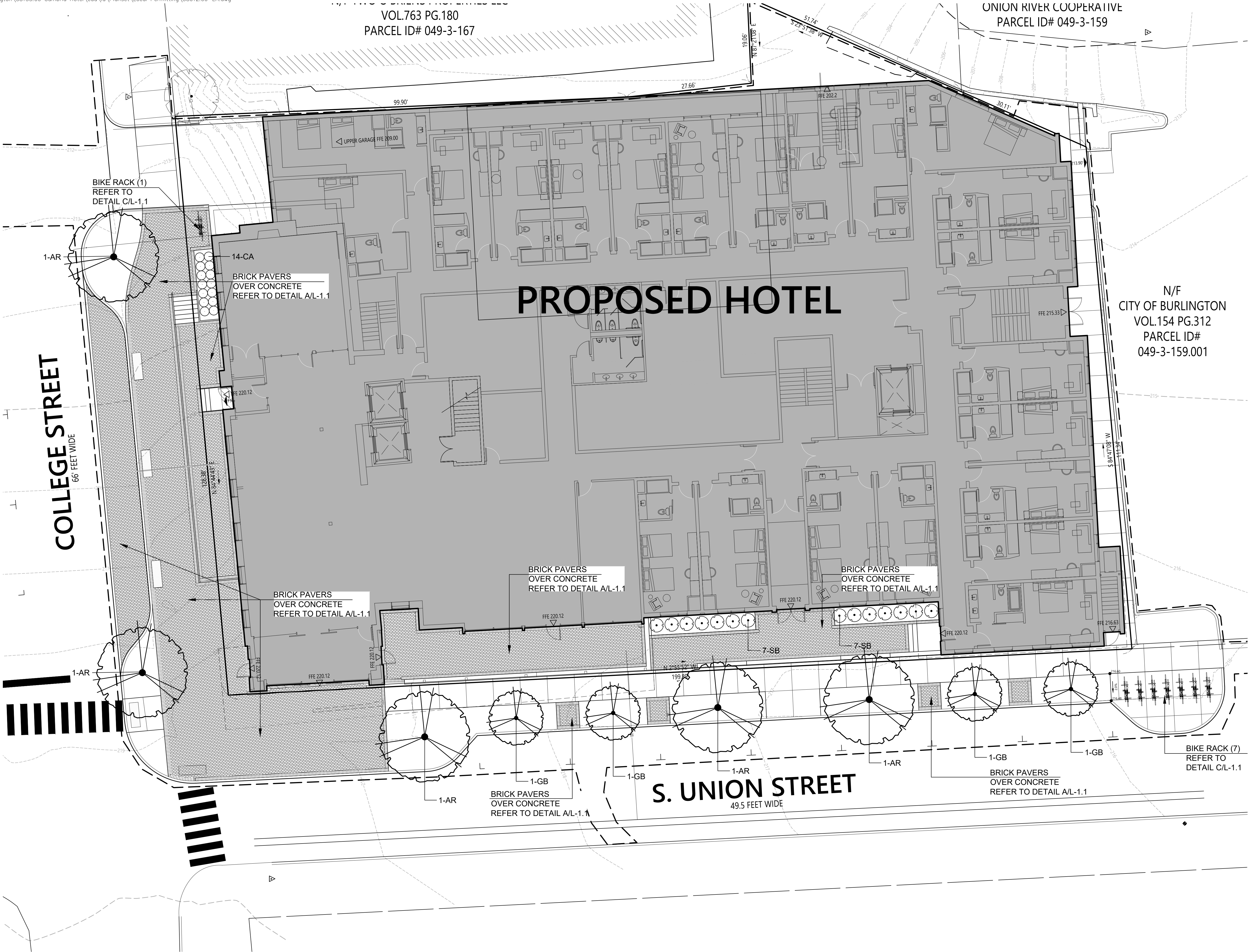
VOL.763 PG.180
PARCEL ID# 049-3-167

UNION RIVER COOPERATIVE
PARCEL ID# 049-3-159



vhb.com

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.
-----	----------	------	---------

Designed by	Checked by
-------------	------------

Issued for	Date
	June 26, 2019

**Zoning Permit
Application
For Review Only**

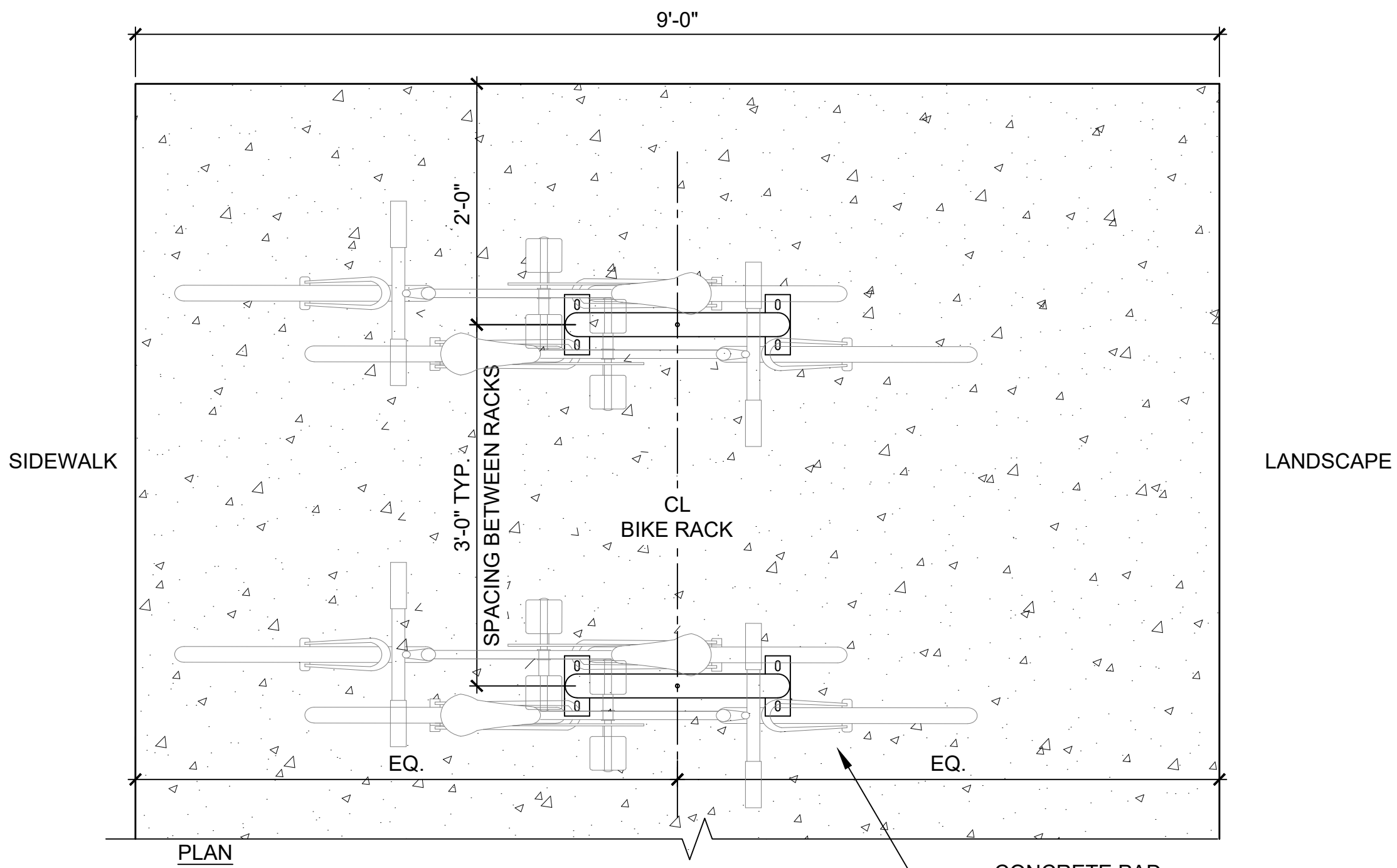
Drawing Title
LANDSCAPE PLAN

Drawing Number

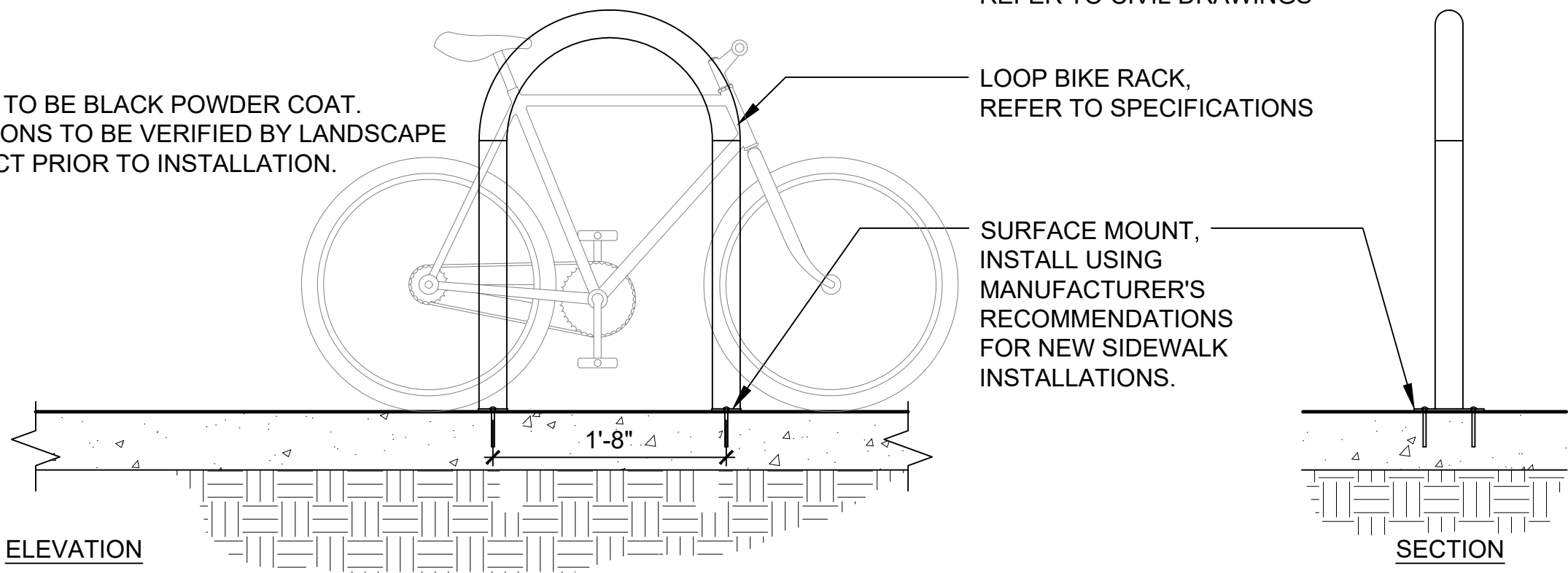
L-1.0

Sheet of -

Project Number
58153.00

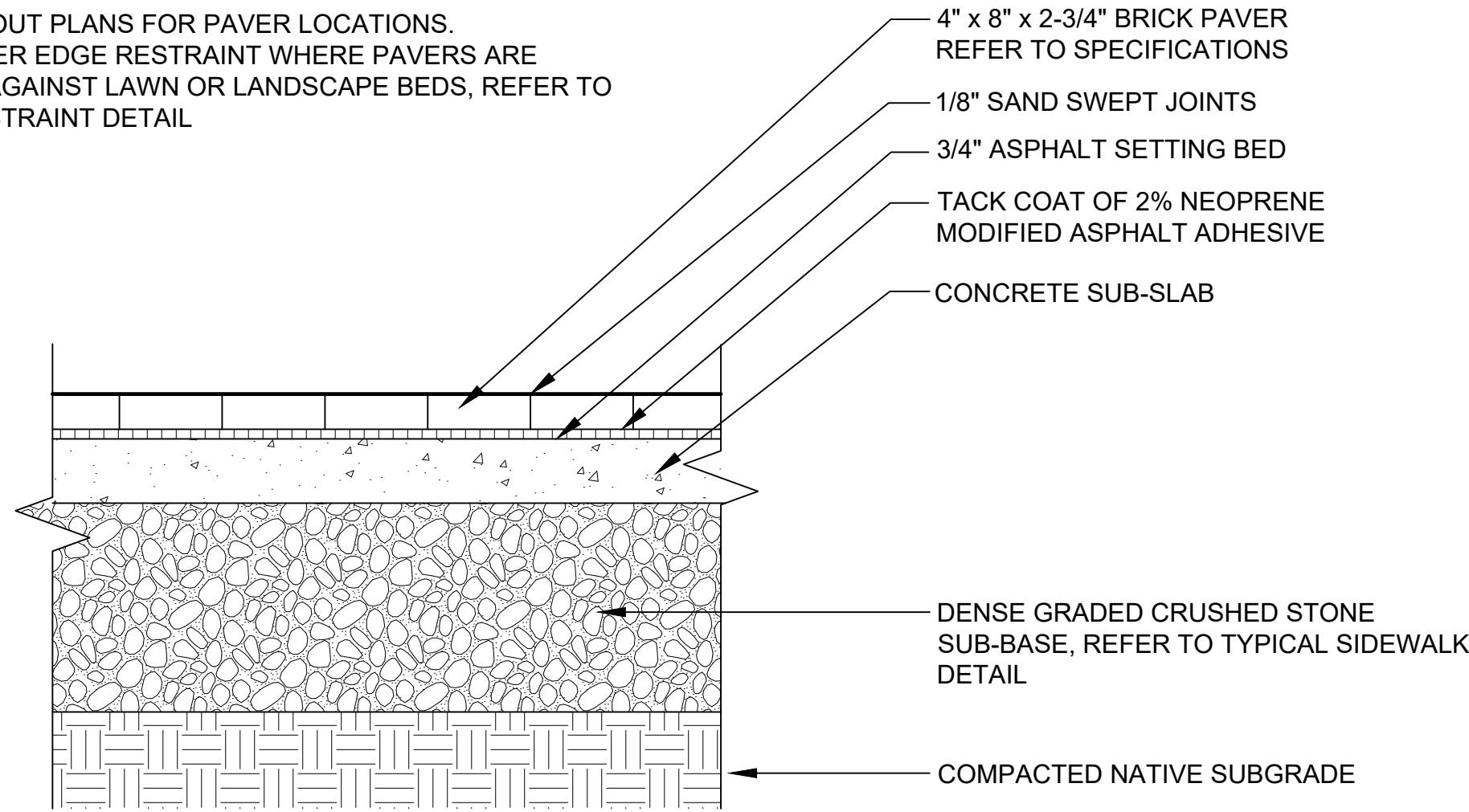


NOTES:
1. COLOR TO BE BLACK POWDER COAT.
2. LOCATIONS TO BE VERIFIED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

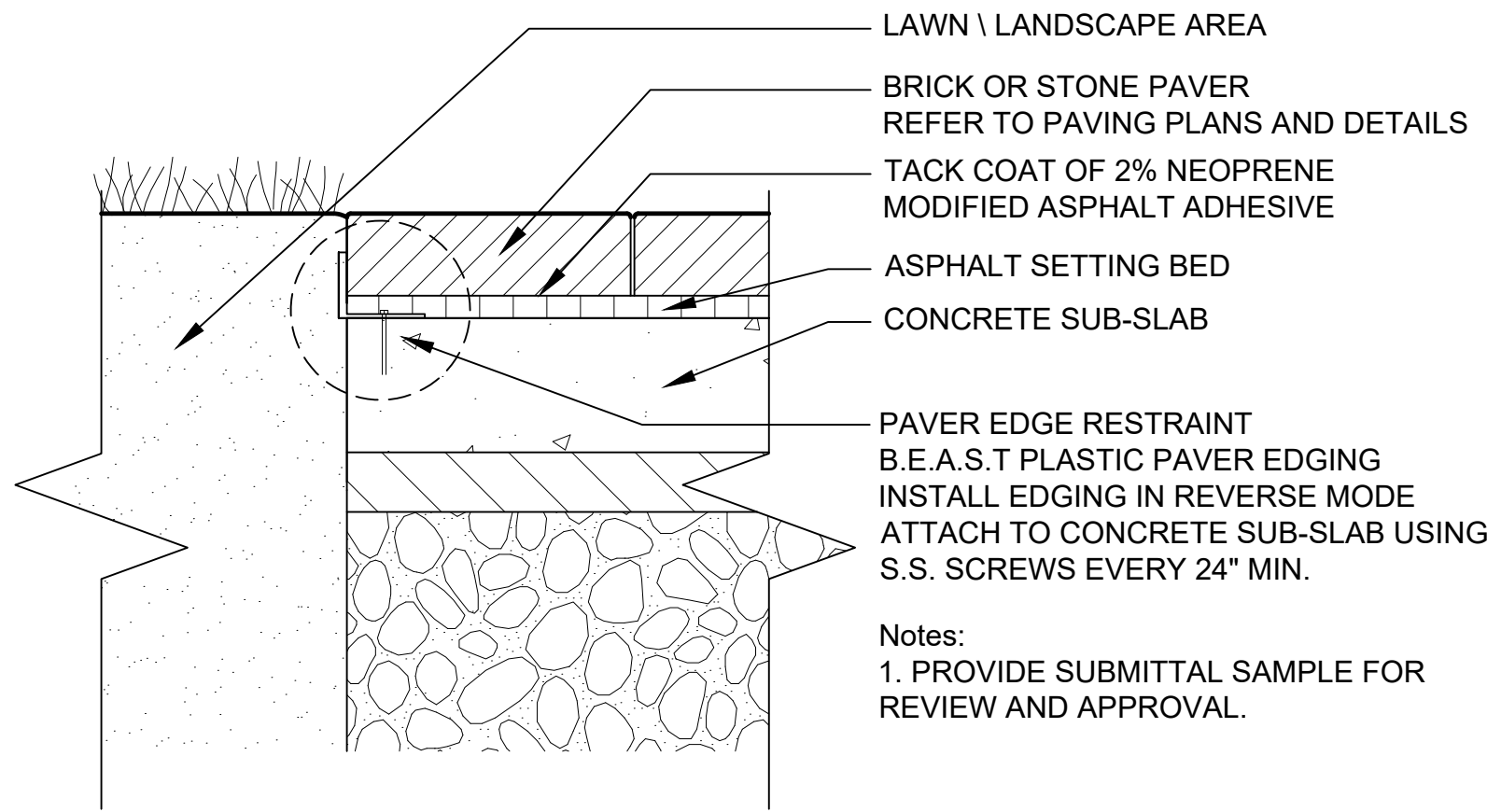


C BIKE RACK
SCALE 1" = 1'

NOTES:
1. REFER TO LAYOUT PLANS FOR PAVER LOCATIONS.
2. INSTALL A PAVER EDGE RESTRAINT WHERE PAVERS ARE UNRESTRAINED AGAINST LAWN OR LANDSCAPE BEDS, REFER TO PAVER EDGE RESTRAINT DETAIL



A BRICK PAVERS OVER CONCRETE
SCALE 1" = 1'-0"



B PAVER EDGE RESTRAINT
SCALE 2" = 1'-0"

Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr.

Designed by	Checked by
Issued for	Date
Zoning Permit Application	June 26, 2019

For Review Only
Drawing Title
LANDSCAPE DETAILS

Drawing Number

L-1.1

Sheet of

Project Number
58153.00

Planting Notes

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
4. A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLAN LIST AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.
13. ALL TREE, SHRUB AND PERENNIAL PLANTING BEDS ARE TO BE CONTINUOUS, COMPLETELY DUG OUT AND BACKFILLED WITH THE PROPER PLANTING BED BACKFILL MATERIAL TO DEPTH SPECIFIED IN DETAILS AND SOIL PREPARATION SPECIFICATION.
14. IF THE LANDSCAPE CONTRACTOR PROPOSES A SUBSTITUTE PLANT SPECIES, ALL SUBSTITUTES NEED TO BE APPROVED BY THE LANDSCAPE ARCHITECT AND CITY OF SOUTH BURLINGTON IN WRITING PRIOR TO ORDERING.

Plant Maintenance Notes

1. CONTRACTOR SHALL PROVIDE COMPLETE MAINTENANCE OF THE LAWNS AND PLANTINGS. NO IRRIGATION IS PROPOSED FOR THIS SITE. THE CONTRACTOR SHALL SUPPLY SUPPLEMENTAL WATERING FOR NEW LAWNS AND PLANTINGS DURING THE ONE YEAR PLANT GUARANTEE PERIOD.
2. CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, AND EQUIPMENT FOR THE COMPLETE LANDSCAPE MAINTENANCE WORK. WATER SHALL BE PROVIDED BY THE CONTRACTOR.
3. WATERING SHALL BE REQUIRED DURING THE GROWING SEASON, WHEN NATURAL RAINFALL IS BELOW ONE INCH PER WEEK.
4. WATER SHALL BE APPLIED IN SUFFICIENT QUANTITY TO THOROUGHLY SATURATE THE SOIL IN THE ROOT ZONE OF EACH PLANT.
5. CONTRACTOR SHALL REPLACE DEAD OR DYING PLANTS AT THE END OF THE ONE YEAR GUARANTEE PERIOD. CONTRACTOR SHALL TURN OVER MAINTENANCE TO THE FACILITY MAINTENANCE STAFF AT THAT TIME.

PLANT SCHEDULE					
<u>DECIDUOUS TREES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>SIZE</u>	
AR	4	Acer x freemanii 'Sienna'	Sienna Maple	2 1/2 - 3" CAL/ B&B	
GB	4	Ginkgo biloba 'Autumn Gold'	Ginkgo	2 1/2 - 3" CAL/ B&B	
<u>SHRUBS</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>SIZE</u>	<u>SPACING</u>
SB	14	Spiraea bumalda 'Anthony Waterer'	Anthony Waterer Spiraea	18 - 24" SPD	36" o.c.
<u>GRASSES</u>	<u>QTY</u>	<u>BOTANICAL NAME</u>	<u>COMMON NAME</u>	<u>SIZE</u>	<u>SPACING</u>
CA	14	Calamagrostis x acutiflora 'Karl Forester'	Feather Reed Grass	2 Gal.	30" o.c.

NOTE: EXAMINE ENTIRE TREE AND REMOVE ALL NURSERY TAGS, ROPE, STRING, OR SURVEYORS TAPE TO PREVENT FUTURE GIRDLING.

SURROUNDING SOIL SHOULD NOT EXCEED 80% COMPACTION, DRAINAGE WILL BE REQUIRED IF COMPACTED SOILS ARE PRESENT

NYLON STRAP —————
WITH 3/4" GROMMETS,
REFER TO SPECIFICATIONS

FASTEN WIRE BELOW POINT OF—
MAJOR BRANCHING OR TO MAJOR
OUTSIDE TRUNK.

2 1/2" HARDWOOD STAKES. ALIGN——
STAKES PARALLEL W/ ROAD/ WALKS
OR PARALLEL W/ DIRECTION OF
PREVAILING WIND, REFER TO TREE
STAKING DETAIL

TEMPORARY WATERING BASIN

BREAK APART EDGE OF EXCAVATION -
W/ SHOVEL AND BLEND PLANT MIX
W/ EXISTING SOIL TO PROVIDE
TRANSITION TO UNDISTURBED GRADE

UNDISTURBED GRADE ———
EXCAVATE ONLY TO SPECIFIED
PLANTING DEPTH TO ENSURE
STABLE BASE

DECIDUOUS TREE

TOP OF ROOTBALL, ROOT FLARE SHOULD BE EVIDENT. IF ROOT FLARE IS NOT EVIDENT, THEN SCRAPE OFF THE TOP LAYER OF SOIL BUILD UP ON TOP OF ROOTBALL FROM NURSERY.

2" HEMLOCK BARK MULCH

REMOVE TOP HALF OF WIRE CAGE
CUT AND REMOVE BURLAP
FROM ROOTBALL

BACKFILL MIX FOR TREE PLANTING BEDS,
REFER TO SOIL PREPARATION SPECIFICATION

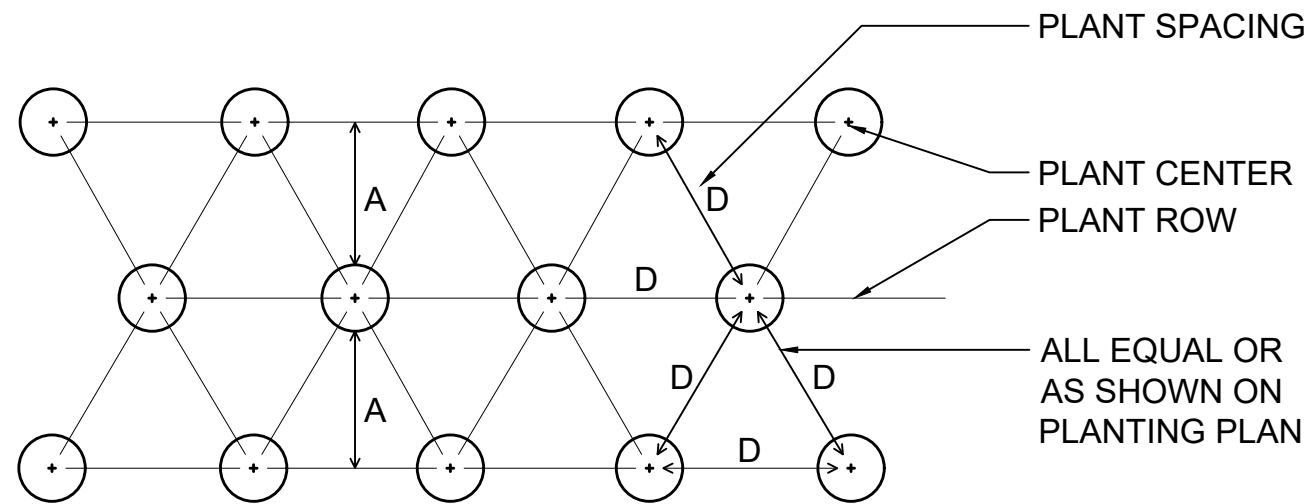
FINISH GRADE

NOTE:
1. ALL TREE PLANTING BEDS ARE TO BE CONTINUOUS, COMPLETELY DUG OUT AND BACKFILLED WITH THE PROPER PLANTING BED BACKFILL MATERIAL, REFER TO SOIL PREPARATION SPECIFICATION.

A TREE PLANTING

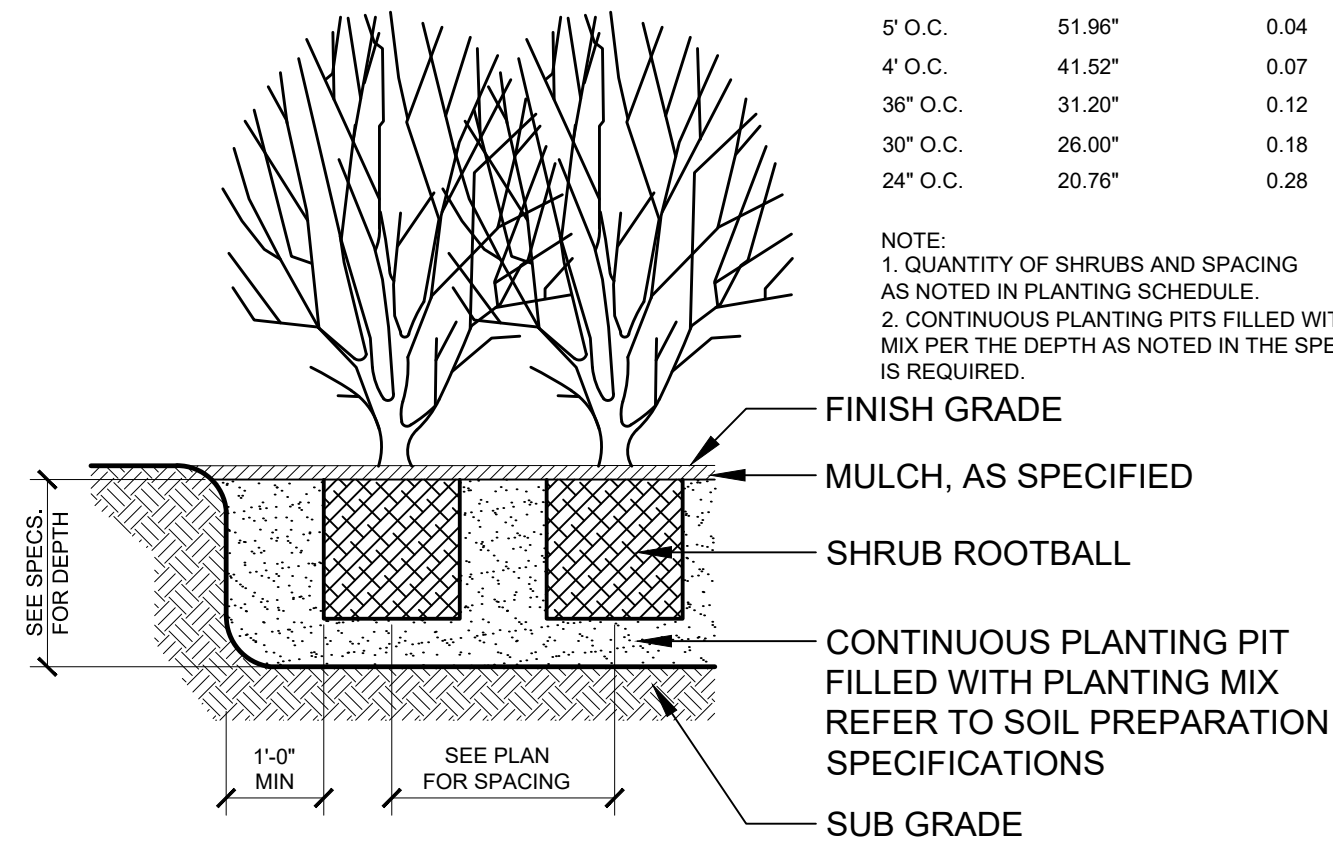
SCALE 1/4" = 1'-0"

p-decidtree.dwg



<u>SPACING "D"</u>	<u>ROW "A"</u>	<u>NUMBER OF PLANTS/SQ. FT.</u>
5' O.C.	51.96"	0.04
4' O.C.	41.52"	0.07
36" O.C.	31.20"	0.12
30" O.C.	26.00"	0.18
24" O.C.	20.76"	0.28

NOTE:
1. QUANTITY OF SHRUBS AND SPACING
AS NOTED IN PLANTING SCHEDULE.
2. CONTINUOUS PLANTING PITS FILLED WITH PLANTING
MIX PER THE DEPTH AS NOTED IN THE SPECIFICATIONS
IS REQUIRED.

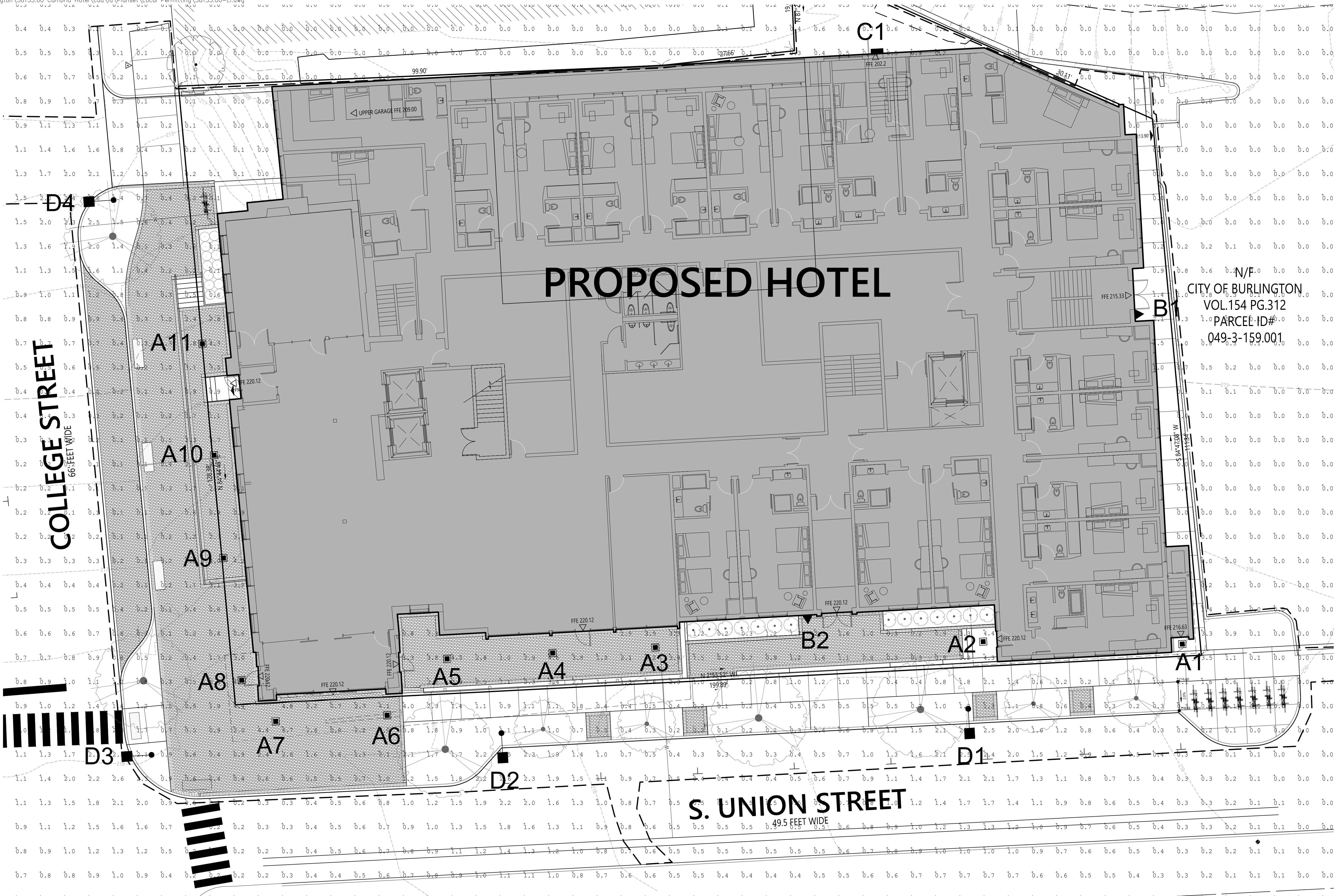


B SHRUB PLANTING

SCALE: 1/2" = 1'-0"



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by	Checked by
Issued for	Date
June 26, 2019	

**Zoning Permit
Application
For Review Only**

LIGHTING PLAN

FIXTURE AND POLE SPECIFICATIONS

Fixture A
Manufacturer: Prescolite
Fixture: Lightframe 6" Square
Color: Black
LED Color: 3,000k
Voltage: 120v (verify with electrical engineer)
Wattage: 12watt LED
(Recessed canopy light, mounting height varies)

Fixture B
Manufacturer: Architectural Area Lighting
Fixture: Cypher - C1 Accent Light (Down light only)
Color: Black
LED Color: 3,000k
Voltage: 120v (verify with electrical engineer)
Wattage: 17watt LED
(Decorative accent light)

Fixture C
Manufacturer: KIM Lighting
Fixture: WDS - Wall Sconce
Color: Black
LED Color: 3,000k
Voltage: 120v (verify with electrical engineer)
Wattage: 30watt LED - Type 4W
(Wall sconce)

Fixture D
Manufacturer: LUMEC
Fixture: Renaissance
Color: Black
LED Color: 3,000k
Voltage: 120v (verify with electrical engineer)
Wattage: 55watt LED - Type 4 - w/ Decorative Reflector
(Great Streets standard light fixture, 18ft mounting height)

Drawing Number

L-2.0

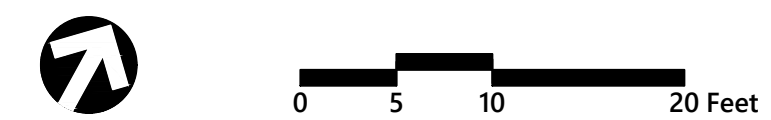
Sheet of

Project Number
58153.00

N/F TWO O'BRIENS PROPERTIES LLC
VOL.763 PG.180
PARCEL ID# 049-3-167

N/F
ONION RIVER COOPERATIVE
PARCEL ID# 049-3-159

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appr'd.

Designed by **JRZ**
Checked by **PBS**

Issued for Date

Zoning Permit

June 26, 2019

Zoning Permit Application For Review Only

Proposed Stormwater Management Plan

Drawing Number

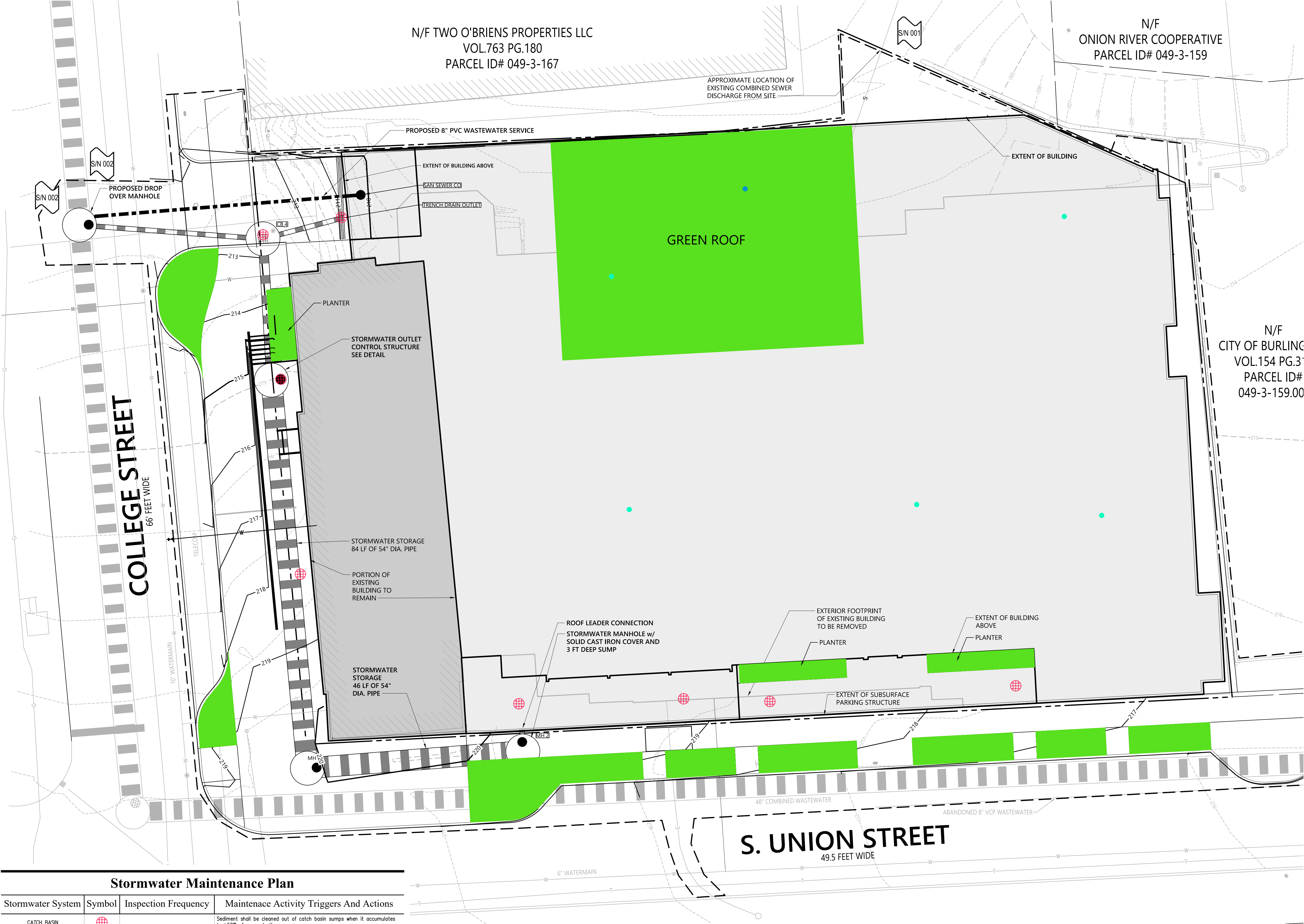
SW-1

Sheet 16 of -

Project Number
58153.00



40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100



Stormwater Maintenance Plan

Stormwater System	Symbol	Inspection Frequency	Maintenace Activity Triggers And Actions
CATCH BASIN		ANNUAL	Sediment shall be cleaned out of catch basin sumps when it accumulates to >50% of sump depth.
ROOF DRAIN			Roof drain inlets and outlets shall be kept clean of debris. Example location, coordinate with Architectural roofing plan.
GREEN ROOF SYSTEM			Inspect plants; Replace growing media as needed; Remove debris and trash; Remove weeds; Trim vegetation as needed.
			Remove silt/sediment from underdrain system as needed.



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	Appvd.

Designed by	JRZ	Checked by	PBS
Issued for		Date	June 26, 2019

Zoning Permit
Application
For Review Only

Proposed Stormwater
System Maintenance Plan

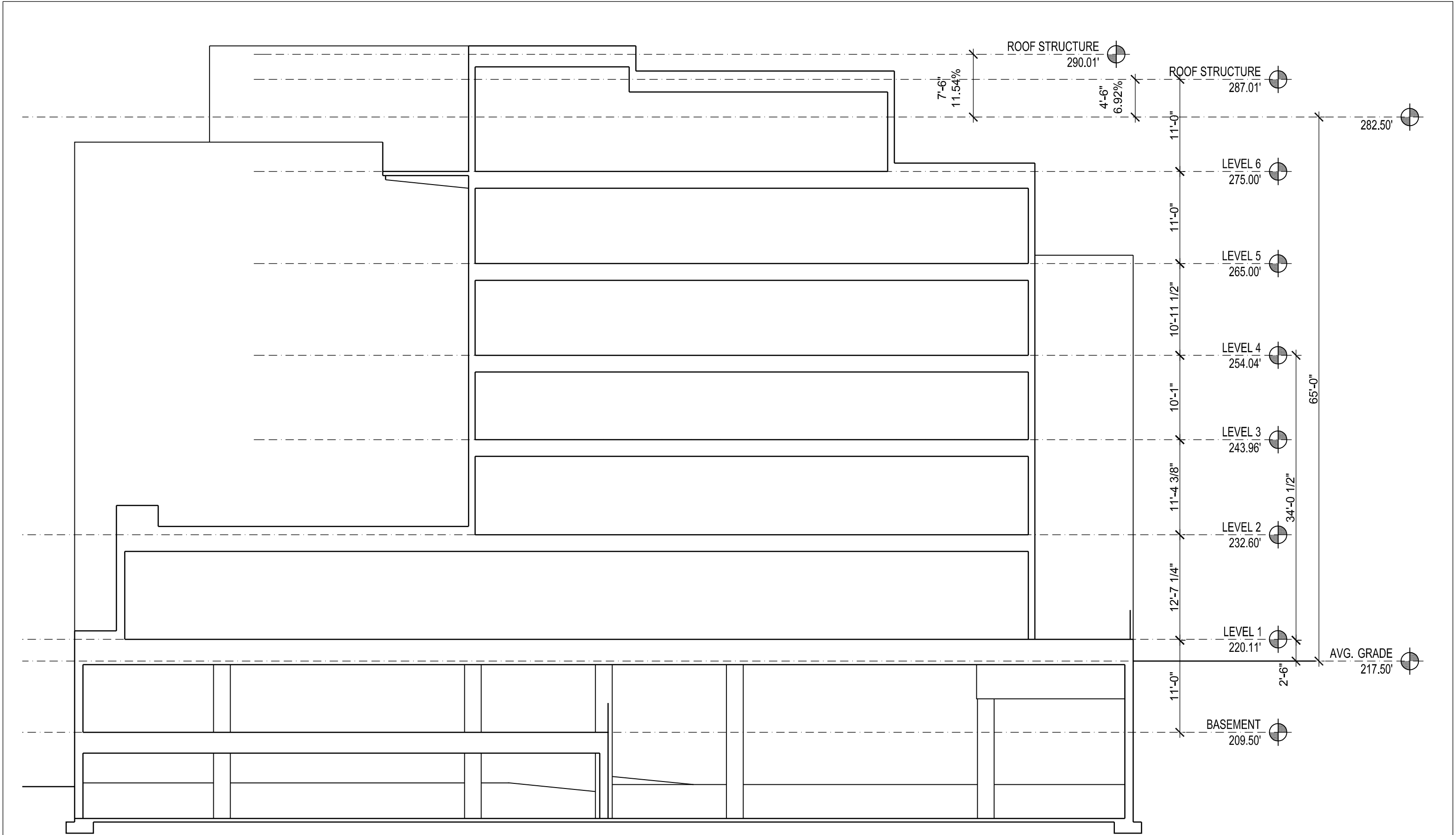
Drawing Number

SW-2

Sheet 17 of -

Project Number
58153.00

HECKED





LINCOLN BROWN ILLUSTRATION



LINCOLN BROWN ILLUSTRATION





EXISTING



PROPOSED



EXISTING



PROPOSED



City of Burlington
Department of Public Works

Technical Services Engineering Division
645 Pine Street, Suite A
Burlington, VT 05402
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450
www.burlingtonvt.gov/DPW

TO: Mary O'Neil, AICP, Principal Planner, Dept. of Planning & Zoning

FROM: Susan Molzon, P.E., Senior Public Works Engineer

CC: Chapin Spencer, Director
Norm Baldwin, P.E., Assistant Director/City Engineer
Laura Wheelock, P.E., Senior Public Works Engineer

DATE: August 9, 2019

SUBJECT: 266 College Street – Cambria Hotel

The Department of Public Works Technical Services Division (DPW) has reviewed the submitted Traffic Impact Study (TIS) dated August 5, 2019 prepared by VHB, and plans submitted to the DRB on or about July 10, 2019. This Memo identifies comments from DPW Technical Services Division staff related to transportation and roadway features and does not include comments from the Water Resources Division, or other divisions of DPW. City staff offers the following comments:

1. The Applicant should revise the TIS Appendix to include appropriate volumes in the evaluation of signal warrants at South Union Street and College Street for the 2020 No-Build and Build conditions. These revisions are not expected to significantly impact the results of the TIS.
2. The Applicant should provide supporting documentation for the calculation of the total 18-hour No-Build and Build volumes used in the warrant analysis for both College Street and South Union Street.
3. The capacity analysis of the peak hour conditions show that Level of Service will be acceptable with the current All-Way Stop sign control at South Union Street and College Street for the 2020 and 2025 Build conditions. A traffic signal control is not recommended at this time, but conditions should continue to be monitored.
4. The Applicant should identify whether they intend to obtain an encumbrance permit in order to provide short term bicycle parking within the public right-of-way, or provide payment in lieu as described in Comprehensive Development Ordinance Sections 8.2.5(b) and 8.2.7.
5. The Applicant should provide proposed cross sections of the College Street and South Union Street right-of-way.
6. The College Street drop-off area, which will be designated as 15 minute parking, should be limited to two parking spaces. Designation of parking spaces as 15 minute parking on College Street, and change in South Union Street parking spaces from loading and unloading to metered spaces is subject to approval of the DPW Commission.

7. Applicant shall provide design details, including material selection and pipe insulation, for DPW's review and comment prior to development of final construction drawings.
8. DPW requests the Applicant to submit 100% design drawings to DPW prior to beginning any work within the City's right-of-way.
9. The project area is within the Great Streets district. Design elements within the right-of-way shall comply with Great Street standards including, but not limited to, parking and travel lane widths, paver materials, sidewalk scoring patterns and greenbelts.
10. The Applicant should provide further details on how the project proposes to activate the proposed patio, which is partially within the City's right-of-way, and engage the public on the College Street side of the building.
11. Recommend the release of Building Permits be conditioned on obtaining approval from City Council and License Committee for encroachments in the right-of-way.
12. Applicant shall coordinate street lighting with Burlington Electric Department.
13. Applicant shall coordinate greenbelt design and street trees with the City Arborist.

DPW staff requires the additional information discussed above in order to complete a full review of the proposed development. DPW cannot recommend approval of the proposed development at this time.

Should you have any questions, please contact me at smolzon@burlingtonvt.gov or 802-540-0557.



Memorandum

To: Scott Silver
Hotel Y Burlington, LLC

Date: August 5, 2019

Project #: 58153.00

From: Jenn Conley, PE, PTOE
Erica Quallen, EIT

Re: Cambria Hotel
Traffic Impact Study

VHB has completed a Traffic Impact Study (TIS) for the proposed Cambria Hotel located at 266 College Street in Burlington, VT. The site is currently occupied by the Greater Burlington YMCA which is being relocated to the east on College Street. The proposed redevelopment program consists of an approximately 145-room hotel with guest accommodations including a restaurant, bar, and conference rooms.

This Traffic Impact Study includes the following elements:

- A description of the existing roadway network in the vicinity of the site;
- A summary of the crash data within the study area;
- A description of the proposed development program;
- A trip generation estimate for the proposed development program;
- An evaluation of traffic operations within the study area;
- A review of curbside operations and traffic circulation; and
- Conclusions and recommendations to support the project.

This report was developed to address the following Major Impact Review Standard, as outlined in the City of Burlington's *Comprehensive Development Ordinance* (Section 3.5.6(b)):

Criteria #5: The proposed development shall not cause unreasonable congestion or unsafe conditions on highways, streets, waterways, railways, bikeways, pedestrian pathways or other means of transportation, existing or proposed.

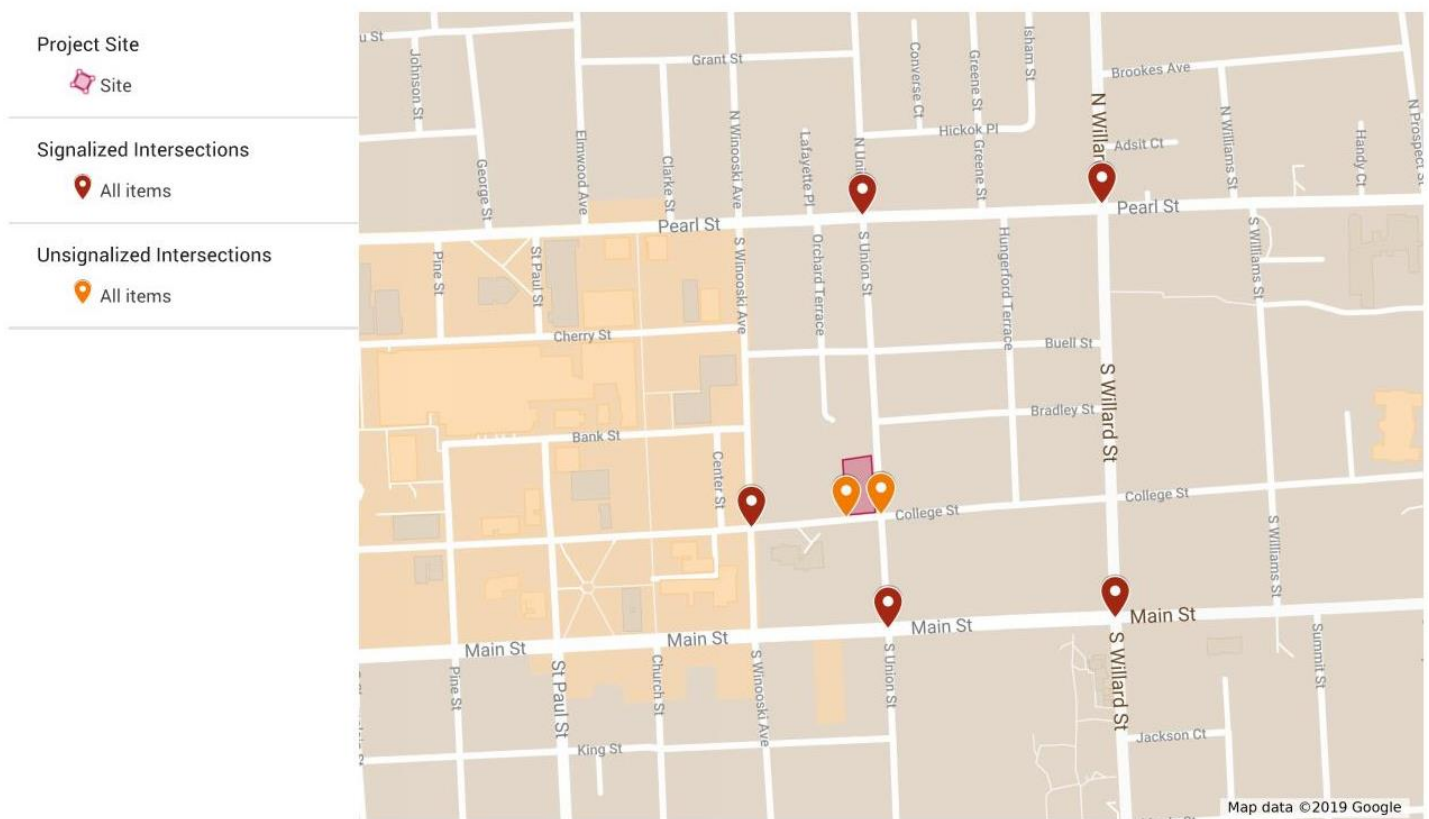
As part of this study, seven intersections were evaluated and summarized in regard to Level of Service (LOS), delay, and volume to capacity ratios in order to estimate how the proposed project impacts the local street network. Additional reviews and evaluations are contained within this report, which summarize the existing and proposed project area as it relates to traffic and safety impacts. The study area intersections are listed below, and the general project area and study intersections are shown in **Figure 1**.

- Unsignalized
 - South Union Street / College Street
 - Site Driveway / College Street (Build Conditions Only)
- Signalized
 - South/North Union Street / Pearl Street
 - South Union Street / Main Street

40 IDX Drive
Building 100, Suite 200
South Burlington, VT 05403-7771
P 802.497.6100

- South/North Willard Street / Pearl Street
- South Willard Street / Main Street
- South Winooski Avenue / College Street

Figure 1: Site Location and Study Intersection Map



EXISTING CONDITIONS

The project site is located at 266 College Street in Burlington, Vermont. The building is located on the northwest corner of the intersection of College Street and South Union Street, as shown in **Figure 1**.

Roadway Characteristics

College Street is an east-west Minor Collector running from South Prospect Street at the eastern terminus to the Burlington Waterfront at the western terminus. Adjacent to the site, College Street is a two-way urban roadway (one lane in each direction) with on-street parking, an eastbound bike lane east of South Union Street, and wide sidewalks on both sides of the street. College Street has a posted speed limit of 25 miles per hour (mph).

South Union Street is a north-south Principal Arterial running from Saint Paul Street at the southern terminus to North Winooski Avenue at the northern terminus. Adjacent to the site, South Union Street is a one-way northbound urban roadway with on-street parking on the western side of the road, a northbound protected bike lane on the eastern side of the road, and sidewalks on both sides of the street. South Union has a posted speed limit of 25 miles per hour (mph). For the purposes of this study, it was assumed that the existing roadway geometries along each of these corridors remained the same through the projected 2020 and 2025 analysis periods.

CRASH SUMMARY

A review of VTrans' most recent High Crash Location (HCL) Report (2012-2016) revealed that three intersections within the project study area were classified as HCLs by VTrans.¹ These HCLs are summarized in **Table 1** below. The actual to critical ratio of greater than one indicates that the rate of crashes at the intersection exceeds the average rate of crashes for similar intersections statewide, and therefore requires further inquiry. More detailed crash data were compiled from the VTrans Crash Query Tool for the project study area and evaluated for a more recent 5-year period : January 1, 2013 through December 31, 2017. **Figure 2** below summarizes the reported crashes by type for the primary study area, and the detailed VTrans crash summaries are included in the Appendix.

¹ High Crash Location Report: Intersections and Segments (2010-2014), Vermont Agency of Transportation, 2015.

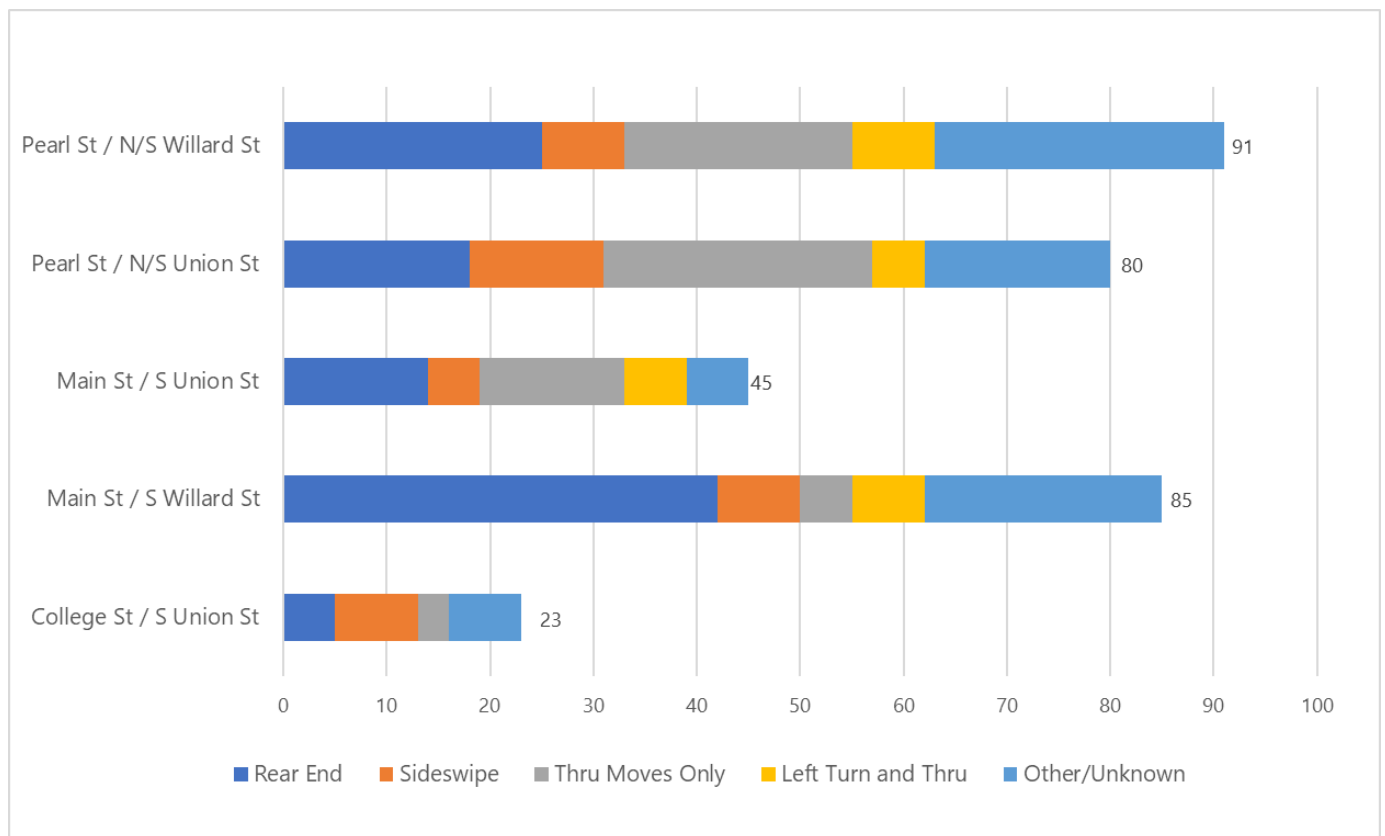
Table 1: High Crash Location Intersections within Project Area

HCL#	Location	AADT*	Total Crashes	Crashes Resulting in Fatality	Crashes Resulting in Injury	Actual/Critical Ratio**
Intersections						
14	S Willard St / Main St	21,400	65	0	9	1.91
47	N/S Willard St / Pearl St	16,780	57	0	13	1.38
52	S Union St / Main St	16,410	37	0	9	1.36

*AADT – Annual Average Daily Traffic

**Actual/Critical Ratio – rate of actual crashes at the intersection normalized to the number of vehicles that use the intersection relative to the critical or statewide average rate of crashes for similar intersections.

Figure 2: Study Intersection Crashes by Type (2013-2017)



The crash data presented in **Figure 2** indicates that the most common crashes are rear end crashes and through move only crashes, particularly for the signalized intersections in the project area. Rear end type crashes at the signalized intersections are typical while through movement crashes are often less common. Where turning movements are not accommodated by a turn lane, widths at these intersections generally allow through movement vehicles to negotiate around turning vehicles, which may contribute to the number of through movement crashes.

PROPOSED DEVELOPMENT

The proposed development program includes the redevelopment of the current Greater Burlington YMCA into a 145-room hotel with amenities such as conference rooms, restaurant, and bar. The redevelopment will include renovation of the current historic structure, as well as new construction on the northern and western sides.

Primary access and egress to the subsurface parking garage is proposed to be provided via a new driveway located on College Street, west of South Union Street. The hotel will have a designated curbside drop-off/pick-up located on College Street immediately east of the parking garage entrance. This will be used for drop-offs and short-term parking during check-in and check-out processes.

The proposed layout of the project site is shown below in **Figure 2**.

\\vrb\gb\proj\SBurlington\58153.00 Cambria Hotel\cad\vd\Plan\set\Local Permitting\58012.00-LA.dwg



vhb.com

40 IDX Dr
Building 100 Suite 200
South Burlington, VT 05403
802.497.6100

Draft
For Review Only
March 26, 2019



Cambria Hotel
266 College Street
Burlington, Vermont

No.	Revision	Date	App'd

Designed by

Checked by

Issued for

Date

Design Coordination

April 15, 2019

Not Approved for Construction

CONCEPT SITE PLAN

L-1.0

Sheet of

Project Number
58153.00

Speed Tuesday, March 26, 2019 11:13:37 AM JENGINEER Plotted Tuesday, April 23, 2019 10:27:22 AM Wilson, Michael

TRIP GENERATION

Trip generation estimates for the proposed 145-room hotel were calculated based on rates published by the Institute of Transportation Engineers (ITE) in the 10th Edition of *The Trip Generation Manual*² for the weekday morning and evening peak hours. These time periods are typically the highest volume times on the adjacent roadway network and are used for this analysis.

Land Use Code 310 (Hotel) was used to estimate the peak period trip generation of the proposed development. This land use code includes hotels with similar amenities to those provided in the proposed Cambria hotel.

Table 2 summarizes the trip generation estimate for the proposed development. Calculations supporting the proposed trip generation estimates for the project are provided in the Appendix. For this analysis, no reductions for transit, bicycle, or pedestrian trips were made as most hotel patrons are expected to arrive by car.

Table 2: Trip Generation Summary

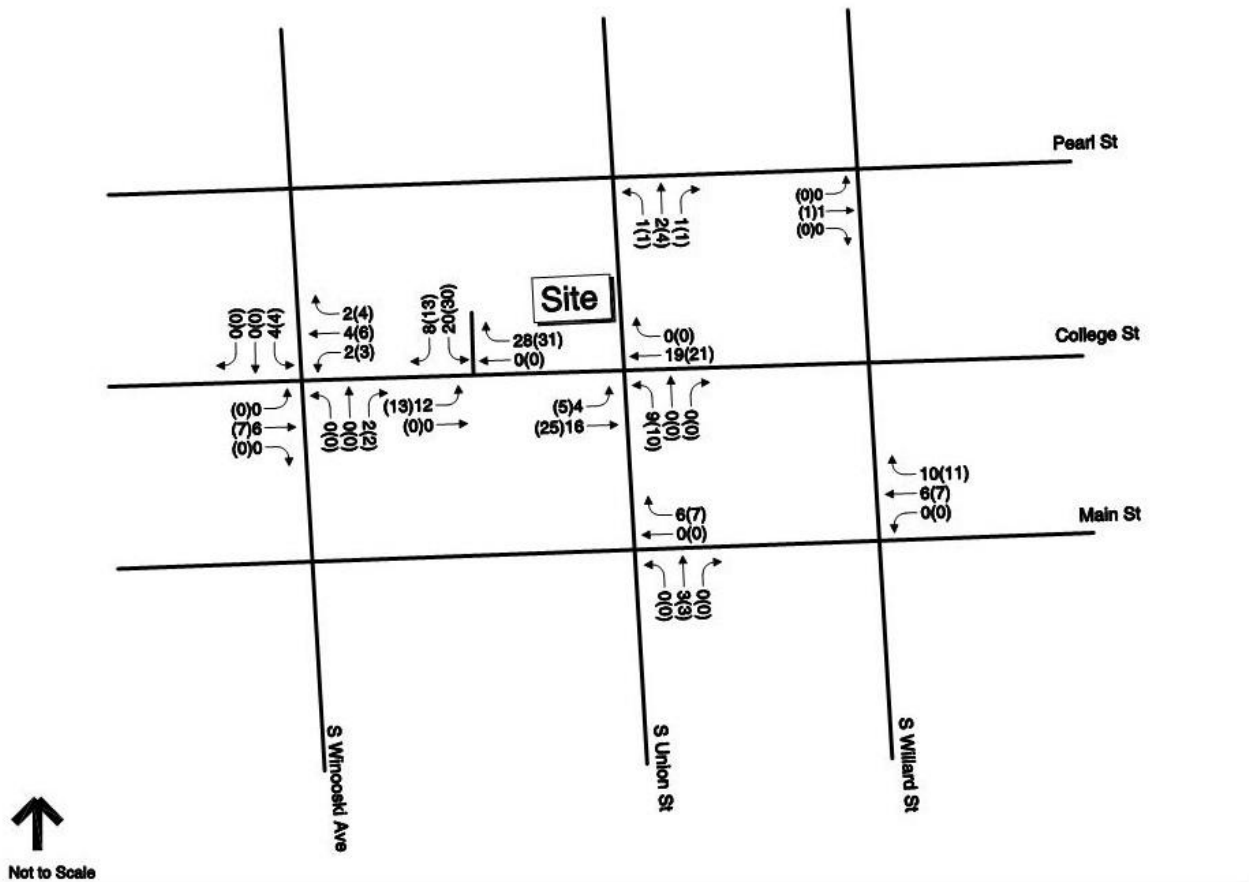
	Net New Trips
<u>Peak Period</u>	<u>Total</u>
Weekday Morning	
Enter	40
Exit	<u>28</u>
Total	68
Weekday Evening	
Enter	44
Exit	<u>43</u>
Total	87

TRIP DISTRIBUTION

The site-generated trips were distributed onto the adjacent street network based on a combination of background traffic patterns, an understanding of route preferences, potential "short-cut" routes, travel time measurements, and engineering judgement. **Figure 3** shows the general distribution of net new trips generated by the proposed hotel.

² *Trip Generation*, 10th Edition, Institute of Transportation Engineers, Washington D.C., 2012.

Figure 3: Site Generated Trips



Legend
 AM Peak Hour Volume
 (PM Peak Hour Volume)



Figure 3
 Site Generated Trips
 Peak Hour Traffic Volumes

TRAFFIC NETWORKS

The weekday morning and evening peak periods were selected for evaluation purposes as they represent the peak conditions for the adjacent street system which is the critical factor for this analysis. Turning movement count data at the adjacent study intersections of South Willard Street and Main Street, South Willard Street and Pearl Street, South Union Street and Main Street, South Union Street and College Street, South Union Street and Pearl Street, South Winooski Ave and College Street were obtained from recent counts conducted by the CCRPC.

To evaluate the impact of the proposed development within the study area, AM and PM peak hour traffic volumes were projected to the opening year (2020) and a 5-year forecast horizon (2025). Copies of the traffic volume count data are provided in the Appendix.

Seasonal Variation

Since it is impractical to design for the highest volume encountered during the year, VTrans guidelines recommend a compromise between capacity and cost. Design Hourly Volume (DHV) criteria allow roads to be designed for the 30th highest hourly volume of the year. Historical data from the closest, most comparable VTrans Automatic Traffic Recorder (ATR) stations³ in the vicinity of the project intersections were reviewed to establish appropriate DHV adjustment factors. Detailed calculations for the DHV adjustments are provided in the Appendix.

Background Growth

Background traffic growth is a function of expected land development in the region. To predict a rate at which traffic can be expected to grow during the forecast period, historical traffic growth was examined. The regression analysis chart in the 2017 VTrans Redbook⁴ suggests that between 2020 and 2025, a traffic growth percentage of 2% is anticipated over this five-year period.

No Build and Build Traffic Networks

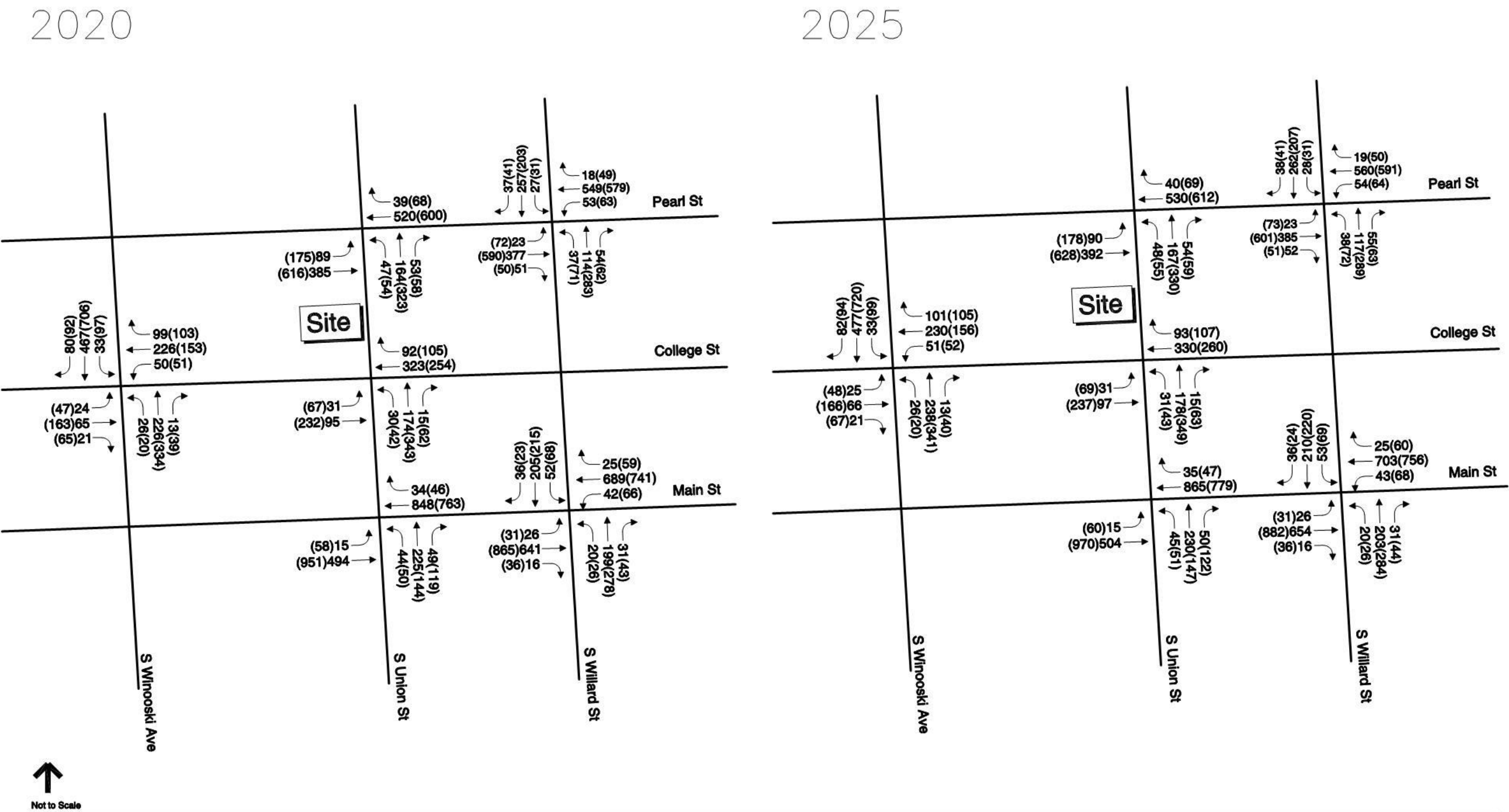
The 2020 and 2025 No Build traffic volumes were developed by applying the growth factors from the VTrans regression analysis chart to DHV-adjusted peak hour traffic volumes. The 2020 and 2025 No Build weekday morning and evening DHVs are shown in **Figure 4**. It is important to note that for the purposes of this study, the No Build traffic volumes are comprised of the existing background traffic patterns, including the current use of the YMCA which was active at the time of the traffic counts, as well as the anticipated City Place and new YMCA Trip Generation. This provides a conservative estimate of the traffic patterns in the vicinity of the Cambria development, given that the current uses and proposed development are incorporated in the traffic data.

³ Automatic Traffic Recorder Station ID D161 from 2018 on Main Street between South Willard Street and South Union Street and ID D079 from 2018 on South Union Street just south of the Bradley Street intersection.

⁴ Continuous Traffic Counter Report (The Redbook), Vermont Agency of Transportation, 2017.

Based on the expected trip distribution from **Figure 3**, the site-generated trips were added to the 2020 and 2025 No Build peak hour traffic volumes to establish the 2020 and 2025 Build networks. The Build networks are shown in **Figure 5**.

\\vhb\gb\proj\SBurlington\58153.00 Cambria Hotel\cad\ts\58153.00 Cambria Hotel_TrafficNet.dwg

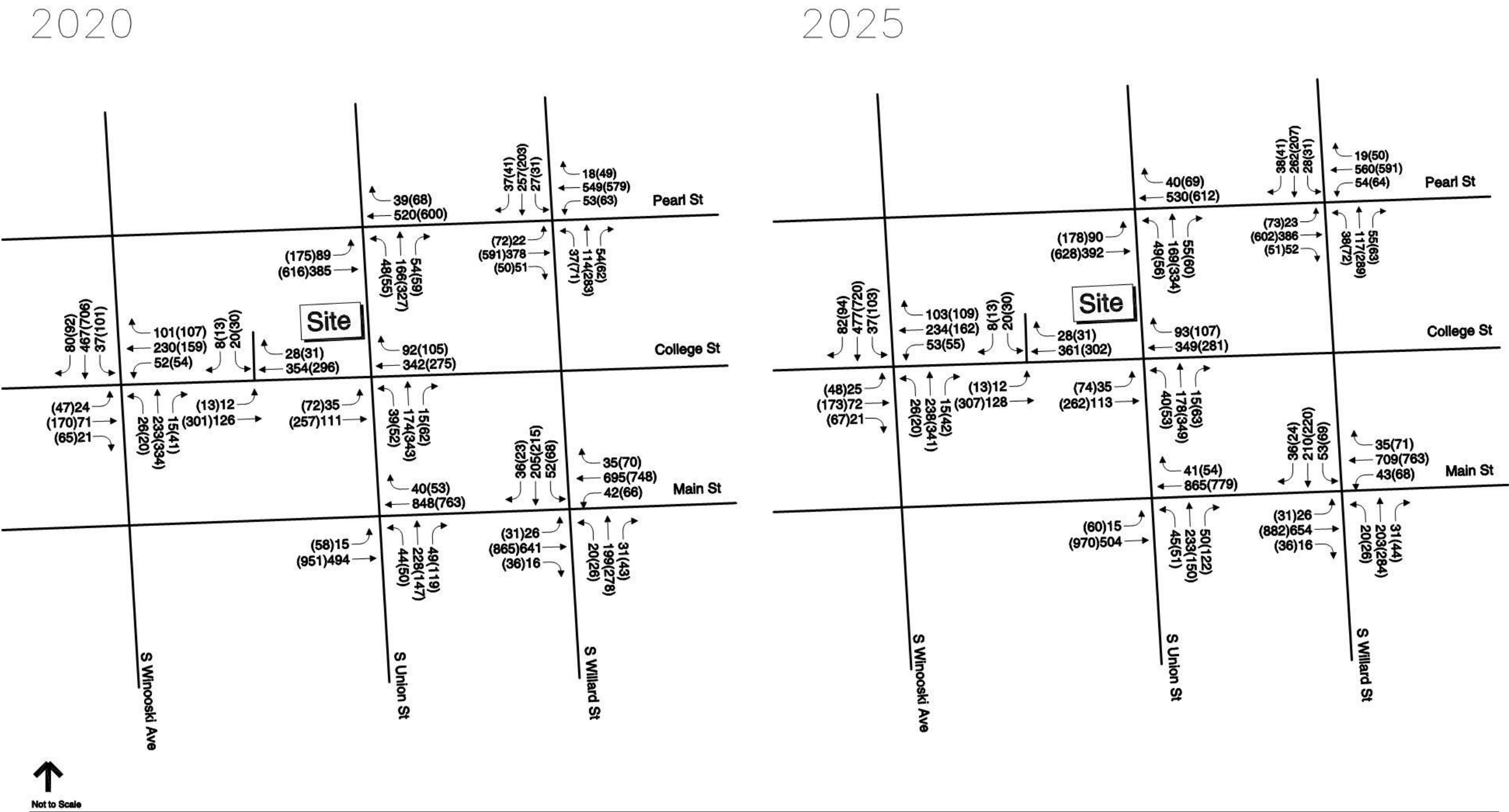


Legend
AM Peak Hour Volume
(PM Peak Hour Volume)



Figure 4
2020 and 2025 No Build
Peak Hour Traffic Volumes

\\vhb\gib\proj\58153.00 Cambria Hotel\cad\ts\58153.00 Cambria Hotel_TrafficNet.dwg



Legend
AM Peak Hour Volume
(PM Peak Hour Volume)



Figure 5
2020 and 2025 Build
Peak Hour Traffic Volumes

TRAFFIC ANALYSES

Intersection Capacity Analyses

Intersection capacity analyses were performed for the study area intersections. Levels of Service (LOS) were calculated based on the criteria published in the *2000 Highway Capacity Manual*.⁵ Level of Service is the term that defines the conditions that may occur on a given roadway or at an intersection when accommodating various traffic volume loads. Levels of service range from A to F with LOS A representing generally free flowing operating conditions and LOS F representing generally congested conditions. Copies of the LOS calculations are provided in the Appendix.

Signalized Intersections

Table 3 summarizes the operational analysis at the *signalized* study area intersections during the 2020 and 2025 weekday morning and evening peak hours under No Build and Build conditions. As shown in the table, all intersections are anticipated to operate at LOS C or better except the intersection of Willard Street and Pearl Street which operates at LOS D. LOS D is still recognized as an acceptable level of service, particularly in a downtown area. It is important to note that the intersection of Willard Street and Pearl Street operates with a volume to capacity ratio of 0.99 in both 2025 scenarios. This ratio is not due to the newly generated trips as it occurs in both the No Build and Build scenarios. All other intersections are expected to operate with reasonable levels of service and capacity with changes in delay under one second with the inclusion of the new trips from the proposed hotel.

Unsignalized Intersections

Table 4 summarizes the operational analysis at the *unsignalized* study area intersections during the 2020 and 2025 weekday morning and evening peak hours under No Build and Build conditions. As shown in the table, all intersection approaches are expected to operate at LOS C or better in all scenarios except the 2025 Build scenario. In this case, the increase in delay from No Build to Build at the northbound South Union Street approach at College Street is only 3.2 seconds, but this results in crossing the threshold from LOS C to LOS D. For all intersection approaches, changes related to the trips generated from the proposed hotel result in delay and volume to capacity ratio increases of less than 3.2 seconds and 0.06, respectively.

⁵ Highway Capacity Manual, Federal Highway Administration, Transportation Research Board, 2000.

Table 3: Signalized Intersection Capacity Analysis Summary

Intersection / Movement	2020 No Build			2020 Build			2025 No Build			2025 Build		
	v/c ⁺	Delay*	LOS **	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
S/N Union St and Pearl St												
AM Peak Hour	0.56	15.3	B	0.57	15.3	B	0.57	15.6	B	0.58	15.6	B
PM Peak Hour	0.85	24.5	C	0.85	24.6	C	0.90	27.2	C	0.90	27.3	C
S Union St and Main St												
AM Peak Hour	0.76	15.1	B	0.77	15.4	B	0.78	15.6	B	0.78	15.9	B
PM Peak Hour	0.77	13.7	B	0.77	14.0	B	0.79	14.7	B	0.79	15.0	B
S/N Willard St and Pearl St												
AM Peak Hour	0.66	18.4	B	0.66	18.3	B	0.68	19.2	B	0.68	19.2	B
PM Peak Hour	0.96	33.0	C	0.96	33.2	C	0.99	37.8	D	0.99	37.9	D
S Willard St and Main St												
AM Peak Hour	0.70	15.5	B	0.71	15.6	B	0.71	15.9	B	0.73	16.0	B
PM Peak Hour	0.83	19.6	B	0.83	19.8	B	0.84	20.8	C	0.84	21.0	C
S Winooski Ave and College St												
AM Peak Hour	0.55	12.0	B	0.56	12.2	B	0.56	12.2	B	0.57	12.4	B
PM Peak Hour	0.69	13.3	B	0.70	13.7	B	0.70	13.7	B	0.72	14.2	B

⁺ Volume to capacity ratio

* Delay expressed in seconds per vehicle

** Level of Service

Table 4: Unsignalized Intersection Capacity Summary

Intersection / Movement	Peak Hour	2020 No Build			2020 Build			2025 No Build			2025 Build		
		v/c ⁺	Delay [*]	LOS ^{**}	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
S Union Street and College St EB from College St WB from College St NB from S Union St	AM Peak Hour	0.18	9.3	A	0.21	9.6	A	0.18	9.4	A	0.22	9.7	A
		0.53	12.6	B	0.56	13.5	B	0.54	12.9	B	0.58	13.8	B
		0.32	10.6	B	0.34	11.0	B	0.33	10.8	B	0.35	11.2	B
S Union Street and College St EB from College St WB from College St NB from S Union St	PM Peak Hour	0.50	14.8	B	0.56	16.7	C	0.52	15.3	C	0.58	17.4	C
		0.57	15.9	C	0.62	17.9	C	0.59	16.6	C	0.64	18.8	C
		0.71	21.5	C	0.75	24.4	C	0.73	22.8	C	0.77	26.0	D
Site Driveway and College St EB from College St WB from College St SB from Site Driveway	AM Peak Hour	DOES NOT EXIST IN NO BUILD			0.01	0.8	A	DOES NOT EXIST IN NO BUILD			0.01	0.8	A
					0.22	0.0	A				0.23	0.0	A
					0.05	11.9	B				0.05	12.0	B
Site Driveway and College St EB from College St WB from College St SB from Site Driveway	PM Peak Hour	DOES NOT EXIST IN NO BUILD			0.01	0.4	A	DOES NOT EXIST IN NO BUILD			0.01	0.4	A
					0.19	0.0	A				0.20	0.0	A
					0.09	12.9	B				0.09	13.1	B

⁺ Volume to capacity ratio

^{*} Delay expressed in seconds per vehicle

^{**} Level of Service

Signal Warrant Analysis

A preliminary signal warrant analysis for the intersection of South Union Street and College Street was conducted for the 2020 No Build and Build conditions based on an estimated 12-hour turning movement count⁶. Signal warrant analyses were conducted using the three volume-based warrants (i.e. Eight-hour, Four-hour, and peak-hour signal warrants) following the methodology contained within Chapter 4 of the *Manual on Uniform Traffic Control Devices (MUTCD)*⁷. In both cases, the peak hour and four-hour volume-based warrant was found to be met. This indicates that the proposed site generated trips are not the cause of the signal warrant being met. The eight-hour warrant was not met under either scenario. Detailed calculations can be found in the Appendix.

⁶ Estimated 12-hour turning movement count based on the 2020 no build and build scenarios peak hour turning movement projection at the South Union and College Street intersection adjusted to a 12-hour count based on 24-hour counts at D079 and BURL139 traffic recording stations.

⁷ *Manual on Uniform Traffic Control Devices*, Federal Highway Administration, 2009.

CURBSIDE OPERATIONS AND AREA CIRCULATION

The existing use of the project site is the Greater Burlington YMCA, which currently generates a large influx of traffic during the weekday morning and evening peak hours due to their daycare programs. This results in many cars parking and idling on both South Union and College Streets surrounding the building. These vehicles often cause unnecessary congestion and excessive delays by blocking the intersection, looking for parking, and dropping off and picking up children from programs at the YMCA.

With the proposed Cambria Hotel redevelopment, curbside operations are anticipated to change significantly by reducing the intensity and number of vehicles needing to park or idle along the curbside at one time, particularly during peak hours. The first major change is the main entrance to the hotel parking garage will be located on College Street, rather than South Union Street. College Street is a wider street, providing more space for vehicles on the road and pedestrians on the sidewalk. The proposed design includes a designated area on the northern side of the roadway for temporary parking while visitors check in or out of the hotel. This area will be between two curbed bumpouts and conspicuity is further increased through the use of brick pavers (see **Figure 6** below). Vehicles using this area will likely have a higher turnover rate than the current vehicles at the YMCA by not being designated as metered parking. These contributing factors are expected to decrease confusion, intersection blocking, and overall congestion in this area and allow for improved operations at the intersection of College Street and South Union Street.

Figure 6: Rendered Image of College Street Streetscape and Parking Garage Entrance



CONCLUSIONS

The impacts of the proposed redevelopment of the former Burlington YMCA into the 145-room Cambria Hotel on the intersections of Main Street with South Willard and South Union Streets, College Street with South Union Street and South Winooski Ave, and Pearl Street with Willard and Union Streets were evaluated as part of this Traffic Impact Study. The trip generation estimates conducted for this study indicate that the proposed development program will generate approximately 68 and 87 new external vehicle trips during the weekday morning and evening peak hours, respectively.

Primary access and egress to the hotel parking garage is proposed to be provided via a new driveway on College Street which was also evaluated in the Build conditions.

The crash data investigation revealed three designated High Crash Locations proximate to the project site and 310 total reported crashes within the last five years at the study intersections. Given the anticipated trip generation through these intersections, it is not expected that major changes to safety will occur from the proposed development.

From a traffic operations perspective, the intersection capacity analysis results demonstrated that the proposed development is not anticipated to generate unreasonable congestion on the adjacent roadway network. The capacity analysis projects that all intersections and approaches operate at adequate levels of service in the 2020 and 2025 No Build and Build conditions.

College Street and South Union Street in the area directly adjacent to the proposed development are expected to experience decreased confusion and likely improved operations due to a shift in curbside operations. Currently, the curbside is very active and often congested with YMCA patrons and daycare drop-off and pick-up. The shift to a more controlled, clearly designated, short-term parking and idling area will disincentivize leaving unattended vehicles for longer periods of time and result in overall smoother traffic flow in the area of the proposed hotel.

In conclusion, based on the results of this Traffic Impact Study, the proposed Cambria Hotel project is not anticipated to generate unreasonable congestion or unsafe conditions on the adjacent roadway network.

Technical Appendix Traffic

- Traffic Volume Data
- Crash Data
- Trip Generation Supporting Documents
- Traffic Volume Adjustments
- Traffic Volume Networks
- Intersection Capacity Analyses
- 2020 No Build Signal Warrant Analysis

Traffic Volume Data



Computations - Traffic Volumes

Project: **Cambria Hotel** Project #: **58153.00**
 Location: **Burlington, VT** Sheet:
 Calculated by: **CKF** Date: **12/4/18**
 Checked by: Date:
 Title:
 Intersection: **South Union Street and Pearl Street**

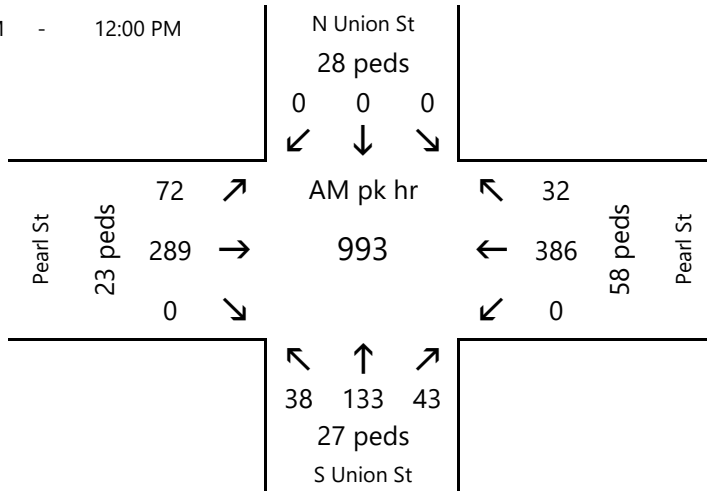
Intersection: **So. Union St. and Pearl St.** Town: **Burlington, VT**
 Count Date(s): **6/16/2018 and 6/17/2018** Counter: **S.Williams**

Peak Hour Volumes

	SB				WB				NB				EB				Total
	N Union St				Pearl St				S Union St				Pearl St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	0	0	28	32	386	0	58	43	133	38	27	0	289	72	23	993
PM pk hr	0	0	0	27	55	451	0	53	47	263	44	38	0	432	142	37	1434

AM Peak Hour

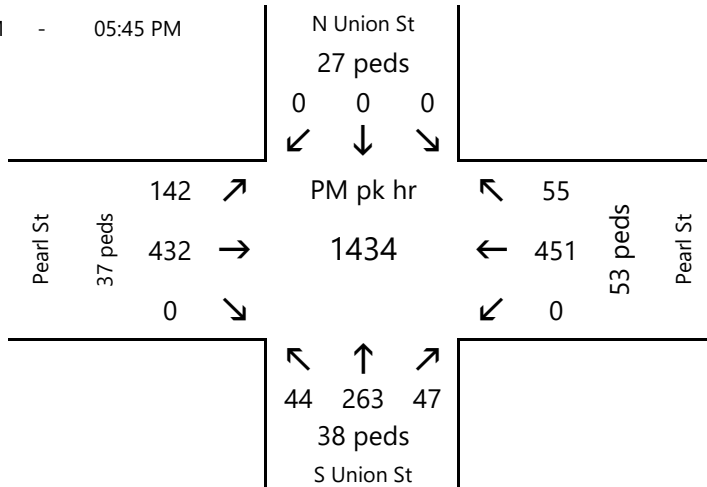
11:00 AM - 12:00 PM



%	SB	WB	NB	EB
auto	100%	98%	100%	97%
med	0%	0%	0%	0%
heavy	0%	2%	0%	3%
% trucks	0%	2%	0%	3%

PM Peak Hour

04:45 PM - 05:45 PM



%	SB	WB	NB	EB
auto	100%	98%	100%	98%
med	0%	0%	0%	0%
heavy	0%	2%	0%	2%
% trucks	0%	2%	0%	2%



Computations - Traffic Volumes

Project: _____ Project #: _____
 Location: _____ Sheet: _____
 Calculated by: CKF Date: 12/3/18
 Checked by: _____ Date: _____
 Title: _____
 Intersection: South Union Street and Main Street

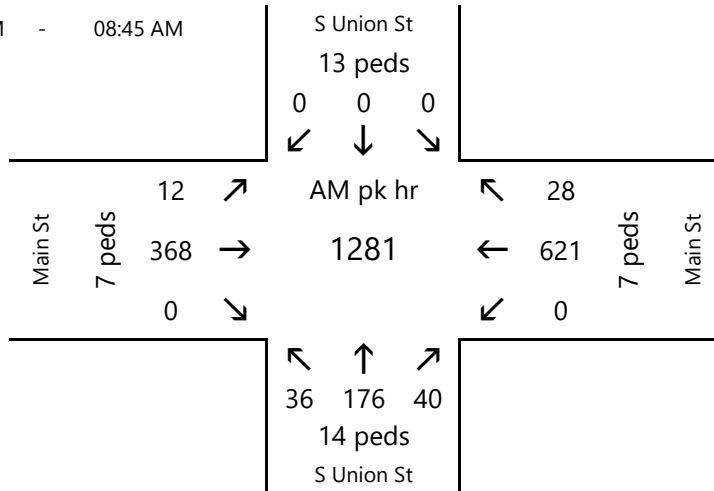
Intersection: So. Union St. and Main St. Town: Burlington, VT
 Count Date(s): 6/14/2016 Counter: S.Williams

Peak Hour Volumes

	SB				WB				NB				EB				Total
	S Union St				Main St				S Union St				Main St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	0	0	13	28	621	0	7	40	176	36	14	0	368	12	7	1281
PM pk hr	0	0	0	18	32	551	0	29	97	101	41	12	0	675	41	14	1538

AM Peak Hour

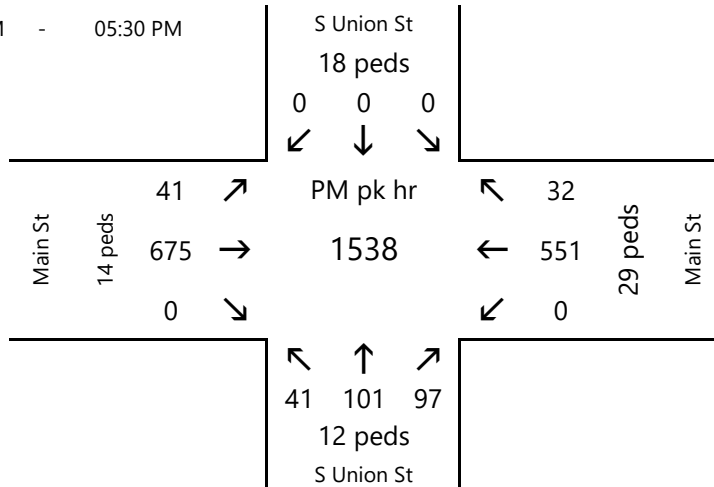
07:45 AM - 08:45 AM



%	SB	WB	NB	EB
auto	100%	96%	97%	93%
med	0%	0%	0%	0%
heavy	0%	4%	3%	7%
% trucks	0%	4%	3%	7%

PM Peak Hour

04:30 PM - 05:30 PM



%	SB	WB	NB	EB
auto	100%	99%	98%	98%
med	0%	0%	0%	0%
heavy	0%	1%	2%	2%
% trucks	0%	1%	2%	2%



Computations - Traffic Volumes

Project: **Cambria Hotel** Project #: **58153.00**
 Location: **Burlington, VT** Sheet:
 Calculated by: **CKF** Date: **12/4/18**
 Checked by: Date:
 Title: **South Union Street and College Street**
 Intersection:

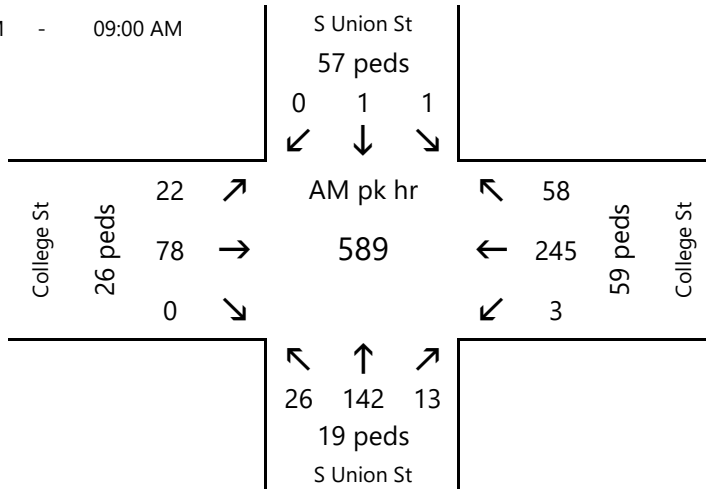
Intersection: **So. Union St. and College St.** Town: **Burlington, VT**
 Count Date(s): **8/25/2015** Counter: **C.Dubin**

Peak Hour Volumes

	SB				WB				NB				EB				Total
	S Union St				College St				S Union St				College St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	1	1	57	58	245	3	59	13	142	26	19	0	78	22	26	589
PM pk hr	0	3	0	66	62	189	1	81	53	265	36	25	1	194	38	44	842

AM Peak Hour

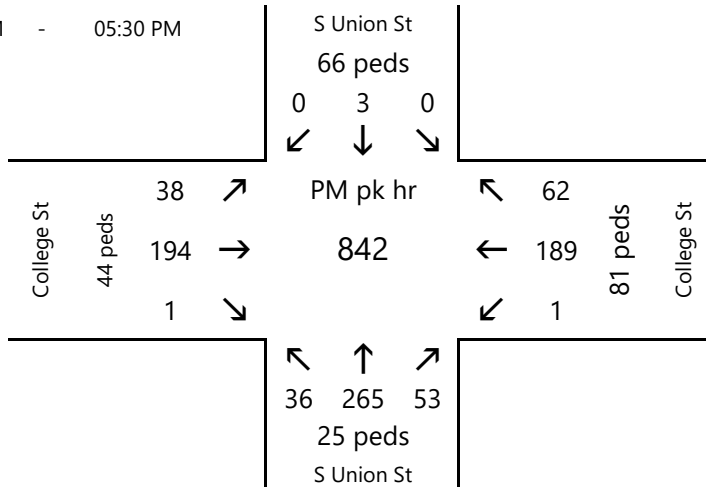
08:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	100%	98%	97%	94%
med	0%	0%	0%	0%
heavy	0%	2%	3%	6%
% trucks	0%	2%	3%	6%

PM Peak Hour

04:30 PM - 05:30 PM



%	SB	WB	NB	EB
auto	100%	99%	99%	99%
med	0%	0%	0%	0%
heavy	0%	1%	1%	1%
% trucks	0%	1%	1%	1%



Computations - Traffic Volumes

Project: **Cambria Hotel** Project #: **58153.00**
 Location: **Burlington, VT** Sheet:
 Calculated by: **CKF** Date: **12/4/18**
 Checked by: Date:
 Title:
 Intersection: **South Winooski Avenue and College Street**

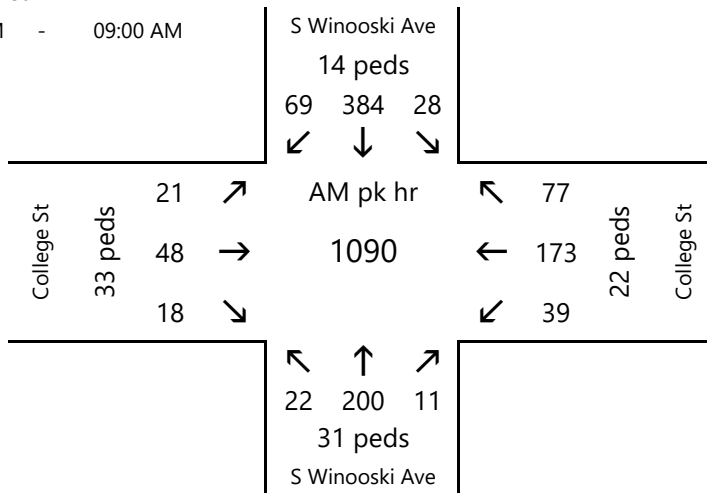
Intersection: **So. Winooski Ave. and College St.** Town: **Burlington, VT**
 Count Date(s): **8/11/2015** Counter: **C.Dubin**

Peak Hour Volumes

	SB				WB				NB				EB				Total
	S Winooski Ave				College St				S Winooski Ave				College St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	69	384	28	14	77	173	39	22	11	200	22	31	18	48	21	33	1090
PM pk hr	79	556	77	83	80	114	40	171	31	287	17	111	56	124	40	133	1501

AM Peak Hour

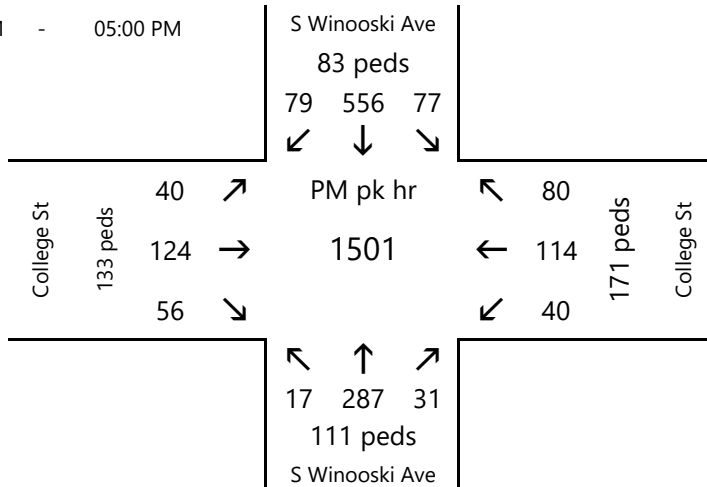
08:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	94%	98%	97%	91%
med	0%	0%	0%	0%
heavy	6%	2%	3%	9%
% trucks	6%	2%	3%	9%

PM Peak Hour

04:00 PM - 05:00 PM



%	SB	WB	NB	EB
auto	97%	99%	99%	97%
med	0%	0%	0%	0%
heavy	3%	1%	1%	3%
% trucks	3%	1%	1%	3%



Computations - Traffic Volumes

Project: **Cambria Hotel** Project #: **58153.00**
 Location: **Burlington, VT** Sheet: _____
 Calculated by: _____ Date: _____
 Checked by: _____ Date: _____
 Title: _____
 Intersection: **South Willard Street and Main Street**

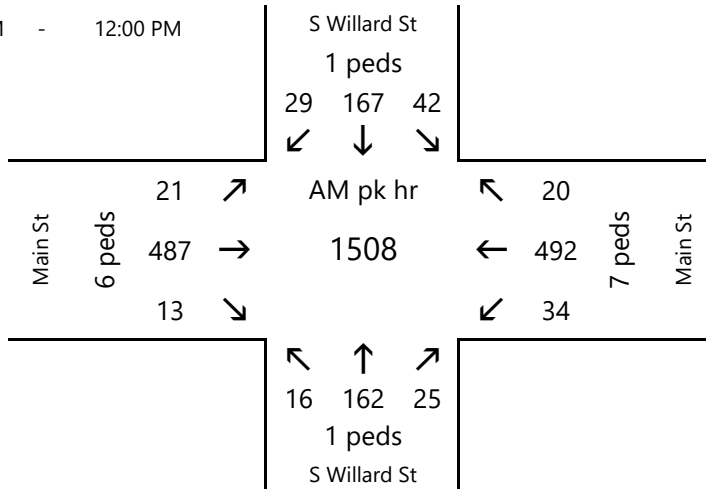
Intersection: **So. Willard St. and Main St.** Town: **Burlington, VT**
 Count Date(s): **6/22/2015 - 6/23/2015** Counter: **R. Gustafson**

Peak Hour Volumes

	SB				WB				NB				EB				Total
	S Willard St				Main St				S Willard St				Main St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	29	167	42	1	20	492	34	7	25	162	16	1	13	487	21	6	1508
PM pk hr	19	175	55	7	48	533	54	2	35	226	21	5	29	605	25	10	1825

AM Peak Hour

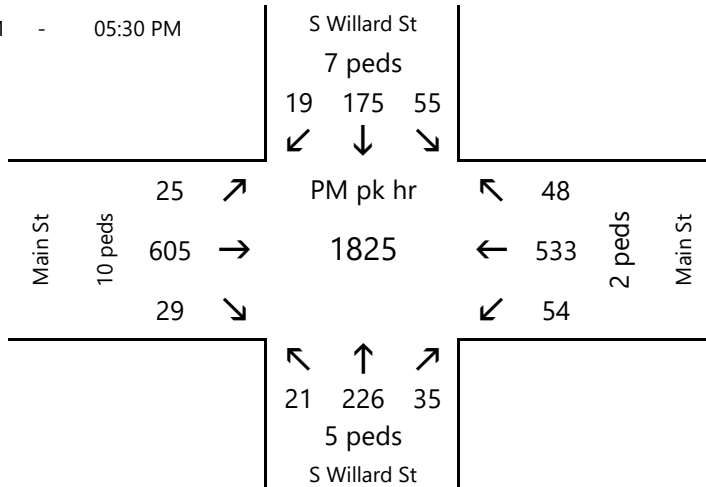
11:00 AM - 12:00 PM



%	SB	WB	NB	EB
auto	97%	97%	98%	96%
med	0%	0%	0%	0%
heavy	3%	3%	2%	4%
% trucks	3%	3%	2%	4%

PM Peak Hour

04:30 PM - 05:30 PM



%	SB	WB	NB	EB
auto	100%	98%	98%	98%
med	0%	0%	0%	0%
heavy	0%	2%	2%	2%
% trucks	0%	2%	2%	2%



Computations - Traffic Volumes

Project: **Cambria Hotel** Project #: **58153.00**
 Location: **Burlington, VT** Sheet:
 Calculated by: **CKF** Date: **12/4/18**
 Checked by: Date:
 Title:
 Intersection: **South Willard Street and Pearl Street**

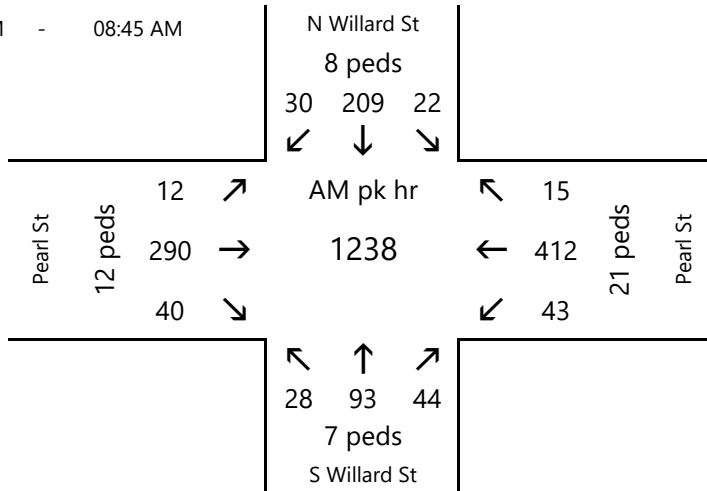
Intersection: **So. Willard St. and Pearl St.** Town: **Burlington, VT**
 Count Date(s): **6/16/2018 - 6/17/2018** Counter: **S.Williams**

Peak Hour Volumes

	SB				WB				NB				EB				Total
	N Willard St				Pearl St				S Willard St				Pearl St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	30	209	22	8	15	412	43	21	44	93	28	7	40	290	12	12	1238
PM pk hr	33	165	25	4	40	436	51	5	50	230	55	1	37	431	41	5	1594

AM Peak Hour

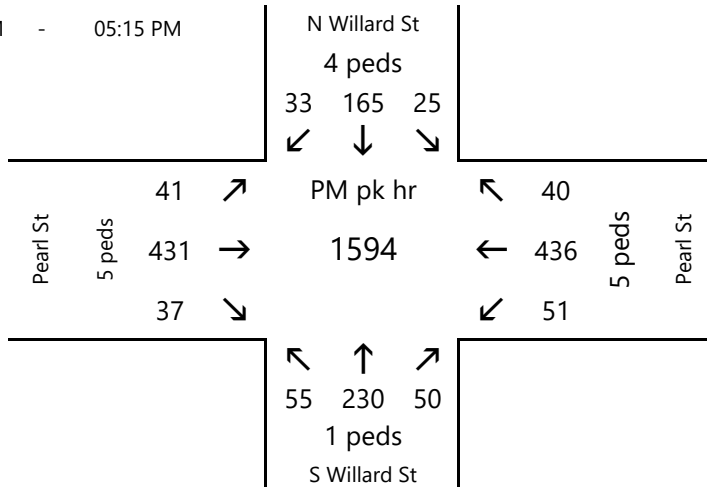
07:45 AM - 08:45 AM



%	SB	WB	NB	EB
auto	97%	97%	95%	95%
med	0%	0%	0%	0%
heavy	3%	3%	5%	5%
% trucks	3%	3%	5%	5%

PM Peak Hour

04:15 PM - 05:15 PM



%	SB	WB	NB	EB
auto	99%	98%	99%	97%
med	0%	0%	0%	0%
heavy	1%	2%	1%	3%
% trucks	1%	2%	1%	3%

Crash Data

Five Year Pgm/Class 1 Town Highway	Rank (/3.)	Route	System	Town	Mileage	AADT	Years	Crashes	Fatalities	Injuries	PDO	Crashes	Critical Rate	Actual Rate	Ratio Actual/ Critical	Severity Index (\$/Crashes/1.)
#	11	US-2- S PROSPECT ST.- BURLINGTON- <T0000>	Principal Arterial (u)/Urban Collector (u)	Burlington	0.220 - 0.240	25940	5	72	0	9	65	0.776674767	1.520896484	1.958	21264	
#	14	US-7- MAIN ST.- BURLINGTON- US-2	Principal Arterial (u)	Burlington	2.110 - 2.130	21400	5	65	0	9	58	0.871332882	1.664319549	1.91	22337	
#	47	US-7- PEARL ST.- BURLINGTON	Principal Arterial (u)/Minor Arterial (u)	Burlington	2.420 - 2.440	16780	5	57	0	13	47	1.349868397	1.861315656	1.379	29502	
#	64	US-7- BURLINGTON (ALTERNATE US-7)	Principal Arterial (u)	Burlington	3.050 - 3.070	12235	5	27	0	5	23	0.962440073	1.209196612	1.256	26015	
#	1	BURLINGTON (ALTERNATE US-7)- MAIN ST.- BURLINGTON	Principal Arterial (u)	Burlington	0.990 - 1.010	17860	5	98	0	11	90	0.898339054	3.006642225	3.347	20311	
#	38	BURLINGTON (ALTERNATE US-7)- PEARL ST.- BURLINGTON	Principal Arterial (u)/Minor Arterial (u)	Burlington	1.310 - 1.330	17100	5	61	0	13	51	1.345971816	1.954658335	1.452	28308	
#	46	BURLINGTON (ALTERNATE US-7)- NORTH ST.- BURLINGTON	Principal Arterial (u)/Urban Collector (u)	Burlington	1.620 - 1.640	7730	5	19	0	3	16	0.976187843	1.346825214	1.38	23489	
	5	COLCHESTER AVE.- BURLINGTON- BARRETT ST.- BURLINGTON	Minor Arterial (u)/Urban Collector (u)	Burlington	0.990 - 1.010	7850	5	34	1	7	27	0.964727687	2.373265858	2.46	71312	
	31	BATTERY ST.- BURLINGTON- MAIN ST.- BURLINGTON	Principal Arterial (u)	Burlington	0.220 - 0.240	17550	5	45	0	8	38	0.901073237	1.404987706	1.559	25276	
	32	VT. 127 BELTLINE- BURLINGTON- <5009>	Freeway/Expressway (u)	Burlington	1.340 - 1.500	5065	5	5	0	6	2	0.351810269	0.540913332	1.538	110720	
	15	COLCHESTER AVE.- BURLINGTON- EAST AVE.- BURLINGTON	Minor Arterial (u)	Burlington	0.430 - 0.450	17450	5	44	0	9	35	0.741545678	1.38163834	1.863	27091	
	24	MAIN ST.- BURLINGTON- ST. PAUL ST.- BURLINGTON	Principal Arterial (u)/Urban Collector (u)	Burlington	0.250 - 0.270	15225	5	39	0	7	32	0.851591763	1.403603482	1.648	25156	
	52	MAIN ST.- BURLINGTON- S UNION ST.- BURLINGTON	Principal Arterial (u)	Burlington	0.520 - 0.540	16410	5	37	0	9	30	0.911762945	1.23546451	1.355	30689	
	110	NORTH AVE.- BURLINGTON- NORTH ST.- BURLINGTON	Minor Arterial (u)/Urban Collector (u)	Burlington	0.180 - 0.200	12450	5	20	0	4	17	0.877182215	0.880233262	1.003	27305	
	23	NORTH ST.- BURLINGTON- N CHAMPLAIN ST.- BURLINGTON	Principal Arterial (u)/Urban Collector (u)	Burlington	0.220 - 0.240	6950	5	21	0	5	17	0.999201619	1.655661772	1.657	30219	
	20	N UNION ST.- BURLINGTON- S UNION ST.- BURLINGTON- <T0000>	Principal Arterial (u)	Burlington	0.000 - 0.010	5300	5	19	0	5	15	1.147593279	1.964331869	1.712	32211	
	87	N UNION ST.- BURLINGTON- NORTH ST.- BURLINGTON	Principal Arterial (u)/Urban Collector (u)	Burlington	0.300 - 0.320	7450	5	15	0	0	15	0.984055967	1.10324538	1.121	11300	
	40	PARK ST.- BURLINGTON- NORTH ST.- BURLINGTON	Principal Arterial (u)/Urban Collector (u)	Burlington	0.280 - 0.300	7300	5	19	0	4	16	0.988445325	1.426158754	1.443	28147	
	25	PEARL ST.- BURLINGTON- <T0000>- S PROSPECT ST.- BURLINGTON- COLCHESTER AVE.- BURLINGTON	Minor Arterial (u)/Urban Collector (u)	Burlington	0.930 - 0.940	17450	5	43	0	12	34	0.823333888	1.350237469	1.64	33633	

Report Number	Crash Date	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	Road Group	AOT Actual Milepoint	Animal	Time of Day	Intersection With	Impairment	Involving	Road Characteristics	Road Condition	Surface Condition
2013BU026126	9/28/2013 10:47	Burlington	235 College St	COLLEGE ST	Property Damage Only			5	999.99	None/Other	Day	S Union	None	None			
2015BU034446	12/1/2015 14:09	Burlington	235 College St	COLLEGE ST	Property Damage Only	Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	Rain	5	999.99	None/Other	Day	S Union St	None	None	T - Intersection	None	Wet
2017BU012459	5/22/2017 11:47	Burlington	260 College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Rain	5	999.99	None/Other	Day	S Union St	None	None	Not at a Junction	None	Wet
2016BU036770	12/28/2016 9:39	Burlington	266 College St	COLLEGE ST	Property Damage Only		Cloudy	5	999.99	None/Other	Day	S Union St	None	Heavy Truck	Not at a Junction	None	Snow
2013BU030305	12/14/2013 22:36	Burlington	College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Freezing Precipitation	5	999.99	None/Other	Night	S Union St	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Snow
2015BU003747	1/21/2015 16:08	Burlington	College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Clear	5	999.99	None/Other	Day	S Union St	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Ice
2015BU005669	3/11/2015 10:23	Burlington	College St	COLLEGE ST	Property Damage Only	Rear End	Clear	5	999.99	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Wet
2015BU015622	6/12/2015 12:30	Burlington	College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Clear	5	999.99	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry
2015BU018979	7/14/2015 17:44	Burlington	College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Clear	5	999.99	None/Other	Day	S Union St	None	None	Not at a Junction	None	Dry
2016BU012045	5/5/2016 13:56	Burlington	College St	COLLEGE ST	Property Damage Only	Other - Explain in Narrative	Clear	5	999.99	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry
2016BU022849	8/5/2016 13:08	Burlington	College St	COLLEGE ST	Property Damage Only	Rear End	Clear	5	999.99	None/Other	Day	S Union St	None	None	Not at a Junction	None	Dry
2017BU001928	1/23/2017 7:10	Burlington	College St	S UNION ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Cloudy	2	0.86	None/Other	Day	S Union St	None	None	Four-way Intersection	Traffic control device inoperative, missing, or obscured	Dry
2017BU013792	6/5/2017 14:12	Burlington	College St	COLLEGE ST	Property Damage Only	Same Direction Sideswipe	Rain	5	999.99	None/Other	Day	S Union St	None	None	Not at a Junction	None	Wet
178BU030675	12/3/2017 9:28	Burlington	College St	COLLEGE ST	Property Damage Only			5	999.99	None/Other	Day	S Union St	None	None			
2015BU003157	2/7/2015 19:32	Burlington	FAU-5052 S Union St	S UNION ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Freezing Precipitation	2	0.86	None/Other	Night	College St	None	None	Not at a Junction	None	Snow
2015BU003499	2/12/2015 8:45	Burlington	FAU-5052 S Union St	S UNION ST.	Property Damage Only	Other - Explain in Narrative	Cloudy	2	0.86	None/Other	Day	College St	None	None	Other - Explain in Narrative	None	Wet
2014BU021461	8/8/2014 12:47	Burlington	S Union St	S UNION ST.	Property Damage Only	Same Direction Sideswipe	Clear	2	0.86	None/Other	Day	College St	None	None	Not at a Junction	None	Dry
2015BU010500	4/27/2015 17:08	Burlington	S Union St	S UNION ST.	Property Damage Only	Same Direction Sideswipe	Unknown	2	0.86	None/Other	Day	College St	None	Heavy Truck	Not at a Junction	None	Dry
2015BU010555	4/28/2015 16:42	Burlington	S Union St	S UNION ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.86	None/Other	Day	College St	None	None	Four-way Intersection	None	Dry
2015BU019826	7/23/2015 10:07	Burlington	S Union St	S UNION ST.	Property Damage Only	Rear End	Clear	2	0.86	None/Other	Day	College St	None	None	Not at a Junction	None	Dry
2016BU029560	10/4/2016 21:14	Burlington	S Union St	S UNION ST.	Property Damage Only	Rear End	Clear	2	0.86	None/Other	Night	College St	None	None	Not at a Junction	Unknown	Dry
2017BU010631	5/2/2017 15:22	Burlington	S Union St	S UNION ST.	Property Damage Only	Rear End	Clear	2	0.86	None/Other	Day	College St	None	Heavy Truck	Four-way Intersection	None	Dry
2017BU012714	5/24/2017 21:11	Burlington	S Union St	S UNION ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.86	None/Other	Night	College St	None	None	Not at a Junction	None	Dry

Crash listing 01/01/2013 - 12/31/2017

College Street & Union Street

Total # of crashes, 5 years:

23

Crashes by Surface Condition		%
Wet	5	22%
Ice/Snow/Slush	4	17%
Dry	12	52%
Other/Unknown	2	9%
Total	23	100%

Crashes by Crash Type		%
Fatality	0	0%
Injury	0	0%
Property Damage Only	23	100%
Missing / Unknown	0	0%
Total	23	100%

Roadway Characterization		%
T - Intersection	1	4%
Four-way Intersection	6	26%
Off Ramp	0	0%
Not at a Junction	13	57%
Driveway	0	0%
Parking Lot	0	0%
Other / Missing / Unknown	3	13%
Total	23	100%

Direction of Collision		%
Rear End	5	22%
Sideswipe	8	35%
Left turn & thru	0	0%
Thru moves	3	13%
Head on	0	0%
Right turn & thru	1	4%
Single Vehicle	0	0%
Other / Missing / Unknown	6	26%
Total	23	100%

Time of Day		%
Day	19	83%
Night	4	17%
Total	23	100%

Crashes by Surface Condition		%
Wet	5	22%
Ice	1	4%
Snow	3	13%
Slush	0	0%
Dry	12	52%
Other/Unknown	2	9%
Total	23	100%

Direction of Collision		%
Same Direction Sideswipe	8	35%
Rear End	5	22%
Left Turn and Thru, Angle Broadside -->v--	0	0%
No Turns, Thru moves only, Broadside ^<	3	13%
Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	1	4%
Right Turn and Thru, Broadside ^<--	0	0%
Right Turn and Thru, Angle Broadside -->^--	0	0%
Left Turn and Thru, Head On ^v--	0	0%
Head on	0	0%
Opp Direction Sideswipe	0	0%
Single Vehicle Crash	0	0%
Other / Missing / Unknown	6	26%
Total	23	100%

Report Number	Crash Date	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	Road Group ID	AOT Actual Milepoint	Animal	Time of Day	Intersection With	Impairment	Involving	Road Characteristics	Road Condition	Surface Condition	
178U024647	9/19/2017 22:27	Burlington	Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.69	None/Other	Night	S Willard St	None	Bicycle	Four-way Intersection	None	Dry	
178U028111	10/27/2017 20:44	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Night	S Willard St	None	None	Not at a Junction	None	Dry	
178U029331	11/13/2017 6:18	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	11	0.01	None/Other	Day	S Willard St	None	Heavy Truck	Four-way Intersection	None	Dry	
178U029427	11/14/2017 13:46	Burlington	Main St	US-2	Property Damage Only		Clear	11	0	None/Other	Day	S Willard St	None	Heavy Truck		None	Dry	
178U030333	11/26/2017 13:54	Burlington	Main St	US-2	Property Damage Only		Clear	11	0	None/Other	Day	S Willard St	None	None		None	Dry	
178U031351	12/12/2017 13:50	Burlington	So Willard St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <=	Freezing Precipitation	11	2.09	None/Other	Day	Main St	None	None	Driveway	None	Snow	
20138U004107	2/22/2013 17:36	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0.06	None/Other	Night	S Willard St	None	None	Not at a Junction	None	Wet	
20138U007336	4/2/2013 13:36	Burlington	US-2 Main St	US-2	Property Damage Only	Left Turn and Thru, Broadside v<=	Clear	1	0	None/Other	Night	S Willard St	None	Bicycle	Four-way Intersection	None	Dry	
20138U007348	4/3/2013 10:39	Burlington	US-2 Main Street	US-2	Property Damage Only	Right Turn and Thru, Same Direction Sideswipe/Angle Crash <=	Clear	1	0	None/Other	Day	South Willard Street	None	None	Four-way Intersection	None	Dry	
20138U008598	4/17/2013 16:06	Burlington	US-2 Main St	US-2	Property Damage Only		Cloudy	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20138U011318	5/13/2013 12:52	Burlington	US-2 (360 Main Street)	US-2	Property Damage Only	Rear End	Clear	1	0.04	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20138U021008	8/13/2013 13:55	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Same Direction Sideswipe	Cloudy	2	0.67	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20138U021017	8/13/2013 15:21	Burlington	US-2 Main St	US-2	Property Damage Only	Left Turn and Thru, Angle Broadside --v<=	Rain	1	1	0	None/Other	Day	S Willard St	None	Heavy Truck	Four-way Intersection	None	Dry
20138U023457	9/4/2013 15:16	Burlington	US-7 Willard St	US-7	Property Damage Only	Same Direction Sideswipe	Clear	1	2.12	None/Other	Day	Main St	None	None	Four-way Intersection	None	Dry	
20138U025093	9/19/2013 14:24	Burlington	US-7 Main St	US-7	Property Damage Only	Head On	Clear	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20138U028065	10/16/2013 15:48	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.7	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20138U029701	11/1/2013 17:24	Burlington	US-7 Willard St/Main St	US-7	Injury	Left Turn and Thru, Angle Broadside --v<=	Rain	1	2.12	None/Other	Day	S Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Wet	
20138U031028	11/18/2013 19:17	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Night	S Willard St	None	None	Not at a Junction	None	Dry	
20138U034042	12/28/2013 22:12	Burlington	US-2 Main St	US-2	Property Damage Only	No Turns, Thru moves only, Broadside <=	Clear	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Wet	
20148U004593	2/21/2014 14:15	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Rain	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Wet	
20148U006205	3/14/2014 9:38	Burlington	US-7.5 Willard St./Main St	US-7	Property Damage Only	Rear End	Cloudy	1	2.12	None/Other	Day	S Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Sand, mud, dirt, oil, gravel	
20148U008036	4/3/2014 17:18	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20148U008346	4/7/2014 10:38	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0.04	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U008459	4/8/2014 13:55	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U010765	5/1/2014 17:24	Burlington	Main St	US-2	Injury	Rear End	Cloudy	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Wet	
20148U013274	5/25/2014 12:07	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U014114	6/2/2014 17:25	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20148U014580	6/6/2014 18:49	Burlington	FAU-5022 (224 Main St)	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.68	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20148U019515	7/22/2014 15:15	Burlington	US-2 Main St	US-7	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20148U019575	7/23/2014 7:47	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20148U020386	7/29/2014 20:13	Burlington	FAU-5022 (308 Main St)	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside <=	Clear	2	0.64	None/Other	Night	S Willard St	None	None	Not at a Junction	None	Dry	
20148U021134	8/5/2014 12:18	Burlington	US-2 Main St	US-2	Injury	Left Turn and Thru, Angle Broadside --v<=	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U021384	8/7/2014 18:03	Burlington	US-7 Willard St	US-7	Property Damage Only	Rear End	Clear	1	2.12	None/Other	Day	Main St	Alcohol	None	Four-way Intersection	None	Wet	
20148U021879	8/11/2014 16:07	Burlington	S Willard St	US-7	Property Damage Only	Left Turn and Thru, Same Direction Sideswipe/Angle Crash v<=	Clear	1	2.12	None/Other	Day	Main St	None	None	Four-way Intersection	None	Dry	
20148U022120	8/13/2014 13:25	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Rain	1	0	None/Other	Day	S Willard St	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Wet	
20148U023343	8/23/2014 20:49	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U024147	8/30/2014 20:34	Burlington	US-2 Main St	US-2	Property Damage Only	Same Direction Sideswipe	Cloudy	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U024780	9/5/2014 18:01	Burlington	US-2 Main St	US-2	Property Damage Only	Same Direction Sideswipe	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U025998	9/15/2014 20:56	Burlington	S Willard St	US-7	Property Damage Only	Rear End	Clear	1	2.12	None/Other	Night	Main St	None	None	Not at a Junction	None	Dry	
20148U027904	10/2/2014 17:30	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	T - Intersection	None	Dry	
20148U031449	11/5/2014 18:48	Burlington	US-7	US-7	Property Damage Only	Right Turn and Thru, Broadside <=	Injury	1	2.12	None/Other	Day	Main St	None	Bicycle	Unknown	Other - Explain in Narrative	Unknown	
20148U031583	11/7/2014 5:27	Burlington	US-2 Main St	US-2	Property Damage Only	Other - Explain in Narrative	Rain	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry	
20148U034572	12/1/2014 14:28	Burlington	Main St	US-2	Property Damage Only	Rear End	Freezing Precipitation	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow	
20158U000103	1/1/2015 21:28	Burlington	US-2 Main St	US-2	Property Damage Only	Same Direction Sideswipe	Unknown	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry	
20158U000228	1/3/2015 20:47	Burlington	Main St @ Willard St	US-2	Property Damage Only	Left Turn and Thru, Angle Broadside --v<=	Freezing Precipitation	1	0	None/Other	Night	Main St @ Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow	
20158U002780	2/2/2015 10:18	Burlington	US-2 Main St	US-2	Property Damage Only	Rear End	Freezing Precipitation	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow	
20158U003330	2/10/2015 11:48	Burlington	S Willard St	US-7	Property Damage Only	Rear End	Cloudy	1	2.12	None/Other	Day	Main St	None	None	Four-way Intersection	Unknown	Slush	
20158U004824	2/28/2015 1:34	Burlington	US-2 Main St	US-2	Property Damage Only	Other - Explain in Narrative	Clear	1	0	None/Other	Night	S Willard St	None	None	Not at a Junction	Unknown	Dry	
20158U006570	3/19/2015 14:54	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside <=	Clear	2	0.68	None/Other	Day	S Willard St	None	None	Driveway	None	Dry	
20158U006319	4/6/2015 12:31	Burlington	US-7 Willard St	US-7	Property Damage Only	Other - Explain in Narrative	Unknown	1	2.12	None/Other	Day	Main St	None	None	Not at a Junction	None	Unknown	
20158U010089	4/23/2015 13:16	Burlington	US-2 Main St	US-2	Property Damage Only	Same Direction Sideswipe	Cloudy	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20158U010886	5/1/2015 8:08	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.68	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20158U014910	6/5/2015 22:29	Burlington	371 Main St	MAIN ST.	Property Damage Only	Rear-to-rear	Clear	9	999.99	None/Other	Night	371 Main St	None	None	Not at a Junction	None	Dry	
20158U017729	7/3/2015 13:00	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20158U020440	7/29/2015 12:19	Burlington	Main St	US-2	Property Damage Only	Rear End	Cloudy	1	0.03	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20158U020509	7/30/2015 14:53	Burlington	Main St	US-2	Property Damage Only	Rear End	Rain	1	0.02	None/Other	Day	S Willard St	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Wet	
20158U023995	8/29/2015 17:10	Burlington	US-2 Main St	US-2	Property Damage Only	Other - Explain in Narrative	Clear	1	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20158U024993	9/5/2015 22:49	Burlington	US-2 Main St	US-2	Property Damage Only	Left Turn and Thru, Angle Broadside --v<=	Clear	1	0	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry	
20158U025106	10/9/2015 16:49	Burlington	US-2 (371 Main St)	US-2	Property Damage Only	Rear End	Cloudy	1	0.05	None/Other	Day	371 Main St	None	None	Not at a Junction	None	Dry	
20168U010252	1/12/2016 7:33	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	11	0.01	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20168U014909	5/27/2016 14:17	Burlington	Main St	US-7	Property Damage Only	Left Turn and Thru, Head On <=	Clear	11	2.12	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20168U019512	7/5/2016 17:01	Burlington	Main St	US-2	Injury	Rear End	Clear	11	0	None/Other	Day	S Willard St	Alcohol	None	Four-way Intersection	None	Dry	
20168U024002	8/15/2016 15:45	Burlington	S Willard St	US-7	Property Damage Only	Rear End	Clear	11	2.12	None/Other	Day	Main St	None	None	Four-way Intersection	None	Dry	
20168U025258	8/26/2016 16:33	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	11	0	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20168U026600	9/7/2016 14:18	Burlington	163 S Willard St	US-7	Property Damage Only	Opp Direction Sideswipe	Clear	11	2.08	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20168U029006	9/29/2016 11:11	Burlington	Main St	US-2	Property Damage Only	Head On	Clear	11	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20168U030328	10/12/2016 16:42	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	11	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20168U030744	10/19/2016 11:48	Burlington	300 Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.61	None/Other	Day	S Willard St	None	None	Parking Lot	Not reported	Unknown	
20168U031721	10/27/2016 12:48	Burlington	S Willard St	US-7	Property Damage Only	Other - Explain in Narrative	Clear	11	2.12	None/Other	Day	Main St	None	None	Not at a Junction	None	Dry	
20168U031984	10/30/2016 12:04	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.68	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry	
20168U032961	11/1/2016 12:24	Burlington	S Willard St	US-7	Injury	Rear End	Cloudy	11	2.15	None/Other	Day	Main St	None	None	Not at a Junction	None	Dry	
20168U034533	11/30/2016 18:01	Burlington	163 S Willard St	US-7	Property Damage Only	Same Direction Sideswipe	Clear	11	2.08	None/Other	Night	Main St	None	None	Not at a Junction	None	Not Reported	
20178U001436	2/1/2017 17:54	Burlington	Main St	US-2	Property Damage Only	Rear End	Cloudy	11	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Unknown	
20178U004624	2/25/2017 16:13	Burlington	Main St	US-2	Property Damage Only	Rear End	Rain	11	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20178U008269	4/9/2017 10:49	Burlington	Main St	US-2	Property Damage Only	Head On	Clear	11	0	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry	
20178U008641	4/12/2017 17:31	Burlington	Main St	US-2	Property Damage Only	Rear End	Clear	11	0	None/Other	Day	N Willard St	None	None	Not at a Junction	None	Dry	
20178U009585	4/22/2017 16:39	Burl																

Crash listing 01/01/2013 - 12/31/2017

Main Street & Willard Street

Total # of crashes, 5 years:

85

Crashes by Surface Condition		%
Wet	12	14%
Ice/Snow/Slush	5	6%
Dry	59	69%
Other/Unknown	9	11%
Total	85	100%

Crashes by Crash Type		%
Fatality	0	0%
Injury	8	9%
Property Damage Only	77	91%
Missing / Unknown	0	0%
Total	85	100%

Roadway Characterization		%
T - Intersection	1	1%
Four-way Intersection	47	55%
Off Ramp	0	0%
Not at a Junction	32	38%
Driveway	2	2%
Parking Lot	1	1%
Other / Missing / Unknown	2	2%
Total	85	100%

Direction of Collision		%
Rear End	42	49%
Sideswipe	8	9%
Left turn & thru	7	8%
Thru moves	5	6%
Head on	5	6%
Right turn & thru	3	4%
Single Vehicle	0	0%
Other / Missing / Unknown	15	18%
Total	85	100%

Time of Day		%
Day	65	76%
Night	20	24%
Total	85	100%

Crashes by Surface Condition		
Wet	12	
Ice	0	
Snow	4	
Slush	1	
Dry	59	
Other/Unknown	9	
Total	85	

Direction of Collision		%
Same Direction Sideswipe	7	8%
Rear End	42	49%
Left Turn and Thru, Angle Broadside -->v--	6	7%
No Turns, Thru moves only, Broadside ^<	5	6%
Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	1	1%
Right Turn and Thru, Broadside ^<--	1	1%
Right Turn and Thru, Angle Broadside -->^--	1	1%
Left Turn and Thru, Head On ^v--	1	1%
Head on	5	6%
Opp Direction Sideswipe	1	1%
Single Vehicle Crash	0	0%
Other / Missing / Unknown	15	18%
Total	85	100%

Road Group AOT Actual																		
Report Number	Crash Date	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	ID	Milepoint	Animal	Time of Day	Intersection With	Impairment	Involving	Road Characteristics	Road Condition	Surface Condition	
2015BU015829	6/4/2015 11:45	Burlington	227 Main St	MAIN ST	Property Damage Only	Other - Explain in Narrative	Clear	9	999.99	None/Other	Day	Parking Lot	None	None	None	Driveway	None	Dry
2016BU036869	12/29/2016 16:29	Burlington	227 Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Freezing Precipitation	2	0.42	None/Other	Day	Main St	None	None	Parking Lot	Road Surface Condition(wet, icy, snow, slush, etc)	Slush	Dry
2016BU024274	8/18/2016 9:19	Burlington	234 Main St	MAIN ST.	Injury	Left Turn and Thru, Angle Broadside ->-	Cloudy	2	0.47	None/Other	Day	Perrywinkle's Fine Jewelry	None	None	Pedestrian	Not at a Junction	None	Dry
2014BU001098	1/13/2014 13:47	Burlington	275 Main St	MAIN ST	Property Damage Only	Other - Explain in Narrative	Cloudy	9	999.99	None/Other	Day	Edmunds School	None	None	None	Parking Lot	None	Dry
2016BU035842	12/16/2016 8:17	Burlington	288 Main St	MAIN ST.	Property Damage Only	Rear End	Cloudy	2	0.59	None/Other	Day	S Union St.	None	None	None	Not at a Junction	None	Dry
2016BU022963	8/6/2016 17:18	Burlington	299 Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.61	None/Other	Day	299 Main St	None	None	None	Not at a Junction	None	Dry
2015BU003197	2/8/2015 15:01	Burlington	FAU-5022 (250 Main St)	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Freezing Precipitation	2	0.5	None/Other	Day	Side Driveway	None	None	None	Driveway	Road Surface Condition(wet, icy, snow, slush, etc)	Snow
2014BU025195	9/9/2014 9:33	Burlington	FAU-5022 (266 Main St)	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.54	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Dry
2013BU028578	10/21/2013 19:24	Burlington	FAU-5022 (288 Main St)	MAIN ST.	Property Damage Only	Opp Direction Sideswipe	Cloudy	2	0.6	None/Other	Night	Main St	None	None	Motorcycle	Driveway	None	Dry
2013BU006488	3/26/2013 11:14	Burlington	FAU-5022 Main St	MAIN ST.	Injury	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	Heavy Truck	Four-way Intersection	None	Dry
2013BU021989	8/22/2013 17:35	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.52	None/Other	Day	S Union St	None	None	None	Four-way Intersection	None	Dry
2014BU001817	1/20/2014 9:04	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Freezing Precipitation	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Ice
2014BU002560	1/29/2014 4:52	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Single Vehicle Crash	Clear	2	0.53	None/Other	Night	S Union St	None	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Slush
2014BU003274	7/5/2014 16:15	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Freezing Precipitation	2	0.53	None/Other	Day	S Union St	None	None	Unknown	Unknown	None	Snow
2014BU005976	3/11/2014 7:58	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Wet
2014BU009678	4/19/2014 21:05	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Cloudy	2	0.53	None/Other	Night	S Union St	None	None	None	Four-way Intersection	None	Dry
2014BU017627	7/5/2014 16:18	Burlington	FAU-5022 Main St	MAIN ST.	Injury	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	T - Intersection	None	Dry
2014BU032501	11/17/2014 7:30	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Driveway	None	Dry
2015BU010892	5/1/2015 9:11	Burlington	FAU-5022 Main St	MAIN ST.	Property Damage Only	Same Direction Sideswipe	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Dry
2013BU000149	1/2/2013 13:16	Burlington	FAU-5022 Main Street	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Day	South Union Street	None	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Wet
2013BU001518	1/20/2013 7:56	Burlington	FAU-5022 Main Street	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Freezing Precipitation	2	0.53	None/Other	Day	South Union Street	None	None	None	Four-way Intersection	None	Unknown
2013BU002227	1/28/2013 13:50	Burlington	FAU-5022 Main Street	MAIN ST.	Property Damage Only	Rear End	Freezing Precipitation	2	0.53	None/Other	Day	South Union Street	None	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Snow
2013BU005501	3/11/2013 20:27	Burlington	FAU-5052 S Union St	S UNION ST.	Injury	No Turns, Thru moves only, Broadside ^<	Clear	2	0.78	None/Other	Night	Main St	None	None	None	Four-way Intersection	None	Dry
2014BU022455	8/16/2014 6:57	Burlington	FAU-5052 S Union St	S UNION ST.	Property Damage Only	Head On	Clear	2	0.77	None/Other	Day	Main St	None	None	None	Four-way Intersection	None	Dry
2013BU001680	1/22/2013 12:00	Burlington	FAU-5052 South Union Street	S UNION ST.	Injury	Rear End	Cloudy	2	0.77	None/Other	Day	Main Street	None	None	None	Four-way Intersection	None	Wet
17BU026504	10/9/2017 13:32	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Rain	2	0.6	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Wet
2014BU004198	2/17/2014 8:02	Burlington	Main St	MAIN ST.	Injury	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	None	Dry
2015BU004167	2/20/2015 15:23	Burlington	Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	None	Wet
2015BU010604	4/29/2015 7:48	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	None	Dry
2015BU020376	7/28/2015 19:30	Burlington	Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Night	S Union St	None	None	None	Four-way Intersection	None	Dry
2015BU034919	12/5/2015 18:35	Burlington	Main St	MAIN ST.	Property Damage Only	Same Direction Sideswipe	Clear	2	0.53	None/Other	Night	S Union St	None	None	None	Not at a Junction	None	Dry
2016BU001060	1/12/2016 8:39	Burlington	Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Other - Explain in Narrative	None	Dry
2016BU011218	4/26/2016 18:52	Burlington	Main St	MAIN ST.	Property Damage Only	Same Direction Sideswipe	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Dry
2016BU020734	7/16/2016 12:51	Burlington	Main St	MAIN ST.	Property Damage Only	Other - Explain in Narrative	Clear	2	0.52	None/Other	Day	S Union St	None	None	None	Parking Lot	None	Dry
2016BU021151	7/20/2016 17:52	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Dry
2016BU021928	7/28/2016 9:38	Burlington	Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	None	Dry
2016BU022789	8/4/2016 20:18	Burlington	Main St	MAIN ST.	Injury	Same Direction Sideswipe	Clear	2	0.56	None/Other	Night	S Union St	None	None	None	Bicycle	Not at a Junction	Dry
2016BU029870	10/7/2016 22:02	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Night	S Union St	None	None	None	Four-way Intersection	None	Dry
2016BU032065	10/31/2016 14:53	Burlington	Main St	MAIN ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Clear	2	0.53	None/Other	Day	S Union St	None	None	None	Not at a Junction	None	Dry
2017BU003721	2/15/2017 14:44	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Freezing Precipitation	2	0.53	None/Other	Day	S Union St	None	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow
2017BU013742	6/4/2017 20:19	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.54	None/Other	Night	S Union St	None	None	None	Not at a Junction	None	Dry
2017BU013992	6/7/2017 18:12	Burlington	Main St	MAIN ST.	Injury	Right Turn and Thru, Broadside ^<-	Clear	2	0.53	None/Other	Day	@ Union St	None	None	None	Bicycle	Four-way Intersection	Dry
2017BU019290	7/30/2017 2:25	Burlington	Main St	MAIN ST.	Property Damage Only	Left Turn and Thru, Same Direction Sideswipe/Angle Crash w--	Clear	2	0.51	None/Other	Night	S Union	Alcohol	None	Other - Explain in Narrative	None	Dry	
2017BU021923	8/23/2017 16:08	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	2	0.53	None/Other	Day	South Union St	None	None	None	Four-way Intersection	None	Dry
2015BU002717	2/2/2015 6:48	Burlington	S Union St	S UNION ST.	Property Damage Only	No Turns, Thru moves only, Broadside ^<	Freezing Precipitation	2	0.77	None/Other	Day	Main St	None	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow

Crash listing 01/01/2013 - 12/31/2017

Main Street & Union Street

Total # of crashes, 5 years:

45

Crashes by Surface Condition		%
Wet	5	11%
Ice/Snow/Slush	8	18%
Dry	31	69%
Other/Unknown	1	2%
Total	45	100%

Crashes by Crash Type		%
Fatality	0	0%
Injury	8	18%
Property Damage Only	37	82%
Missing / Unknown	0	0%
Total	45	100%

Roadway Characterization		%
T - Intersection	1	2%
Four-way Intersection	19	42%
Off Ramp	0	0%
Not at a Junction	15	33%
Driveway	4	9%
Parking Lot	3	7%
Other / Missing / Unknown	3	7%
Total	45	100%

Direction of Collision		%
Rear End	14	31%
Sideswipe	5	11%
Left turn & thru	1	2%
Thru moves	14	31%
Head on	1	2%
Right turn & thru	1	2%
Single Vehicle	1	2%
Other / Missing / Unknown	8	18%
Total	45	100%

Time of Day		%
Day	35	78%
Night	10	22%
Total	45	100%

Crashes by Surface Condition		%
Wet	5	11%
Ice	1	2%
Snow	5	11%
Slush	2	4%
Dry	31	69%
Other/Unknown	1	2%
Total	45	100%

Direction of Collision		%
Same Direction Sideswipe	4	9%
Rear End	14	31%
Left Turn and Thru, Angle Broadside -->v--	1	2%
No Turns, Thru moves only, Broadside ^<	14	31%
Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	0	0%
Right Turn and Thru, Broadside ^<--	1	2%
Right Turn and Thru, Angle Broadside -->^--	0	0%
Left Turn and Thru, Head On ^v--	0	0%
Head on	1	2%
Opp Direction Sideswipe	1	2%
Single Vehicle Crash	1	2%
Other / Missing / Unknown	8	18%
Total	45	100%

Report Number	Crash Date	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	Road Group ID	AOT Actual Milepoint	Animal	Day	Intersection With	Impairment	Involving	Road Characteristics	Road Condition	Surface Condition		
2016BU012689	5/10/2016 9:23	Burlington	240 Pearl St	PEARL ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->v-	Clear		9	999.99	None/Other	Day	N Union St	None	None	Parking Lot	None	Dry	
2016BU014008	5/20/2016 13:52	Burlington	240 Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.5	None/Other	Day	N Union St	None	None	Parking Lot	None	Dry	
2017BU020787	8/13/2017 2:06	Burlington	240 Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.5	None/Other	Night	S Union St	None	None	Not at a Junction	None	Dry	
2017BU007445	3/31/2017 10:05	Burlington	273 Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.57	None/Other	Day	S Union St	None	None	Not at a Junction	Road Surface Condition(wet, icy, snow, slush, etc)	Dry	
2014BU012778	5/20/2014 17:40	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.51	None/Other	Day	N Union St	None	None	Driveway	None	Dry	
2013BU034049	12/29/2013 0:27	Burlington	FAU-5038 (239 Pearl St)	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.51	None/Other	Night	South Union St	Alcohol	None	Not at a Junction	None	Wet	
2013BU019220	7/27/2013 20:40	Burlington	FAU-5038 (240 Pearl St)	PEARL ST.	Property Damage Only	Rear-to-rear	Clear		2	0.01	None/Other	Night	North Union Street	None	None	Not at a Junction	None	Dry	
2013BU026929	10/2/2013 18:29	Burlington	FAU-5038 (240 Pearl St)	PEARL ST.	Injury	Left Turn and Thru, Angle Broadside -->v-	Clear		2	0.5	None/Other	Night	So Union St	Alcohol	Bicycle	Other - Explain in Narrative	None	Dry	
2013BU029921	11/5/2013 11:12	Burlington	FAU-5038 (240 Pearl St)	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.5	None/Other	Day	So Union St	None	None	T - Intersection	None	Dry	
2013BU030224	11/8/2013 23:44	Burlington	FAU-5038 (240 Pearl St)	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.5	None/Other	Night	S Union St	None	None	Four-way Intersection	None	Dry	
2015BU004040	2/19/2015 4:48	Burlington	FAU-5038 (255 Pearl St)	PEARL ST.	Injury	No Turns, Thru moves only, Broadside <-	Freezing Precipitation		2	0.53	None/Other	Night	N Union St	None	None	Driveway	Unknown	Snow	
2013BU002722	2/4/2013 11:54	Burlington	FAU-5038 (258 Pearl Street)	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.54	None/Other	Day	North Union Street	None	None	Driveway	None	Dry	
2013BU005955	3/17/2013 2:26	Burlington	FAU-5038 Pearl St	PEARL ST.	Injury	Other - Explain in Narrative	Clear		2	0.49	None/Other	Night	S Union St	Alcohol	None	Four-way Intersection	None	Dry	
2013BU006236	3/20/2013 16:10	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Rear End	Cloudy		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Wet	
2013BU007037	3/30/2013 7:47	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Dry	
2013BU011608	5/16/2013 8:45	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	North Union St	None	None	Four-way Intersection	Other - Explain in Narrative	Dry	
2013BU012399	5/22/2013 14:45	Burlington	FAU-5038 Pearl St	PEARL ST.	Injury	Left Turn and Thru, Angle Broadside -->v-	Cloudy		2	0.49	None/Other	Day	S Union St	None	None	Bicycle	Four-way Intersection	None	Dry
2013BU013615	6/4/2013 12:59	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Cloudy		2	0.93	None/Other	Day	N Union	None	None	Four-way Intersection	None	Dry	
2013BU023193	9/1/2013 18:10	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry	
2013BU023903	9/8/2013 15:35	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	Other - Explain in Narrative	Dry	
2013BU026606	10/3/2013 6:46	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.49	None/Other	Night	N Union St	None	None	Not at a Junction	None	Dry	
2013BU028536	10/21/2013 12:54	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.5	None/Other	Day	N Union St	None	None	Not at a Junction	None	Dry	
2013BU029409	10/31/2013 11:10	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Rear End	Rain		2	0.5	None/Other	Day	N Union St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Wet	
2013BU031778	11/29/2013 8:55	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.5	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Dry	
2013BU033920	12/27/2013 9:51	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.5	None/Other	Day	S Union St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Slush	
2014BU000785	1/14/2014 16:43	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.51	None/Other	Day	N Union St	None	None	Not at a Junction	None	Wet	
2014BU003952	2/13/2014 22:13	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Left Turn and Thru, Same Direction Sideswipe/Angle Crash v--	Freezing Precipitation		2	0.5	None/Other	Night	N Union St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow	
2014BU005853	3/9/2014 13:10	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.5	None/Other	Day	N Union	None	None	Four-way Intersection	None	Wet	
2014BU006933	3/22/2014 0:30	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Head On	Clear		2	0.5	None/Other	Night	S Union St	Alcohol	None	Not at a Junction	None	Dry	
2014BU012655	5/19/2014 16:33	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Rear-to-rear	Clear		2	0.49	None/Other	Day	N Union St	None	None	Parking Lot	None	Dry	
2014BU014058	6/2/2014 7:53	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.49	None/Other	Day	N Union St	None	None	Not at a Junction	None	Dry	
2014BU029244	10/14/2014 13:05	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Left Turn and Thru, Same Direction Sideswipe/Angle Crash v--	Clear		2	0.49	None/Other	Day	N Union	None	None	Driveway	None	Dry	
2014BU033941	12/4/2014 5:01	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Freezing Precipitation		2	0.49	None/Other	Night	N Union St	None	None	T - Intersection	None	Dry	
2015BU010518	4/27/2015 23:00	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Rear End	Rain		2	0.49	None/Other	Night	N Union St	None	None	Four-way Intersection	None	Wet	
2015BU026252	9/15/2015 17:23	Burlington	FAU-5038 Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.49	None/Other	Day	N Union St	None	None	Heavy Truck	Not at a Junction	None	Dry
2013BU000326	1/4/2013 21:58	Burlington	FAU-5038 Pearl Street	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Night	South Union Street	None	None	Four-way Intersection	None	Wet	
2013BU002006	1/26/2013 6:47	Burlington	FAU-5038 Pearl Street	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	North Union Street	None	None	Four-way Intersection	None	Wet	
2013BU002784	2/5/2013 8:14	Burlington	FAU-5038 Pearl Street	PEARL ST.	Injury	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	South Union Street	None	None	Heavy Truck	Not at a Junction	Dry	
2013BU002929	2/7/2013 7:54	Burlington	FAU-5038 Pearl Street	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	North Union Street	None	None	Four-way Intersection	None	Dry	
2013BU004617	3/1/2013 18:21	Burlington	FAU-5038 Pearl Street	PEARL ST.	Injury	Left Turn and Thru, Broadside v--	Cloudy		2	0.49	None/Other	Night	North Union Street	None	None	Pedestrian	Four-way Intersection	None	Dry
2013BU005037	3/6/2013 18:09	Burlington	FAU-5038 Pearl Street	PEARL ST.	Injury	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Night	North Union Street	None	None	Four-way Intersection	Unknown	Dry	
2013BU002452	1/31/2013 18:15	Burlington	FAU-5052 (31 South Union Street)	S UNION ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	1.02	None/Other	Night	Pearl Street	None	None	Heavy Truck	Not at a Junction	Dry	
2014BU035991	12/28/2014 18:43	Burlington	FAU-5052 S Union St	S UNION ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	1.09	None/Other	Night	Pearl St	Alcohol	None	Four-way Intersection	None	Dry	
2015BU003309	2/10/2015 8:18	Burlington	FAU-5052 S Union St	S UNION ST.	Property Damage Only	Rear End	Unknown		2	1.09	None/Other	Day	Pearl St	None	None	Other - Explain in Narrative	Road Surface Condition(wet, icy, snow, slush, etc)	Slush	
2013BU004244	2/24/2013 7:02	Burlington	FAU-5052 South Union Street	S UNION ST.	Property Damage Only	Rear End	Freezing Precipitation		2	1.09	None/Other	Day	Pearl Street	None	None	Four-way Intersection	None	Dry	
2013BU007360	4/3/2013 13:41	Burlington	FAU-5052 South Union Street	S UNION ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	1.09	None/Other	Day	Pearl Street	None	None	Four-way Intersection	None	Dry	
2016BU029728	10/6/2016 16:22	Burlington	N Union St	S UNION ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	1.08	None/Other	Day	Pearl St	None	None	Not at a Junction	None	Dry	
2014BU029857	10/20/2014 13:17	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Cloudy		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Dry	
2015BU001292	1/16/2015 15:58	Burlington	Pearl St	PEARL ST.	Property Damage Only	Opp Direction Sideswipe	Clear		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry	
2015BU004107	2/19/2015 22:14	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Freezing Precipitation		2	0.49	None/Other	Night	N Union St	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Snow	
2015BU007195	3/26/2015 7:09	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Cloudy		2	0.49	None/Other	Day	N Union	None	None	Heavy Truck	Four-way Intersection	None	Dry
2015BU008620	4/9/2015 21:36	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Rain		2	0.49	None/Other	Night	S Union St	None	None	Four-way Intersection	None	Wet	
2015BU008735	4/10/2015 23:24	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Night	S Union St	None	None	Not at a Junction	None	Dry	
2015BU010458	4/27/2015 9:09	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.49	None/Other	Day	S Union St	None	None	Bicycle	Other - Explain in Narrative	Wet	
2015BU012760	5/16/2015 18:42	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Rain		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Wet	
2015BU021705	8/10/2015 8:24	Burlington	Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.49	None/Other	Day	South Union St	None	None	Not at a Junction	None	Dry	
2015BU024367	9/1/2015 16:06	Burlington	Pearl St	PEARL ST.	Property Damage Only	Same Direction Sideswipe	Clear		2	0.49	None/Other	Day	N Union St	None	None	Not at a Junction	None	Dry	
2015BU024988	9/5/2015 23:44	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Night	S Union St	None	None	Four-way Intersection	None	Dry	
2016BU006284	3/11/2016 16:19	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry	
2016BU025626	8/30/2016 9:24	Burlington	Pearl St	PEARL ST.	Injury	Other - Explain in Narrative	Clear		2	0.49	None/Other	Day	N Union St	None	None	Bicycle	Four-way Intersection	None	Dry
2016BU026798	9/9/2016 9:04	Burlington	Pearl St	PEARL ST.	Injury	No Turns, Thru moves only, Broadside <-	Clear		2	0.5	None/Other	Day	N Union St	None	None	Driveway	None	Dry	
2016BU035037	12/6/2016 1:58	Burlington	Pearl St	PEARL ST.	Injury	Left Turn and Thru, Angle Broadside -->v-	Cloudy		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Dry	
2016BU036077	12/19/2016 8:33	Burlington	Pearl St	PEARL ST.	Property Damage Only	Opp Direction Sideswipe	Clear		2	0.49	None/Other	Day	Union St	None	None	Not at a Junction	None	Dry	
2017BU000385	1/5/2017 16:00	Burlington	Pearl St	PEARL ST.	Injury	Left Turn and Thru, Angle Broadside -->v-	Clear		2	0.49	None/Other	Day	No Union St	None	None	T - Intersection	None	Dry	
2017BU003591	2/13/2017 21:42	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Night	S Union St	None	None	Four-way Intersection	None	Dry	
2017BU007504	3/31/2017 19:58	Burlington	Pearl St	PEARL ST.	Injury	No Turns, Thru moves only, Broadside <-	Freezing Precipitation		2	0.49	None/Other	Night	Union St	None	None	Four-way Intersection	None	Dry	
2017BU009957	4/26/2017 14:45	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	N Union St	None	None	Four-way Intersection	None	Dry	
2017BU010296	4/28/2017 23:41	Burlington	Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.49	None/Other	Night	S Union St	None	None	Four-way Intersection	None	Dry	
2017BU010692	5/3/2017 13:08	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Clear		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry	
2017BU011576	5/13/2017 7:33	Burlington	Pearl St	PEARL ST.	Property Damage Only	No Turns, Thru moves only, Broadside <-	Cloudy		2	0.49	None/Other	Day	S Union St	None	None	Four-way Intersection	None	Dry	
2017BU012318	5/26/2017 22:43	Burlington	Pearl St	PEARL ST.	Property Damage Only	Other - Explain in Narrative	Clear		2	0.5	None/Other	Night	N Union St	None	None	Not at a Junction	None	Dry	
2017BU013590	6/2/2017 23:03	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Rain		2	0.5	None/Other	Night	S Union St	None	None	Not at a Junction	None	Wet	
2017BU023712	9/11/2017 7:06	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End													

Crash listing 01/01/2013 - 12/31/2017

Pearl Street & Union Street

Total # of crashes, 5 years:

80

Crashes by Surface Condition		%
Wet	13	16%
Ice/Snow/Slush	5	6%
Dry	60	75%
Other/Unknown	2	3%
Total	80	100%

Crashes by Crash Type		%
Fatality	0	0%
Injury	14	18%
Property Damage Only	65	81%
Missing / Unknown	1	1%
Total	80	100%

Roadway Characterization		%
T - Intersection	3	4%
Four-way Intersection	44	55%
Off Ramp	0	0%
Not at a Junction	21	26%
Driveway	5	6%
Parking Lot	4	5%
Other / Missing / Unknown	3	4%
Total	80	100%

Direction of Collision		%
Rear End	18	23%
Sideswipe	13	16%
Left turn & thru	5	6%
Thru moves	26	33%
Head on	1	1%
Right turn & thru	0	0%
Single Vehicle	2	3%
Other / Missing / Unknown	15	19%
Total	80	100%

Time of Day		%
Day	52	65%
Night	28	35%
Total	80	100%

Crashes by Surface Condition		
Wet	13	
Ice	0	
Snow	3	
Slush	2	
Dry	60	
Other/Unknown	2	
Total	80	

Direction of Collision		%
Same Direction Sideswipe	11	14%
Rear End	18	23%
Left Turn and Thru, Angle Broadside -->v--	5	6%
No Turns, Thru moves only, Broadside ^<	26	33%
Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	0	0%
Right Turn and Thru, Broadside ^<--	0	0%
Right Turn and Thru, Angle Broadside -->^--	0	0%
Left Turn and Thru, Head On ^v--	0	0%
Head on	1	1%
Opp Direction Sideswipe	2	3%
Single Vehicle Crash	2	3%
Other / Missing / Unknown	15	19%
Total	80	100%

Report Number	Crash Date	City/Town	Address	AOT Route	Crash Type	Collision Direction	Weather	Road Group ID	AOT Actual Milepoint	Animal	Time of Day	Intersection With	Impairment	Involving	Road Characteristics	Road Condition	Surface Condition
2015B0031992	10/31/2015 0:40	Burlington	195 Willard St	US-7	Property Damage Only	Head On	Clear	1	2.39	None/Other	Night	19 S Willard St	None	None	Driveway	None	Dry
2015B0035350	12/01/2015 7:18	Burlington	300 Pearl St	PEARL ST	Property Damage Only	Head On	Unknown	9	999.99	None/Other	Day	Parking Lot	None	None	Parking Lot	Unknown	Unknown
2016B0017438	6/17/2016 16:59	Burlington	366 Pearl St	PEARL ST	Property Damage Only	Head On	Clear	2	0.77	None/Other	Day	366 Pearl St	None	None	Not at a Junction	None	Dry
2017B0025074	9/23/2017 19:53	Burlington	Pearl St	PEARL ST	Injury	Head On	Clear	2	0.66	None/Other	Night	So. Willard St	None	Pedestrian	Not at a Junction	None	Dry
2015B00362524	12/19/2015 18:29	Burlington	US-7 S. Willard St./Pearl St	US-7	Property Damage Only	Head On	Clear	1	2.43	None/Other	Night	N Willard St	None	None	Four-way Intersection	None	Dry
2016B0025961	9/2/2016 8:49	Burlington	360 Pearl St	PEARL ST	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Clear	2	0.75	None/Other	Day	Pearl St	None	None	Driveway	None	Dry
2015B007954	4/2/2015 16:42	Burlington	FAU-5038 Pearl St	PEARL ST	Injury	Left Turn and Thru, Angle Broadside <-->	Clear	2	0.68	None/Other	Day	S Willard St	None	Pedestrian	Four-way Intersection	None	Dry
2015B0033787	11/23/2015 14:32	Burlington	N Willard St	US-7	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Clear	1	2.43	None/Other	Day	Pearl St	None	None	Four-way Intersection	None	Dry
2015B0010130	4/22/2015 20:03	Burlington	Pearl St	US-7	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Rain	1	2.43	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Wet
2016B0023249	8/9/2016 12:35	Burlington	Pearl St	PEARL ST	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Cloudy	2	0.71	None/Other	Day	S Willard St	None	None	Driveway	None	Dry
2016B0035631	12/13/2016 17:08	Burlington	Pearl St	US-7	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Clear	11	2.43	None/Other	Night	N Willard St	None	None	Four-way Intersection	None	Dry
2013B0025124	9/19/2013 18:17	Burlington	US-7 N. Willard St./Pearl St	US-7	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Clear	1	2.43	None/Other	Day	N Willard St	None	Bicycle	Four-way Intersection	None	Dry
2015B0007759	2/26/2015 18:05	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Left Turn and Thru, Angle Broadside <-->	Rain	1	0.68	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Wet
2014B0015341	6/13/2014 6:34	Burlington	FAU-5038 (308 Pearl St)	PEARL ST	Property Damage Only	Left Turn and Thru, Broadside <-->	Clear	2	0.64	None/Other	Day	N Willard St	None	None	Other - Explain in Narrative	None	Dry
2014B0024878	9/6/2014 12:53	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Left Turn and Thru, Same Direction SideSwipe/Angle Crash <-->	Rain	2	0.74	None/Other	Day	N Willard St	None	None	Not at a Junction	None	Wet
2015B0004165	2/20/2015 15:05	Burlington	25 S Willard St	US-7	Injury	No Turns, Thru moves only, Broadside <-->	Clear	1	2.38	None/Other	Day	Pearl St	None	None	Driveway	None	Wet
2017B0031579	2/13/2017 16:22	Burlington	25 S Willard St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Cloudy	11	2.38	None/Other	Day	25 S Willard St	None	None	Not at a Junction	None	Dry
2017B0006473	3/20/2017 10:50	Burlington	25 S Willard St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Clear	11	2.38	None/Other	Day	Pearl St	None	None	Driveway	None	Slush
2014B0032346	11/25/2014 15:40	Burlington	300 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Clear	2	0.62	None/Other	Day	Pearl St	None	None	Not at a Junction	None	Dry
2015B0004310	2/20/2015 6:34	Burlington	300 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Freezing Precipitation	2	0.62	None/Other	Day	Pearl St & Hungerford Ter	None	None	T - Intersection	None	Wet
2015B0101027	4/24/2015 14:00	Burlington	300 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Cloudy	2	0.62	None/Other	Day	Hungerford Terr	None	None	Not at a Junction	None	Dry
2016B0011850	5/3/2016 9:05	Burlington	300 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Cloudy	2	0.62	None/Other	Day	S Willard St	None	None	T - Intersection	None	Dry
2017B0010869	5/5/2017 13:18	Burlington	300 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Rain	2	0.66	None/Other	Day	Willard St	None	None	Not at a Junction	None	Wet
2015B0036322	12/19/2015 18:32	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Clear	2	0.69	None/Other	Night	So Willard St	None	None	Four-way Intersection	None	Dry
2015B0000968	12/15/2015 4:15	Burlington	FAU-5038(328 Pearl St)	PEARL ST	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Freezing Precipitation	2	0.69	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Wet
2015B0004251	2/21/2015 15:51	Burlington	Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Freezing Precipitation	1	2.43	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Snow
2017B0003266	2/9/2017 9:23	Burlington	Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Freezing Precipitation	11	2.43	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Slush
2017B0002079	2/27/2015 15:26	Burlington	Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Clear	2	0.66	None/Other	Day	S Willard St	None	None	Driveway	None	Wet
2016B0033677	11/19/2016 19:34	Burlington	S Willard St	US-7	Injury	No Turns, Thru moves only, Broadside <-->	Clear	11	2.43	None/Other	Night	Pearl St	None	Pedestrian	Four-way Intersection	None	Dry
2013B0027018	10/6/2013 11:24	Burlington	US-7 (25 S Willard St)	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Cloudy	1	2.38	None/Other	Day	S Willard St	None	None	Driveway	Other - Explain in Narrative	Dry
2013B0029100	10/27/2013 9:00	Burlington	US-7 N. Willard St./Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Cloudy	1	2.43	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry
2014B0002950	7/31/2014 17:03	Burlington	US-7 N. Willard St./Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Rain	1	2.43	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Wet
2014B0002248	3/7/2014 19:21	Burlington	US-7 S. Willard St./Pearl St	Injury	Injury	No Turns, Thru moves only, Broadside <-->	Clear	1	2.43	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Dry
2014B0034212	12/7/2014 1:33	Burlington	US-7 S. Willard St./Pearl St	US-7	Injury	No Turns, Thru moves only, Broadside <-->	Clear	1	2.43	None/Other	Night	S Willard St	Alcohol	None	Four-way Intersection	None	Dry
2014B0035594	12/23/2014 3:49	Burlington	US-7 S. Willard St./Pearl St	US-7	Injury	No Turns, Thru moves only, Broadside <-->	Freezing Precipitation	1	2.43	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Snow
2015B0004728	2/27/2015 15:26	Burlington	US-7 S. Willard St./Pearl St	US-7	Property Damage Only	No Turns, Thru moves only, Broadside <-->	Clear	1	2.43	None/Other	Night	S Willard St	None	None	Four-way Intersection	None	Not reported
2013B0024678	9/15/2013 12:27	Burlington	US-7 S. Willard St./Pearl St	US-7	Injury	No Turns, Thru moves only, Broadside <-->	Clear	1	2.43	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry
2017B0006432	3/19/2017 19:34	Burlington	N Willard St	US-7	Property Damage Only	Opp Direction SideSwipe	Clear	11	2.47	None/Other	Night	Adist Ct	None	None	Not at a Junction	Other - Explain in Narrative	Dry
2013B0021310	8/15/2013 19:04	Burlington	US-7 (25 S Willard St)	US-7	Property Damage Only	Opp Direction SideSwipe	Clear	1	2.43	None/Other	Night	Pearl St	None	None	Not at a Junction	None	Dry
2013B0010984	7/26/2013 16:26	Burlington	300 Pearl St	PEARL ST	Property Damage Only	Other - Explain in Narrative	Clear	9	999.99	None/Other	Day	300 Pearl Pkg Lot	None	None	Parking Lot	Unknown	Unknown
2014B0032328	11/15/2014 7:30	Burlington	300 Pearl St	PEARL ST	Property Damage Only	Other - Explain in Narrative	Clear	9	999.99	None/Other	Day	S Willard St	None	None	Parking Lot	Unknown	Unknown
2015B0012327	1/16/2015 9:57	Burlington	300 Pearl St	PEARL ST	Property Damage Only	Other - Explain in Narrative	Cloudy	9	999.99	None/Other	Day	Burlington Health + Rehab	None	Heavy Truck	Parking Lot	None	Unknown
2013B0028569	10/21/2013 17:44	Burlington	FAU-5038 Pearl St	PEARL ST	Injury	Other - Explain in Narrative	Clear	2	0.67	None/Other	Day	N Willard St	None	Bicycle	Not at a Junction	None	Dry
2014B0004604	2/11/2014 16:10	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Other - Explain in Narrative	Rain	1	0.67	None/Other	Day	N Willard St	None	None	Not at a Junction	None	Wet
2016B0007390	3/21/2016 6:26	Burlington	N Willard St	US-7	Property Damage Only	Other - Explain in Narrative	Clear	11	2.43	None/Other	Night	Pearl St	None	Pedestrian	Four-way Intersection	None	Dry
2015B0021716	8/10/2015 10:11	Burlington	Pearl St	PEARL ST	Injury	Other - Explain in Narrative	Clear	2	0.67	None/Other	Day	N Willard St	None	Pedestrian	Four-way Intersection	None	Dry
2016B010430	6/8/2016 15:44	Burlington	S Willard St	US-7	Property Damage Only	Other - Explain in Narrative	Cloudy	11	2.43	None/Other	Day	Pearl St	None	None	Not at a Junction	None	Dry
2016B0027020	7/16/2016 9:15	Burlington	S Willard St	US-7	Property Damage Only	Other - Explain in Narrative	Clear	11	2.43	None/Other	Day	Pearl St	None	None	Not at a Junction	None	Dry
2015B0024321	9/1/2015 10:45	Burlington	US-7 N Willard St./Pearl St	US-7	Injury	Other - Explain in Narrative	Clear	1	2.43	None/Other	Day	N Willard St	None	Bicycle	Four-way Intersection	None	Dry
2016B0013643	5/17/2016 15:02	Burlington	25 S Willard	US-7	Property Damage Only	Rear End	Clear	11	2.38	None/Other	Day	25 S Willard St	None	None	Not at a Junction	None	Dry
2015B0027025	9/21/2015 10:13	Burlington	300 Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	9	999.99	None/Other	Day	Health Center Parking Lot	None	None	Parking Lot	None	Dry
2013B0015351	5/15/2013 11:51	Burlington	FAU-5038 Pearl St	PEARL ST	Injury	Rear End	Cloudy	2	0.49	None/Other	Day	South Willard St	None	None	Four-way Intersection	None	Dry
2013B0018733	7/23/2013 13:32	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Rain	2	0.69	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Wet
2013B0023685	9/6/2013 17:02	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.67	None/Other	Day	S Willard	None	None	Four-way Intersection	None	Dry
2013B0031384	11/23/2013 17:16	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Freezing Precipitation	2	0.68	None/Other	Night	N Willard St	None	None	Four-way Intersection	None	Ice
2013B0031390	11/23/2013 17:47	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Freezing Precipitation	2	0.68	None/Other	Night	N Willard St	None	None	Not at a Junction	None	Ice
2014B0008460	4/8/2014 14:07	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry
2015B0028774	10/6/2015 16:26	Burlington	FAU-5038 Pearl St	PEARL ST	Property Damage Only	Rear End	Cloudy	2	0.67	None/Other	Day	S Willard St	None	None	Four-way Intersection	None	Dry
2013B0010688	5/7/2013 16:52	Burlington	FAU-5038 Pearl St/US Willard St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry
2013B0003198	2/11/2013 13:58	Burlington	FAU-5038 Pearl Street	PEARL ST	Injury	Rear End	Cloudy	2	0.67	None/Other	Day	North Willard Street	None	None	Four-way Intersection	None	Slush
2013B0006156	3/19/2013 13:00	Burlington	FAU-5038 Pearl Street	PEARL ST	Property Damage Only	Rear End	Freezing Precipitation	2	0.69	None/Other	Day	North Willard Street	None	None	Four-way Intersection	Road Surface Condition(wet, icy, snow, slush, etc)	Slush
2015B0010016	4/22/2015 16:14	Burlington	N Willard St	US-7	Property Damage Only	Rear End	Cloudy	1	2.43	None/Other	Day	Pearl St	None	None	Four-way Intersection	None	Dry
2016B0011578	4/30/2016 18:04	Burlington	N Willard St	US-7	Property Damage Only	Rear End	Clear	11	2.43	None/Other	Day	Pearl St	None	Bicycle	Not at a Junction	None	Dry
2016B0024735	8/22/2016 11:48	Burlington	N Willard St	US-7	Injury	Rear End	Clear	11	2.43	None/Other	Day	Pearl St	None	None	Not at a Junction	None	Dry
17B0026581	10/10/2017 15:10	Burlington	Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Day	S Willard St	None	None	Not at a Junction	None	Dry
2014B0018237	7/11/2014 12:20	Burlington	Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Dry
2016B001317	5/12/2016 16:22	Burlington	Pearl St	PEARL ST	Property Damage Only	Rear End	Cloudy	2	0.69	None/Other	Day	N Willard St	None	None	Not at a Junction	None	Dry
2016B0015548	5/31/2016 18:07	Burlington	Pearl St	US-7	Property Damage Only	Rear End	Clear	11	2.43	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Dry
2017B0001603	1/19/2017 11:53	Burlington	Pearl St	PEARL ST	Property Damage Only	Rear End	Clear	2	0.69	None/Other	Day	S Willard	None	None	Four-way Intersection	None	Dry
2017B0007621	4/1/2017 19:35	Burlington	S Willard St	US-7	Property Damage Only	Rear End	Cloudy	11	2.43	None/Other	Night	Pearl St	None	None	Four-way Intersection	None	Wet
2017B0021894	8/23/2017 12:12	Burlington	S. Willard St	US-7	Property Damage Only	Rear End	Cloudy	11	2.43	None/Other	Day	Pearl St	None	Heavy Truck	Four-way Intersection	None	Dry
2013B0012978	5/29/2013 14:40	Burlington	US-7 N. Willard St./Pearl St	US-7	Property Damage Only	Rear End	Cloudy	1	2.43	None/Other	Day	N Willard St	None	None	Four-way Intersection	None	Wet
2013B0002221	1/28/2013 12:59	Burlington	US-7 North Willard St/Pearl Street	US-7	Property Damage Only	Rear End	Freezing Precipitation	1	0.67	None/Other	Day	North Willard Street	None				

Crash listing 01/01/2013 - 12/31/2017

Pearl Street & Willard Street

Total # of crashes, 5 years:

91

Crashes by Surface Condition		%
Wet	13	14%
Ice/Snow/Slush	11	12%
Dry	60	66%
Other/Unknown	7	8%
Total	91	100%

Crashes by Crash Type		%
Fatality	0	0%
Injury	15	16%
Property Damage Only	75	82%
Missing / Unknown	1	1%
Total	91	100%

Roadway Characterization		%
T - Intersection	2	2%
Four-way Intersection	41	45%
Off Ramp	0	0%
Not at a Junction	27	30%
Driveway	9	10%
Parking Lot	8	9%
Other / Missing / Unknown	4	4%
Total	91	100%

Direction of Collision		%
Rear End	25	27%
Sideswipe	8	9%
Left turn & thru	8	9%
Thru moves	22	24%
Head on	5	5%
Right turn & thru	5	5%
Single Vehicle	0	0%
Other / Missing / Unknown	18	20%
Total	91	100%

Time of Day		%
Day	68	75%
Night	23	25%
Total	91	100%

Crashes by Surface Condition		
Wet	13	
Ice	2	
Snow	5	
Slush	4	
Dry	60	
Other/Unknown	7	
Total	91	

Direction of Collision		%
Same Direction Sideswipe	6	7%
Rear End	25	27%
Left Turn and Thru, Angle Broadside -->v--	8	9%
No Turns, Thru moves only, Broadside ^<	22	24%
Right Turn and Thru, Same Direction Sideswipe/Angle Crash ^^--	1	1%
Right Turn and Thru, Broadside ^<--	4	4%
Right Turn and Thru, Angle Broadside -->^--	0	0%
Left Turn and Thru, Head On ^v--	0	0%
Head on	5	5%
Opp Direction Sideswipe	2	2%
Single Vehicle Crash	0	0%
Other / Missing / Unknown	18	20%
Total	91	100%



Trip Generation Supporting Documents

Land Use: 310

Hotel

Description

A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops. All suites hotel (Land Use 311), business hotel (Land Use 312), motel (Land Use 320), and resort hotel (Land Use 330) are related uses.

Additional Data

Studies of hotel employment density indicate that, on the average, a hotel will employ 0.9 employees per room.¹

Twenty-five studies provided information on occupancy rates at the time the studies were conducted. The average occupancy rate for these studies was approximately 82 percent.

Some properties contained in this land use provide guest transportation services such as airport shuttles, limousine service, or golf course shuttle service, which may have an impact on the overall trip generation rates.

Time-of-day distribution data for this land use are presented in Appendix A. For the one center city core site with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 8:30 and 9:30 a.m. and 3:15 and 4:15 p.m., respectively. On Saturday and Sunday, the peak hours were between 5:00 and 6:00 p.m. and 10:15 and 11:15 a.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in California, District of Columbia, Florida, Georgia, Indiana, Minnesota, New York, Pennsylvania, South Dakota, Texas, Vermont, Virginia, and Washington.

For all lodging uses, it is important to collect data on occupied rooms as well as total rooms in order to accurately predict trip generation characteristics for the site.

Trip generation at a hotel may be related to the presence of supporting facilities such as convention facilities, restaurants, meeting/banquet space, and retail facilities. Future data submissions should specify the presence of these amenities. Reporting the level of activity at the supporting facilities such as full, empty, partially active, number of people attending a meeting/banquet during observation may also be useful in further analysis of this land use.

Source Numbers

170, 260, 262, 277, 280, 301, 306, 357, 422, 507, 577, 728, 867, 872, 925, 951

¹ Buttke, Carl H. Unpublished studies of building employment densities, Portland, Oregon.

Trip Generation - Cambria Hotel

Total Site generated trips (not accounting for internal, pass-by, or diverted trips)

Site Land Uses and Descriptions			
Code	Land Use	Size	Unit
1	2	3	4
310	Hotel	145	rooms

AM PK HR OF ADJACENT STREET TRAFFIC													
directional dist.		average				regression		# trips					
% enter	% exit	# studies	Avg Rate	Std Dev.	Total by Avg	r ²	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting		
16	17	18	19	20	21	22	23	24	25				
59%	41%	25	0.47	0.14	68	0.85	67	average	68	40	28		

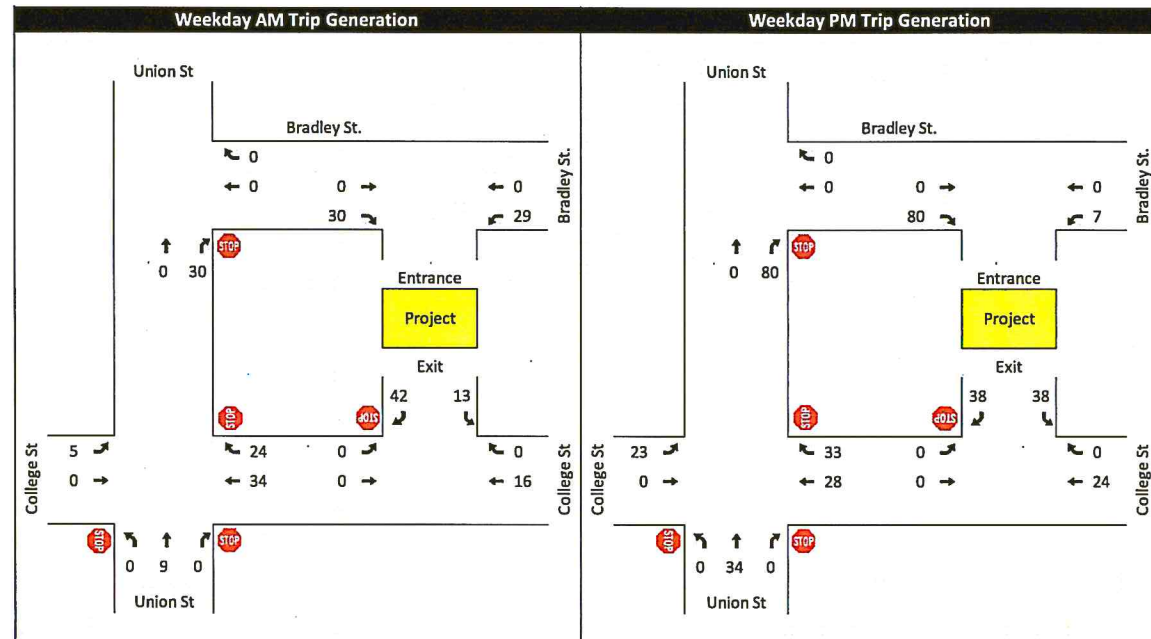
PM PK HR OF ADJACENT STREET TRAFFIC													
directional dist.		average				regression		# trips					
% enter	% exit	# studies	Avg Rate	Std Dev.	Total by Avg	r ²	total by Eq'n	Method Chosen	Total Trips	Entering	Exiting		
26	27	28	29	30	31	32	33	34	35				
51%	49%	28	0.60	0.22	87	0.80	83	average	87	44	43		

total									entering	exiting	
AM Peak Hour Total Site Trips:									68	40	28

PM Peak Hour Total Site Trips:									87	44	43
--------------------------------	--	--	--	--	--	--	--	--	----	----	----

Figure 4 presents a map of project trip generation through the study area intersections. Trips entering and exiting the site access are distributed onto the roadway network based on background traffic volumes.

FIGURE 4: PROJECT TRIP GENERATION MAP



2.5 | SCENARIO VOLUME GRAPHICS

Figures 5 through 8 present the AM and PM Peak Hour No-Build and Build scenario traffic volumes at the study intersections for the build year (2019) and future year (2024) scenarios.

No Build traffic volumes include the raw count volumes, adjusted to design hour conditions, and projected traffic from recently permitted developments in the area (ODVs). Build scenario volumes represent the addition of project-generated traffic (both primary and pass-by trips) to the No Build traffic volumes.

With the addition of site-generated traffic, volumes entering and exiting the project site increase in the Build scenario.



Legend		Pine Street Diversions
Enter Site	275	5% From Main St
Exit Site	135	3% From College St
Pine St Add		1% From Bank St
Pine St Sless		2% From Cherry St
		5% From Pearl St

Trip Generation

* underlined roadway is N/S

1: Garage / Cherry St

1
Garage / Cherry St
Wednesday, January 18, 2017
7:30AM - 8:30AM

	EB	WB	NB	SB	
L	0	42	49	0	
T	0	0	0	0	
R	84	0	14	0	189
Enter	84	42	63	0	189
Exit	14	49	0	126	189
% Trucks	0				
Peds	0	0	28	0	PHF
Peak Hour					

2: Garage / Bank St

2
Garage / Bank St
Wednesday, January 18, 2017
7:45AM - 8:45AM

	EB	WB	NB	SB	
L	73	0	0	49	
T	0	0	0	0	
R	0	81	0	22	225
Enter	73	81	0	71	225
Exit	49	22	154	0	225
% Trucks	0				
Peds	0	0	0	117	PHF
Peak Hour					

3: Pine St (Garage) / Bank St

3
Pine St (Garage) / Bank St
Wednesday, January 18, 2017
7:45AM - 8:45AM

	EB	WB	NB	SB	
L	0	28	0	0	
T	0	0	0	0	
R	0	0	73	0	101
Enter	0	28	73	0	101
Exit	73	0	0	28	101
% Trucks	0				
Peds	0	32	16	78	PHF
Peak Hour					

4: Pine St / Cherry St

4
Pine St / Cherry St
Friday, December 2, 2016
7:30AM - 8:30AM

	EB	WB	NB	SB	
L	0	0	0	53	
T	31	11	0	0	
R	0	38	0	0	133
Enter	31	49	0	53	133
Exit	84	11	38	0	133
% Trucks					
Peds					PHF
Peak Hour					

5: Battery St/Park St / Pearl St

5
Battery St/Park St / Pearl St
Thursday, June 26, 2014
7:30AM - 8:30 AM

	EB	WB	NB	SB	
L	0	0	0	31	
T	0	0	11	31	
R	0	0	0	0	73
Enter	0	0	11	62	73
Exit	31	0	11	31	73
% Trucks					
Peds	14	15	7	0	PHF
Peak Hour					

6: Pine St / Pearl St

6
Pine St / Pearl St
Tuesday, July 8, 2014
7:45:00 AM - 8:45 AM

	EB	WB	NB	SB	
L	0	22	19	0	
T	0	0	0	0	
R	31	0	18	0	91
Enter	31	22	38	0	91
Exit	18	19	0	53	91
% Trucks					
Peds					PHF
Peak Hour					

7: N/S Winooski Ave / Pearl St

7
N/S Winooski Ave / Pearl St
Friday, August 5, 2016
7:45 AM - 8:45 PM

	EB	WB	NB	SB	
L	0	22	0	0	
T	15	22	0	20	
R	0	0	14	0	94
Enter	15	45	14	20	94
Exit	29	22	0	42	94
% Trucks					
Peds					PHF
Peak Hour					

8: N/S Union St / Pearl St

8

	EB	WB	NB	SB	
L	0	0	0	0	

N/S Union St / Pearl St

Friday, June 17, 2016

7:30AM - 8:30PM

T	29	45	0	0	
R	0	0	0	0	74
Enter	29	45	0	0	74
Exit	29	45	0	0	74
% Trucks					
Peds					PHF
Peak Hour					

9: N/S Willard St / Pearl St

9

N/S Willard St / Pearl St

Friday, June 17, 2016

7:45AM - 8:45PM

	EB	WB	NB	SB	
L	7	0	3	0	
T	21	42	0	0	
R	1	0	0	0	74
Enter	29	42	3	0	74
Exit	21	45	7	1	74
% Trucks					
Peds					PHF
Peak Hour					

10: N/S Prospect St / Pearl St/Colchester Ave

10

N/S Prospect St / Pearl St/Colchester Ave

Wednesday, October 16, 2013

7:45AM - 8:45PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	21	42	0	0	
R	0	0	0	0	62
Enter	21	42	0	0	62
Exit	21	42	0	0	62
% Trucks					
Peds					PHF
Peak Hour					

11: Pine St / College St

11

Pine St / College St

Wednesday, November 30, 2016

7:45AM - 8:45AM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	0	70	28	
R	0	3	0	0	101
Enter	0	3	70	28	101
Exit	0	0	73	28	101
% Trucks					
Peds					PHF
Peak Hour					

12: St. Paul St / College St

12

St. Paul St / College St

Thursday, December 1, 2016

8:00AM - 9:00AM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	3	81	28	
R	0	0	0	0	112
Enter	0	3	81	28	112
Exit	0	3	81	28	112
% Trucks					
Peds					PHF
Peak Hour					

13: Pine St / Main St

13

Pine St / Main St

Thursday, June 5, 2014

7:45AM - 8:45AM

	EB	WB	NB	SB	
L	0	0	0	17	
T	0	0	28	11	
R	0	42	0	0	98
Enter	0	42	28	28	98
Exit	17	0	70	11	98
% Trucks					
Peds					PHF
Peak Hour					

14: St. Paul St / Main St

14

St. Paul St / Main St

Tuesday, June 14, 2016

7:45AM - 8:45PM

	EB	WB	NB	SB	
L	0	0	0	23	
T	8	42	39	6	
R	8	42	0	0	168
Enter	17	84	39	28	168
Exit	31	42	81	14	168
% Trucks					
Peds					PHF
Peak Hour					

15: S Winooski Ave / Main St

15

S Winooski Ave / Main St

Wednesday, June 15, 2016

7:45AM - 8:45PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	42	84	0	19	
R	0	0	0	0	145
Enter	42	84	0	19	145
Exit	42	84	0	19	145
% Trucks					
Peds					PHF
Peak Hour					

16: S Union St / Main St

16

S Union St / Main St

Tuesday, June 14, 2016

	EB	WB	NB	SB	
L	0	0	0	0	
T	42	84	0	0	
R	0	0	0	0	126

7:45AM - 8:45AM

Enter	42	84	0	0	126
Exit	42	84	0	0	126
% Trucks					
Peds					PHF
Peak Hour					

17: S Willard St / Main St

17

S Willard St / Main St

Tuesday, June 23, 2015

7:30AM - 8:30AM

	EB	WB	NB	SB	
L	0	0	0	0	
T	42	84	0	0	
R	0	0	0	0	126
Enter	42	84	0	0	126
Exit	42	84	0	0	126
% Trucks					
Peds					PHF
Peak Hour					

18: S Prospect St / Main St

18

S Prospect St / Main St

Tuesday, June 8, 2010

7:30AM - 8:30AM

	EB	WB	NB	SB	
L	0	0	0	0	
T	42	84	0	0	
R	0	0	0	0	126
Enter	42	84	0	0	126
Exit	42	84	0	0	126
% Trucks					
Peds					PHF
Peak Hour					

19: S Winooski Ave / Cherry St

19

S Winooski Ave / Cherry St

Thursday, July 3, 2014

7:45AM - 8:45AM

	EB	WB	NB	SB	
L	14	0	0	0	
T	0	0	0	0	
R	0	0	0	42	56
Enter	14	0	0	42	56
Exit	0	42	14	0	56
% Trucks					
Peds					PHF
Peak Hour					

20: S Winooski Ave / Bank St

20

S Winooski Ave / Bank St

Tuesday, January 17, 2017

7:45AM - 8:45AM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	0	0	0	
R	20	0	0	0	20
Enter	20	0	0	0	20
Exit	0	0	0	20	20
% Trucks					
Peds					PHF
Peak Hour					

21: St Paul St / Bank St

21

St Paul St / Bank St

Tuesday, January 17, 2017

8:00AM - 9:00AM

	EB	WB	NB	SB	
L	0	0	81	0	
T	20	0	0	0	
R	28	0	0	0	130
Enter	49	0	81	0	130
Exit	20	81	0	28	130
% Trucks					
Peds					PHF
Peak Hour					

22: Battery St / Cherry St

22

Battery St / Cherry St

Wednesday, January 18, 2017

7:45AM - 8:45AM

	EB	WB	NB	SB	
L	0	0	0	31	
T	0	0	0	0	
R	0	11	0	0	42
Enter	0	11	0	31	42
Exit	31	0	11	0	42
% Trucks					
Peds					PHF
Peak Hour					

23: St Paul St / Cherry St

23

St Paul St / Cherry St

	EB	WB	NB	SB	
L	0	0	0	0	
T	14	42	0	0	
R	0	0	0	0	56
Enter	14	42	0	0	56
Exit	14	42	0	0	56
% Trucks					
Peds					PHF
Peak Hour					



Legend

Enter Site	270
Exit Site	375

Trip Generation

* underlined roadway is N/S

1: Garage / Cherry St

	EB	WB	NB	SB	
L	0	43	141	0	
T	0	0	0	0	
R	86	0	40	0	310
Enter	86	43	181	0	310
Exit	40	141	0	128	310
% Trucks	0				
Peds	0	0	22	0	PHF
Peak Hour					

2: Garage/ Bank St

	EB	WB	NB	SB	
L	74	0	0	141	
T	0	0	0	0	
R	0	83	0	81	379
Enter	74	83	0	222	379
Exit	141	81	157	0	379
% Trucks	0				
Peds	0	0	0	117	PHF
Peak Hour					

3: Pine St (Garage) / Bank St

	EB	WB	NB	SB	
L	0	81	0	0	
T	0	0	0	0	
R	0	0	74	0	155
Enter	0	81	74	0	155
Exit	74	0	0	81	155
% Trucks	0				
Peds	0	49	32	69	PHF
Peak Hour					

4: Pine St / Cherry St

	EB	WB	NB	SB	
L	0	0	0	54	
T	31	32	0	0	
R	0	109	0	0	227
Enter	31	141	0	54	227
Exit	86	32	109	0	227
% Trucks					
Peds					PHF
Peak Hour					

5: Battery St/Park St / Pearl St

	EB	WB	NB	SB	
L	0	0	0	31	
T	0	0	32	31	
R	0	0	0	0	95
Enter	0	0	32	63	95
Exit	31	0	32	31	95
% Trucks					
Peds	6	4	0	3	PHF
Peak Hour					

6: Pine St / Pearl St

	EB	WB	NB	SB	
L	0	23	56	0	
T	0	0	0	0	
R	31	0	52	0	163
Enter	31	23	109	0	163
Exit	52	56	0	54	163
% Trucks					
Peds					PHF
Peak Hour					

7: N/S Winooski Ave / Pearl St

	EB	WB	NB	SB	
L	0	23	0	0	
T	44	23	0	20	
R	0	0	40	0	150
Enter	44	46	40	20	150
Exit	85	23	0	43	150
% Trucks					
Peds					PHF
Peak Hour					

8: N/S Union St / Pearl St

	EB	WB	NB	SB	
L	0	0	0	0	

N/S Union St / Pearl St

Thursday, June 16, 2016

4:45PM - 5:45PM

T	85	46	0	0	
R	0	0	0	0	130
Enter	85	46	0	0	130
Exit	85	46	0	0	130
% Trucks					
Peds					PHF
Peak Hour					

9: N/S Willard St / Pearl St

9

N/S Willard St / Pearl St

Thursday, June 16, 2016

4:15PM - 5:15PM

	EB	WB	NB	SB	
L	21	0	3	0	
T	59	43	0	0	
R	4	0	0	0	130
Enter	85	43	3	0	130
Exit	59	46	21	4	130
% Trucks					
Peds					PHF
Peak Hour					

10: N/S Prospect St / Pearl St/Colchester Ave

10

N/S Prospect St / Pearl St/Colchester Av

Wednesday, October 16, 2013

5:00PM - 6:00PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	59	43	0	0	
R	0	0	0	0	102
Enter	59	43	0	0	102
Exit	59	43	0	0	102
% Trucks					
Peds					PHF
Peak Hour					

11: Pine St / College St

11

Pine St / College St

Wednesday, November 30, 2016

4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	0	71	81	
R	0	3	0	0	155
Enter	0	3	71	81	155
Exit	0	0	74	81	155
% Trucks					
Peds					PHF
Peak Hour					

12: St. Paul St / College St

12

St. Paul St / College St

Thursday, December 1, 2016

5:00PM - 6:00PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	3	83	82	
R	0	0	0	0	168
Enter	0	3	83	82	168
Exit	0	3	83	82	168
% Trucks					
Peds					PHF
Peak Hour					

13: Pine St / Main St

13

Pine St / Main St

Thursday, June 5, 2014

4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	48	
T	0	0	29	32	
R	0	43	0	0	152
Enter	0	43	29	81	152
Exit	48	0	71	32	152
% Trucks					
Peds					PHF
Peak Hour					

14: St. Paul St / Main St

14

St. Paul St / Main St

Monday, June 13, 2016

4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	66	
T	24	43	40	16	
R	24	43	0	0	256
Enter	48	86	40	82	256
Exit	90	43	83	41	256
% Trucks		0			
Peds	64	58	115	78	PHF
Peak Hour					

15: S Winooski Ave / Main St

15

S Winooski Ave / Main St

Wednesday, June 15, 2016

4:45PM - 5:54PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	121	86	0	55	
R	0	0	0	0	261
Enter	121	86	0	55	261
Exit	121	86	0	55	261
% Trucks					
Peds					PHF
Peak Hour					

16: S Union St / Main St

16

S Union St / Main St

Monday, June 13, 2016

	EB	WB	NB	SB	
L	0	0	0	0	
T	121	86	0	0	
R	0	0	0	0	207

4:30PM - 5:30PM

Enter	121	86	0	0	207
Exit	121	86	0	0	207
% Trucks					
Peds					PHF
Peak Hour					

17: S Willard St / Main St

17
S Willard St / Main St
 Monday, June 22, 2015
 4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	121	86	0	0	
R	0	0	0	0	207
Enter	121	86	0	0	207
Exit	121	86	0	0	207
% Trucks					
Peds					PHF
Peak Hour					

18: S Prospect St / Main St

18
S Prospect St / Main St
 Monday, June 7, 2010
 4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	121	86	0	0	
R	0	0	0	0	207
Enter	121	86	0	0	207
Exit	121	86	0	0	207
% Trucks					
Peds					PHF
Peak Hour					

19: S Winooski Ave / Cherry St

19
S Winooski Ave / Cherry St
 Thursday, July 3, 2014
 5:00PM - 6:00PM

	EB	WB	NB	SB	
L	40	0	0	0	
T	0	0	0	0	
R	0	0	0	43	83
Enter	40	0	0	43	83
Exit	0	43	40	0	83
% Trucks					
Peds					PHF
Peak Hour					

20: S Winooski Ave / Bank St

20
S Winooski Ave / Bank St
 Thursday, January 12, 2017
 4:30PM - 5:30 PM

	EB	WB	NB	SB	
L	0	0	0	0	
T	0	0	0	0	
R	59	0	0	0	59
Enter	59	0	0	0	59
Exit	0	0	0	59	59
% Trucks					
Peds					PHF
Peak Hour					

21: St Paul St / Bank St

21
St Paul St / Bank St
 Tuesday, January 10, 2017
 4:15PM - 5:15PM

	EB	WB	NB	SB	
L	0	0	83	0	
T	59	0	0	0	
R	82	0	0	0	224
Enter	141	0	83	0	224
Exit	59	83	0	82	224
% Trucks					
Peds					PHF
Peak Hour					

22: Battery St / Cherry St

22
Battery St / Cherry St
 Wednesday, January 18, 2017
 4:30PM - 5:30PM

	EB	WB	NB	SB	
L	0	0	0	31	
T	0	0	0	0	
R	0	32	0	0	64
Enter	0	32	0	31	64
Exit	31	0	32	0	64
% Trucks					
Peds					PHF
Peak Hour					

23: St Paul St / Cherry St

23
St Paul St / Cherry St

	EB	WB	NB	SB	
L	0	0	0	0	
T	40	43	0	0	
R	0	0	0	0	83
Enter	40	43	0	0	83
Exit	40	43	0	0	83
% Trucks					
Peds					PHF
Peak Hour					

Traffic Volume Adjustments



Computations

Project: Cambria Hotel TIS
Location: Burlington, VT
Calculated by: ELQ
Checked by:
Title: Traffic Count DHV Adjustments

Project #: 58153.00
Sheet: 1 of 1
Date: 6/11/19
Date:

2015 Traffic Counts:

ATR ID: D079 S Union Street North of College Street
ATR AADT: 3365
DHV (Red Book) 420
TMC Count Data: 368 S Union St/College St SB Exits + NB Exits
DHV Adjustment: 1.14 DHV / TMC Count Data
Yearly Adjustment: 1.02 Red Book 2015-2020 Yearly Growth Factor
Total Adjustment: 1.16

2017 Redbook DHV Chart

AADT	Predicted DHV by Seasonal Factor Group by AADT					
	Rural Interstate SF1	Rural Non-Interstate SF2	Urban SF3	Summer Recreational SF4	Summer/Winter Recreational SF5	Summer/Winter Recreational TH SF6
2600	370	300	320	390	420	740
2700	380	310	330	400	430	760
2800	400	320	350	410	440	780
2900	410	340	360	420	450	800
3000	430	350	370	430	460	810
3100	440	360	380	440	470	830
3200	450	370	390	450	480	840
3300	460	380	400	460	490	860
3400	480	400	420	480	500	860
3500	500	410	430	500	510	880
3600	510	420	440	510	530	870
3700	520	430	460	530	540	870
3800	540	440	470	550	560	880

Growth Factor Group 2: Urban
- For locations within a designated federal aid urban (FAU) area -

To	From	2012	2013	2014	2015	2016
2013		1.01				
2014		1.00	1.00			
2015		1.02	1.01	1.01		
2016		1.03	1.02	1.02	1.01	
2017		1.03	1.02	1.02	1.01	1.00

2016 Traffic Counts:

ATR ID: D161 Main Street West of S Willard Street
ATR AADT: 13785
DHV (Red Book) 1500
TMC Count Data: 1232 Main St/S Willard St EB Exits + WB Exits
DHV Adjustment: 1.22 DHV / TMC Count Data
Yearly Adjustment: 1.01 Red Book 2016-2020 Yearly Growth Factor
Total Adjustment: 1.23

2017 Redbook DHV Chart

AADT	Predicted DHV by Seasonal Factor Group by AADT					
	Rural Interstate SF1	Rural Non-Interstate SF2	Urban SF3	Summer Recreational SF4	Summer/Winter Recreational SF5	Summer/Winter Recreational TH SF6
13100	1700	1300	1400			
13200	1700	1300	1500			
13300	1700	1300	1500			
13400	1700	1400	1500			
13500	1800	1400	1500			
13600	1800		1500			
13700	1800		1500			
13800	1800		1500			
13900	1800		1500			
14000	1800		1500			

FROM CURRENT YEAR

TO FUTURE YEAR	2017	2018	2019
2017	1.00		
2018	1.00	1.00	
2019	1.01	1.00	1.00
2020	1.01	1.01	1.00
2021	1.02	1.01	1.01
2022	1.02	1.02	1.01
2023	1.03	1.02	1.02
2024	1.03	1.03	1.02
2025	1.04	1.03	1.03
2026	1.04	1.04	1.03
2027	1.05	1.04	1.04
2028	1.05	1.05	1.04
2029	1.05	1.05	1.05
2030	1.06	1.05	1.05
2031	1.06	1.06	1.05
2032	1.07	1.06	1.06
2033	1.07	1.07	1.06
2034	1.08	1.07	1.07
2035	1.08	1.08	1.07
2036	1.09	1.08	1.08
2037	1.09	1.09	1.08
2038	1.09	1.09	1.09
2039	1.10	1.09	1.09
2040	1.10	1.10	1.09
2041	1.11	1.10	1.10
2042	1.11	1.11	1.10
2043	1.12	1.11	1.11

Traffic Volume Networks



Computations - AM Peak Hour Vols

Project: Cambria Hotel Location: Burlington, VT
Calculated by: CKF Date: 12/3/18
Checked by: _____ Date: _____

design year 1: 2020
design year 2: 2025

Enter 40
Exit 28

	Unadjusted Data		City Place Trip Generation		YMCA Trip Generation		2020 AM No Build		Trip Generation	
* underlined roadway is N/S	Site Driveway / College St:		Site Driveway / College St:		Site Driveway / College St:		Site Driveway / College St:		Site Driveway / College St:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
Site Driveway / College St	L T R Enter Exit % Trucks Peds Peak Hour	100 271 371 371 4% 3% 2% 3% 6 7 1 1 PHF	L T R Enter Exit % Trucks Peds Peak Hour	4 4 8 8 0 0 0 0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	5 34 39 39 0 0 0 0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 479 479 479 4% 3% 2% 3% 6 7 1 1 PHF	L T R Enter Exit % Trucks Peds Peak Hour	12 0 0 20 0 0 0 0 0 28 0 8 68 12 28 0 28 68 20 8 40 0 68 0 0 0 0 PHF
		Total Adjust: 1.16								
	South Willard Street / Main Street:		South Willard Street / Main Street:		South Willard Street / Main Street:		South Willard Street / Main Street:		South Willard Street / Main Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Willard Street / Main Street	L T R Enter Exit % Trucks Peds Peak Hour	21 34 16 42 487 492 162 167 13 20 25 29 1508 521 546 203 238 1508 554 537 203 214 1508 4% 3% 2% 3% 6 7 1 1 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 42 84 0 0 0 0 0 0 126 42 84 0 0 126 0 0 0 0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	26 42 20 52 641 689 199 205 16 25 31 36 1981 683 756 250 293 1981 723 744 250 263 1981 4% 3% 2% 3% 6 7 1 1 PHF	L T R Enter Exit % Trucks Peds Peak Hour	6 10 0 16 0 0 16 0 6 10 0 16 PHF
		1058 Total Adjust: 1.23								
	South Union Street / Main Street:		South Union Street / Main Street:		South Union Street / Main Street:		South Union Street / Main Street:		South Union Street / Main Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Union Street / Main Street	L T R Enter Exit % Trucks Peds Peak Hour	12 0 36 0 368 621 176 0 0 28 40 0 1281 380 649 252 0 1281 408 657 216 0 1281 7% 5% 3% 0% 7 7 14 13 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 42 84 0 0 0 0 0 0 126 42 84 0 0 126 PHF	L T R Enter Exit % Trucks Peds Peak Hour	9 9 9 9 PHF	L T R Enter Exit % Trucks Peds Peak Hour	15 0 44 0 494 848 225 0 0 34 49 0 1710 509 882 319 0 1710 544 892 275 0 1710 7% 5% 3% 0% 7 7 14 13 PHF	L T R Enter Exit % Trucks Peds Peak Hour	6 3 0 6 3 0 9 0 0 9 0 9 PHF
		Total Adjust: 1.23								
	South Union Street / College Street:		South Union Street / College Street:		South Union Street / College Street:		South Union Street / College Street:		South Union Street / College Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Union Street / College Street	L T R Enter Exit % Trucks Peds Peak Hour	22 3 26 1 78 245 142 1 0 58 13 0 589 100 306 181 2 589 92 271 222 4 589 6% 2% 3% 0% 26 59 19 57 PHF	L T R Enter Exit % Trucks Peds Peak Hour	4 4 8 8 PHF	L T R Enter Exit % Trucks Peds Peak Hour	5 34 9 72 72 PHF	L T R Enter Exit % Trucks Peds Peak Hour	31 3 30 1 95 323 174 1 0 92 15 0 766 126 418 220 2 766 111 354 296 5 766 6% 2% 3% 0% 26 59 19 57 PHF	L T R Enter Exit % Trucks Peds Peak Hour	4 9 16 19 20 19 9 0 48 16 28 4 0 48 PHF
		Total Adjust: 1.16								
	South Union Street / Pearl Street:		South Union Street / Pearl Street:		South Union Street / Pearl Street:		South Union Street / Pearl Street:		South Union Street / Pearl Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Union Street / Pearl Street	L T R Enter Exit % Trucks Peds Peak Hour	72 0 38 0 289 386 133 0 0 32 43 0 993 361 418 214 0 993 332 424 237 0 993 3% 2% 0% 0% 23 58 27 28 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 29 45 0 0 29 45 0 0 74 74 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 0 0 0 0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	89 0 47 0 385 520 164 0 0 39 53 0 1295 473 559 263 0 1295 438 566 292 0 1295 3% 2% 0% 0% 23 58 27 28 PHF	L T R Enter Exit % Trucks Peds Peak Hour	1 2 1 0 0 4 0 4 1 1 2 0 4 PHF
		Total Adjust: 1.23								
	South Willard Street / Pearl Street:		South Willard Street / Pearl Street:		South Willard Street / Pearl Street:		South Willard Street / Pearl Street:		South Willard Street / Pearl Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Willard Street / Pearl Street	L T R Enter Exit % Trucks Peds Peak Hour	12 43 28 22 290 412 93 209 40 15 44 30 1238 342 470 165 261 1238 356 470 120 292 1238 5% 3% 5% 3% 12 21 7 8 PHF	L T R Enter Exit % Trucks Peds Peak Hour	7 0 3 0 21 42 0 0 1 0 0 0 74 29 42 3 0 74 21 45 7 1 74 PHF	L T R Enter Exit % Trucks Peds Peak Hour	0 0 0 0 0 0 0 0 PHF	L T R Enter Exit % Trucks Peds Peak Hour	22 53 37 27 377 549 114 257 51 18 54 37 1597 450 620 206 321 1597 458 623 155 361 1597 5% 3% 5% 3% 12 21 7 8 PHF	L T R Enter Exit % Trucks Peds Peak Hour	1 1 1 0 0 0 1 1 0 0 0 1 PHF
		Total Adjust: 1.23								
	South Winooski Avenue / College Street:		South Winooski Avenue / College Street:		South Winooski Avenue / College Street:		South Winooski Avenue / College Street:		South Winooski Avenue / College Street:	
	EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB		EB WB NB SB	
South Winooski Avenue / College Street	L T R Enter Exit % Trucks Peds Peak Hour	21 39 22 28 48 173 200 384 18 77 11 69 1090 87 289 233 481 1090 87 264 298 441 1090 9% 2% 3% 6% 33 22 31 14 PHF	L T R Enter Exit % Trucks Peds Peak Hour	4 4 20 29 29 PHF	L T R Enter Exit % Trucks Peds Peak Hour	5 20 9 39 39 PHF	L T R Enter Exit % Trucks Peds Peak Hour	24 50 26 33 65 226 233 467 21 99 13 80 1337 110 375 271 580 1337 110 332 356 538 1337 9% 2% 3% 6% 33 22 31 14 PHF	L T R Enter Exit % Trucks Peds Peak Hour	2 4 6 4 2 2 20 6 8 2 4 20 12 4 2 2 20 PHF
		Total Adjust: 1.16								



Computations - AM Peak Hour Vols

Build Year Growth Factor: 1.02

	2020 AM Build					2025 AM No Build					2025 AM Build						
* underlined roadway is N/S	Site Driveway / College St:					Site Driveway / College St:					Site Driveway / College St:						
<u>Site Driveway / College St</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	12	0	0	20	L	0	0	0	0	L	12	0	0	20		
	T	126	354	0	0	T	128	361	0	0	T	128	361	0	0		
	R	0	28	0	8	R	0	0	0	0	R	0	28	0	8		
	Enter	138	382	0	28	Enter	128	361	0	0	Enter	140	389	0	28		
	Exit	146	361	40	0	Exit	128	361	0	0	Exit	148	369	40	0		
	% Trucks	4%	3%	2%	3%	% Trucks	4%	3%	2%	3%	% Trucks	4%	3%	2%	3%		
	Peds	6	7	1	1	Peds	6	7	1	1	Peds	6	7	1	1		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Willard Street / Main Street:					South Willard Street / Main Street:					South Willard Street / Main Street:						
<u>South Willard Street / Main Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	26	42	20	52	L	26	43	20	53	L	26	43	20	53		
	T	641	695	199	205	T	654	703	203	210	T	654	709	203	210		
	R	16	35	31	36	R	16	25	31	36	R	16	35	31	36		
	Enter	683	772	250	293	Enter	696	771	255	299	Enter	696	787	255	299		
	Exit	723	750	260	263	Exit	738	759	255	268	Exit	738	765	265	268		
	% Trucks	4%	3%	2%	3%	% Trucks	4%	3%	2%	3%	% Trucks	4%	3%	2%	3%		
	Peds	6	7	1	1	Peds	6	7	1	1	Peds	6	7	1	1		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Union Street / Main Street:					South Union Street / Main Street:					South Union Street / Main Street:						
<u>South Union Street / Main Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	15	0	44	0	L	15	0	45	0	L	15	0	45	0		
	T	494	848	228	0	T	504	865	230	0	T	504	865	233	0		
	R	0	40	49	0	R	0	35	50	0	R	0	41	50	0		
	Enter	509	888	322	0	Enter	519	900	325	0	Enter	519	906	328	0		
	Exit	544	892	284	0	Exit	554	910	280	0	Exit	554	910	289	0		
	% Trucks	7%	5%	3%	0%	% Trucks	7%	5%	3%	0%	% Trucks	7%	5%	3%	0%		
	Peds	7	7	14	13	Peds	7	7	14	13	Peds	7	7	14	13		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Union Street / College Street:					South Union Street / College Street:					South Union Street / College Street:						
<u>South Union Street / College Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	35	3	39	1	L	31	4	31	1	L	35	4	40	1		
	T	111	342	174	1	T	97	330	178	1	T	113	349	178	1		
	R	0	92	15	0	R	0	93	15	0	R	0	93	15	0		
	Enter	146	437	229	2	Enter	128	427	224	2	Enter	148	446	233	2		
	Exit	127	382	300	5	Exit	113	361	302	5	Exit	129	389	306	5		
	% Trucks	6%	2%	3%	0%	% Trucks	6%	2%	3%	0%	% Trucks	6%	2%	3%	0%		
	Peds	26	59	19	57	Peds	26	59	19	57	Peds	26	59	19	57		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Union Street / Pearl Street:					South Union Street / Pearl Street:					South Union Street / Pearl Street:						
<u>South Union Street / Pearl Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	89	0	48	0	L	90	0	48	0	L	90	0	49	0		
	T	385	520	166	0	T	392	530	167	0	T	392	530	169	0		
	R	0	39	54	0	R	0	40	54	0	R	0	40	55	0		
	Enter	473	559	267	0	Enter	483	570	268	0	Enter	483	570	272	0		
	Exit	439	567	294	0	Exit	446	578	297	0	Exit	447	579	299	0		
	% Trucks	3%	2%	0%	0%	% Trucks	3%	2%	0%	0%	% Trucks	3%	2%	0%	0%		
	Peds	23	58	27	28	Peds	23	58	27	28	Peds	23	58	27	28		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Willard Street / Pearl Street:					South Willard Street / Pearl Street:					South Willard Street / Pearl Street:						
<u>South Willard Street / Pearl Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	22	53	37	27	L	23	54	38	28	L	23	54	38	28		
	T	378	549	114	257	T	385	560	117	262	T	386	560	117	262		
	R	51	18	54	37	R	52	19	55	38	R	52	19	55	38		
	Enter	451	620	206	321	Enter	459	632	210	327	Enter	460	632	210	327		
	Exit	459	623	155	361	Exit	468	635	158	368	Exit	469	635	158	368		
	% Trucks	5%	3%	5%	3%	% Trucks	5%	3%	5%	3%	% Trucks	5%	3%	5%	3%		
	Peds	12	21	7	8	Peds	12	21	7	8	Peds	12	21	7	8		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					
	South Winooski Avenue / College Street:					South Winooski Avenue / College Street:					South Winooski Avenue / College Street:						
<u>South Winooski Avenue / College Street</u>	EB	WB	NB	SB		EB	WB	NB	SB		EB	WB	NB	SB			
	L	24	52	26	37	L	25	51	26	33	L	25	53	26	37		
	T	71	230	233	467	T	66	230	238	477	T	72	234	238	477		
	R	21	101	15	80	R	21	101	13	82	R	21	103	15	82		
	Enter	116	383	273	584	Enter	113	382	277	592	Enter	119	390	279	596		
	Exit	122	336	358	540	Exit	113	338	363	549	Exit	125	342	365	551		
	% Trucks	9%	2%	3%	6%	% Trucks	9%	2%	3%	6%	% Trucks	9%	2%	3%	6%		
	Peds	33	22	31	14	Peds	33	22	31	14	Peds	33	22	31	14		
PHF					PHF					PHF							
Peak Hour						Peak Hour						Peak Hour					



Computations - PM Peak Hour Vols

Project: Cambria Hotel
Calculated by: CKF
Checked by: _____

Location: Burlington, VT
Date: 12/3/18
Date: _____

design year 1: 2020
design year 2: 2025

Enter 44
Exit 43

* underlined roadway is N/S

Unadjusted Data					City Place Trip Generation					YMCA Trip Generation					2020 PM No Build					Trip Generation														
Site Driveway / College St:										Site Driveway / College St:					Site Driveway / College St:					Site Driveway / College St:					Site Driveway / College St:									
<u>Site Driveway / College St</u>					ATR ID: Same as other					ATR/CTC AADT: 2015 count					ATR ID: Same as other					ATR/CTC AADT: 2016 count					ATR ID: Same as other					ATR/CTC AADT: 2015 Count				
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB				
L 233 225					L 6 6					L 23 28					L 0 0 0 0					L 31 66 26 68					L 13 0 0 30									
T 554 537 203 214					T 6 6 0 0					T 23 28 0 0					T 301 296 0 0					T 865 741 278 215					T 0 0 0 0									
R 458					R 13					R 51					R 0 0 0 0					R 36 59 43 23					R 0 31 0 13									
Enter 521 546 203 238					Enter 6 6 0 0					Enter 23 28 0 0					Enter 301 296 0 0					Enter 932 867 347 306					Enter 13 31 0 43									
Exit 554 537 203 214					Exit 6 6 0 0					Exit 23 28 0 0					Exit 301 296 0 0					Exit 976 790 368 317					Exit 30 13 44 0									
% Trucks 4% 3% 2% 3%					% Trucks 0 0 0 0					% Trucks 0 0 0 0					% Trucks 4% 3% 2% 3%					% Trucks 2% 2% 2% 0%					% Trucks 0 0 0 0									
Peds 6 7 1 1					Peds 0 0 0 0					Peds 0 0 0 0					Peds 6 7 1 1					Peds 10 2 5 7					Peds 0 0 0 0									
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF									
South Willard Street / Main Street:										South Willard Street / Main Street:					South Willard Street / Main Street:					South Willard Street / Main Street:					South Willard Street / Main Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 25 54 21 55					L 0 0 0 0					L 0 0 0 0					L 31 66 26 68					L 7 11														
T 605 533 226 175					T 121 86 0 0					T 0 0 0 0					T 865 741 278 215					T 0 18 0 0														
R 29 48 35 19					R 0 0 0 0					R 0 0 0 0					R 36 59 43 23					R 0 7 11 0														
Enter 659 635 282 249					Enter 121 86 0 0					Enter 0 0 0 0					Enter 932 867 347 306					Enter 0 18 0 0														
Exit 695 573 299 258					Exit 121 86 0 0					Exit 0 0 0 0					Exit 976 790 368 317					Exit 0 7 11 0														
% Trucks 2% 2% 2% 0%					% Trucks 0 0 0 0					% Trucks 0 0 0 0					% Trucks 2% 2% 2% 0%					% Trucks 0 0 0 0														
Peds 10 2 5 7					Peds 0 0 0 0					Peds 0 0 0 0					Peds 10 2 5 7					Peds 0 0 0 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														
South Union Street / Main Street:										South Union Street / Main Street:					South Union Street / Main Street:					South Union Street / Main Street:					South Union Street / Main Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 41 0 41 0					L 0 0 0 0					L 8 20					L 58 0 50 0					L 7 3														
T 675 551 101 0					T 121 86 0 0					T 0 0 34 0					T 951 763 144 0					T 0 7 3 0														
R 0 32 97 0					R 0 0 0 0					R 6 34					R 0 46 119 0					R 0 10 10 0														
Enter 716 583 239 0					Enter 121 86 0 0					Enter 8 6 20 0					Enter 1010 809 314 0					Enter 0 7 3 0														
Exit 772 592 174 0					Exit 121 86 0 0					Exit 0 0 34 0					Exit 1071 814 248 0					Exit 0 0 10 0														
% Trucks 2% 1% 2% 0%					% Trucks 0 0 0 0					% Trucks 0 0 34 0					% Trucks 2% 1% 2% 0%					% Trucks 0 0 10 0														
Peds 14 29 12 18					Peds 0 0 0 0					Peds 0 0 34 0					Peds 14 29 12 18					Peds 0 0 10 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														
South Union Street / College Street:										South Union Street / College Street:					South Union Street / College Street:					South Union Street / College Street:					South Union Street / College Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 38 1 36 0					L 6 6					L 23 34					L 67 1 42 0					L 5 21 10														
T 194 189 265 3					T 6 6					T 28 34					T 232 254 343 3					T 25 21 10														
R 1 62 53 0					R 6 6 0 0					R 33 118					R 1 105 62 0					R 30 21 10 0														
Enter 233 252 354 3					Enter 6 6 0 0					Enter 23 61 34 0					Enter 301 361 446 3					Enter 30 21 10 0														
Exit 247 225 365 5					Exit 6 6 0 0					Exit 0 28 90 0					Exit 294 296 515 6					Exit 25 31 5 0														
% Trucks 1% 1% 1% 0%					% Trucks 0 0 0 0					% Trucks 0 28 90 0					% Trucks 1% 1% 1% 0%					% Trucks 0 0 0 0														
Peds 44 81 25 66					Peds 0 0 0 0					Peds 0 28 90 0					Peds 44 81 25 66					Peds 0 0 0 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														
South Union Street / Pearl Street:										South Union Street / Pearl Street:					South Union Street / Pearl Street:					South Union Street / Pearl Street:					South Union Street / Pearl Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 142 0 44 0					L 0 0 0 0					L 0 0 0 0					L 175 0 54 0					L 1 1														
T 432 451 263 0					T 85 46 0 0					T 0 0 0 0					T 616 600 323 0					T 0 0 6 0														
R 0 55 47 0					R 0 0 0 0					R 0 0 0 0					R 0 68 58 0					R 1 1 4 0														
Enter 574 506 354 0					Enter 85 46 0 0					Enter 0 0 0 0					Enter 791 668 435 0					Enter 0 0 6 0														
Exit 479 495 460 0					Exit 85 46 0 0					Exit 0 0 0 0					Exit 674 655 566 0					Exit 1 1 4 0														
% Trucks 2% 2% 0% 0%					% Trucks 0 0 0 0					% Trucks 0 0 0 0					% Trucks 2% 2% 0% 0%					% Trucks 0 0 0 0														
Peds 37 53 38 27					Peds 0 0 0 0					Peds 0 0 0 0					Peds 37 53 38 27					Peds 0 0 0 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														
South Willard Street / Pearl Street:										South Willard Street / Pearl Street:					South Willard Street / Pearl Street:					South Willard Street / Pearl Street:					South Willard Street / Pearl Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 41 51 55 25					L 21 0 3 0					L 0 0 0 0					L 72 63 71 31					L 1 0 0 0														
T 431 436 230 165					T 59 43 0 0					T 0 0 0 0					T 590 579 283 203					T 1 0 0 0														
R 37 40 50 33					R 4 0 0 0					R 0 0 0 0					R 50 49 62 41					R 1 0 0 0														
Enter 509 527 335 223					Enter 85 43 3 0					Enter 0 0 0 0					Enter 711 691 415 274					Enter 1 0 0 0														
Exit 506 524 311 253					Exit 59 46 21 4					Exit 0 0 0 0					Exit 682 690 404 315					Exit 1 0 0 0														
% Trucks 3% 2% 1% 1%					% Trucks 0 0 0 0					% Trucks 0 0 0 0					% Trucks 3% 2% 1% 1%					% Trucks 0 0 0 0														
Peds 5 5 1 4					Peds 0 0 0 0					Peds 0 0 0 0					Peds 5 5 1 4					Peds 0 0 0 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														
South Winooski Avenue / College Street:										South Winooski Avenue / College Street:					South Winooski Avenue / College Street:					South Winooski Avenue / College Street:					South Winooski Avenue / College Street:									
EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB					EB WB NB SB									
L 40 40 17 77					L 6 6 59					L 5 8					L 47 51 20 97					L 3 4 2														
T 124 114 287 556					T 6 6 59					T 12 14					T 163 153 334 706					T 7 6 4														
R 56 80 31 79					R 6 6 0 59					R 10 3					R 65 103 39 92					R 13 6 4 3														
Enter 220 234 335 712					Enter 6 6 0 59					Enter 12 28 3 8					Enter 275 307 393 895					Enter 7 13 2 4														
Exit 232 210 407 652					Exit 6 6 0 59					Exit 23 14 10 5					Exit 300 265 483 823					Exit 13 6 4 3														
% Trucks 3% 1% 1% 3%					% Trucks 0 0 0 59					% Trucks 23 14 10 5					% Trucks 3% 1% 1% 3%					% Trucks 0 0 0 0														
Peds 133 171 111 83					Peds 0 0 0 59					Peds 23 14 10 5					Peds 133 171 111 83					Peds 0 0 0 0														
Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF					Peak Hour PHF														



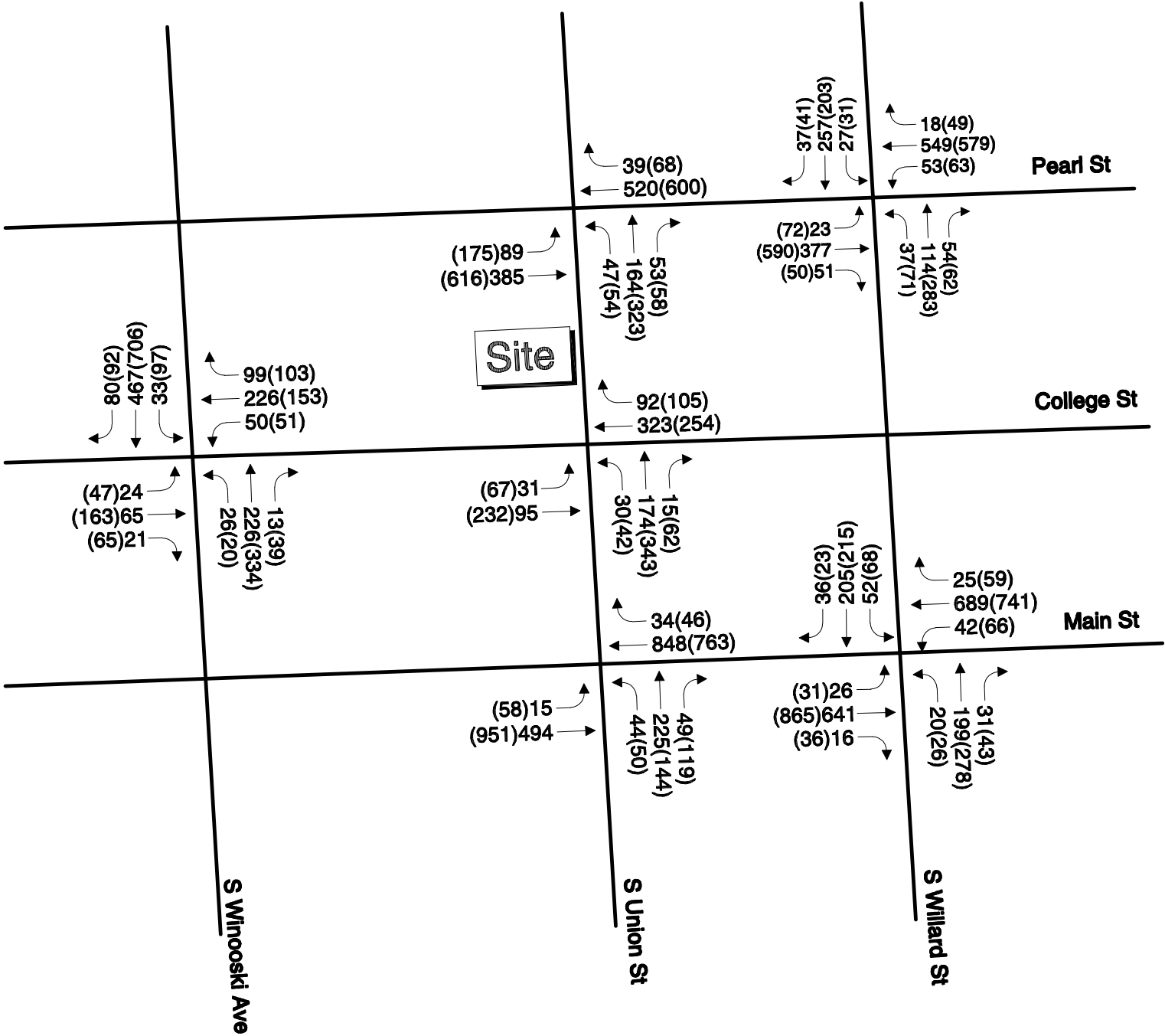
Computations - PM Peak Hour Vols

Build Year Growth 1.02

* underlined roadway is N/S

	2020 PM Build	2025 PM No Build	2025 Build
	Site Driveway / College St:	Site Driveway / College St:	Site Driveway / College St:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
Site Driveway / College St	L130030	L0000	L130030
	T30129600	T30730200	T30730200
	R031013	R0000	R031013
	684	609	696
Enter	314327043	Enter30730200	Enter320333043
Exit	331309440	Exit30730200	Exit337315440
684		609	696
% Trucks	4%3%2%3%	% Trucks4%3%2%3%	% Trucks4%3%2%3%
Peds	6711	Peds6711	Peds6711
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Willard Street / Main Street:	South Willard Street / Main Street:	South Willard Street / Main Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Willard Street / Main Street	L31662668	L31682669	L31682669
	T865748278215	T882756284220	T882763284220
	R36704323	R36604424	R36714424
2469		2500	2518
Enter	932885347306	Enter950884354312	Enter950902354312
Exit	976797379317	Exit995806375324	Exit995813386324
2469		2500	2518
% Trucks	2%2%2%0%	% Trucks2%2%2%0%	% Trucks2%2%2%0%
Peds	10257	Peds10257	Peds10257
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Union Street / Main Street:	South Union Street / Main Street:	South Union Street / Main Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Union Street / Main Street	L580500	L600510	L600510
	T9517631470	T9707791470	T9707791500
	R0531190	R0471220	R0541220
2142		2175	2185
Enter	10108163170	Enter10308253200	Enter10308323230
Exit	10718142580	Exit10928302530	Exit10928302630
2142		2175	2185
% Trucks	2%1%2%0%	% Trucks2%1%2%0%	% Trucks2%1%2%0%
Peds	14291218	Peds14291218	Peds14291218
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Union Street / College Street:	South Union Street / College Street:	South Union Street / College Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Union Street / College Street	L721520	L691430	L741530
	T2572753433	T2372603494	T2622813494
	R1105620	R1107630	R1107630
1172		1133	1194
Enter	3313824563	Enter3073684554	Enter3373894654
Exit	3193275206	Exit3003025256	Exit3253335306
1172		1133	1194
% Trucks	1%1%1%0%	% Trucks1%1%1%0%	% Trucks1%1%1%0%
Peds	44812566	Peds44812566	Peds44812566
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Union Street / Pearl Street:	South Union Street / Pearl Street:	South Union Street / Pearl Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Union Street / Pearl Street	L1750550	L1780550	L1780560
	T6166003270	T6286123300	T6286123340
	R068590	R069590	R069600
1900		1932	1938
Enter	7916684410	Enter8076814440	Enter8076814500
Exit	6756565700	Exit6876685770	Exit6886695810
1900		1932	1938
% Trucks	2%2%0%0%	% Trucks2%2%0%0%	% Trucks2%2%0%0%
Peds	37533827	Peds37533827	Peds37533827
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Willard Street / Pearl Street:	South Willard Street / Pearl Street:	South Willard Street / Pearl Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Willard Street / Pearl Street	L72637131	L73647231	L73647231
	T591579283203	T601591289207	T602591289207
	R50496241	R51506341	R51506341
2092		2133	2134
Enter	712691415274	Enter725705423280	Enter726705423280
Exit	683690404315	Exit696704412322	Exit697704412322
2092		2133	2134
% Trucks	3%2%1%1%	% Trucks3%2%1%1%	% Trucks3%2%1%1%
Peds	5514	Peds5514	Peds5514
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour
	South Winooski Avenue / College Street:	South Winooski Avenue / College Street:	South Winooski Avenue / College Street:
	EBWBNB SB	EBWBNB SB	EBWBNB SB
South Winooski Avenue / College Street	L475420101	L48522099	L485520103
	T170159334706	T166156341720	T173162341720
	R651074192	R671054094	R671094294
1896		1908	1934
Enter	282320395899	Enter280313401913	Enter287326403917
Exit	313271487826	Exit306270493839	Exit319276497842
1896		1908	1934
% Trucks	3%1%1%3%	% Trucks3%1%1%3%	% Trucks3%1%1%3%
Peds	13317111183	Peds13317111183	Peds13317111183
PHF		PHF	PHF
Peak Hour		Peak Hour	Peak Hour

2020



Not to Scale

Legend

AM Peak Hour Volume
(PM Peak Hour Volume)

2025

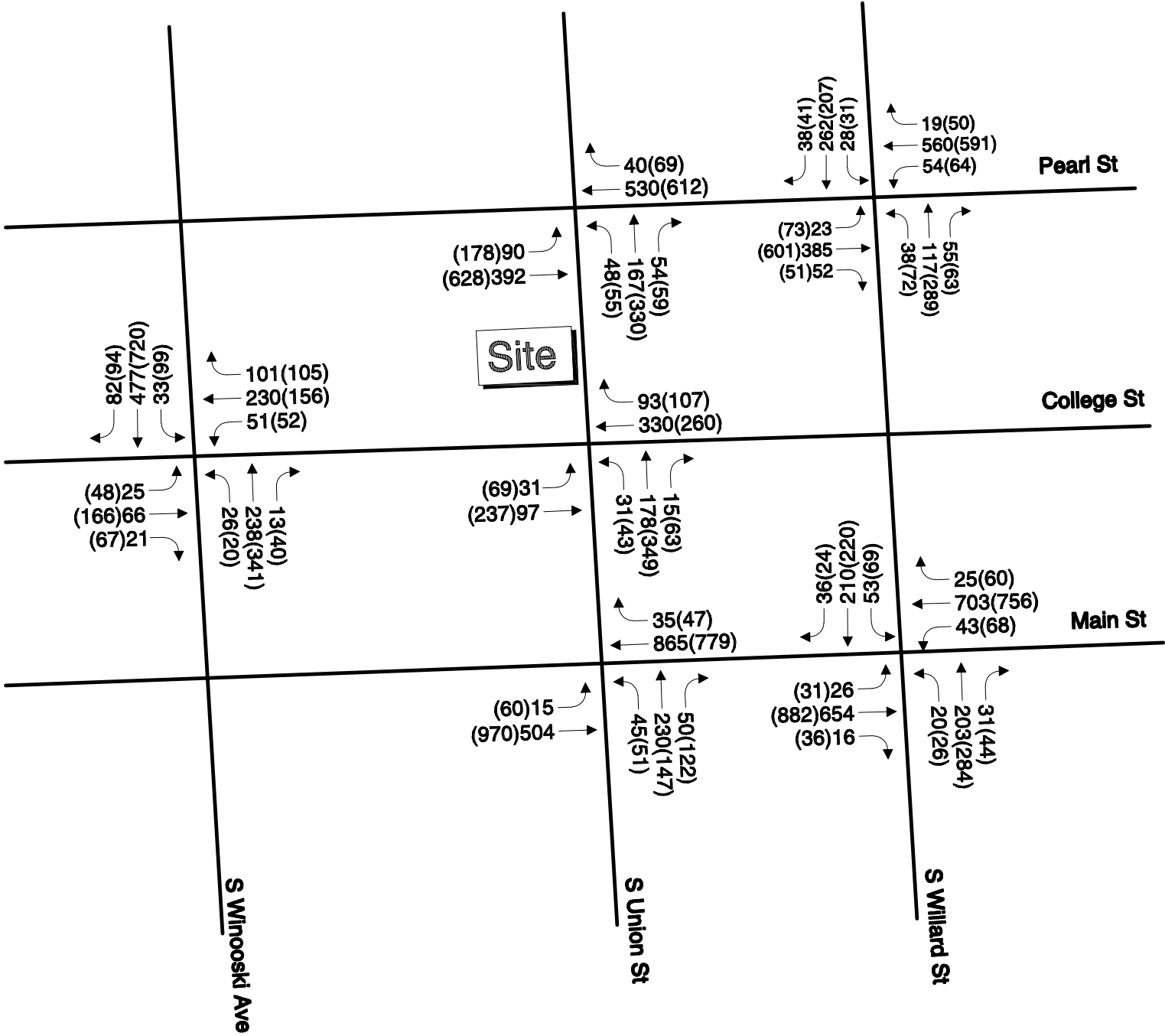
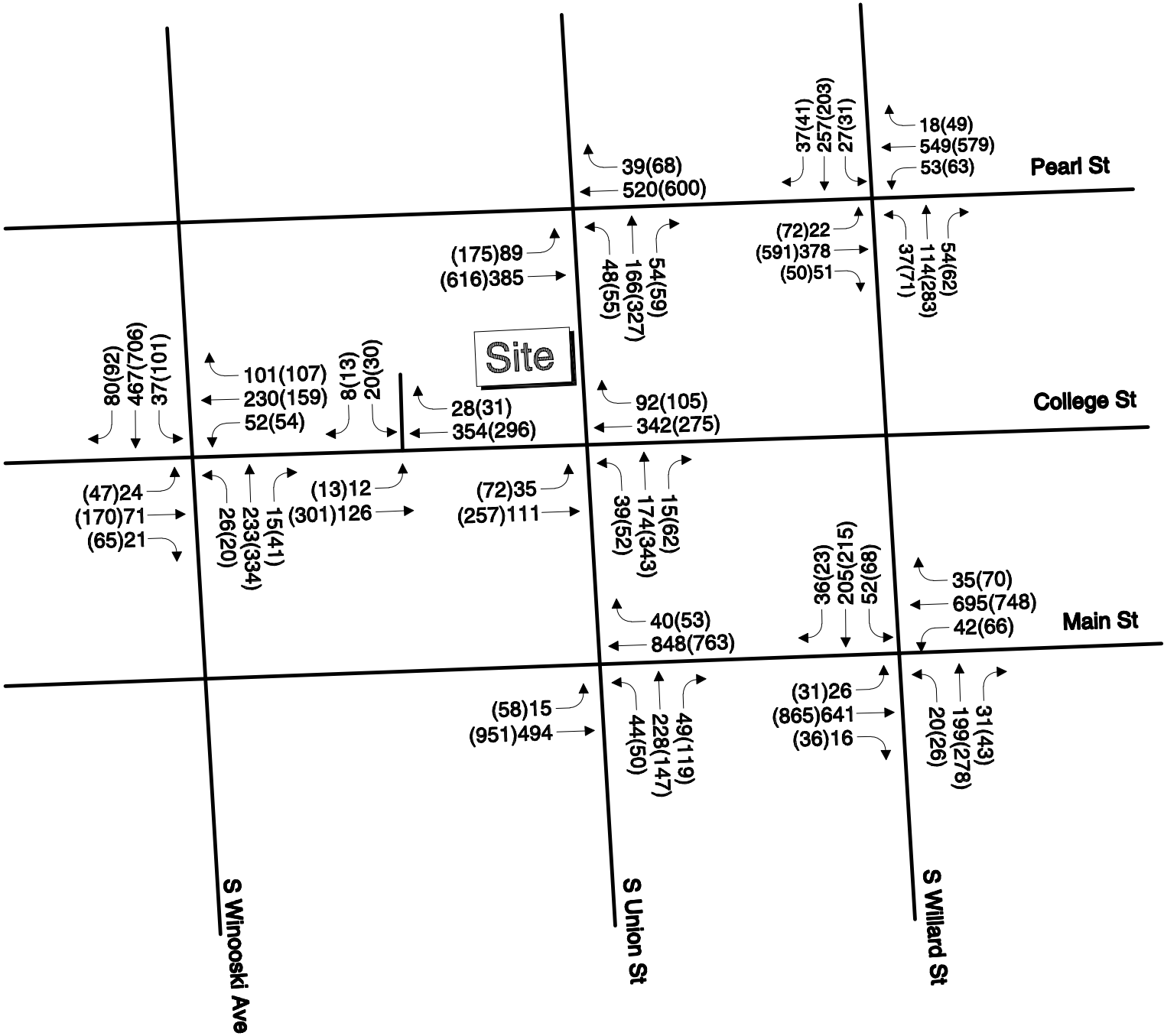


Figure 4
2020 and 2025 No Build
Peak Hour Traffic Volumes

2020



Not to Scale

Legend

AM Peak Hour Volume
(PM Peak Hour Volume)

2025

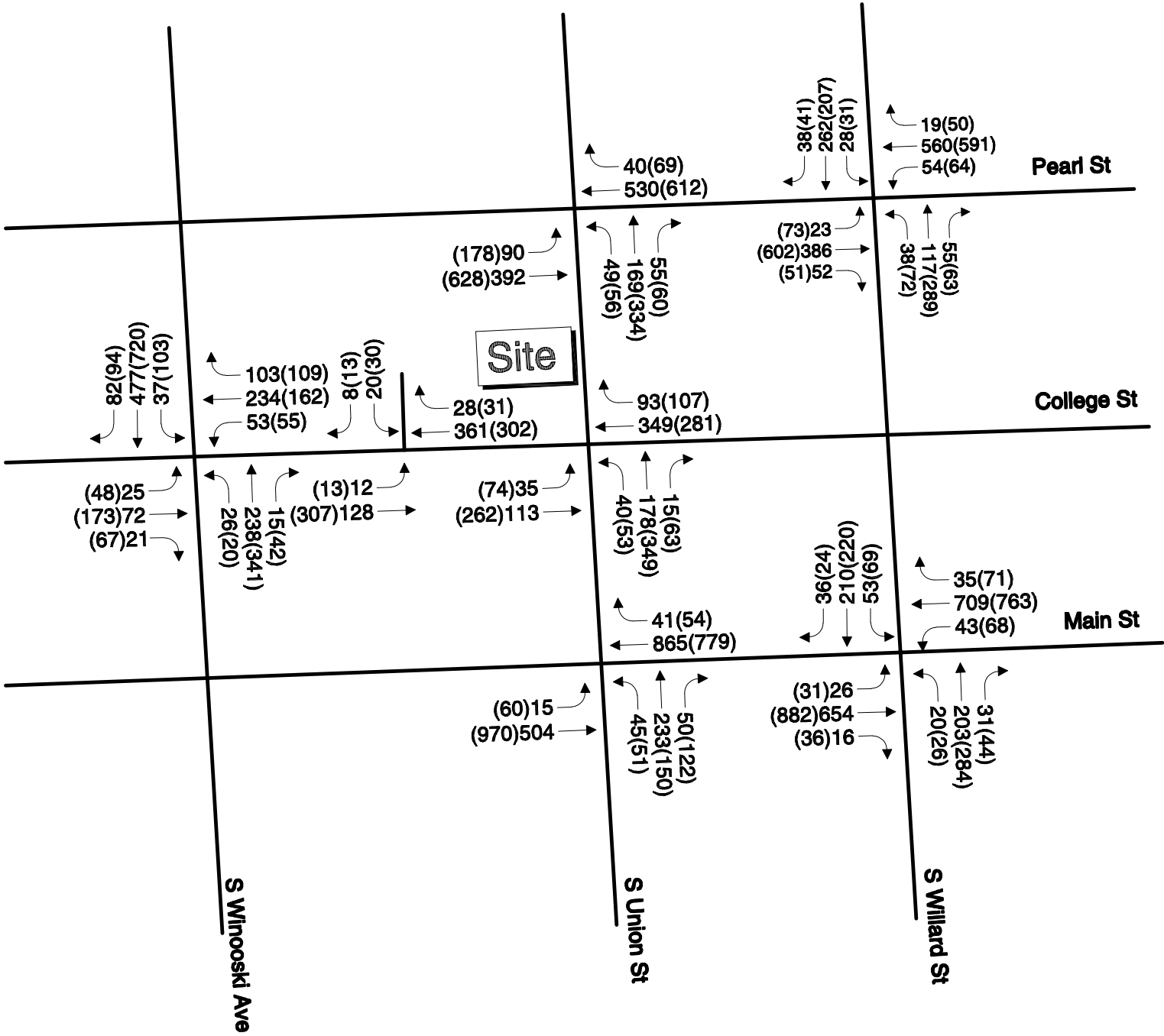
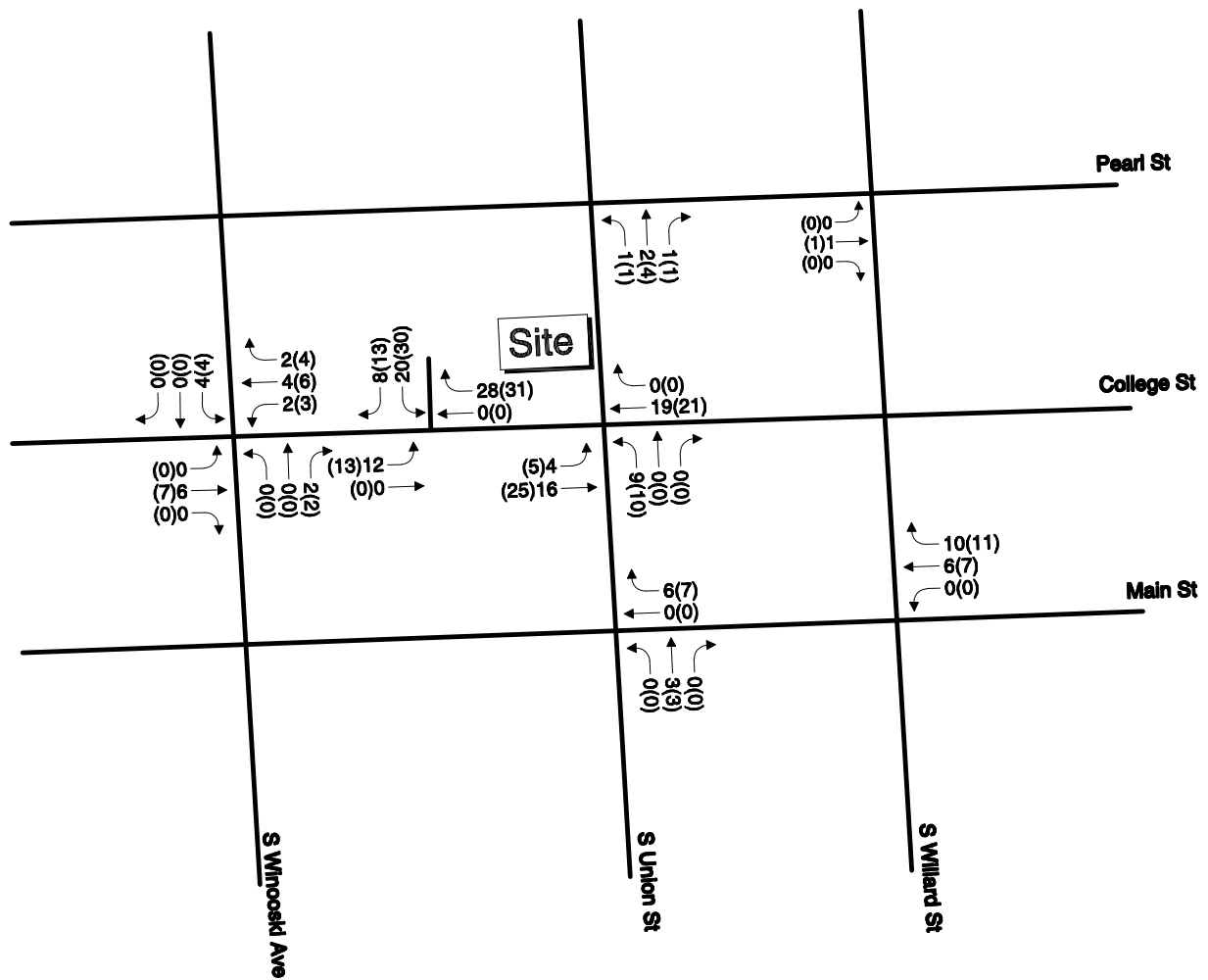


Figure 5
2020 and 2025 Build
Peak Hour Traffic Volumes



Not to Scale

Legend

AM Peak Hour Volume
(PM Peak Hour Volume)



Figure 3
Site Generated Trips
Peak Hour Traffic Volumes

Intersection Capacity Analyses

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	385	0	0	520	39	47	164	53	0	0	0
Future Volume (vph)	89	385	0	0	520	39	47	164	53	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00				
Frt	1.00	1.00			0.99		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1670	1783			1776		1656	1693				
Flt Permitted	0.28	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	494	1783			1776		1656	1693				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	385	0	0	520	39	47	164	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	20	0	0	0	0
Lane Group Flow (vph)	89	385	0	0	554	0	47	197	0	0	0	0
Confl. Peds. (#/hr)	28		27	27		28	23		58			
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	19.9	19.9			19.9		18.2	18.2				
Effective Green, g (s)	19.9	19.9			19.9		18.2	18.2				
Actuated g/C Ratio	0.40	0.40			0.40		0.36	0.36				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	196	708			705		601	615				
v/s Ratio Prot		0.22			c0.31			c0.12				
v/s Ratio Perm	0.18						0.03					
v/c Ratio	0.45	0.54			0.79		0.08	0.32				
Uniform Delay, d1	11.1	11.6			13.2		10.5	11.5				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	1.7	0.9			5.7		0.3	1.4				
Delay (s)	12.8	12.5			19.0		10.7	12.9				
Level of Service	B	B			B		B	B				
Approach Delay (s)		12.5			19.0			12.5			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			50.1				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			64.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	23	377	51	53	549	18	37	114	54	27	257	37
Future Volume (vph)	23	377	51	53	549	18	37	114	54	27	257	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.98		1.00	1.00			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1712		1687	1773			1651			1736	
Flt Permitted		0.93		0.47	1.00			0.89			0.96	
Satd. Flow (perm)		1588		827	1773			1484			1675	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	377	51	53	549	18	37	114	54	27	257	37
RTOR Reduction (vph)	0	9	0	0	2	0	0	26	0	0	10	0
Lane Group Flow (vph)	0	442	0	53	565	0	0	179	0	0	311	0
Confl. Peds. (#/hr)	8		7	7		8	21		12	12		21
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.0		20.0	20.0			18.0			18.0	
Effective Green, g (s)		20.0		20.0	20.0			18.0			18.0	
Actuated g/C Ratio		0.40		0.40	0.40			0.36			0.36	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		635		330	709			534			603	
v/s Ratio Prot					c0.32							
v/s Ratio Perm		0.28		0.06				0.12			c0.19	
v/c Ratio		0.70		0.16	0.80			0.34			0.52	
Uniform Delay, d1		12.5		9.6	13.2			11.6			12.6	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		6.2		1.0	9.0			1.7			3.1	
Delay (s)		18.7		10.7	22.2			13.3			15.7	
Level of Service		B		B	C			B			B	
Approach Delay (s)		18.7			21.3			13.3			15.7	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			72.2%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: Main St & S Union St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	494	0	0	848	34	44	225	49	0	0	0
Future Volume (vph)	15	494	0	0	848	34	44	225	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	1.00	1.00			1.00		0.95	1.00				
Frt	1.00	1.00			0.99		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1711	1717			1788		1614	1697				
Flt Permitted	0.16	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	285	1717			1788		1614	1697				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	494	0	0	848	34	44	225	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	11	0	0	0	0
Lane Group Flow (vph)	15	494	0	0	880	0	44	263	0	0	0	0
Confl. Peds. (#/hr)	13		14	14		13	26		59			
Heavy Vehicles (%)	2%	7%	0%	0%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	37.8	37.8			37.8		15.6	15.6				
Effective Green, g (s)	38.8	38.8			38.8		16.6	16.6				
Actuated g/C Ratio	0.59	0.59			0.59		0.25	0.25				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	169	1018			1060		409	430				
v/s Ratio Prot		0.29			c0.49			c0.15				
v/s Ratio Perm	0.05						0.03					
v/c Ratio	0.09	0.49			0.83		0.11	0.61				
Uniform Delay, d1	5.7	7.6			10.7		18.7	21.5				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.2	0.4			5.6		0.1	2.6				
Delay (s)	5.9	8.0			16.3		18.8	24.1				
Level of Service	A	A			B		B	C				
Approach Delay (s)		7.9			16.3			23.4			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			65.4				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			70.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	641	16	42	689	25	20	199	31	52	205	36
Future Volume (vph)	26	641	16	42	689	25	20	199	31	52	205	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1677	1759		1693	1772			1756			1730	
Flt Permitted	0.26	1.00		0.30	1.00			0.96			0.89	
Satd. Flow (perm)	454	1759		529	1772			1696			1548	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	641	16	42	689	25	20	199	31	52	205	36
RTOR Reduction (vph)	0	1	0	0	2	0	0	8	0	0	8	0
Lane Group Flow (vph)	26	656	0	42	712	0	0	242	0	0	285	0
Confl. Peds. (#/hr)	1		1	1		1	7		6	6		7
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			15.1			15.1	
Effective Green, g (s)	35.1	35.1		35.1	35.1			16.1			16.1	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.26			0.26	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	260	1008		303	1016			446			407	
v/s Ratio Prot		0.37			c0.40							
v/s Ratio Perm	0.06			0.08				0.14			c0.18	
v/c Ratio	0.10	0.65		0.14	0.70			0.54			0.70	
Uniform Delay, d1	5.9	8.9		6.0	9.3			19.4			20.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	3.3		1.0	4.0			1.3			5.2	
Delay (s)	6.7	12.1		7.0	13.3			20.7			25.6	
Level of Service	A	B		A	B			C			C	
Approach Delay (s)		11.9			13.0			20.7			25.6	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	61.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

26: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	95	0	0	323	92	30	174	15	0	0	0
Future Volume (vph)	31	95	0	0	323	92	30	174	15	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	31	95	0	0	323	92	30	174	15	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	126	415	219									
Volume Left (vph)	31	0	30									
Volume Right (vph)	0	92	15									
Hadj (s)	0.14	-0.10	0.04									
Departure Headway (s)	5.2	4.6	5.2									
Degree Utilization, x	0.18	0.53	0.32									
Capacity (veh/h)	649	755	630									
Control Delay (s)	9.3	12.6	10.6									
Approach Delay (s)	9.3	12.6	10.6									
Approach LOS	A	B	B									
Intersection Summary												
Delay			11.5									
Level of Service			B									
Intersection Capacity Utilization			51.9%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖			↗	
Traffic Volume (vph)	24	65	21	50	226	99	26	226	13	33	467	80
Future Volume (vph)	24	65	21	50	226	99	26	226	13	33	467	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1671			1711			3333			3209	
Flt Permitted		0.88			0.94			0.87			0.92	
Satd. Flow (perm)		1495			1616			2924			2971	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	65	21	50	226	99	26	226	13	33	467	80
RTOR Reduction (vph)	0	14	0	0	30	0	0	7	0	0	25	0
Lane Group Flow (vph)	0	96	0	0	345	0	0	258	0	0	555	0
Confl. Peds. (#/hr)	14		31	31		14	33		22	22		33
Heavy Vehicles (%)	9%	4%	4%	2%	2%	2%	3%	3%	3%	2%	6%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.7			13.7			18.1			18.1	
Effective Green, g (s)		13.7			13.7			18.1			18.1	
Actuated g/C Ratio		0.31			0.31			0.41			0.41	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		467			505			1208			1227	
v/s Ratio Prot												
v/s Ratio Perm		0.06			0.21			0.09			0.19	
v/c Ratio		0.20			0.68			0.21			0.45	
Uniform Delay, d1		11.0			13.2			8.3			9.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			3.8			0.4			1.2	
Delay (s)		11.3			17.0			8.7			10.5	
Level of Service		B			B			A			B	
Approach Delay (s)		11.3			17.0			8.7			10.5	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.0			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			43.8			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			71.6%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	67	232	0	0	254	105	42	343	62	0	0	0
Future Volume (vph)	67	232	0	0	254	105	42	343	62	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	67	232	0	0	254	105	42	343	62	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	299	359	447									
Volume Left (vph)	67	0	42									
Volume Right (vph)	0	105	62									
Hadj (s)	0.08	-0.14	-0.03									
Departure Headway (s)	6.0	5.7	5.7									
Degree Utilization, x	0.50	0.57	0.71									
Capacity (veh/h)	564	599	603									
Control Delay (s)	14.8	15.9	21.5									
Approach Delay (s)	14.8	15.9	21.5									
Approach LOS	B	C	C									
Intersection Summary												
Delay			17.9									
Level of Service			C									
Intersection Capacity Utilization			71.8%	ICU Level of Service		C						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	616	0	0	600	68	54	323	58	0	0	0
Future Volume (vph)	175	616	0	0	600	68	54	323	58	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			0.99		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.94	1.00				
Frt	1.00	1.00			0.99		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1692	1801			1765		1614	1733				
Flt Permitted	0.22	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	389	1801			1765		1614	1733				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	616	0	0	600	68	54	323	58	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	11	0	0	0	0
Lane Group Flow (vph)	175	616	0	0	660	0	54	370	0	0	0	0
Confl. Peds. (#/hr)	27		38	38		27	37		53	53		37
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	25.0	25.0			25.0		18.0	18.0				
Effective Green, g (s)	25.0	25.0			25.0		18.0	18.0				
Actuated g/C Ratio	0.45	0.45			0.45		0.33	0.33				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	176	818			802		528	567				
v/s Ratio Prot		0.34			0.37			c0.21				
v/s Ratio Perm	c0.45						0.03					
v/c Ratio	0.99	0.75			0.82		0.10	0.65				
Uniform Delay, d1	14.9	12.4			13.1		12.9	15.8				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	65.8	4.0			6.9		0.4	5.7				
Delay (s)	80.8	16.4			19.9		13.3	21.6				
Level of Service	F	B			B		B	C				
Approach Delay (s)		30.6			19.9			20.5			0.0	
Approach LOS		C			B			C			A	
Intersection Summary												
HCM 2000 Control Delay		24.5			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		55.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		81.8%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	72	590	50	63	579	49	71	283	62	31	203	41
Future Volume (vph)	72	590	50	63	579	49	71	283	62	31	203	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.98			0.98	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1754		1710	1776			1740			1746	
Flt Permitted		0.78		0.35	1.00			0.87			0.91	
Satd. Flow (perm)		1372		635	1776			1530			1596	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	590	50	63	579	49	71	283	62	31	203	41
RTOR Reduction (vph)	0	4	0	0	5	0	0	10	0	0	10	0
Lane Group Flow (vph)	0	708	0	63	623	0	0	406	0	0	265	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		34.0		34.0	34.0			19.0			19.0	
Effective Green, g (s)		34.0		34.0	34.0			19.0			19.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.29			0.29	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		717		332	928			447			466	
v/s Ratio Prot					0.35							
v/s Ratio Perm		c0.52		0.10				c0.27			0.17	
v/c Ratio		0.99		0.19	0.67			0.91			0.57	
Uniform Delay, d1		15.3		8.2	11.4			22.2			19.5	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		30.6		1.3	3.9			24.9			5.0	
Delay (s)		45.9		9.5	15.3			47.1			24.5	
Level of Service		D		A	B			D			C	
Approach Delay (s)		45.9			14.7			47.1			24.5	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			33.0			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			121.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: S Union St & Main St

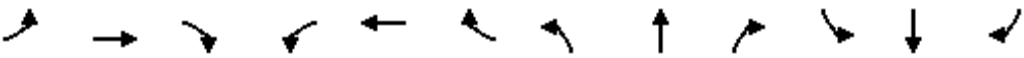
07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	951	0	0	763	46	50	144	119	0	0	0
Future Volume (vph)	58	951	0	0	763	46	50	144	119	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.97				
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00				
Frt	1.00	1.00			0.99		1.00	0.93				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1701	1801			1782		1675	1631				
Flt Permitted	0.22	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	391	1801			1782		1675	1631				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	951	0	0	763	46	50	144	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	56	0	0	0	0
Lane Group Flow (vph)	58	951	0	0	806	0	50	207	0	0	0	0
Confl. Peds. (#/hr)	18		12	12		18	14		29			
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	32.2	32.2			32.2		11.9	11.9				
Effective Green, g (s)	33.2	33.2			33.2		12.9	12.9				
Actuated g/C Ratio	0.61	0.61			0.61		0.24	0.24				
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	239	1105			1093		399	388				
v/s Ratio Prot		c0.53			0.45			c0.13				
v/s Ratio Perm	0.15						0.03					
v/c Ratio	0.24	0.86			0.74		0.13	0.53				
Uniform Delay, d1	4.7	8.6			7.4		16.2	18.0				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.5	7.0			2.6		0.1	1.4				
Delay (s)	5.3	15.6			10.0		16.3	19.4				
Level of Service	A	B			B		B	B				
Approach Delay (s)		15.0			10.0			18.9			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			54.1				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			72.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	865	36	66	741	59	26	278	43	68	215	23
Future Volume (vph)	31	865	36	66	741	59	26	278	43	68	215	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1707	1788		1711	1777			1758			1757	
Flt Permitted	0.20	1.00		0.14	1.00			0.96			0.78	
Satd. Flow (perm)	359	1788		243	1777			1702			1390	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	865	36	66	741	59	26	278	43	68	215	23
RTOR Reduction (vph)	0	2	0	0	4	0	0	9	0	0	5	0
Lane Group Flow (vph)	31	899	0	66	796	0	0	338	0	0	301	0
Confl. Peds. (#/hr)	7		5	5		7	10		2	2		10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1		35.1	35.1			16.3			16.3	
Effective Green, g (s)	36.1	36.1		36.1	36.1			17.3			17.3	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.28			0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	211	1051		142	1044			479			391	
v/s Ratio Prot		c0.50			0.45							
v/s Ratio Perm	0.09			0.27				0.20			c0.22	
v/c Ratio	0.15	0.86		0.46	0.76			0.71			0.77	
Uniform Delay, d1	5.7	10.5		7.2	9.4			19.8			20.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.5	8.9		10.5	5.3			4.7			8.8	
Delay (s)	7.2	19.4		17.7	14.7			24.5			29.1	
Level of Service	A	B		B	B			C			C	
Approach Delay (s)		19.0			14.9			24.5			29.1	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			19.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			61.4			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			95.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	47	163	65	51	153	103	20	334	39	97	706	92
Future Volume (vph)	47	163	65	51	153	103	20	334	39	97	706	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			0.98			0.98	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.97			0.95			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1666			1651			3282			3249	
Flt Permitted		0.89			0.90			0.89			0.85	
Satd. Flow (perm)		1503			1504			2922			2776	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	163	65	51	153	103	20	334	39	97	706	92
RTOR Reduction (vph)	0	24	0	0	44	0	0	16	0	0	17	0
Lane Group Flow (vph)	0	251	0	0	263	0	0	377	0	0	878	0
Confl. Peds. (#/hr)	83		111	111		83	133		171	171		133
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.1			12.1			18.2			18.2	
Effective Green, g (s)		12.1			12.1			18.2			18.2	
Actuated g/C Ratio		0.29			0.29			0.43			0.43	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		429			430			1257			1194	
v/s Ratio Prot												
v/s Ratio Perm		0.17			c0.18			0.13			c0.32	
v/c Ratio		0.59			0.61			0.30			0.74	
Uniform Delay, d1		13.0			13.1			7.9			10.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.0			2.6			0.6			4.1	
Delay (s)		15.0			15.7			8.5			14.1	
Level of Service		B			B			A			B	
Approach Delay (s)		15.0			15.7			8.5			14.1	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		13.3			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.69										
Actuated Cycle Length (s)		42.3			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		80.6%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	392	0	0	530	40	48	167	54	0	0	0
Future Volume (vph)	90	392	0	0	530	40	48	167	54	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00				
Frt	1.00	1.00			0.99		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1671	1783			1776		1656	1693				
Flt Permitted	0.27	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	477	1783			1776		1656	1693				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	392	0	0	530	40	48	167	54	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	20	0	0	0	0
Lane Group Flow (vph)	90	392	0	0	565	0	48	201	0	0	0	0
Confl. Peds. (#/hr)	28		27	27		28	23		58			
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	20.1	20.1			20.1		18.2	18.2				
Effective Green, g (s)	20.1	20.1			20.1		18.2	18.2				
Actuated g/C Ratio	0.40	0.40			0.40		0.36	0.36				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	190	712			709		599	612				
v/s Ratio Prot		0.22			c0.32			c0.12				
v/s Ratio Perm	0.19						0.03					
v/c Ratio	0.47	0.55			0.80		0.08	0.33				
Uniform Delay, d1	11.2	11.6			13.3		10.5	11.6				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	1.9	0.9			6.2		0.3	1.4				
Delay (s)	13.0	12.5			19.5		10.8	13.1				
Level of Service	B	B			B		B	B				
Approach Delay (s)		12.6			19.5			12.7			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			50.3				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			65.5%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	23	385	52	54	560	19	38	117	55	28	262	38
Future Volume (vph)	23	385	52	54	560	19	38	117	55	28	262	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.98		1.00	1.00			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1712		1687	1773			1651			1736	
Flt Permitted		0.91		0.46	1.00			0.89			0.96	
Satd. Flow (perm)		1554		814	1773			1480			1672	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	385	52	54	560	19	38	117	55	28	262	38
RTOR Reduction (vph)	0	9	0	0	2	0	0	26	0	0	10	0
Lane Group Flow (vph)	0	451	0	54	577	0	0	184	0	0	318	0
Confl. Peds. (#/hr)	8		7	7		8	21		12	12		21
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.0		20.0	20.0			18.0			18.0	
Effective Green, g (s)		20.0		20.0	20.0			18.0			18.0	
Actuated g/C Ratio		0.40		0.40	0.40			0.36			0.36	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		621		325	709			532			601	
v/s Ratio Prot					c0.33							
v/s Ratio Perm		0.29		0.07				0.12			c0.19	
v/c Ratio		0.73		0.17	0.81			0.35			0.53	
Uniform Delay, d1		12.7		9.6	13.3			11.7			12.7	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		7.3		1.1	9.9			1.8			3.3	
Delay (s)		19.9		10.7	23.2			13.5			16.0	
Level of Service		B		B	C			B			B	
Approach Delay (s)		19.9			22.2			13.5			16.0	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			73.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: Main St & S Union St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	504	0	0	865	35	45	230	50	0	0	0
Future Volume (vph)	15	504	0	0	865	35	45	230	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	1.00	1.00			1.00		0.95	1.00				
Frt	1.00	1.00			0.99		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1711	1717			1788		1612	1696				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	270	1717			1788		1612	1696				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	504	0	0	865	35	45	230	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	11	0	0	0	0
Lane Group Flow (vph)	15	504	0	0	898	0	45	269	0	0	0	0
Confl. Peds. (#/hr)	13		14	14		13	26		59			
Heavy Vehicles (%)	2%	7%	0%	0%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	39.0	39.0			39.0		15.9	15.9				
Effective Green, g (s)	40.0	40.0			40.0		16.9	16.9				
Actuated g/C Ratio	0.60	0.60			0.60		0.25	0.25				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	161	1026			1069		407	428				
v/s Ratio Prot		0.29			c0.50			c0.16				
v/s Ratio Perm	0.06						0.03					
v/c Ratio	0.09	0.49			0.84		0.11	0.63				
Uniform Delay, d1	5.7	7.7			10.9		19.2	22.2				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.3	0.4			6.1		0.1	2.9				
Delay (s)	6.0	8.0			17.0		19.3	25.1				
Level of Service	A	A			B		B	C				
Approach Delay (s)		8.0			17.0			24.3			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.6			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			66.9			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			72.0%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	654	16	43	703	25	20	203	31	53	210	36
Future Volume (vph)	26	654	16	43	703	25	20	203	31	53	210	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1677	1759		1693	1773			1757			1730	
Flt Permitted	0.25	1.00		0.29	1.00			0.96			0.89	
Satd. Flow (perm)	435	1759		510	1773			1697			1545	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	654	16	43	703	25	20	203	31	53	210	36
RTOR Reduction (vph)	0	1	0	0	2	0	0	8	0	0	8	0
Lane Group Flow (vph)	26	669	0	43	726	0	0	246	0	0	291	0
Confl. Peds. (#/hr)	1		1	1		1	7		6	6		7
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			15.3			15.3	
Effective Green, g (s)	35.1	35.1		35.1	35.1			16.3			16.3	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.27			0.27	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	248	1005		291	1013			450			410	
v/s Ratio Prot		0.38			c0.41							
v/s Ratio Perm	0.06			0.08				0.14			c0.19	
v/c Ratio	0.10	0.67		0.15	0.72			0.55			0.71	
Uniform Delay, d1	6.0	9.1		6.2	9.5			19.4			20.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	3.5		1.1	4.4			1.4			5.6	
Delay (s)	6.8	12.6		7.2	13.9			20.7			26.0	
Level of Service	A	B		A	B			C			C	
Approach Delay (s)		12.4			13.5			20.7			26.0	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			15.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			61.4			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			75.6%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

26: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	31	97	0	0	330	93	31	178	15	0	0	0
Future Volume (vph)	31	97	0	0	330	93	31	178	15	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	31	97	0	0	330	93	31	178	15	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	128	423	224									
Volume Left (vph)	31	0	31									
Volume Right (vph)	0	93	15									
Hadj (s)	0.14	-0.10	0.04									
Departure Headway (s)	5.2	4.6	5.3									
Degree Utilization, x	0.18	0.54	0.33									
Capacity (veh/h)	645	751	626									
Control Delay (s)	9.4	12.9	10.8									
Approach Delay (s)	9.4	12.9	10.8									
Approach LOS	A	B	B									
Intersection Summary												
Delay			11.7									
Level of Service			B									
Intersection Capacity Utilization			52.0%	ICU Level of Service		A						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	66	21	51	230	101	26	238	13	33	477	82
Future Volume (vph)	25	66	21	51	230	101	26	238	13	33	477	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			0.96			0.99			0.98	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1671			1710			3336			3209	
Flt Permitted		0.88			0.94			0.87			0.92	
Satd. Flow (perm)		1489			1615			2930			2969	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	66	21	51	230	101	26	238	13	33	477	82
RTOR Reduction (vph)	0	14	0	0	29	0	0	7	0	0	25	0
Lane Group Flow (vph)	0	98	0	0	353	0	0	270	0	0	567	0
Confl. Peds. (#/hr)	14		31	31		14	33		22	22		33
Heavy Vehicles (%)	9%	4%	4%	2%	2%	2%	3%	3%	3%	2%	6%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.8			13.8			18.1			18.1	
Effective Green, g (s)		13.8			13.8			18.1			18.1	
Actuated g/C Ratio		0.31			0.31			0.41			0.41	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		468			507			1208			1224	
v/s Ratio Prot												
v/s Ratio Perm		0.07			0.22			0.09			0.19	
v/c Ratio		0.21			0.70			0.22			0.46	
Uniform Delay, d1		11.0			13.2			8.4			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			4.1			0.4			1.3	
Delay (s)		11.3			17.3			8.8			10.6	
Level of Service		B			B			A			B	
Approach Delay (s)		11.3			17.3			8.8			10.6	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		12.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		43.9			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		72.3%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	69	237	0	0	260	107	43	349	63	0	0	0
Future Volume (vph)	69	237	0	0	260	107	43	349	63	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	69	237	0	0	260	107	43	349	63	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	306	367	455									
Volume Left (vph)	69	0	43									
Volume Right (vph)	0	107	63									
Hadj (s)	0.08	-0.14	-0.03									
Departure Headway (s)	6.1	5.8	5.8									
Degree Utilization, x	0.52	0.59	0.73									
Capacity (veh/h)	559	593	598									
Control Delay (s)	15.3	16.6	22.8									
Approach Delay (s)	15.3	16.6	22.8									
Approach LOS	C	C	C									
Intersection Summary												
Delay			18.8									
Level of Service			C									
Intersection Capacity Utilization			73.0%	ICU Level of Service		D						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	628	0	0	612	69	55	330	59	0	0	0
Future Volume (vph)	178	628	0	0	612	69	55	330	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			0.99		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.94	1.00				
Frt	1.00	1.00			0.99		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1693	1801			1765		1614	1733				
Flt Permitted	0.21	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	369	1801			1765		1614	1733				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	628	0	0	612	69	55	330	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	11	0	0	0	0
Lane Group Flow (vph)	178	628	0	0	673	0	55	378	0	0	0	0
Confl. Peds. (#/hr)	27		38	38		27	37		53	53		37
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	25.0	25.0			25.0		18.0	18.0				
Effective Green, g (s)	25.0	25.0			25.0		18.0	18.0				
Actuated g/C Ratio	0.45	0.45			0.45		0.33	0.33				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	167	818			802		528	567				
v/s Ratio Prot		0.35			0.38			c0.22				
v/s Ratio Perm	c0.48						0.03					
v/c Ratio	1.07	0.77			0.84		0.10	0.67				
Uniform Delay, d1	15.0	12.6			13.2		12.9	15.9				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	88.2	4.4			7.7		0.4	6.1				
Delay (s)	103.2	16.9			21.0		13.3	22.0				
Level of Service	F	B			C		B	C				
Approach Delay (s)		36.0			21.0			20.9			0.0	
Approach LOS		D			C			C			A	
Intersection Summary												
HCM 2000 Control Delay		27.2			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.90										
Actuated Cycle Length (s)		55.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		83.1%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	73	601	51	64	591	50	72	289	63	31	207	41
Future Volume (vph)	73	601	51	64	591	50	72	289	63	31	207	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.98			0.98	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1754		1710	1776			1741			1747	
Flt Permitted		0.76		0.35	1.00			0.87			0.91	
Satd. Flow (perm)		1340		625	1776			1524			1594	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	73	601	51	64	591	50	72	289	63	31	207	41
RTOR Reduction (vph)	0	4	0	0	5	0	0	10	0	0	9	0
Lane Group Flow (vph)	0	721	0	64	636	0	0	414	0	0	270	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		34.0		34.0	34.0			19.0			19.0	
Effective Green, g (s)		34.0		34.0	34.0			19.0			19.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.29			0.29	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		700		326	928			445			465	
v/s Ratio Prot					0.36							
v/s Ratio Perm		c0.54		0.10				c0.27			0.17	
v/c Ratio		1.03		0.20	0.69			0.93			0.58	
Uniform Delay, d1		15.5		8.2	11.5			22.4			19.6	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		41.8		1.3	4.1			28.4			5.2	
Delay (s)		57.3		9.6	15.6			50.8			24.8	
Level of Service		E		A	B			D			C	
Approach Delay (s)		57.3			15.1			50.8			24.8	
Approach LOS		E			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			37.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			123.5%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: S Union St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	970	0	0	779	47	51	147	122	0	0	0
Future Volume (vph)	60	970	0	0	779	47	51	147	122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.97				
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00				
Frt	1.00	1.00			0.99		1.00	0.93				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1702	1801			1782		1674	1630				
Flt Permitted	0.21	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	369	1801			1782		1674	1630				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	970	0	0	779	47	51	147	122	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	55	0	0	0	0
Lane Group Flow (vph)	60	970	0	0	823	0	51	214	0	0	0	0
Confl. Peds. (#/hr)	18		12	12		18	14		29			
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	32.2	32.2			32.2		12.1	12.1				
Effective Green, g (s)	33.2	33.2			33.2		13.1	13.1				
Actuated g/C Ratio	0.61	0.61			0.61		0.24	0.24				
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	225	1101			1089		403	393				
v/s Ratio Prot		c0.54			0.46			c0.13				
v/s Ratio Perm	0.16						0.03					
v/c Ratio	0.27	0.88			0.76		0.13	0.54				
Uniform Delay, d1	4.9	8.9			7.6		16.1	18.0				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.6	8.4			3.0		0.1	1.5				
Delay (s)	5.5	17.3			10.7		16.3	19.5				
Level of Service	A	B			B		B	B				
Approach Delay (s)		16.6			10.7			19.0			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay		14.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.79										
Actuated Cycle Length (s)		54.3			Sum of lost time (s)			8.0				
Intersection Capacity Utilization		74.1%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	882	36	68	756	60	26	284	44	69	220	24
Future Volume (vph)	31	882	36	68	756	60	26	284	44	69	220	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1707	1788		1711	1777			1758			1757	
Flt Permitted	0.19	1.00		0.12	1.00			0.96			0.78	
Satd. Flow (perm)	338	1788		220	1777			1702			1383	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	882	36	68	756	60	26	284	44	69	220	24
RTOR Reduction (vph)	0	2	0	0	4	0	0	9	0	0	5	0
Lane Group Flow (vph)	31	916	0	68	812	0	0	345	0	0	308	0
Confl. Peds. (#/hr)	7		5	5		7	10		2	2		10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1		35.1	35.1			16.5			16.5	
Effective Green, g (s)	36.1	36.1		36.1	36.1			17.5			17.5	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.28			0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	198	1047		128	1041			483			392	
v/s Ratio Prot		c0.51			0.46							
v/s Ratio Perm	0.09			0.31				0.20			c0.22	
v/c Ratio	0.16	0.87		0.53	0.78			0.72			0.79	
Uniform Delay, d1	5.8	10.8		7.7	9.7			19.8			20.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.7	10.2		14.9	5.8			5.0			9.9	
Delay (s)	7.5	21.0		22.6	15.5			24.8			30.3	
Level of Service	A	C		C	B			C			C	
Approach Delay (s)		20.6			16.1			24.8			30.3	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			20.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			61.6			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			97.5%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

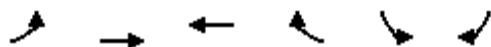
07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	166	67	52	156	105	20	341	40	99	720	94
Future Volume (vph)	48	166	67	52	156	105	20	341	40	99	720	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			0.98			0.98	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.97			0.95			0.99			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1665			1652			3282			3249	
Flt Permitted		0.89			0.90			0.89			0.85	
Satd. Flow (perm)		1499			1502			2920			2768	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	166	67	52	156	105	20	341	40	99	720	94
RTOR Reduction (vph)	0	22	0	0	43	0	0	16	0	0	17	0
Lane Group Flow (vph)	0	259	0	0	270	0	0	385	0	0	896	0
Confl. Peds. (#/hr)	83		111	111		83	133		171	171		133
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.2			12.2			18.2			18.2	
Effective Green, g (s)		12.2			12.2			18.2			18.2	
Actuated g/C Ratio		0.29			0.29			0.43			0.43	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		431			432			1253			1188	
v/s Ratio Prot												
v/s Ratio Perm		0.17			c0.18			0.13			c0.32	
v/c Ratio		0.60			0.62			0.31			0.75	
Uniform Delay, d1		13.0			13.1			8.0			10.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.4			2.8			0.6			4.5	
Delay (s)		15.4			15.9			8.6			14.7	
Level of Service		B			B			A			B	
Approach Delay (s)		15.4			15.9			8.6			14.7	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		13.7			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		42.4			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		81.5%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: College St & Site Driveway

07/29/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	126	354	28	20	8
Future Volume (Veh/h)	12	126	354	28	20	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	126	354	28	20	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		280				
pX, platoon unblocked						
vC, conflicting volume	382				518	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	382				518	368
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1176				512	677
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	138	382	28			
Volume Left	12	0	20			
Volume Right	0	28	8			
cSH	1176	1700	551			
Volume to Capacity	0.01	0.22	0.05			
Queue Length 95th (ft)	1	0	4			
Control Delay (s)	0.8	0.0	11.9			
Lane LOS	A		B			
Approach Delay (s)	0.8	0.0	11.9			
Approach LOS			B			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			30.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	385	0	0	520	39	48	166	54	0	0	0
Future Volume (vph)	89	385	0	0	520	39	48	166	54	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00				
Frt	1.00	1.00			0.99		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1670	1783			1776		1656	1692				
Flt Permitted	0.28	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	494	1783			1776		1656	1692				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	89	385	0	0	520	39	48	166	54	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	20	0	0	0	0
Lane Group Flow (vph)	89	385	0	0	554	0	48	200	0	0	0	0
Confl. Peds. (#/hr)	28		27	27		28	23		58			
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	19.9	19.9			19.9		18.2	18.2				
Effective Green, g (s)	19.9	19.9			19.9		18.2	18.2				
Actuated g/C Ratio	0.40	0.40			0.40		0.36	0.36				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	196	708			705		601	614				
v/s Ratio Prot		0.22			c0.31			c0.12				
v/s Ratio Perm	0.18						0.03					
v/c Ratio	0.45	0.54			0.79		0.08	0.33				
Uniform Delay, d1	11.1	11.6			13.2		10.5	11.5				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	1.7	0.9			5.7		0.3	1.4				
Delay (s)	12.8	12.5			19.0		10.7	12.9				
Level of Service	B	B			B		B	B				
Approach Delay (s)		12.5			19.0			12.5			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.3				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			50.1				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			64.8%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	22	378	51	53	549	18	37	114	54	27	257	37
Future Volume (vph)	22	378	51	53	549	18	37	114	54	27	257	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.98		1.00	1.00			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1712		1687	1773			1651			1736	
Flt Permitted		0.93		0.47	1.00			0.89			0.96	
Satd. Flow (perm)		1604		826	1773			1484			1675	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	22	378	51	53	549	18	37	114	54	27	257	37
RTOR Reduction (vph)	0	9	0	0	2	0	0	26	0	0	10	0
Lane Group Flow (vph)	0	442	0	53	565	0	0	179	0	0	311	0
Confl. Peds. (#/hr)	8		7	7		8	21		12	12		21
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.0		20.0	20.0			18.0			18.0	
Effective Green, g (s)		20.0		20.0	20.0			18.0			18.0	
Actuated g/C Ratio		0.40		0.40	0.40			0.36			0.36	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		641		330	709			534			603	
v/s Ratio Prot					c0.32							
v/s Ratio Perm		0.28		0.06				0.12			c0.19	
v/c Ratio		0.69		0.16	0.80			0.34			0.52	
Uniform Delay, d1		12.4		9.6	13.2			11.6			12.6	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		6.0		1.0	9.0			1.7			3.1	
Delay (s)		18.4		10.7	22.2			13.3			15.7	
Level of Service		B		B	C			B			B	
Approach Delay (s)		18.4			21.3			13.3			15.7	
Approach LOS		B			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			18.3			HCM 2000 Level of Service					B	
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			71.4%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: Main St & S Union St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	494	0	0	848	40	44	228	49	0	0	0
Future Volume (vph)	15	494	0	0	848	40	44	228	49	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	1.00	1.00			1.00		0.95	1.00				
Frt	1.00	1.00			0.99		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1711	1717			1786		1613	1697				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	278	1717			1786		1613	1697				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	494	0	0	848	40	44	228	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	11	0	0	0	0
Lane Group Flow (vph)	15	494	0	0	886	0	44	266	0	0	0	0
Confl. Peds. (#/hr)	13		14	14		13	26		59			
Heavy Vehicles (%)	2%	7%	0%	0%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	38.2	38.2			38.2		15.8	15.8				
Effective Green, g (s)	39.2	39.2			39.2		16.8	16.8				
Actuated g/C Ratio	0.59	0.59			0.59		0.25	0.25				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	165	1019			1060		410	431				
v/s Ratio Prot		0.29			c0.50			c0.16				
v/s Ratio Perm	0.05						0.03					
v/c Ratio	0.09	0.48			0.84		0.11	0.62				
Uniform Delay, d1	5.8	7.6			10.8		18.9	21.8				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.2	0.4			5.8		0.1	2.6				
Delay (s)	6.0	8.0			16.7		19.0	24.4				
Level of Service	A	A			B		B	C				
Approach Delay (s)		7.9			16.7			23.6			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			66.0				Sum of lost time (s)			10.0		
Intersection Capacity Utilization			71.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	641	16	42	695	35	20	199	31	52	205	36
Future Volume (vph)	26	641	16	42	695	35	20	199	31	52	205	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1677	1759		1693	1769			1756			1730	
Flt Permitted	0.25	1.00		0.30	1.00			0.96			0.89	
Satd. Flow (perm)	435	1759		529	1769			1696			1548	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	641	16	42	695	35	20	199	31	52	205	36
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	8	0
Lane Group Flow (vph)	26	656	0	42	727	0	0	242	0	0	285	0
Confl. Peds. (#/hr)	1		1	1		1	7		6	6		7
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			15.1			15.1	
Effective Green, g (s)	35.1	35.1		35.1	35.1			16.1			16.1	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.26			0.26	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	249	1008		303	1014			446			407	
v/s Ratio Prot		0.37			c0.41							
v/s Ratio Perm	0.06			0.08				0.14			c0.18	
v/c Ratio	0.10	0.65		0.14	0.72			0.54			0.70	
Uniform Delay, d1	5.9	8.9		6.0	9.5			19.4			20.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.8	3.3		1.0	4.4			1.3			5.2	
Delay (s)	6.8	12.1		7.0	13.8			20.7			25.6	
Level of Service	A	B		A	B			C			C	
Approach Delay (s)		11.9			13.4			20.7			25.6	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			15.6			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			61.2			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			75.1%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

26: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	111	0	0	342	92	39	174	15	0	0	0
Future Volume (vph)	35	111	0	0	342	92	39	174	15	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	111	0	0	342	92	39	174	15	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	146	434	228									
Volume Left (vph)	35	0	39									
Volume Right (vph)	0	92	15									
Hadj (s)	0.14	-0.09	0.05									
Departure Headway (s)	5.2	4.7	5.3									
Degree Utilization, x	0.21	0.56	0.34									
Capacity (veh/h)	640	743	616									
Control Delay (s)	9.6	13.5	11.0									
Approach Delay (s)	9.6	13.5	11.0									
Approach LOS	A	B	B									
Intersection Summary												
Delay			12.1									
Level of Service			B									
Intersection Capacity Utilization			56.2%	ICU Level of Service		B						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	71	21	52	230	101	26	233	15	37	467	80
Future Volume (vph)	24	71	21	52	230	101	26	233	15	37	467	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.98	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1676			1710			3330			3209	
Flt Permitted		0.89			0.94			0.87			0.92	
Satd. Flow (perm)		1505			1612			2926			2954	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	24	71	21	52	230	101	26	233	15	37	467	80
RTOR Reduction (vph)	0	14	0	0	29	0	0	8	0	0	25	0
Lane Group Flow (vph)	0	102	0	0	354	0	0	266	0	0	559	0
Confl. Peds. (#/hr)	14		31	31		14	33		22	22		33
Heavy Vehicles (%)	9%	4%	4%	2%	2%	2%	3%	3%	3%	2%	6%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.8			13.8			18.1			18.1	
Effective Green, g (s)		13.8			13.8			18.1			18.1	
Actuated g/C Ratio		0.31			0.31			0.41			0.41	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		473			506			1206			1217	
v/s Ratio Prot												
v/s Ratio Perm		0.07			0.22			0.09			0.19	
v/c Ratio		0.21			0.70			0.22			0.46	
Uniform Delay, d1		11.1			13.2			8.3			9.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			4.2			0.4			1.3	
Delay (s)		11.3			17.4			8.8			10.6	
Level of Service		B			B			A			B	
Approach Delay (s)		11.3			17.4			8.8			10.6	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		12.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.56										
Actuated Cycle Length (s)		43.9			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		72.6%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	72	257	0	0	275	105	52	343	62	0	0	0
Future Volume (vph)	72	257	0	0	275	105	52	343	62	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	72	257	0	0	275	105	52	343	62	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	329	380	457									
Volume Left (vph)	72	0	52									
Volume Right (vph)	0	105	62									
Hadj (s)	0.08	-0.13	-0.02									
Departure Headway (s)	6.1	5.9	5.9									
Degree Utilization, x	0.56	0.62	0.75									
Capacity (veh/h)	555	585	587									
Control Delay (s)	16.7	17.9	24.4									
Approach Delay (s)	16.7	17.9	24.4									
Approach LOS	C	C	C									
Intersection Summary												
Delay			20.1									
Level of Service			C									
Intersection Capacity Utilization			74.9%	ICU Level of Service		D						
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: College St & Site Driveway

07/29/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	301	296	31	30	13
Future Volume (Veh/h)	13	301	296	31	30	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	301	296	31	30	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		248				
pX, platoon unblocked						
vC, conflicting volume	327				638	312
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	327				638	312
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1233				436	729
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	314	327	43			
Volume Left	13	0	30			
Volume Right	0	31	13			
cSH	1233	1700	496			
Volume to Capacity	0.01	0.19	0.09			
Queue Length 95th (ft)	1	0	7			
Control Delay (s)	0.4	0.0	12.9			
Lane LOS	A		B			
Approach Delay (s)	0.4	0.0	12.9			
Approach LOS			B			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			36.4%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	616	0	0	600	68	55	327	59	0	0	0
Future Volume (vph)	175	616	0	0	600	68	55	327	59	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			0.99		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.94	1.00				
Frt	1.00	1.00			0.99		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1692	1801			1765		1614	1733				
Flt Permitted	0.22	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	389	1801			1765		1614	1733				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	175	616	0	0	600	68	55	327	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	12	0	0	0	0
Lane Group Flow (vph)	175	616	0	0	660	0	55	374	0	0	0	0
Confl. Peds. (#/hr)	27		38	38		27	37		53	53		37
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	25.0	25.0			25.0		18.0	18.0				
Effective Green, g (s)	25.0	25.0			25.0		18.0	18.0				
Actuated g/C Ratio	0.45	0.45			0.45		0.33	0.33				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	176	818			802		528	567				
v/s Ratio Prot		0.34			0.37			c0.22				
v/s Ratio Perm	c0.45						0.03					
v/c Ratio	0.99	0.75			0.82		0.10	0.66				
Uniform Delay, d1	14.9	12.4			13.1		12.9	15.9				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	65.8	4.0			6.9		0.4	5.9				
Delay (s)	80.8	16.4			19.9		13.3	21.8				
Level of Service	F	B			B		B	C				
Approach Delay (s)		30.6			19.9			20.7			0.0	
Approach LOS		C			B			C			A	
Intersection Summary												
HCM 2000 Control Delay		24.6			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.85										
Actuated Cycle Length (s)		55.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		82.1%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	72	591	50	63	579	49	71	283	62	31	203	41
Future Volume (vph)	72	591	50	63	579	49	71	283	62	31	203	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.98			0.98	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1754		1710	1776			1740			1746	
Flt Permitted		0.78		0.35	1.00			0.87			0.91	
Satd. Flow (perm)		1372		634	1776			1530			1596	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	72	591	50	63	579	49	71	283	62	31	203	41
RTOR Reduction (vph)	0	4	0	0	5	0	0	10	0	0	10	0
Lane Group Flow (vph)	0	709	0	63	623	0	0	406	0	0	265	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		34.0		34.0	34.0			19.0			19.0	
Effective Green, g (s)		34.0		34.0	34.0			19.0			19.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.29			0.29	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		717		331	928			447			466	
v/s Ratio Prot					0.35							
v/s Ratio Perm		c0.52		0.10				c0.27			0.17	
v/c Ratio		0.99		0.19	0.67			0.91			0.57	
Uniform Delay, d1		15.3		8.2	11.4			22.2			19.5	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		30.9		1.3	3.9			24.9			5.0	
Delay (s)		46.2		9.5	15.3			47.1			24.5	
Level of Service		D		A	B			D			C	
Approach Delay (s)		46.2			14.7			47.1			24.5	
Approach LOS		D			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			33.2			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			121.4%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: S Union St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	951	0	0	763	53	50	147	119	0	0	0
Future Volume (vph)	58	951	0	0	763	53	50	147	119	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.97				
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00				
Frt	1.00	1.00			0.99		1.00	0.93				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1701	1801			1779		1674	1633				
Flt Permitted	0.21	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	380	1801			1779		1674	1633				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	58	951	0	0	763	53	50	147	119	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	54	0	0	0	0
Lane Group Flow (vph)	58	951	0	0	813	0	50	212	0	0	0	0
Confl. Peds. (#/hr)	18		12	12		18	14		29			
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	32.2	32.2			32.2		12.1	12.1				
Effective Green, g (s)	33.2	33.2			33.2		13.1	13.1				
Actuated g/C Ratio	0.61	0.61			0.61		0.24	0.24				
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	232	1101			1087		403	393				
v/s Ratio Prot		c0.53			0.46			c0.13				
v/s Ratio Perm	0.15						0.03					
v/c Ratio	0.25	0.86			0.75		0.12	0.54				
Uniform Delay, d1	4.8	8.7			7.6		16.1	18.0				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.6	7.2			2.9		0.1	1.4				
Delay (s)	5.4	15.9			10.4		16.3	19.4				
Level of Service	A	B			B		B	B				
Approach Delay (s)		15.3			10.4			18.9			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			54.3				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			72.9%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	865	36	66	748	70	26	278	43	68	215	23
Future Volume (vph)	31	865	36	66	748	70	26	278	43	68	215	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1707	1788		1711	1773			1758			1757	
Flt Permitted	0.19	1.00		0.14	1.00			0.96			0.78	
Satd. Flow (perm)	338	1788		243	1773			1702			1390	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	865	36	66	748	70	26	278	43	68	215	23
RTOR Reduction (vph)	0	2	0	0	5	0	0	9	0	0	5	0
Lane Group Flow (vph)	31	899	0	66	813	0	0	338	0	0	301	0
Confl. Peds. (#/hr)	7		5	5		7	10		2	2		10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1		35.1	35.1			16.3			16.3	
Effective Green, g (s)	36.1	36.1		36.1	36.1			17.3			17.3	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.28			0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	198	1051		142	1042			479			391	
v/s Ratio Prot		c0.50			0.46							
v/s Ratio Perm	0.09			0.27				0.20			c0.22	
v/c Ratio	0.16	0.86		0.46	0.78			0.71			0.77	
Uniform Delay, d1	5.7	10.5		7.2	9.6			19.8			20.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.7	8.9		10.5	5.8			4.7			8.8	
Delay (s)	7.4	19.4		17.7	15.4			24.5			29.1	
Level of Service	A	B		B	B			C			C	
Approach Delay (s)		19.0			15.6			24.5			29.1	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			19.8			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			61.4			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			95.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

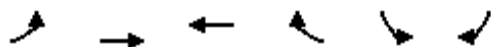
07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	170	65	54	159	107	20	334	41	101	706	92
Future Volume (vph)	47	170	65	54	159	107	20	334	41	101	706	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			0.98			0.98	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.97			0.95			0.98			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1669			1651			3276			3247	
Flt Permitted		0.89			0.90			0.89			0.84	
Satd. Flow (perm)		1506			1498			2916			2758	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	47	170	65	54	159	107	20	334	41	101	706	92
RTOR Reduction (vph)	0	23	0	0	43	0	0	17	0	0	17	0
Lane Group Flow (vph)	0	259	0	0	277	0	0	378	0	0	882	0
Confl. Peds. (#/hr)	83		111	111		83	133		171	171		133
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm		NA		Perm		NA		
Protected Phases		4			8			2			6	
Permitted Phases	4			8				2				6
Actuated Green, G (s)		12.4			12.4			18.2			18.2	
Effective Green, g (s)		12.4			12.4			18.2			18.2	
Actuated g/C Ratio		0.29			0.29			0.43			0.43	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		438			436			1245			1178	
v/s Ratio Prot												
v/s Ratio Perm		0.17			c0.19			0.13			c0.32	
v/c Ratio		0.59			0.64			0.30			0.75	
Uniform Delay, d1		12.9			13.1			8.0			10.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			3.0			0.6			4.4	
Delay (s)		15.1			16.2			8.7			14.7	
Level of Service		B			B			A			B	
Approach Delay (s)		15.1			16.2			8.7			14.7	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			13.7		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			42.6		Sum of lost time (s)					12.0		
Intersection Capacity Utilization			81.9%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

4: College St & Site Driveway

07/29/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	12	128	361	28	20	8
Future Volume (Veh/h)	12	128	361	28	20	8
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	12	128	361	28	20	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		280				
pX, platoon unblocked						
vC, conflicting volume	389				527	375
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389				527	375
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	99
cM capacity (veh/h)	1170				506	671
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	140	389	28			
Volume Left	12	0	20			
Volume Right	0	28	8			
cSH	1170	1700	545			
Volume to Capacity	0.01	0.23	0.05			
Queue Length 95th (ft)	1	0	4			
Control Delay (s)	0.8	0.0	12.0			
Lane LOS	A		B			
Approach Delay (s)	0.8	0.0	12.0			
Approach LOS			B			
Intersection Summary						
Average Delay			0.8			
Intersection Capacity Utilization			30.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	392	0	0	530	40	49	169	55	0	0	0
Future Volume (vph)	90	392	0	0	530	40	49	169	55	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.97	1.00				
Frt	1.00	1.00			0.99		1.00	0.96				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1671	1783			1776		1656	1692				
Flt Permitted	0.27	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	477	1783			1776		1656	1692				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	90	392	0	0	530	40	49	169	55	0	0	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	20	0	0	0	0
Lane Group Flow (vph)	90	392	0	0	565	0	49	204	0	0	0	0
Confl. Peds. (#/hr)	28		27	27		28	23		58			
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	20.1	20.1			20.1		18.2	18.2				
Effective Green, g (s)	20.1	20.1			20.1		18.2	18.2				
Actuated g/C Ratio	0.40	0.40			0.40		0.36	0.36				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	190	712			709		599	612				
v/s Ratio Prot		0.22			c0.32			c0.12				
v/s Ratio Perm	0.19						0.03					
v/c Ratio	0.47	0.55			0.80		0.08	0.33				
Uniform Delay, d1	11.2	11.6			13.3		10.6	11.6				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	1.9	0.9			6.2		0.3	1.5				
Delay (s)	13.0	12.5			19.5		10.8	13.1				
Level of Service	B	B			B		B	B				
Approach Delay (s)		12.6			19.5			12.7			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			50.3				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			65.5%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	386	52	54	560	19	39	117	55	28	262	38
Future Volume (vph)	23	386	52	54	560	19	39	117	55	28	262	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			0.99			0.99	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.98		1.00	1.00			0.96			0.98	
Flt Protected		1.00		0.95	1.00			0.99			1.00	
Satd. Flow (prot)		1712		1687	1773			1651			1736	
Flt Permitted		0.91		0.46	1.00			0.89			0.96	
Satd. Flow (perm)		1554		812	1773			1476			1672	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	23	386	52	54	560	19	39	117	55	28	262	38
RTOR Reduction (vph)	0	9	0	0	2	0	0	26	0	0	10	0
Lane Group Flow (vph)	0	452	0	54	577	0	0	185	0	0	318	0
Confl. Peds. (#/hr)	8		7	7		8	21		12	12		21
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	5%	5%	5%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		20.0		20.0	20.0			18.0			18.0	
Effective Green, g (s)		20.0		20.0	20.0			18.0			18.0	
Actuated g/C Ratio		0.40		0.40	0.40			0.36			0.36	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		621		324	709			531			601	
v/s Ratio Prot					c0.33							
v/s Ratio Perm		0.29		0.07				0.13			c0.19	
v/c Ratio		0.73		0.17	0.81			0.35			0.53	
Uniform Delay, d1		12.7		9.6	13.3			11.7			12.7	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		7.3		1.1	9.9			1.8			3.3	
Delay (s)		20.0		10.8	23.2			13.5			16.0	
Level of Service		C		B	C			B			B	
Approach Delay (s)		20.0			22.2			13.5			16.0	
Approach LOS		C			C			B			B	
Intersection Summary												
HCM 2000 Control Delay			19.2			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			50.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			73.4%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: Main St & S Union St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	504	0	0	865	41	45	233	50	0	0	0
Future Volume (vph)	15	504	0	0	865	41	45	233	50	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.98				
Flpb, ped/bikes	1.00	1.00			1.00		0.95	1.00				
Frt	1.00	1.00			0.99		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1711	1717			1786		1611	1696				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	264	1717			1786		1611	1696				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	15	504	0	0	865	41	45	233	50	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	11	0	0	0	0
Lane Group Flow (vph)	15	504	0	0	904	0	45	272	0	0	0	0
Confl. Peds. (#/hr)	13		14	14		13	26		59			
Heavy Vehicles (%)	2%	7%	0%	0%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	39.5	39.5			39.5		16.1	16.1				
Effective Green, g (s)	40.5	40.5			40.5		17.1	17.1				
Actuated g/C Ratio	0.60	0.60			0.60		0.25	0.25				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	158	1028			1070		407	429				
v/s Ratio Prot		0.29			c0.51			c0.16				
v/s Ratio Perm	0.06						0.03					
v/c Ratio	0.09	0.49			0.85		0.11	0.63				
Uniform Delay, d1	5.8	7.7			11.0		19.4	22.5				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.3	0.4			6.3		0.1	3.0				
Delay (s)	6.0	8.1			17.3		19.5	25.5				
Level of Service	A	A			B		B	C				
Approach Delay (s)		8.0			17.3			24.7			0.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay		15.9			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.78										
Actuated Cycle Length (s)		67.6			Sum of lost time (s)			10.0				
Intersection Capacity Utilization		72.5%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	654	16	43	709	35	20	203	31	53	210	36
Future Volume (vph)	26	654	16	43	709	35	20	203	31	53	210	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1677	1759		1693	1769			1757			1730	
Flt Permitted	0.24	1.00		0.29	1.00			0.96			0.89	
Satd. Flow (perm)	415	1759		510	1769			1697			1545	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	26	654	16	43	709	35	20	203	31	53	210	36
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	8	0
Lane Group Flow (vph)	26	669	0	43	741	0	0	246	0	0	291	0
Confl. Peds. (#/hr)	1		1	1		1	7		6	6		7
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	2%	2%	2%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	34.1	34.1		34.1	34.1			15.3			15.3	
Effective Green, g (s)	35.1	35.1		35.1	35.1			16.3			16.3	
Actuated g/C Ratio	0.57	0.57		0.57	0.57			0.27			0.27	
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	237	1005		291	1011			450			410	
v/s Ratio Prot		0.38			c0.42							
v/s Ratio Perm	0.06			0.08				0.14			c0.19	
v/c Ratio	0.11	0.67		0.15	0.73			0.55			0.71	
Uniform Delay, d1	6.0	9.1		6.2	9.7			19.4			20.4	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	0.9	3.5		1.1	4.7			1.4			5.6	
Delay (s)	6.9	12.6		7.2	14.4			20.7			26.0	
Level of Service	A	B		A	B			C			C	
Approach Delay (s)		12.4			14.0			20.7			26.0	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

26: S Union St & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	35	113	0	0	349	93	40	178	15	0	0	0
Future Volume (vph)	35	113	0	0	349	93	40	178	15	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	35	113	0	0	349	93	40	178	15	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	148	442	233									
Volume Left (vph)	35	0	40									
Volume Right (vph)	0	93	15									
Hadj (s)	0.14	-0.09	0.05									
Departure Headway (s)	5.3	4.7	5.4									
Degree Utilization, x	0.22	0.58	0.35									
Capacity (veh/h)	636	740	611									
Control Delay (s)	9.7	13.8	11.2									
Approach Delay (s)	9.7	13.8	11.2									
Approach LOS	A	B	B									
Intersection Summary												
Delay			12.4									
Level of Service			B									
Intersection Capacity Utilization			56.4%	ICU Level of Service		B						
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	72	21	53	234	103	26	238	15	37	477	82
Future Volume (vph)	25	72	21	53	234	103	26	238	15	37	477	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.99			0.99			1.00			0.99	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.96			0.99			0.98	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1676			1710			3331			3208	
Flt Permitted		0.89			0.94			0.87			0.92	
Satd. Flow (perm)		1500			1611			2925			2954	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	72	21	53	234	103	26	238	15	37	477	82
RTOR Reduction (vph)	0	14	0	0	29	0	0	8	0	0	25	0
Lane Group Flow (vph)	0	104	0	0	361	0	0	271	0	0	571	0
Confl. Peds. (#/hr)	14		31	31		14	33		22	22		33
Heavy Vehicles (%)	9%	4%	4%	2%	2%	2%	3%	3%	3%	2%	6%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		13.9			13.9			18.1			18.1	
Effective Green, g (s)		13.9			13.9			18.1			18.1	
Actuated g/C Ratio		0.32			0.32			0.41			0.41	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		473			508			1203			1215	
v/s Ratio Prot												
v/s Ratio Perm		0.07			0.22			0.09			0.19	
v/c Ratio		0.22			0.71			0.23			0.47	
Uniform Delay, d1		11.1			13.3			8.4			9.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			4.5			0.4			1.3	
Delay (s)		11.3			17.8			8.8			10.8	
Level of Service		B			B			A			B	
Approach Delay (s)		11.3			17.8			8.8			10.8	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		12.4			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		44.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		73.3%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

1: S Union St & College St

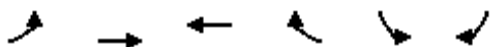
07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	74	262	0	0	281	107	53	349	63	0	0	0
Future Volume (vph)	74	262	0	0	281	107	53	349	63	0	0	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	74	262	0	0	281	107	53	349	63	0	0	0
Direction, Lane #	EB 1	WB 1	NB 1									
Volume Total (vph)	336	388	465									
Volume Left (vph)	74	0	53									
Volume Right (vph)	0	107	63									
Hadj (s)	0.08	-0.13	-0.02									
Departure Headway (s)	6.2	5.9	6.0									
Degree Utilization, x	0.58	0.64	0.77									
Capacity (veh/h)	540	579	583									
Control Delay (s)	17.4	18.8	26.0									
Approach Delay (s)	17.4	18.8	26.0									
Approach LOS	C	C	D									
Intersection Summary												
Delay			21.2									
Level of Service			C									
Intersection Capacity Utilization			76.2%	ICU Level of Service					D			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: College St & Site Driveway

07/29/2019



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	307	302	31	30	13
Future Volume (Veh/h)	13	307	302	31	30	13
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	13	307	302	31	30	13
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		248				
pX, platoon unblocked						
vC, conflicting volume	333				650	318
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	333				650	318
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1226				429	723
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	320	333	43			
Volume Left	13	0	30			
Volume Right	0	31	13			
cSH	1226	1700	489			
Volume to Capacity	0.01	0.20	0.09			
Queue Length 95th (ft)	1	0	7			
Control Delay (s)	0.4	0.0	13.1			
Lane LOS	A		B			
Approach Delay (s)	0.4	0.0	13.1			
Approach LOS			B			
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			36.7%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

8: S Union St/N Union St & Pearl St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	628	0	0	612	69	56	334	60	0	0	0
Future Volume (vph)	178	628	0	0	612	69	56	334	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0		6.0	6.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			0.99		1.00	0.98				
Flpb, ped/bikes	0.99	1.00			1.00		0.94	1.00				
Frt	1.00	1.00			0.99		1.00	0.98				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1693	1801			1765		1614	1733				
Flt Permitted	0.21	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	369	1801			1765		1614	1733				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	178	628	0	0	612	69	56	334	60	0	0	0
RTOR Reduction (vph)	0	0	0	0	8	0	0	11	0	0	0	0
Lane Group Flow (vph)	178	628	0	0	673	0	56	383	0	0	0	0
Confl. Peds. (#/hr)	27		38	38		27	37		53	53		37
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			8			2				
Permitted Phases	4						2					
Actuated Green, G (s)	25.0	25.0			25.0		18.0	18.0				
Effective Green, g (s)	25.0	25.0			25.0		18.0	18.0				
Actuated g/C Ratio	0.45	0.45			0.45		0.33	0.33				
Clearance Time (s)	6.0	6.0			6.0		6.0	6.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	167	818			802		528	567				
v/s Ratio Prot		0.35			0.38			c0.22				
v/s Ratio Perm	c0.48						0.03					
v/c Ratio	1.07	0.77			0.84		0.11	0.67				
Uniform Delay, d1	15.0	12.6			13.2		12.9	16.0				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	88.2	4.4			7.7		0.4	6.3				
Delay (s)	103.2	16.9			21.0		13.3	22.3				
Level of Service	F	B			C		B	C				
Approach Delay (s)		36.0			21.0			21.2			0.0	
Approach LOS		D			C			C			A	
Intersection Summary												
HCM 2000 Control Delay		27.3			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.90										
Actuated Cycle Length (s)		55.0			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		83.4%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: S Willard St/N Willard St & Pearl St

07/29/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔	↔			↔			↔	
Traffic Volume (vph)	73	602	51	64	591	50	72	289	63	31	207	41
Future Volume (vph)	73	602	51	64	591	50	72	289	63	31	207	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0		6.0	6.0			6.0			6.0	
Lane Util. Factor		1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes		1.00		1.00	1.00			1.00			1.00	
Frt		0.99		1.00	0.99			0.98			0.98	
Flt Protected		0.99		0.95	1.00			0.99			0.99	
Satd. Flow (prot)		1754		1710	1776			1741			1747	
Flt Permitted		0.76		0.35	1.00			0.87			0.91	
Satd. Flow (perm)		1340		624	1776			1524			1594	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	73	602	51	64	591	50	72	289	63	31	207	41
RTOR Reduction (vph)	0	4	0	0	5	0	0	10	0	0	9	0
Lane Group Flow (vph)	0	722	0	64	636	0	0	414	0	0	270	0
Confl. Peds. (#/hr)	4		1	1		4	5		5	5		5
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		34.0		34.0	34.0			19.0			19.0	
Effective Green, g (s)		34.0		34.0	34.0			19.0			19.0	
Actuated g/C Ratio		0.52		0.52	0.52			0.29			0.29	
Clearance Time (s)		6.0		6.0	6.0			6.0			6.0	
Vehicle Extension (s)		3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)		700		326	928			445			465	
v/s Ratio Prot					0.36							
v/s Ratio Perm		c0.54		0.10				c0.27			0.17	
v/c Ratio		1.03		0.20	0.69			0.93			0.58	
Uniform Delay, d1		15.5		8.2	11.5			22.4			19.6	
Progression Factor		1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2		42.2		1.3	4.1			28.4			5.2	
Delay (s)		57.7		9.6	15.6			50.8			24.8	
Level of Service		E		A	B			D			C	
Approach Delay (s)		57.7			15.1			50.8			24.8	
Approach LOS		E			B			D			C	
Intersection Summary												
HCM 2000 Control Delay			37.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			65.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			123.5%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: S Union St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	970	0	0	779	54	51	150	122	0	0	0
Future Volume (vph)	60	970	0	0	779	54	51	150	122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0				
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00				
Frpb, ped/bikes	1.00	1.00			1.00		1.00	0.97				
Flpb, ped/bikes	0.99	1.00			1.00		0.98	1.00				
Frt	1.00	1.00			0.99		1.00	0.93				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1702	1801			1779		1674	1632				
Flt Permitted	0.20	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	358	1801			1779		1674	1632				
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	60	970	0	0	779	54	51	150	122	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	54	0	0	0	0
Lane Group Flow (vph)	60	970	0	0	830	0	51	218	0	0	0	0
Confl. Peds. (#/hr)	18		12	12		18	14		29			
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		2			6			8				
Permitted Phases	2						8					
Actuated Green, G (s)	32.2	32.2			32.2		12.3	12.3				
Effective Green, g (s)	33.2	33.2			33.2		13.3	13.3				
Actuated g/C Ratio	0.61	0.61			0.61		0.24	0.24				
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0				
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0				
Lane Grp Cap (vph)	218	1097			1083		408	398				
v/s Ratio Prot		c0.54			0.47			c0.13				
v/s Ratio Perm	0.17						0.03					
v/c Ratio	0.28	0.88			0.77		0.12	0.55				
Uniform Delay, d1	5.0	9.0			7.8		16.1	18.0				
Progression Factor	1.00	1.00			1.00		1.00	1.00				
Incremental Delay, d2	0.7	8.7			3.3		0.1	1.5				
Delay (s)	5.7	17.7			11.1		16.2	19.5				
Level of Service	A	B			B		B	B				
Approach Delay (s)		17.0			11.1			19.0			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			54.5				Sum of lost time (s)			8.0		
Intersection Capacity Utilization			74.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

17: S Willard St & Main St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	882	36	68	763	71	26	284	44	69	220	24
Future Volume (vph)	31	882	36	68	763	71	26	284	44	69	220	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	0.99		1.00	0.99			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.99	
Satd. Flow (prot)	1711	1788		1711	1773			1758			1757	
Flt Permitted	0.18	1.00		0.12	1.00			0.96			0.78	
Satd. Flow (perm)	318	1788		220	1773			1702			1383	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	31	882	36	68	763	71	26	284	44	69	220	24
RTOR Reduction (vph)	0	2	0	0	5	0	0	9	0	0	5	0
Lane Group Flow (vph)	31	916	0	68	829	0	0	345	0	0	308	0
Confl. Peds. (#/hr)	7		5	5		7	10		2	2		10
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)	35.1	35.1		35.1	35.1			16.5			16.5	
Effective Green, g (s)	36.1	36.1		36.1	36.1			17.5			17.5	
Actuated g/C Ratio	0.59	0.59		0.59	0.59			0.28			0.28	
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	186	1047		128	1039			483			392	
v/s Ratio Prot		c0.51			0.47							
v/s Ratio Perm	0.10			0.31				0.20			c0.22	
v/c Ratio	0.17	0.87		0.53	0.80			0.72			0.79	
Uniform Delay, d1	5.8	10.8		7.7	9.9			19.8			20.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Incremental Delay, d2	1.9	10.2		14.9	6.4			5.0			9.9	
Delay (s)	7.8	21.0		22.6	16.3			24.8			30.3	
Level of Service	A	C		C	B			C			C	
Approach Delay (s)		20.6			16.8			24.8			30.3	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			21.0			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			61.6			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			97.5%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

40: S Winooski Ave & College St

07/29/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	173	67	55	162	109	20	341	42	103	720	94
Future Volume (vph)	48	173	67	55	162	109	20	341	42	103	720	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frpb, ped/bikes		0.98			0.98			0.98			0.98	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.97			0.95			0.98			0.98	
Flt Protected		0.99			0.99			1.00			0.99	
Satd. Flow (prot)		1668			1651			3276			3247	
Flt Permitted		0.89			0.90			0.89			0.84	
Satd. Flow (perm)		1502			1496			2914			2749	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	48	173	67	55	162	109	20	341	42	103	720	94
RTOR Reduction (vph)	0	22	0	0	42	0	0	17	0	0	17	0
Lane Group Flow (vph)	0	266	0	0	284	0	0	386	0	0	900	0
Confl. Peds. (#/hr)	83		111	111		83	133		171	171		133
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		12.6			12.6			18.2			18.2	
Effective Green, g (s)		12.6			12.6			18.2			18.2	
Actuated g/C Ratio		0.29			0.29			0.43			0.43	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		442			440			1239			1168	
v/s Ratio Prot												
v/s Ratio Perm		0.18			c0.19			0.13			c0.33	
v/c Ratio		0.60			0.64			0.31			0.77	
Uniform Delay, d1		13.0			13.2			8.1			10.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.3			3.2			0.7			4.9	
Delay (s)		15.3			16.4			8.8			15.5	
Level of Service		B			B			A			B	
Approach Delay (s)		15.3			16.4			8.8			15.5	
Approach LOS		B			B			A			B	
Intersection Summary												
HCM 2000 Control Delay		14.2			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		42.8			Sum of lost time (s)			12.0				
Intersection Capacity Utilization		82.9%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												



Signal Warrant Analysis

STUDY AND ANALYSIS INFORMATION

Municipality:
 County:
 PennDOT Engineering District:

Analysis Date:
 Conducted By:
 Agency/Company Name:

Analysis Information

Data Collection Date:
 Day of the Week:

Is the intersection in a built-up area of an isolated community of <10,000 population?

Major Street Information

Major Street Name and Route Number:
 Major Street Approach #1 Direction:
 Major Street Approach #2 Direction:

Number of Lanes for Moving Traffic on Each Major Street Approach: LANE(S)
 Speed Limit or 85th Percentile Speed on the Major Street: MPH

Minor Street Information

Minor Street Name and Route Number:
 Minor Street Approach #1 Direction:
 Minor Street Approach #2 Direction:

Number of Lanes for Moving Traffic on Each Minor Street Approach: LANE(S)

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	Yes	No
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes
Warrant 3, Peak Hour	Yes	No
Warrant 4, Pedestrian Volume	No	N/A
Warrant 5, School Crossing	No	N/A
Warrant 6, Coordinated Signal System	No	N/A
Warrant 7, Crash Experience	No	N/A
Warrant 8, Roadway Network	No	N/A
Warrant 9, Intersection Near a Grade Crossing	No	N/A
Warrant PA-1, ADT Volume Warrant	No	N/A
Warrant PA-2, Midblock and Trail Crossings	No	N/A

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH						
Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (N-Bound)	Minor Street Approach #2 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM			0		0
12:15 AM	12:29 AM			0		0
12:30 AM	12:44 AM			0		0
12:45 AM	12:59 AM			0		0
1:00 AM	1:14 AM			0		0
1:15 AM	1:29 AM			0		0
1:30 AM	1:44 AM			0		0
1:45 AM	1:59 AM			0		0
2:00 AM	2:14 AM			0		0
2:15 AM	2:29 AM			0		0
2:30 AM	2:44 AM			0		0
2:45 AM	2:59 AM			0		0
3:00 AM	3:14 AM			0		0
3:15 AM	3:29 AM			0		0
3:30 AM	3:44 AM			0		0
3:45 AM	3:59 AM			0		0
4:00 AM	4:14 AM			0		0
4:15 AM	4:29 AM			0		0
4:30 AM	4:44 AM			0		0
4:45 AM	4:59 AM			0		0
5:00 AM	5:14 AM			0		0
5:15 AM	5:29 AM			0		0
5:30 AM	5:44 AM			0		0
5:45 AM	5:59 AM	1	4	5	5	0
6:00 AM	6:14 AM	5	16	21	7	0
6:15 AM	6:29 AM	5	16	21	7	0
6:30 AM	6:44 AM	5	16	21	7	0
6:45 AM	6:59 AM	5	16	21	7	0
7:00 AM	7:14 AM	16	49	65	36	0
7:15 AM	7:29 AM	16	49	65	36	0
7:30 AM	7:44 AM	16	49	65	36	0
7:45 AM	7:59 AM	16	49	65	36	0
8:00 AM	8:14 AM	27	86	113	45	0
8:15 AM	8:29 AM	27	86	113	45	0
8:30 AM	8:44 AM	27	86	113	45	0
8:45 AM	8:59 AM	27	86	113	45	0
9:00 AM	9:14 AM	24	77	101	40	0
9:15 AM	9:29 AM	24	77	101	40	0
9:30 AM	9:44 AM	24	77	101	40	0
9:45 AM	9:59 AM	24	77	101	40	0
10:00 AM	10:14 AM	21	66	87	52	0
10:15 AM	10:29 AM	21	66	87	52	0
10:30 AM	10:44 AM	21	66	87	52	0
10:45 AM	10:59 AM	21	66	87	52	0
11:00 AM	11:14 AM	22	71	93	45	0
11:15 AM	11:29 AM	22	71	93	45	0
11:30 AM	11:44 AM	22	71	93	45	0
11:45 AM	11:59 AM	22	71	93	45	0

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH						
Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (N-Bound)	Minor Street Approach #2 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	73	89	162	76	0
12:15 PM	12:29 PM	73	89	162	76	0
12:30 PM	12:44 PM	73	89	162	76	0
12:45 PM	12:59 PM	73	89	162	76	0
1:00 PM	1:14 PM	74	90	164	79	0
1:15 PM	1:29 PM	74	90	164	79	0
1:30 PM	1:44 PM	74	90	164	79	0
1:45 PM	1:59 PM	74	90	164	79	0
2:00 PM	2:14 PM	62	75	137	78	0
2:15 PM	2:29 PM	62	75	137	78	0
2:30 PM	2:44 PM	62	75	137	78	0
2:45 PM	2:59 PM	62	75	137	78	0
3:00 PM	3:14 PM	58	71	129	82	0
3:15 PM	3:29 PM	58	71	129	82	0
3:30 PM	3:44 PM	58	71	129	82	0
3:45 PM	3:59 PM	58	71	129	82	0
4:00 PM	4:14 PM	64	78	142	89	0
4:15 PM	4:29 PM	64	78	142	89	0
4:30 PM	4:44 PM	64	78	142	89	0
4:45 PM	4:59 PM	64	78	142	89	0
5:00 PM	5:14 PM	70	85	155	109	0
5:15 PM	5:29 PM	70	85	155	109	0
5:30 PM	5:44 PM	70	85	155	109	0
5:45 PM	5:59 PM	70	85	155	109	0
6:00 PM	6:14 PM	52	63	115	89	0
6:15 PM	6:29 PM	52	63	115	89	0
6:30 PM	6:44 PM	52	63	115	89	0
6:45 PM	6:59 PM	52	63	115	89	0
7:00 PM	7:14 PM	41	50	91	64	0
7:15 PM	7:29 PM	41	50	91	64	0
7:30 PM	7:44 PM	41	50	91	64	0
7:45 PM	7:59 PM	41	50	91	64	0
8:00 PM	8:14 PM	43	53	96	62	0
8:15 PM	8:29 PM	43	53	96	62	0
8:30 PM	8:44 PM	43	53	96	62	0
8:45 PM	8:59 PM	43	53	96	62	0
9:00 PM	9:14 PM	29	35	64	41	0
9:15 PM	9:29 PM	29	35	64	41	0
9:30 PM	9:44 PM	29	35	64	41	0
9:45 PM	9:59 PM	29	35	64	41	0
10:00 PM	10:14 PM	14	17	31	34	0
10:15 PM	10:29 PM	14	17	31	34	0
10:30 PM	10:44 PM	14	17	31	34	0
10:45 PM	10:59 PM	14	17	31	34	0
11:00 PM	11:14 PM	9	11	20	18	0
11:15 PM	11:29 PM	9	11	20	18	0
11:30 PM	11:44 PM	9	11	20	18	0
11:45 PM	11:59 PM	9	11	20	18	0
Approach Totals:		2817	4332	7149	4189	0

MUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME**Number of Lanes for Moving Traffic on Each Approach**

Major Street:	1 Lane
Minor Street:	1 Lane

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?

No

Combination of Conditions A and B Necessary?*

No

**Only applicable for Warrant 1 if after an adequate trial of other alternatives that could cause less delay and inconvenience to traffic has failed to solve the traffic problems. See Section 4C.02 of the 2009 MUTCD for application.*

Condition A - Minimum Vehicular Volume

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or More	1	600	480	420	336	150	120	105	84
2 or More	2 or More	600	480	420	336	200	160	140	112
1	2 or More	500	400	350	280	200	160	140	112

Condition B - Interruption of Continuous Traffic

Number of lanes for moving traffic on each approach		Vehicles per hour on major street (total of both approaches)				Vehicles per hour on higher-volume minor street approach (one direction only)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or More	1	900	720	630	504	75	60	53	42
2 or More	2 or More	900	720	630	504	100	80	70	56
1	2 or More	750	600	525	420	100	80	70	56

Condition A Evaluation

Number of Unique Hours Met:

7

Condition A Satisfied?

No

Condition B Evaluation

Number of Unique Hours Met:

0

Condition B Satisfied?

No

Combination of Condition A and Condition B Evaluation

Number of Unique Hours Met for Condition A:

N/A

Number of Unique Hours Met for Condition B:

N/A

Combination of Condition A and Condition B Satisfied?

N/A

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Total Number of Unique Hours Met On Figure 4C-1
7

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
---	----

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	5	5	
5:15 AM	26	12	
5:30 AM	47	19	
5:45 AM	68	26	
6:00 AM	84	28	
6:15 AM	128	57	
6:30 AM	172	86	
6:45 AM	216	115	
7:00 AM	260	144	
7:15 AM	308	153	
7:30 AM	356	162	
7:45 AM	404	171	
8:00 AM	452	180	
8:15 AM	440	175	
8:30 AM	428	170	
8:45 AM	416	165	
9:00 AM	404	160	
9:15 AM	390	172	
9:30 AM	376	184	
9:45 AM	362	196	
10:00 AM	348	208	
10:15 AM	354	201	
10:30 AM	360	194	
10:45 AM	366	187	
11:00 AM	372	180	
11:15 AM	441	211	

Traffic Signal Warrant Analysis Workbook

7/26/2019

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
11:30 AM	510	242	
11:45 AM	579	273	Met

Traffic Signal Warrant Analysis Workbook

7/26/2019

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
12:00 PM	648	304	Met
12:15 PM	650	307	Met
12:30 PM	652	310	Met
12:45 PM	654	313	Met
1:00 PM	656	316	Met
1:15 PM	629	315	Met
1:30 PM	602	314	Met
1:45 PM	575	313	Met
2:00 PM	548	312	Met
2:15 PM	540	316	Met
2:30 PM	532	320	Met
2:45 PM	524	324	Met
3:00 PM	516	328	Met
3:15 PM	529	335	Met
3:30 PM	542	342	Met
3:45 PM	555	349	Met
4:00 PM	568	356	Met
4:15 PM	581	376	Met
4:30 PM	594	396	Met
4:45 PM	607	416	Met
5:00 PM	620	436	Met
5:15 PM	580	416	Met
5:30 PM	540	396	Met
5:45 PM	500	376	Met
6:00 PM	460	356	Met
6:15 PM	436	331	Met
6:30 PM	412	306	
6:45 PM	388	281	
7:00 PM	364	256	
7:15 PM	369	254	
7:30 PM	374	252	
7:45 PM	379	250	
8:00 PM	384	248	
8:15 PM	352	227	
8:30 PM	320	206	
8:45 PM	288	185	
9:00 PM	256	164	
9:15 PM	223	157	
9:30 PM	190	150	
9:45 PM	157	143	
10:00 PM	124	136	
10:15 PM	113	120	
10:30 PM	102	104	
10:45 PM	91	88	
11:00 PM	80	72	

MUTCD WARRANT 3, PEAK HOUR

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	No
---	----

Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?

No

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	N/A
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes
*If applicable, attach all supporting calculations and documentation.	

Total Number of Unique Hours Met
On Figure 4C-3

2

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	5	5	
5:15 AM	26	12	
5:30 AM	47	19	
5:45 AM	68	26	

Traffic Signal Warrant Analysis Workbook

7/26/2019

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
6:00 AM	84	28	
6:15 AM	128	57	
6:30 AM	172	86	
6:45 AM	216	115	
7:00 AM	260	144	
7:15 AM	308	153	
7:30 AM	356	162	
7:45 AM	404	171	
8:00 AM	452	180	
8:15 AM	440	175	

Traffic Signal Warrant Analysis Workbook

7/26/2019

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
8:30 AM	428	170	
8:45 AM	416	165	
9:00 AM	404	160	
9:15 AM	390	172	
9:30 AM	376	184	
9:45 AM	362	196	
10:00 AM	348	208	
10:15 AM	354	201	
10:30 AM	360	194	
10:45 AM	366	187	
11:00 AM	372	180	
11:15 AM	441	211	
11:30 AM	510	242	
11:45 AM	579	273	
12:00 PM	648	304	
12:15 PM	650	307	
12:30 PM	652	310	
12:45 PM	654	313	
1:00 PM	656	316	
1:15 PM	629	315	
1:30 PM	602	314	
1:45 PM	575	313	
2:00 PM	548	312	
2:15 PM	540	316	
2:30 PM	532	320	
2:45 PM	524	324	
3:00 PM	516	328	
3:15 PM	529	335	
3:30 PM	542	342	
3:45 PM	555	349	
4:00 PM	568	356	
4:15 PM	581	376	Met
4:30 PM	594	396	Met
4:45 PM	607	416	Met
5:00 PM	620	436	Met
5:15 PM	580	416	Met
5:30 PM	540	396	Met
5:45 PM	500	376	
6:00 PM	460	356	
6:15 PM	436	331	
6:30 PM	412	306	
6:45 PM	388	281	
7:00 PM	364	256	
7:15 PM	369	254	
7:30 PM	374	252	
7:45 PM	379	250	
8:00 PM	384	248	
8:15 PM	352	227	
8:30 PM	320	206	
8:45 PM	288	185	
9:00 PM	256	164	
9:15 PM	223	157	
9:30 PM	190	150	
9:45 PM	157	143	
10:00 PM	124	136	
10:15 PM	113	120	
10:30 PM	102	104	

Traffic Signal Warrant Analysis Workbook

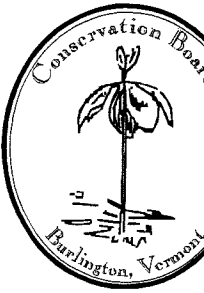
7/26/2019

Hourly Vehicular Volume			
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	
10:45 PM	91	88	
11:00 PM	80	72	

Burlington Conservation Board

149 Church Street
Burlington, VT 05401
<http://www.ci.burlington.vt.us/planning/>
Telephone: (802) 865-7189
(802) 865-7195 (FAX)

Miles Waite, Chair
Zoe Richards
Don Meals
Matt Moore
Stephanie Young
Ryan Crehan
Hannah Brislin
Rebecca Roman
vacant



Conservation Board Meeting Minutes

Monday, August 5, 2019 – 5:30 pm
Planning & Zoning Conference Room – City Hall Lower Level
149 Church Street

Attendance

- **Board Members:** Zoe Richards (ZR), Ryan Crehan (RC), Don Meals (DM), Stephanie Young (SY), Hannah Brislin (HB)
- **Absent:** Matt Moore (MM), Miles Waite (MW), Rebecca Roman (RR)
- **Public:**
- **Staff:** Scott Gustin (Planning & Zoning)

ZR, Vice Chair, called the meeting to order at 5:34 p.m.

Minutes

Meeting minutes of July 1, 2019

A MOTION was made by RC and SECONDED by SY to accept the July 1 minutes as written.

Vote: 5-0-0, motion carried.

Board Comment

DM asked for clarification of packet materials. An errant page was included.

SG mentioned the new Department of Permitting & Inspections. Physical relocation will take place at the end of the year.

ZR said the first section of the Burlington Wildways will open in September.

New member Hannah Brislin introduced herself and board members to her.

Public Comment

None.

Project Review

1. **19-1026CA; 46 Appletree Point Rd (RL, Ward 4N) James Townsend**
Construct addition to single family home w/in wetland buffer.

James Townsend appeared on behalf of this application.

Mr. Townsend said that he's looking to construct an addition to his single family home. It is within the 100' wetland (pond) buffer and, therefore, requires Conservation Board review. He noted that the pond is manmade. The State of Vermont wetlands office has declined jurisdiction.

RC asked about the foundation drain depicted on the site plan. Mr. Townsend noted that it's a drain that takes runoff from adjacent homes on Staniford Farms Road. There is an easement in place to do so.

RC, what's the vegetation like around the pond? Mr. Townsend, mostly cedar trees, grass, and weeds. Not mowed around the pond. Mowed on level areas.

A MOTION was made by DM and SECONDED by ZR:

Approve the application as presented. The pond is not a functioning wetland.

Vote: 5-0-0

2. 20-0030CA; 3090 North Avenue (RL-W, Ward 7N) Winooski Valley Park District

Create conservation park including access road repair, installation of gates and kiosk, and landscaping

Nick Warner appeared on behalf of this item.

Mr. Warner briefly overviewed the WVPD. The 2.4 acre former marina was purchased about 18 months ago by the WVPD for re-naturalization. A final FEMA grant approval was awarded last week. Demolition of the buildings is approved under separate permit. The work is to take place in September.

Mr. Warner said that the entire property is within the flood zone. No new buildings are proposed. Some new signage is proposed along with the re-naturalization work. The existing boat ramp will provide for canoe access. The property will be open to the public year-round.

ZR, when was it last used as a marina? Mr. Warner, a couple of years ago. The marina will be discontinued in large part due to increasing siltation in the waterway. This plan contains no dredging or armoring. No utilities will serve the site. Only the gates and access drive will be introduced or maintained.

Mr. Warner noted that the property is affected by all of the natural resource overlays. None of them will be adversely affected.

DM asked about the sump in the former machine shop. Will anything beyond a phase 1 ESA be done? Mr. Warner, soil testing will be done as part of demolition of the building. If anything is found, it will be addressed. He also said that the septic system will be demolished. An environmental consultant will be onsite during demolition work.

HB asked if it could be made accessible from the bike path. Mr. Warner said it is located in close proximity to the bike path where it crosses North Avenue Extension.

RC, will any foundation holes need to be filled upon removal of the buildings? Mr. Warner said the home is on posts. The outbuildings are on concrete slabs.

ZR asked for an overview of what it cost to do this project and what part the Legacy Fund played in it.

Mr. Warner said there were two BCLF rounds: initial \$8,300 and then \$165,000. \$482,343 total project cost.

ZR, did the BCLF work as you had hoped? Mr. Warner said he appreciated the process. It's very well vetted. The only issue at the end was that the mayor didn't fully understand the project and initially wanted to delay it, but the issue was resolved. It was simply a communication issue.

SY noted that we've discussed possibly using legacy funds for due diligence and legal work.

Mr. Warner said that if a land trust is involved, multiple entities are more likely to work together. He also noted that if there's a change in how BCLF monies are spent, water quality should be a high priority item.

DM noted that BCLF is one of the two largest contributors to this project. He'd like to see acknowledgement on signage at the property.

ZR asked about creating a logo for the BCLF for utilization at projects within the city. SG said he'd follow up as to the possibility.

RC asked for an update as to the BCLF at an upcoming meeting.

A MOTION was made by DM and SECONDED by SY:

Recommend approval of the application as presented.

Vote: 5-0-0, motion carried.

3. 20-0037CA/MA; 266 College St (FD5, Ward 8E) Hotel Y Burlington, LLC

Building renovations and addition for hotel, below grade parking structure, and rooftop bar and restaurant

Jeff Zweber, Peter Smiar, and Cleary Buckley appeared on behalf of this item.

SG noted that this project is a "major impact" development and requires Conservation Board review. Emphasis will be on stormwater management. The property is located in the combined sewer area and presently has no onsite stormwater management measures.

Mr. Zweber showed the Board a short video simulation of the project. He noted several vegetated stormwater management areas onsite. DPW wants to see roof runoff taken out of the combined sewer in the ravine. Presently, the site is almost 100% impervious. The new construction will include a 3,000 sf green roof, new street trees, and several disperse green spaces onsite.

DM, will the green roof be under-drained? Mr. Zweber, yes. He displayed a cross section of the proposed route. Underground storage tanks will hold all roof runoff and control its release into the city system. Impervious surface will be reduced by 2,800 sf.

SY, who will maintain the green roof? Mr. Zweber, the owner. DM, will there be public access to the green roof? Mr. Zweber, no. DM, will it be counted as a pervious surface? Mr. Zweber, yes. SG noted that it's expressly allowed under the downtown zoning code.

SY, what happens if the green roof is not maintained and fails? Mr. Zweber is confident that it can be successfully maintained. It will be in a visible location.

RC, do you have a sense of what the soils are onsite? Mr. Zweber, its fill – a mix of sand, silt, and debris. RC, will the bump-outs have sufficient permeability? Mr. Zweber, they will provide some infiltration but are not a major stormwater feature of the project.

ZR asked about bike parking. Mr. Zweber showed bike parking at various locations around the building and within the garage.

DM, has someone done an analysis to show that there is demand for these new hotel rooms? Mr. Zweber said that a market analysis has been done to support the development. Hilton shows average 80% occupancy.

HB, the Hilton always 80% because of the deal they have with the airport. As to the green roof, what examples do you have of established well-maintained green roofs? Mr. Buckley said that he does not have examples to display tonight. Hotel Vermont has one, and Champlain College has some. The same shallow sedum green roof system will be installed. It will be different from that at the hospital that has some 3' of soil.

RC, what is DPW looking for you to manage as far as storm events are concerned? Mr. Zweber, we need to account for the 1-year as well as the wastewater base flow. It discharges into the combined system.

SY, City Market has a number of solar panels. Are you leaving that option open? Mr. Zweber, yes, the option is available. Mr. Cleary said that the building could be constructed such that it will be possible.

A MOTION was made by SY and SECONDED by DM:

Recommend approval of the application and strongly encourage installation of rooftop solar panels and that the building be designed so that rooftop solar panels can be installed. The Board further encourages additional bike parking within the garage.

Vote: 5-0-0, motion carried.

Adjournment

The meeting adjourned at 6:58 PM.

Excerpt from Main Street-College Street Historic District

Listed on the National Register of Historic Places October 13, 1988

55. Young Men's Christian Association (266 College Street); 1934

A large, Colonial Revival, brick structure with eaves front, slate covered, gable roof. The 6 x 2 bay main block is 3 1/2 stories high, with each principal bay marked on the front by a gable roof dormer. The slate roof is finished with a molded cornice and full entablature with modillion blocks. A projecting brick beltcourse on the main block separates the second and third floors. The main entry is at the westernmost bay of the main block, within an arched opening with soldier course border. A leaded, semi-circular fanlight surmounts the modern, double leaf fire doors.

A 3 x 2 bay, 2 1/2 story wing to the west varies from the main block only by the addition of swags on the frieze board, made by incised, circular depressions of varying sizes. A much smaller 1 1/2 story, 1 x 2 bay wing on the east allows for a side entrance. The main block and its two wings rest on a slightly raised basement level under a soldier course and header course water table. A flat roofed, 2 x 2 bay, 1 story addition with canted corners projects to the west.

Fenestration is 6/6 sliding sash with gauged arches and projecting marble sills. Large end chimneys break the ridge at the east gable of the main block and the gable end of the 2 1/2 story wing.

At the rear of the structure a 3 story, 2 x 2 bay flat roofed addition connects the main building facing College Street to a 1 1/2 story, 6 x 4 bay, flat roofed swimming pool addition on a high basement along South Union Street. All windows on this block are blind and brick filled. To the rear (north) of this is a new swimming pool addition (c.1985); this 1 story, flat roofed addition is constructed in common bond brick with no windows, but only service entrances breaking the wall plane. This addition is non-contributing.

The YMCA was designed by Burlington architect Frank L. Austin to replace the organization's first building on Church Street, which burned in 1928.

Department of Permitting & Inspections

Zoning Division
149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Ted Miles, Zoning Specialist
Charlene Orton, Permitting & Inspections Administrator



MEMORANDUM

To: Development Review Board
From: Ryan Morrison, Associate Planner
Date: August 20, 2019
RE: 20-0086CU; 37 Village Green

Note: These are staff comments only. Decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

File: ZP20-0086CU
Location: 37 Village Green
Zone: RL **Ward:** 7N
Date application accepted: July 19, 2019
Applicant/ Owner: Jean O'Sullivan
Parking District: Neighborhood
Request: To convert one bedroom in the existing single family residence to a short term bed and breakfast rental room.



Applicable Regulations:

Appendix A (Use Table – All Zoning Districts), Article 3 (Applications, Permits, and Project Reviews), Article 8 (Parking)

Background:

- **Zoning Permit 95-512**; construct a rear addition to the existing single family home. Approved 6/23/95.

Overview:

The applicant proposes to convert one bedroom within the existing single family home to a short term bed and breakfast rental. The 5-bedroom home was constructed in 1955.

Recommendation: Consent Approval, per the following findings and conditions:

I. Findings

Appendix A: Use Table – All Zoning Districts

Bed and Breakfast is a Conditional Use in the RL zoning district. Footnotes 4 & 6 of Appendix A apply to bed and breakfasts. Footnote #4 states: *“No more than 5 rooms permitted to be let in any district where bed and breakfast is a conditional use. No more than 3 rooms permitted to be let in the RL district.”* Footnote #6 states: *“Must be owner-occupied.”* The applicant proposes to rent out 1 bedroom within the 5-bedroom home as a bed and breakfast use. The owner currently resides on the property. **Affirmative finding.**

Article 3: Applications, Permits and Project Reviews

Part 5: Conditional Use and Major Impact Review

Section 3.5.6 Review Criteria

(a) Conditional Use Review Standards

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

- 1. Existing or planned public utilities, facilities, or services are capable of supporting the proposed use in addition to the existing uses in the area;*
The proposal will have minimal impact on public utilities, facilities and services. It is possible that a state wastewater permit will be required, and if so, the applicant will be responsible for securing said permit. **Affirmative finding as conditioned.**
- 2. The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the Municipal Development Plan;*
The property is within an established residential neighborhood and a residential zoning district. The Residential Low Density (RL) zoning district is intended primarily for low-density residential development in the form of single detached dwellings and duplexes. B&Bs have the potential for up to 3 rooms in the underlying zoning district. The proposal should result in little to no change in traffic and circulation impacts. The B&B is accessory to the single family home, which is consistent with the intent of the zoning district.
Affirmative finding.
- 3. The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*

No greater impacts are anticipated than other residential uses in the area. **Affirmative finding.**

4. *The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation, safety for all modes; and adequate transportation demand management strategies;*

This parcel is located on Village Green, a residentially developed street. The driveway provides adequate space to accommodate the 3 required parking spaces. It is expected that the B&B use will generate one additional vehicle to the property when occupied. There are transit stops within walking distance along North Avenue, which is approximately 340 ft from the subject property. A sidewalk exists on the opposite side of the street. The proposal is not expected to create adverse impacts on the existing transportation system.

Affirmative finding.

5. *The utilization of renewable energy resources;*

Nothing within the application prevents the use of wind, solar, water, geothermal or other renewable energy resource. **Affirmative finding.**
and;

6. *Any standards or factors set forth in existing City bylaws and city and state ordinances.*

The application and resultant change in use will be required to meet all bylaws and city and state ordinances in effect. Specific to the proposed use, the applicant will have to ensure compliance with state regulations regarding short-term B&B type rentals, including but not limited to payment of required rooms and meals taxes. **Affirmative finding as conditioned.**

(c) Conditions of Approval

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. *Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area;*

Not applicable. No changes to the site are proposed.

2. *Time limits for construction.*

Not applicable. There is no construction proposed.

3. *Hours of operation and/or construction to reduce the impact on surrounding properties.*

It is recommended that guest check-ins be limited to 7:00 am – 10:00 pm to minimize noise, traffic, and neighborhood nuisances. **Affirmative finding as conditioned.**

4. *That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions,*

There are no enlargements or alterations proposed. However, should the applicant wish to add an additional B&B room(s), the change will require review and permitting under regulations in effect at that time. **Affirmative finding as conditioned.**
and

5. *Such additional reasonable performance standards, conditions and safeguards as it may deem necessary to implement the purposes of this chapter and the zoning regulations.*
None identified.

Article 8: Parking

Table 8.1.8-1 Minimum Off-Street Parking Requirements

In the Neighborhood Parking District, single family uses require 2 parking spaces per unit. B&Bs require 1 parking space per room. A total of 3 off-street parking spaces will be required. The driveway provides 3 compliant, off-street parking spaces. **Affirmative finding.**

II. Conditions of Approval

1. This approval is for a 1-room Bed and Breakfast use, in association with the single family dwelling. The applicant will allow Code Enforcement to periodically confirm that the use is limited to the one bedroom rental limitation. This may include review of web-based advertising, posted guest comments, or response to neighborhood complaint.
2. The subject property must be, and remain, owner occupied as long as the B&B use remains in operation.
3. It is recommended that guest check-ins be limited to 7:00 am – 10:00 pm to minimize noise, traffic, and neighborhood nuisance.
4. All guest parking shall be on-site and off-street.
5. The applicant will have to ensure compliance with state regulations regarding short-term B&B type rentals, including but not limited to payment of required rooms and meals taxes.
6. Any additional B&B room, or physical alteration, will require a new zoning permit, subject to regulations in effect at the time of permit application submittal.
7. The applicant/property owner is responsible for obtaining all necessary Zoning Permits and Building Permits through the Department of Public Works as well as other permit(s) as may be required, and shall meet all energy efficiency codes of the city and state as required.
8. The applicant/property owner shall secure a state wastewater permit, should one be required for the proposal.
9. Standard Permit Conditions 1-15.

Coverage:
Front wall $3'6'' \times 11'8'' = 41'2''$ 

Garage $22' \times 12' = 264'$ $\square$ VILLAGE GREEN

$$\frac{1554}{2318'2''}$$


Nov 1

Approximate
Location of
Improvement

min
required

lot size

80' x 148.33'

11,866.4 $\square'$

$$35\% = 4153.24' \#$$

NOTE

ANY MODIFICATIONS OR DEVIATIONS FROM THESE PLANS
REQUIRE ZONING APPROVAL PRIOR TO CONSTRUCTION.
ALL ERRORS IN DIMENSIONS, PLANS OR DETAILING ARE
FULLY THE RESPONSIBILITY OF THE APPLICANT/OWNER.

THE ALABAMA

SIGNED

DATE _____

PLANNING & ZONING DEPARTMENT
BURLINGTON, VERMONT

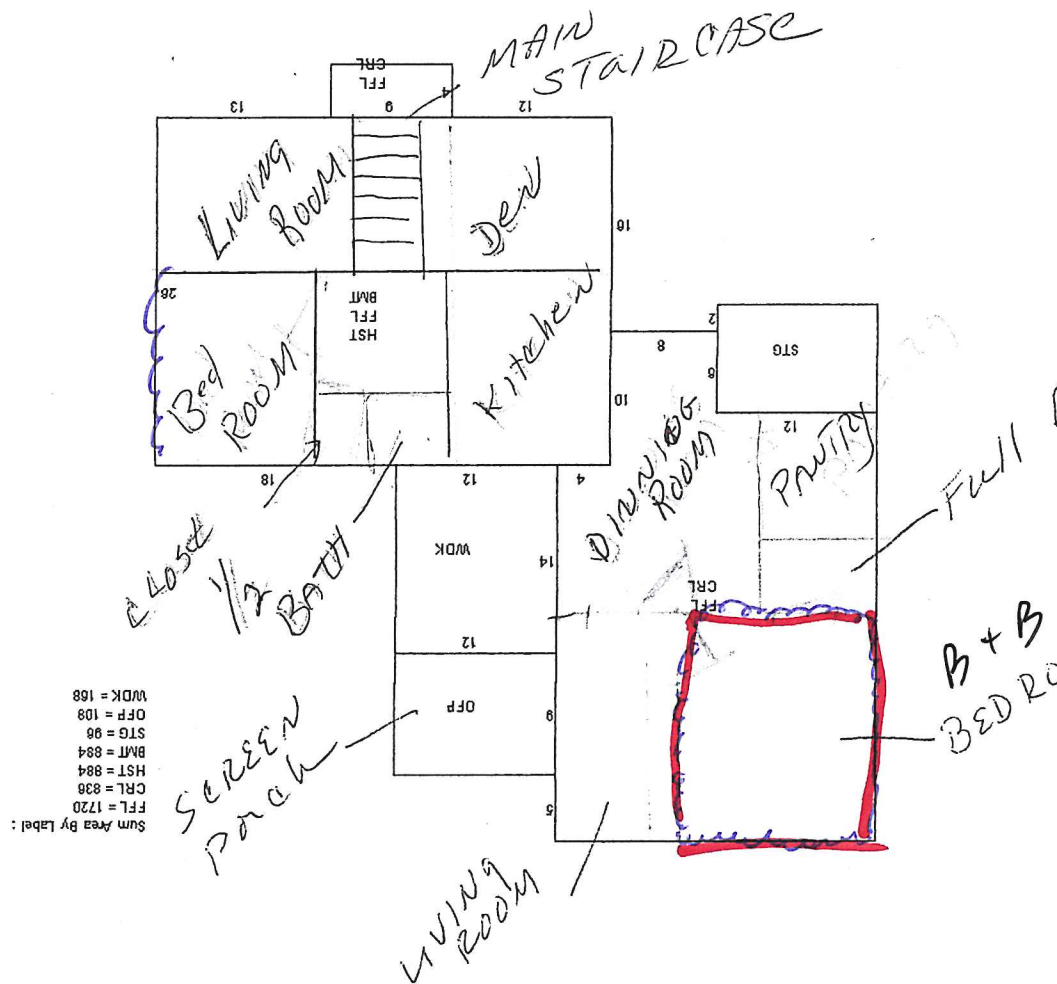
NOT TO SCALE

Only the first floor of the house will have short term rentals. A guest's entry to the suite is exclusively through the screen porch. Guests will have use of the porch, living room, bedroom and full bath. There is a locked door between the suite and the rest of the house.

The driveway will accommodate four compact or three full size vehicles.

RECEIVED
JUL 19 2019

DEPARTMENT OF
PLANNING & ZONING



Department of Permitting & Inspections

Zoning Division
149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Ted Miles, Zoning Specialist
Charlene Orton, Permitting & Inspections Administrator



TO: Development Review Board
FROM: Scott Gustin
DATE: August 20, 2019
RE: 20-0119CU; 68 Gazo Avenue

=====
Note: These are staff comments only; decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

Zone: RL Ward: 7N

Owner/Applicant: Sandra J. St. Louis / Dawn Irwin

Request: Convert single family dwelling into small daycare center.

Applicable Regulations:

Article 3 (Applications and Reviews), Article 4 (Maps & Districts), Article 8 (Parking)

Background Information:

The applicant is seeking approval to convert an existing detached single family dwelling into a small daycare center. No site or exterior building changes are proposed. A small daycare center is defined as a state licensed daycare facility serving no more than 20 full-time children total. In this case, up to 15 children are proposed along with 3 staff. The application materials reference potential growth numbers of up to 24 children but are not included in this proposal. More than 20 children becomes a "large daycare center" and would require additional permit review and approval. This proposed conversion is expressly exempt from the housing replacement requirements of Article 9: Part 2.

Previous zoning actions for the property:

- 3/14/74, Approval to construct a garage

Recommendation: Conditional Use approval as per, and subject to, the following findings and conditions.

I. Findings

Article 3: Applications and Reviews

Part 5, Conditional Use & Major Impact Review:

Sec. 3.5.6, Review Criteria

(a) Conditional Use Review Standards

1. Existing or planned public utilities, facilities or services are capable of supporting the proposed use in addition to the existing uses in the area;

The proposed small daycare center will entail little additional impacts on community facilities currently serving the residence and the neighborhood. Demands on wastewater may increase. The applicant is responsible for inquiring with the Vermont Department of Environmental Conservation, Wastewater Division as to the need for a wastewater permit for the proposed use.

(Affirmative finding as conditioned)

2. The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the municipal development plan;

The subject property is located within the residential – low density zone. This district is primarily intended for low density residential development in the form of single family homes and duplexes. A handful of compatible non-residential uses are allowed within this zone. Among them are daycare centers, small and large. The proposed small daycare center will utilize an existing single family home without exterior alteration. The small scale of the proposed use along with the lack of exterior changes to the property will help it to blend in with the fabric of the neighborhood.

(Affirmative finding)

3. The proposed use will not have nuisance impacts form noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;

The proposed small daycare center is not expected to generate nuisance impacts such as those articulated in this criterion. Such impacts are typically associated with industrial or other commercial uses. **(Affirmative finding)**

4. The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation; safety for all modes; and adequate transportation demand management strategies;

The applicants propose flexible times for drop-off and pick-up. Children will be dropped off between 7:45 AM and 11:00 AM and picked up between 3:00 PM – 5:30 PM. The intent is to avoid a singular morning rush and another one in the late afternoon. No traffic study has been provided or is required for this application. Gazo Avenue is classified as a local street with relatively little traffic. With just 15 children, the disperse times for drop-off and pick-up should limit the degree of potential traffic impacts at any particular time. **(Affirmative finding)**

5. Utilization of renewable energy resources;

Utilization of renewable energy resources is not included in this application. As proposed, the proposed conversion to a small daycare center will not preclude such utilization on the subject property or on neighboring properties in the future. **(Affirmative finding)**

6. Any standards or factors set forth in existing City bylaws and city and state ordinances;

It is the applicant's responsibility to comply with other applicable city and state bylaws and ordinances.

(b) Major Impact Review Standards

Not applicable.

(c) Conditions of Approval:

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area.

The proposed small daycare center will not generate offsite noise or glare substantial enough to require mitigation. The backyard is already fenced in and will provide a well-defined space for outdoor play. **(Affirmative finding)**

2. Time limits for construction.

The application contains no request for extended construction. As such, the standard 3-year time frame will apply (one year to start and another two years to finish). Little interior work is proposed. **(Affirmative finding)**

3. Hours of operation and/or construction to reduce the impacts on surrounding properties.

The proposed days and hours of operation for the small daycare center are 7:45 AM (staff arrival at 7:30AM) to 5:30 PM (staff departure by 6:00 PM), Monday – Friday. These hours approximate typical full-time work hours and will preclude impacts on neighbors during evening and weekend hours. **(Affirmative finding)**

4. That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions; and,

Any future enlargement or alteration will be reviewed under the zoning regulations in effect at that time.

5. Such additional reasonable performance standards, conditions and safeguards, as it may deem necessary to implement the purposes of this chapter and the zoning regulations.

See the recommended conditions.

Article 4: Maps & Districts

Sec. 4.4.5, Residential Districts:

(a) Purpose

(1) Residential Low Density (RL)

The subject property is located in the RL zone. This zone is intended primarily for low density residential development in the form of single family homes and duplexes. As noted above, several non-residential uses are allowed – those that typically serve the surrounding residential uses. A small daycare center is one such use. The lack of exterior alteration to the property and its small size will help the daycare center to fit within the context of the existing neighborhood.

(Affirmative finding)

(b) Dimensional Standards & Density

Not applicable.

(c) Permitted & Conditional Uses

The proposed small daycare center requires conditional use review and is included in these findings. **(Affirmative finding)**

(d) District Specific Regulations

1. Setbacks

No driveway setback encroachments are being sought. **(Not applicable)**

2. Height

No height bonuses are being sought. **(Not applicable)**

3. Lot Coverage

No lot coverage bonuses are being sought. **(Not applicable)**

4. Accessory Residential Structures and Uses

No new accessory structures are sought. **(Not applicable)**

5. Residential Density

No exceptions to the occupancy limits of this criterion are sought. **(Not applicable)**

6. Uses

No neighborhood commercial use is included in this proposal. **(Not applicable)**

7. Residential Development Bonuses

No development bonuses are being sought. **(Not applicable)**

Article 5: Citywide General Regulations

Part 4: Special Use Regulations

Sec. 5.4.1, Small Day Care Center

(a) No playground equipment shall be located within the front yard.

No playground equipment is proposed in the front yard. The backyard is presently fenced in and will provide enclosed outdoor play space. **(Affirmative finding)**

(b) No more than 20 full-time children are to be served.

Up to 15 children will be served. **(Affirmative finding)**

(c) The site plan review shall insure adequate and safe drop-off and pick up space is provided and that traffic problems are not created.

The driveway is 28' long X 12' wide and leads to a single bay garage. The applicants propose use of the driveway for drop-off and pick-up. As long as pick-ups and drop-offs are staggered as proposed, this arrangement should be adequate. Note also that on-street parking is available and could be used for pick-up and drop-off if need be. See article 8 below for details as to parking. **(Affirmative finding)**

(d) Any additions, signage, or site improvements shall be residential in character.

No site or building changes are proposed, nor are any signs. **(Affirmative finding)**

(e) The facility shall be licensed or registered by the State of Vermont.

The application indicates that the small daycare center will be licensed by the State of Vermont. Such proof of licensing will be required. **(Affirmative finding as conditioned)**

(f) *No more than one residential unit may be converted for the creation of a single small day care center...*

This criterion expressly exempts from housing replacement the conversion of this single dwelling unit into a small daycare center. **(Affirmative finding)**

(g) *The neighborhood is not overburdened with other day care centers.*

A review of the zoning permit files reveals no other permitted daycares on Gazo Avenue or other nearby streets. **(Affirmative finding)**

Article 5: Citywide General Regulations

Sec. 5.5.1, Nuisance Regulations

Nothing in the proposal appears to result in creating a nuisance under this criterion. **(Affirmative finding)**

Article 8: Parking

Sec. 8.1.8, Minimum Off-Street Parking Requirements

The subject property is located in the neighborhood parking district. The proposed small daycare center requires 2 parking spaces (1 per every 2 employees; 3 employees are proposed). The driveway and garage contain room for 2 parking spaces. The tandem arrangement is acceptable as “employee only” as it totals less than 4.

Sec. 5.4.1 (c) above stipulates that adequate drop-off and pick-up space be provided. While on-street spaces may be used as such, the applicants assert that the driveway will provide this needed function. As a result, a 1-space parking waiver is needed to allow just 1 onsite parking space for staff and another space for pick-up and drop-off. **(Affirmative finding as conditioned)**

Sec. 8.1.15, Waivers from Parking Requirements / Parking Management Plans

The application states that two of the three staff members will be dropped off and will not utilize onsite parking. The application further points out that the daycare center will be within walking distance of neighborhood clients. This basic arrangement could indeed result in just one onsite employee parking space. In the event that this arrangement does not work adequately, the driveway may simply be widened (under separate zoning permit) to accommodate an additional space. As with all parking waivers, the applicants must report back as to actual onsite parking demand for a period of three years. **(Affirmative finding as conditioned)**

II. Conditions of Approval

1. A State of Vermont wastewater permit may be required. It is the applicant’s responsibility to inquire with the Vermont Department of Environmental Conservation, Wastewater Division as to the need for a wastewater permit for the proposed use.
2. **Prior to issuance of a certificate of occupancy**, the applicant shall provide written proof of licensing by the State of Vermont for a small daycare center.
3. This approval includes a 1-space parking waiver. The applicants shall report back to the Department of Permitting & Inspections, Zoning Division as to actual onsite parking demand each year for a period of 3 years from the date of this approval.
4. The Applicant/Property Owner is responsible for obtaining all necessary Zoning Permits and Building Permits through the Department of Public Works as well as other state or federal permit(s) as may be required, and shall meet all energy efficiency codes as required.

5. The approved days and hours of operation for the small daycare center are 7:45 AM (staff arrival at 7:30AM) to 5:30 PM (staff departure by 6:00 PM), Monday – Friday.
6. Standard permit conditions 1-15.

Scott Gustin

From: Dawn Irwin [REDACTED]
Sent: Monday, August 12, 2019 11:47 AM
To: Scott Gustin
Subject: 68 Gazo Application

[WARNING]: External Message

Hi Scott,

Thank you for calling me earlier to discuss the rezoning application we submitted for 68 Gazo Avenue. As per our conversation, we are applying for a small childcare program. Since there is only one bathroom our capacity will not exceed 15 students to ensure we are in compliance with Vermont childcare licensing regulations. We will also have only two employees to start and plan on hiring one more teacher for a maximum of 3 employees.

Thanks so much again for speaking with me this morning. Please let me know if you have any other questions. I look forward to seeing you on the 20th.

Sincerely,

Dawn Irwin
Co-Owner/Director
Growing With Wonder
(802) 399-9978
dawn@growingwithwonder.com

Commercial Rezoning Proposal for 68 Gazo Avenue

My name is Dawn Irwin and I am the co-owner, along with Holly Beckert, of the business Growing With Wonder L3C. Holly and I are licensed early childhood educators that have always dreamed of opening our own school. We have been envisioning what our program would be for years and now we have finally been presented with the opportunity to make our dream become a reality. We are under contract to purchase the property located at 68 Gazo Avenue in Burlington, which we believe is the perfect place for our school to call home. Having the property rezoned for commercial use under the Conditional Use Zoning Ordinance would allow us to create the program we've always wanted and provide additional, and much needed, childcare options to New North End families.

Growing With Wonder is a high-quality, early childhood education program that honors and celebrates everyone who enters. We pride ourselves on implementing a relationship-based approach with an emphasis on social/emotional learning. We believe that honoring the diverse perspectives each member of our community brings to the table allows us to create a respectful and safe environment which encourages students, educators and families to teach and learn from each other. We believe no child should be denied access to a high-quality early childhood educational experience, regardless of extenuating circumstances. We recognize the value each person's uniqueness brings to our school, and together, strengthens our community and helps us work towards building a better tomorrow.

Growing With Wonder's philosophy is centered around a play and relationship-based, child-centered, multi-age, arts-enriched emergent curriculum approach that recognizes its students, families, and staff as thoughtful, capable and invaluable contributors of the school, local community, and world at large. We are committed to creating a safe and supportive environment for all members of the local community by ensuring representation in our school of, but not limited to, gender inclusivity, racial diversity, non-traditional family units, differently-abled citizens, and socio-economic backgrounds. A school that embraces its neighbors and ultimately enhances the neighborhood located in through the teachable moments found in the everyday acts of living, interacting, and contributing to community members. Whether it is with an Earth Day Parade going up and down the street, or little notes and cards the children make for their neighbor friends, our program would bring a fresh breath of life and love to the area.

Growing With Wonder's operating hours would be from 7:45am until 5:30pm, with teachers arriving at 7:30am and leaving around 6:00pm. We would begin with three employees at the school with a potential of five, sometime in the future. We would like to open our school on September 16th, 2019 and we would be open year-round, but we would follow the Burlington School District's calendar between the months of September and June.

At maximum capacity, our program would have twenty-four students and five teachers at the property per day. We would have our driveway available for families to use for pick up and drop off, and at least two of our teachers plan to carpool with spouses to avoid having vehicles on the street. To avoid lots of congestion, we are going to have open drop off and pick up times, which will encourage families to trickle in and out of the program throughout the morning and afternoon. Families will drop off between the hours of 7:45am and 11:00am and pick up between the hours of 3:00pm and 5:30pm. With a flexible drop off and pick up policy, we will be able to substantially cut back on any congestion a rigid drop off and pick up policy would cause. There are also sidewalks along both sides of the street so any parents that didn't use the driveway would have a safe way to walk their children to our property. Additionally, there would be no concern about additional traffic on the weekends as our program will be closed on those days.

RECEIVED

JUL 26 2019

As mentioned before, we are currently under contract to purchase 68 Gazo Avenue with a closing date set on August 27th, 2019. We have entered Phase 1 of our plan through this application submission. We are also simultaneously working with a childcare licensing specialist to begin the process of becoming a licensed early childhood education program. Phase 2 consists of closing on the property, a fire and safety inspection with the Burlington fire marshal, and an early childhood education licensing inspection. Phase 3 will consist of bringing the property into compliance with the requirements that may have been presented by the fire marshal and the childcare licensing specialist during their inspections. Phase 4 will consist of final inspections by the fire marshal and childcare licensing specialist to ensure we are meeting all state requirements for operating a childcare facility and preparing the space with equipment, furniture, and materials needed when the program opens. Finally, Phase 5 will consist of opening the program on our anticipated start date of September 16th, 2019.

In addition to the information stated in the above paragraphs, we will also ensure that we remain in compliance with the regulations that are applicable to a small preschool pursuant to Appendix A, which include making sure any playground equipment are kept in the back yard and not in the front yard, creating our open drop off and pick up policy to ensure a safe plan for vehicles with children and that traffic problems are avoided, no outside signage will be installed, we will continue to move through the process of becoming a licensed early childhood education program, and we will not convert more than one residential unit for the creation of another small preschool. Additionally, we will be the only early childhood education program located in this section of the new north end of Burlington which means the neighborhood would not feel overburdened by our presence.

Attached to this proposal is an interior diagram of the property which lists each room in the home and how we plan to use them for our program.

Thank you for your consideration of our proposal to rezone 68 Gazo Avenue for commercial use under the Conditional Use Zoning Ordinance. With your approval we can open a new early childhood education program to combat the childcare crisis facing Burlington families. I look forward to hearing from you soon.

Sincerely,

Dawn Irwin
Co-owner/Director of Growing With Wonder, L3C
(802)399-9978
dawn@growingwithwonder.com

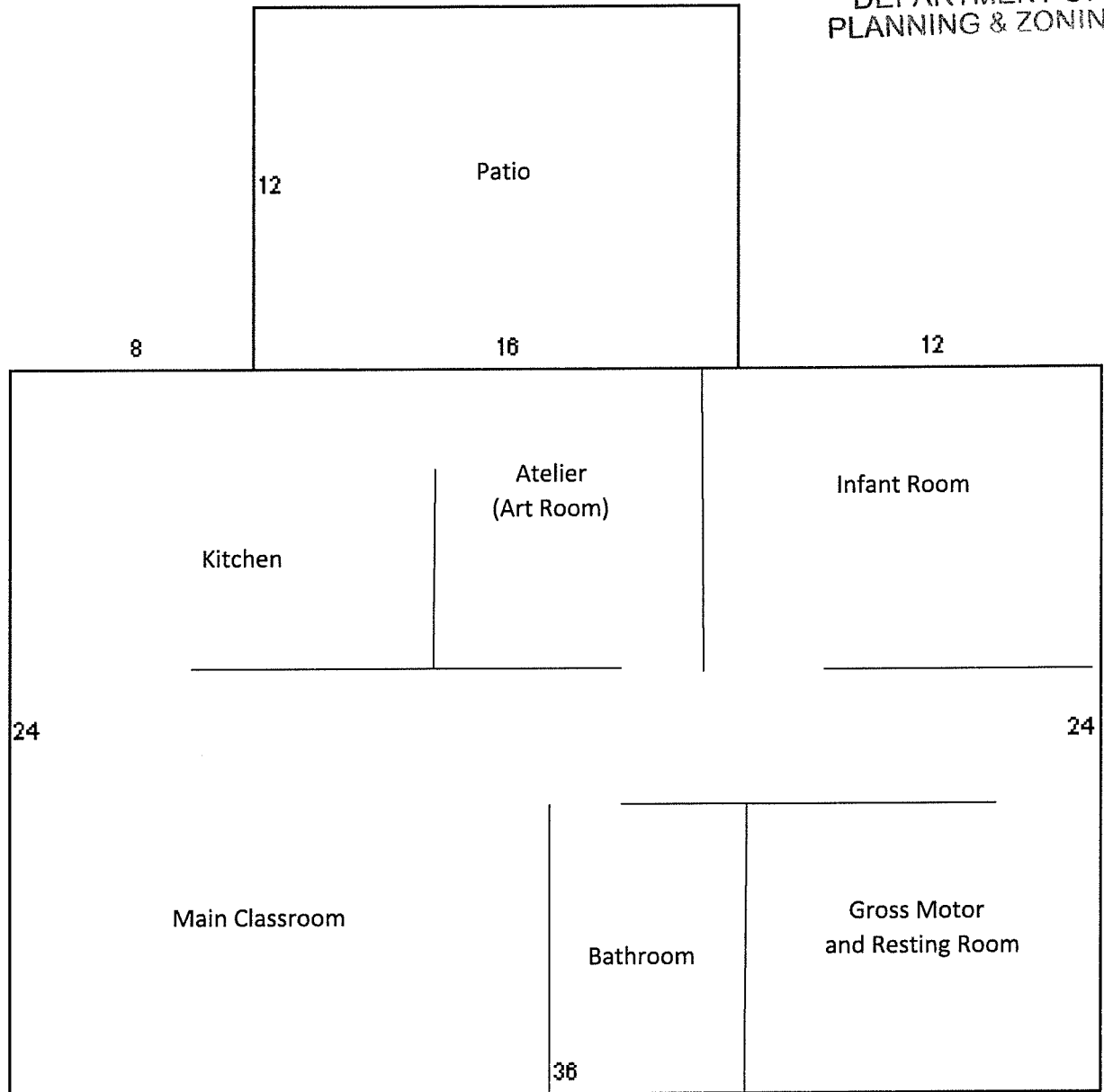
RECEIVED

JUL 26 2019

DEPARTMENT OF
PLANNING & ZONING

RECEIVED
JUL 26 2019

DEPARTMENT OF
PLANNING & ZONING



Interior diagram of 68 Gazo Avenue for the Conditional Use of an
Early Childhood Education Program

68 Gazo Avenue



20 10 0 20 Feet



Department of Permitting & Inspections

Zoning Division
149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Ted Miles, Zoning Specialist
Charlene Orton, Permitting & Inspections Administrator



MEMORANDUM

To: Development Review Board
From: Ryan Morrison, Associate Planner
Date: August 20, 2019
RE: ZP20-0102CA/CU; 132 Spruce Street

Note: These are staff comments only. Decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

File: ZP20-0102CA/CU

Location: 132 Spruce Street

Zone: RL **Ward:** 6S

Date application accepted: July 23, 2019

Applicant/ Owner: Lewis Creek Company / Karen Nordstrom & Ernesto Mendez

Parking District: Neighborhood

Request: Construct a 2-story replacement garage, with attached patio. The second floor will contain an accessory dwelling unit. Also, replace the concrete driveway with a widened gravel driveway.

Applicable Regulations:

Appendix A (Use Table – All Zoning Districts), Article 3 (Applications, Permits, and Project Reviews), Article 4 (Zoning Maps & Districts), Article 5 (Citywide General Regulations), Article 6 (Development Review Standards), Article 8 (Parking)

Background:

- **Zoning Permit Not-Applicable 12-1040NA;** replace existing asphalt shingle roof on garage with new asphalt shingles. May 2012.
- **Zoning Permit 12-1261CA;** addition of wooden stockade fence, new deck, garage roof, and change windows to sliding doors. July 2012.
- **Zoning Permit 14-0520AP;** appeal of communication as-built approval under ZP12-1261CA for a change of fence style to chain link, and that the fence encroaches too close to and onto the adjacent property. Admin decision upheld May 2014.
- **Zoning Permit Not-Applicable 17-0422NA;** in-kind deck/porch replacement. September 2016.
- **Zoning Permit 18-0673CA;** demo and rebuild garage. Denied May 2018.
- **Zoning Permit 18-0792CA;** replacement window and door. March 2018.
- **Zoning Permit 19-0460CA;** complete demolition of detached garage destroyed by fallen tree. December 2018.
- **Zoning Permit 19-1025CA;** replace concrete driveway with gravel driveway, construct unheated garage structure. June 2019 – Superseded by this zoning permit.

Overview:

The applicant proposes to construct a new detached, two-story garage with an attached patio, and to replace the concrete driveway with a gravel driveway. The second floor of the garage is proposed to be used as an accessory dwelling unit. The 11,250 sf parcel contains a single family residence.

Recommendation: Certificate of Appropriateness and Conditional Use Approval, per the following findings and conditions:

I. Findings**Appendix A:**

Accessory Dwelling Unit (ADU) is a Permitted Use in the RL zoning district. However, Section 5.4.5 (b) CDO, lists three instances when accessory dwelling units are required to obtain conditional use approval. These include when there will be a new accessory structure to accommodate the ADU, when there is an increase in habitable floor area of the existing dwelling, and when there is an increase in the dimension of a parking area. The proposal involves construction of a new accessory structure for the ADU and widening of the existing driveway to accommodate parking. As a result, conditional use review is required. **Affirmative finding.**

Article 3: Applications, Permits and Project Reviews**Part 5: Conditional Use and Major Impact Review****Section 3.5.6 Review Criteria****(a) Conditional Use Review Standards**

Approval shall be granted only if the DRB, after public notice and public hearing, determines that the proposed conditional use and associated development shall not result in an undue adverse effect on each of the following general standards:

1. *Existing or planned public utilities, facilities, or services are capable of supporting the proposed use in addition to the existing uses in the area;*

The addition of one new residential unit will have minimal impact on public utilities, facilities and services. A letter of confirmation from DPW will be required to assure adequate sewer capacity. Additionally, a state wastewater permit will be required.

Affirmative finding as conditioned.

2. *The character of the area affected as defined by the purpose or purposes of the zoning district(s) within which the project is located, and specifically stated policies and standards of the Municipal Development Plan;*

The property is within an established residential neighborhood and a residential zoning district. The RL zoning district is intended primarily for low-density residential development in the form of single detached dwellings and duplexes. This district is typically characterized by a compact and cohesive residential development pattern reflective of the respective neighborhoods' development history. The MDP provides the following support:

- o *Housing availability and affordability is a fundamental need, and a key determinant in residents' well-being. (MDP, Housing, Page 22).*

- *Modify land development and/or building ordinances regarding accessory dwelling units, and create a program to incentivize their creation through technical assistance, funding, and other means. (MDP, 9.1, Page 54) **Affirmative finding.***
3. *The proposed use will not have nuisance impacts from noise, odor, dust, heat, and vibrations greater than typically generated by other permitted uses in the same zoning district;*
No greater impacts are anticipated than other residential uses in the area. **Affirmative finding.**
 4. *The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street designations and capacity; level of service and other performance measures; access to arterial roadways; connectivity; transit availability; parking and access; impacts on pedestrian, bicycle and transit circulation, safety for all modes; and adequate transportation demand management strategies;*
This parcel fronts on Spruce Street. With sidewalks on both sides, Spruce Street provides adequate vehicular and pedestrian access to the surrounding neighborhood. South Union Street is within walking distance (approx. 320 ft from the subject property), where transit stops are available for travel in either direction. An insignificant amount of additional traffic is anticipated. **Affirmative finding.**
 5. *The utilization of renewable energy resources;*
Nothing within the application prevents the use of wind, solar, water, geothermal or other renewable energy resource. **Affirmative finding.**
and;
 6. *Any standards or factors set forth in existing City bylaws and city and state ordinances.*
The applicant will be required to secure a state wastewater permit, and associated building and trades permits for construction of the new structure. **Affirmative finding as conditioned.**

(c) Conditions of Approval

In addition to imposing conditions of approval necessary to satisfy the General Standards specified in (a) or (b) above, the DRB may also impose additional conditions of approval relative to any of the following:

1. *Mitigation measures, including but not limited to screening, landscaping, where necessary to reduce noise and glare and to maintain the property in a character in keeping with the surrounding area;*
Not applicable.
2. *Time limits for construction.*
There is a three-year time frame to complete the project.
3. *Hours of operation and/or construction to reduce the impact on surrounding properties.*
Hours of operation do not apply to the proposed accessory dwelling unit. Construction hours are not specified. Typical construction hours in residential areas are Monday –

Friday from 7:30 AM – 5:30 PM. Saturday construction may occur for interior work only. No work on Sunday. **Affirmative finding as conditioned.**

4. *That any future enlargement or alteration of the use return for review to the DRB to permit the specifying of new conditions,*

The size of the proposed ADU is limited to 30% of the total habitable floor area of the building, inclusive of the ADU. The proposed ADU totals 17.1% of total habitable floor area, inclusive of the ADU. Any additional physical alteration to the accessory structure, or change of use, will require review and permitting under regulations in effect at that time.

Affirmative finding as conditioned.

and

5. *Such additional reasonable performance standards, conditions and safeguards as it may deem necessary to implement the purposes of this chapter and the zoning regulations.*

None identified.

Article 4: Zoning Maps and Districts

Section 4.4.5 Residential Districts

(a) Purpose

1. *The Residential Low Density (RL) district is intended primarily for low-density residential development in the form of single detached dwellings and duplexes. The district is typically characterized by a compact and cohesive residential development pattern reflective of the respective neighborhood's development history.*

An accessory dwelling unit to an existing single family residence is proposed within a new garage.

Affirmative finding.

(b) Dimensional Standards and Density

The density and intensity of development, dimensions of building lots, the heights of buildings and their setbacks from property boundary lines, and the limits on lot coverage shall be governed by the following standards:

Table 4.4.5-1 Minimum Lot Size and Frontage: RL, RL-W, RM and RM-W.

Single detached dwelling, RL Minimum 60' frontage, RL Minimum 6,000 sq ft lot size.

132 Spruce Street is an 11,250 sq ft lot, with 75 feet of frontage. **Affirmative finding.**

Table 4.4.5-2 Base Residential Density

Not applicable per Section 5.4.5 (a) below.

Table 4.4.5-3 Residential District Dimensional Standards

Setbacks – Front yard: the average of 2 adjacent lots on both sides, +/- 5 feet. Side yard: 10% of lot width or the average of the side yard setback of 2 adjacent lots on both sides. Rear yard: 25% of lot depth, but in no event less than 20 feet. The rear yard also has a maximum setback of 75'. The new accessory structure will locate in the rear yard, behind the existing home – rendering a front yard setback inapplicable. Given the 75 ft lot width, side yard setbacks are 7.5 ft. The proposed structure will have side yard setbacks greater than 7.5 ft. And given the lot depth of 150 ft, a rear setback minimum of 37.5 ft is required. The proposed structure will be setback 37.5 ft from the rear yard property line.

Maximum Lot Coverage – 35%.

Existing lot coverage totals 23%, and the proposal will result in a total lot coverage of 32%.

Maximum Height – 35 ft.

The height to the ridgeline of the accessory structure will total 26' 11" (22' 6" to the midpoint).

Affirmative finding.

(c) Permitted and Conditional Uses

The garage itself would normally be considered a permitted accessory use. However, because an accessory dwelling unit is proposed within the new garage, and because there will be an increase in parking area, conditional use review is required, as per Sec. 5.4.5 (b). **Affirmative finding.**

(d) District Specific Regulations

1. Setbacks

A. Encroachment for residential driveways

Not applicable.

B. Encroachment into the Waterfront Setback

Not applicable.

2. Height

Not applicable.

3. Lot Coverage

A. Exceptions for Accessory Residential Features

Not applicable.

4. Accessory Residential Structures and Uses

An accessory structure and/or use as provided under Sec. 5.1.1 and 5.1.2 customarily incidental and subordinate to a principal residential use, including but not limited to private garages, carriage houses, barns, storage sheds, tennis courts, swimming pools, cabanas for swimming pools and detached fireplaces may be permitted as follows:

A. Accessory Structures shall meet the dimensional requirement set forth in the district in which they are located pursuant to Sec. 4.4.5(b) of this Article and related requirements in Art 5, Part 2;

B. Any accessory structure that is seventy-five percent (75%) or greater of the ground floor area of the principle structure shall be subject to the site plan and design review provisions of Art. 3, Part 4 and the applicable standards of Art 6;

C. Private garages shall be limited to as many stalls as there are bedrooms in the dwelling to which it is accessory, provided that the ground floor area is less than seventy-five percent (75%) of the ground floor area of the principle structure;

D. The outdoor overnight storage of commercial vehicles not otherwise associated with an approved home occupation or made available for the exclusive use of the residential occupants, or the outdoor storage of more than one unregistered vehicle, shall be prohibited. Any and all vehicles shall be stored in an approved parking space; and,

E. Uncovered play structures, seasonal skating rinks, raised planting beds shall not require a zoning permit.

The proposed accessory structure meets the dimensional requirements of the RL zoning district, pursuant to Sec. 4.4.5 (b) and Article 5, Part 2. Subsections B-D above do not apply. **Affirmative finding.**

5. *Residential Density*

A. *Additional Unit to multi-family*

Not applicable.

B. *Additions to Existing Residential Structures*

Not applicable.

C. *Residential Occupancy Limits*

In all residential districts, the occupancy of any dwelling unit is limited to members of a family as defined in Article 13.

The residential occupancy provisions of the ordinance apply to primary residence, and Sec. 5.4.5 (a) – below, will apply to the accessory dwelling unit. **Affirmative finding.**

6. *Uses*

A. *Exception for Existing Neighborhood Commercial Uses*

Not applicable.

7. *Residential Development Bonuses*

Not applicable.

Article 5: Citywide General Regulations

Part 2: Dimensional Requirements

Section 5.2.1 Existing Small Lots

Not applicable.

Section 5.2.2 Required Frontage or Access

132 Spruce Street has 75 ft of street frontage, exceeding the 60 ft minimum frontage. **Affirmative finding.**

Section 5.2.3 Lot Coverage Requirements

The maximum lot coverage allowance in the RL zoning district is 35%. The project will result in 32% of total lot coverage. **Affirmative finding.**

Section 5.2.4 Buildable Area Calculation

Not applicable.

Section 5.2.5 Setbacks

(b) Exceptions to Yard Setback Requirements

(4) Accessory Structures and Parking Areas.

Accessory structures no greater than fifteen (15) feet in height... may project into a required side and rear yard setback provided they are no less than five (5) feet from a side or rear property line where such a setback is required.

This exception does not apply to the garage structure. It does, however, apply to the patio behind the garage. **Affirmative finding.**

Section 5.2.6 Building Height Limits

(a) Height Measurement

2. *Ending Point: Building height shall be measured to:*

(b) Pitched Roof: the midpoint of the rise between the roof plate and the ridge of the highest gable of a pitched roof...

The new accessory structure will measure 26 ft 11 in to the ridge. The midpoint of the pitched roof will measure 22 ft 6 in in height. As noted above, this height is less than the maximum allowed height for the property. **Affirmative finding.**

Section 5.2.7 Density and Intensity of Development Calculations

Not applicable per Sec. 5.4.5 (a) below.

Part 4: Special Use Regulations

Section 5.4.5 Accessory Dwelling Units

(a) Accessory Units, General Standards/Permitted Uses

Where there is a primary structure on a lot which exists as an owner-occupied single family residence, one accessory dwelling unit, that is located within or appurtenant to such single family dwelling, shall be allowed as a permitted use if the provisions of this subsection are met. An accessory dwelling unit means an efficiency or one bedroom apartment that is clearly subordinate to the primary dwelling, and has facilities and provisions for independent living, including sleeping, food preparation, and sanitation. No accessory unit shall be inhabited by more than 2 adult occupants. An accessory unit shall not be counted as a dwelling unit for the purposes of density calculation.

The property is currently an owner occupied single family use. The proposed one-bedroom accessory dwelling unit will be located in an appurtenant structure. The floor plan identifies a bathroom, kitchen area, and living space. No more than 2 adult occupants can be permitted to reside within this accessory dwelling. **Affirmative finding as conditioned.**

Additionally, there must be compliance with all the following:

1. *The property has sufficient wastewater capacity as certified by the Department of Public Works;*

The applicant will be required to secure a letter of adequate capacity from DPW for water and sewer services. **Affirmative finding as conditioned.**

2. *The unit does not consist of more than 30 percent of the total habitable floor area of the building, inclusive of the accessory dwelling unit;*

The main residence has 1,019 sf of habitable floor area. The proposed accessory structure will have a footprint of 437 sf, and 365 sf of second story habitable floor area will be dedicated to the ADU. By including the ADU with the habitable space of the existing home, the combined habitable space totals 2,138 sf. 30% of 2,138 is 641.4 sf. The 365 sf ADU space is 17.1% of the overall habitable space, well under the 30% maximum allowance. **Affirmative finding.**

3. *Applicable setback and coverage requirements are met;*

See Table 4.4.5-3 above. Setback and coverage requirements are met. **Affirmative finding.**

4. *One additional parking space which may be legally allocated to the necessary unit must be provided for the accessory unit;*

The site plan shows a total of 3 parking spaces, 2 that are required for the main residence, and 1 required for the accessory dwelling unit. **Affirmative finding.**
and

5. *A deed or instrument for the property shall be entered into the land records by the owner containing a reference to the permit granting the accessory unit prior to the issuance of the certificate of occupancy for the unit. Such reference shall identify the permit number and note that the property is subject to the permit and its terms and conditions including owner occupancy. No certificate of occupancy shall be issued for the unit unless the owner has recorded such a notice.*

A condition of approval will ensure this. **Affirmative finding as conditioned.**

(b) Conditional Use Approval for Accessory Units

If any of the following are also proposed, conditional use approval, as well as development review provisions of Article 6 shall be required:

1. *A new accessory structure;*

The ADU will be located within a new accessory structure. As a result, conditional use approval is required. **Affirmative finding.**

2. *An increase in the height or habitable floor area of the existing dwelling;*

Not applicable.

3. *An increase in the dimensions of any parking area.*

There will be an increase to the dimension of the parking area/driveway to accommodate required parking. As a result, conditional use approval is required. **Affirmative finding.**

(c) Discontinuance of Accessory Units

Approval of an accessory dwelling unit is contingent on owner occupancy of the single-family dwelling unit as a primary residence. For purposes of this section, owner occupancy means that, after the creation of the accessory unit all individuals listed on the deed for the property must reside in the primary unit or in the accessory unit. If either the primary unit or the accessory unit is no longer owner occupied as a primary residence, the approval for the accessory dwelling unit is void and the kitchen of the accessory dwelling unit must be removed within 90 days with the entirety of the property being occupied as a single unit. When an accessory unit that is the result of additional square footage and/or a new accessory structure is proposed to be removed, revised floor plans and a revised site plan shall be required to be submitted for review and approval. Furthermore, where additional square footage is added to a single family home for purposes of creating an accessory unit and the accessory unit is at any point discontinued, none of the

additional square footage shall be eligible for the purposes of increasing the number of unrelated adults that may be allowed to inhabit the property.

This will be a condition of the permit. **Affirmative finding as conditioned.**

Section 5.4.8 Historic Buildings and Sites

The existing home, and old garage, is listed on the National Register of Historic Places. However, a zoning permit was issued in December, 2018 (ZP19-0460CA) to demolish the garage – which had previously been severely damaged by a fallen tree. Therefore, there is no historic garage to preserve. **Not applicable.**

Section 5.4.9 Brownfield Remediation

Not applicable.

Part 5: Performance Standards

Section 5.5.1 Nuisance Regulations

Nothing within the application suggests non-compliance with applicable nuisance regulations and performance standards per the requirement of the Burlington Code of Ordinances. **Affirmative finding.**

Section 5.5.2 Outdoor Lighting

The elevation plans show exterior lighting, however the application submittal did not include light fixture cut sheets. The applicant will be required to submit the required lighting information for administrative review and approval prior to the release of the zoning permit. The lighting must comply with the lighting standards of Sec. 5.5.2. **Affirmative finding as conditioned.**

Section 5.5.3 Stormwater and Erosion Control

Because ground disturbance will exceed 400 sf, an Erosion Prevention and Sediment Control plan will need to be submitted to the Stormwater Program Manager for review and approval.

Affirmative finding as conditioned.

Section 5.5.4 Tree Removal

Not applicable.

Article 6: Development Review Standards

Part 1: Land Division Design Standards

Not applicable.

Part 2: Site Plan Design Standards

Sec. 6.2.2 Review Standards

(a) Protection of Important Natural Features:

The subject property contains no important natural features as identified in the Open Space Protection Plan. **Affirmative finding.**

(b) Topographical Alterations:

The site has a gentle east-to-west downslope (elevation change between 274' to 268'). There appear to be no major topographical alterations proposed. In addition to the new structure and rear patio, the driveway will be modified to accommodate the required number of parking spaces.

There are no topographical changes proposed for the remainder of the property. **Affirmative finding.**

(c) Protection of Important Public Views:

The subject property is not affected by any identified public view corridor. **Affirmative finding.**

(d) Protection of Important Cultural Resources:

The demolished garage was constructed in 1927, and was included in the South Willard Street Historic District (National Historic Register). However, last year a fallen tree destroyed the garage, and a zoning permit (19-0460CA) was issued to allow for its complete removal. Issuance of that zoning permit acknowledged a complete loss of the historic garage, and thus, the replacement garage is not subject to the historic preservation standards of the CDO.

The existing house, built in 1927 as well, remains intact as a contributing historic resource of the South Willard Street Historic District. No changes to the house are proposed. **Affirmative finding.**

(e) Supporting the Use of Renewable Energy Resources:

No part of this application would preclude the use of wind, water, geothermal or other renewable energy resource. **Affirmative finding.**

(f) Brownfield Sites:

The property is not listed on the Department of Environmental Conservation's brownfield list. Not applicable.

(g) Provide for nature's events:

Special attention shall be accorded to stormwater runoff so that neighboring properties and/or the public stormwater drainage system are not adversely affected. All development and site disturbance shall follow applicable city and state erosion and stormwater management guidelines in accordance with the requirements of Art 5, Sec 5.5.3.

Design features which address the effects of rain, snow, and ice at building entrances, and to provisions for snow and ice removal or storage from circulation areas shall also be incorporated.

The applicant will be required to submit a Stormwater Management Plan and Erosion Prevention and Sediment Control Plan to the Stormwater Program Manager, for review and approval. The elevation plans indicate covered entries to the garage structure. The site plan indicates ample room for snow storage along the side of the driveway and new garage. **Affirmative finding as conditioned.**

(h) Building Location and Orientation:

The lot fronts on Spruce Street. Since the proposed garage will be in the rear, the location and orientation of the existing home along the streetscape will remain the same. **Affirmative finding.**

(i) Vehicular Access:

Vehicular access will remain as existing. Parking-wise, the three required spaces will locate as follows: 2 tandem spaces (one in the garage and one in the driveway), and 1 space to the side of the other driveway parking space. **Affirmative finding.**

(j) Pedestrian Access:

Pedestrian access to the property will remain unchanged. Pedestrian access to the garage will be made available in two locations: the first will be to the side of the garage door, which will provide direct access to the upstairs ADU, and the second will locate on the west side of the garage, providing access to the garage itself. A walkway leading to the side door will be constructed.

Affirmative finding.

(k) Accessibility for the Handicapped:

Compliance with ADA standards is under the jurisdiction of the building inspector. **Affirmative finding.**

(l) Parking and Circulation:

As required by the Comprehensive Development Ordinance, 3 parking spaces are required for the overall use. The site plan indicates 3 parking spaces (two tandem, plus one additional space in the driveway). The driveway gains access directly off Spruce Street. **Affirmative finding.**

(m) Landscaping and Fences:

There is no new landscaping proposed. Existing landscaping at the front of the home includes evergreen shrubs. The east side of the property is lined with a few larger trees. A picket fence lines the front property lines of the lot. No new fencing is proposed. **Affirmative finding.**

(n) Public Plazas and Open Space:

There are no identified public plazas on the site, nor on adjacent properties. **Affirmative finding.**

(o) Outdoor Lighting:

Where exterior lighting is proposed the applicant shall meet the lighting performance standards as per Sec 5.5.2.

The elevation plans show exterior lights to be located next to all entrance doors, and the upper balcony. Spec sheets have not yet been submitted for review, but all exterior lights must comply with the lighting standards of Sec. 5.5.2 CDO. **Affirmative finding as conditioned.**

(p) Integrate infrastructure into the design:

Exterior storage areas, machinery and equipment installations, service and loading areas, utility meters and structures, mailboxes, and similar accessory structures shall utilize setbacks, plantings, enclosures and other mitigation or screening methods to minimize their auditory and visual impact on the public street and neighboring properties to the extent practicable.

Trash/recycling storage will locate within the garage, creating no visual impact. No other machinery/equipment, service/loading areas, utility meters, etc. are noted on the plans.

Utility and service enclosures and screening shall be coordinated with the design of the principal building, and should be grouped in a service court away from public view. On-site utilities shall be place underground whenever practicable. Trash and recycling bins and dumpsters shall be located, within preferably, or behind buildings, enclosed on all four (4) sides to prevent blowing trash, and screened from public view.

There is no indication of a new utility meter or other mechanical equipment. Any new meter will have to be grouped with the existing meter, away from public view.

Any development involving the installation of machinery or equipment which emits heat, vapor, fumes, vibration, or noise shall minimize, insofar as practicable, any adverse impact on neighboring properties and the environment pursuant to the requirements of Article 5, Part 4 Performance Standards.

See above. No machinery or equipment have been identified in the plans. **Affirmative finding as conditioned.**

Part 3: Architectural Design Standards
Sec. 6.3.2 Review Standards

(a) Relate development to its environment:

1. Massing, Height and Scale:

The proposed garage will exceed the height of the previous garage by one story, as well as occupy a slightly larger footprint. It will, however, locate closer to the home to meet the rear yard setback requirement. Given the massing and height of the existing home, the new garage won't be easily visible from the public street, except if one was to look directly down the driveway. The height is consistent with neighboring buildings. **Affirmative finding.**

2. Roofs and Rooflines.

The garage will have a gable-style roof, which is similar to the roof of the residential structure, as well as other structures in the vicinity. Asphalt shingles will cover the roof, and three skylight windows will locate on the roof's west side. **Affirmative finding.**

3. Building Openings

Elevation drawings show various types of openings for the garage. The front (south) elevation will have the garage door and one man door, two single hung windows on the second floor, and a fixed window in the gable end. The rear (north) elevation will only contain an awning window in the gable end. The east (side) elevation will contain one single hung window at the second level, toward the rear. The west (side) elevation will be the busiest side with openings. On the ground level, a man door and two single hung windows are proposed. The second floor includes sliding doors opening to the balcony, and two single hung windows. As mentioned above, there will be three skylight windows on the roof, facing west. Placement of the various openings provides a symmetry to the overall feel of the structure. **Affirmative finding.**

(b) Protection of Important Architectural Resources:

Burlington's architectural and cultural heritage shall be protected through sensitive and respectful redevelopment, rehabilitation, and infill. Where the proposed development involves buildings listed or eligible for listing on a state or national register of historic places, the applicant shall meet the applicable development and design standards pursuant to Sec. 5.4.8. The introduction of new buildings to a historic district listed on a state or national register of historic places shall make every effort to be compatible with nearby historic buildings.

See Section 6.2.2 (d), above.

(c) Protection of Important Public Views:

See Section 6.2.2. (c), above.

(d) *Provide an active and inviting street edge:*

Since the garage is locating behind the home, the street edge will remain as existing. **Affirmative finding.**

(e) *Quality of materials:*

All development shall maximize the use of highly durable building materials that extend the life cycle of the building, and reduce maintenance, waste, and environmental impacts. Such materials are particularly important in certain highly trafficked locations such as along major streets, sidewalks, loading areas, and driveways. Efforts to incorporate the use of recycled content materials and building materials and products that are extracted and/or manufactured within the region are highly encouraged.

The garage will be sided with Lifespan Solid Select clapboard siding. Lifespan Solid Select siding is described as ‘a premium solid exterior trim product offering a superior clean finish, outstanding performance, and the benefits of real wood... it’s real wood at its finest.’ The windows and sliding door will be of a vinyl material. The garage door will be steel-frame, and the man doors will be of a fiberglass material. These materials tend to have long lifespans. **Affirmative finding.**

(f) *Reduce energy utilization:*

All new construction is required to meet the Guidelines for Energy Efficient construction according to the requirements of Article VI. Energy Conservation, Section 8 of the City of Burlington Code of Ordinances. **Affirmative finding as conditioned.**

(g) *Make advertising features complementary to the site:*

There is no signage included with the proposal.

(h) *Integrate infrastructure into the building design:*

See Section 6.2.2. (p), above.

(i) *Make spaces secure and safe:*

All development is required to meet applicable building and life safety codes as defined by the building inspector and fire marshal. **Affirmative finding as conditioned.**

Article 8: Parking

Table 8.1.8-1 Minimum Off-Street Parking Requirements

Single family uses require two parking spaces in the Neighborhood Parking District. Section 5.4.5

(a) (4), above, sets the parking requirement of one space for accessory dwelling units. The site plan shows parking for three vehicles, one in the garage and two in the driveway. **Affirmative finding.**

Section 8.1.11 Parking Dimensional Requirements

The standards in Table 8.1.11-1 below shall be used to ensure safe, adequate, and convenient access and circulation. These standards shall be adhered to except in situations where a lesser standard is deemed necessary by the DRB due to site topography, location of existing or proposed structures, lot configuration, and/or the need to preserve existing trees and mature vegetation.

Table 8.1.11-1 Minimum Parking Dimensions

The minimum parking space dimension is 9' x 20'. Both the garage parking space and the driveway parking spaces exceed the parking space minimum dimensions. **Affirmative finding.**

II. Conditions of Approval

1. **Prior to the release of the zoning permit**, the applicant shall submit a stormwater management plan and an erosion prevention and sediment control plan to the Stormwater Program Manager for review and approval.
2. **Prior to release of the zoning permit**, the applicant shall submit exterior light fixture spec sheets to staff for review and approval.
3. **Prior to release of the zoning permit**, the applicant shall secure a letter of adequate capacity from DPW for water and sewer services.
4. No more than 2 adults shall inhabit the accessory dwelling unit.
5. Any additional physical alteration or change of use to the accessory dwelling unit will require a new zoning permit, subject to regulations in effect at the time of permit application submittal.
6. **Prior to the issuance of a certificate of occupancy**, a deed or instrument for the property shall be entered into the land records by the owner containing a reference to the permit granting the accessory unit. The reference shall identify the permit number and note that the property is subject to the permit and its terms and conditions including owner occupancy.
7. If either the primary unit or the accessory unit is no longer owner occupied as a primary residence, the approval for the accessory dwelling unit is void and the kitchen of the accessory dwelling unit must be removed within 90 days with the entirety of the property being occupied as a single unit.
8. If a new utility meter will be installed, it shall be located next to the existing meter, and out of view from the public street.
9. Construction hours shall be limited to Monday – Friday from 7:30 AM – 5:30 PM. Saturday construction may occur for interior work only. No construction activity on Sunday.
10. A state wastewater permit will be required, and is the responsibility of the applicant to secure.
11. The applicant shall secure all associated trades permits for the project.
12. The applicant/property owner is responsible for obtaining all necessary Zoning Permits and Building Permits through the Department of Public Works as well as other permit(s) as may be required, and shall meet all energy efficiency codes of the city and state as required.
13. Standard Permit Conditions 1-15.



RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING

PROJECT NOTES:

THIS PLAN SET, COMBINED WITH THE BUILDING CONTRACT, PROVIDES BUILDING DETAILS FOR THE RENOVATION PROJECT. THE LEAD CARPENTER SHALL VERIFY THAT SITE CONDITIONS, AND DIMENSIONS ARE CONSISTENT WITH THESE PLANS BEFORE STARTING WORK. WORK NOT SPECIFICALLY DETAILED SHALL BE CONSTRUCTED TO THE SAME QUALITY AS SIMILAR WORK THAT IS DETAILED. ALL WORK SHALL BE DONE IN ACCORDANCE WITH INTERNATIONAL BUILDING AND LOCAL CODES.

WRITTEN DIMENSIONS AND SPECIFIC NOTES SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS AND GENERAL NOTES. THE SALE PERSON/DESIGNER SHALL BE CONSULTED FOR CLARIFICATION IF SITE CONDITIONS ARE ENCOUNTERED THAT ARE DIFFERENT THAN SHOWN, IF DISCREPANCIES ARE FOUND IN THE PLANS OR NOTES, OR IF A QUESTION ARISES OVER THE INTENT OF THE PLANS OR NOTES. CARPENTER OR SUB-CONTRACTOR SHALL VERIFY AND IS RESPONSIBLE FOR ALL DIMENSIONS (INCLUDING ROUGH OPENINGS).

ALL TRADES SHALL MAINTAIN A CLEAN WORK SITE AT THE END OF EACH WORK DAY.

PLEASE SEE ADDITIONAL NOTES CALLED OUT ON OTHER SHEETS.

PROJECT PLAN

OWNER: Karen Nordstrom & Ernesto Mendez
PROJECT ADDRESS: 132 Spruce Street
Burlington, VT
BLDG PERMIT:
DESIGNER: Emily Morse

INDEX OF DRAWINGS	
TITLE	SHEET
PROJECT SUMMARY	1
PLOT PLAN	2
FLOOR PLANS	3
FLOOR PLANS	4
FRONT/REAR ELEVATIONS	5
EXTERIOR ELEVATIONS	6
EXTERIOR ELEVATION	7



LEWIS CREEK
COMPANY

132 Spruce Street
Burlington, VT 05401

Lewis Creek Company
18a Morse Drive, Essex Junction, VT 05452

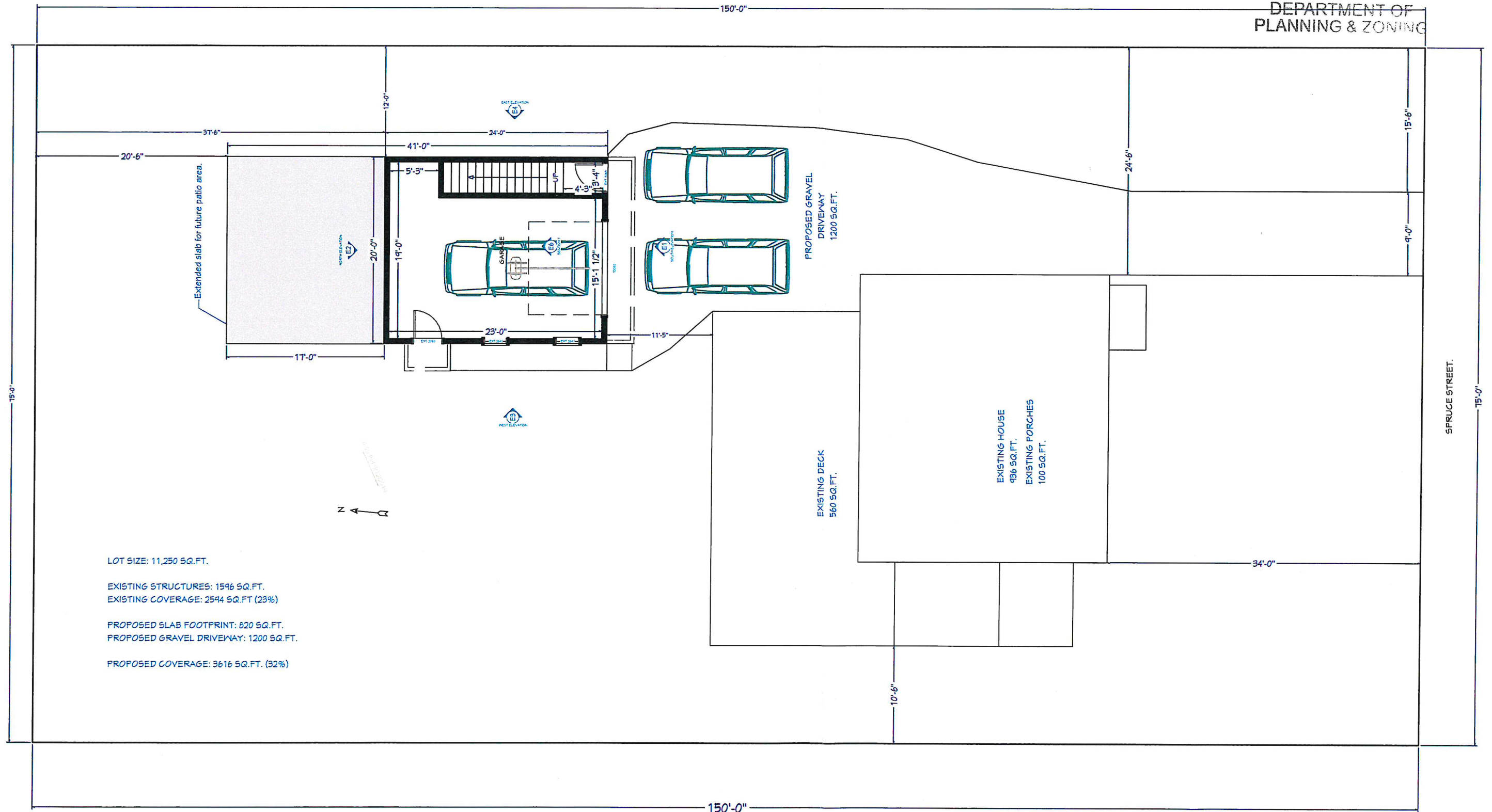
PRESENTATION

SCALE: SEE VIEW
DATE: 7/23/2019

SHEET NUMBER

RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING



LOT SIZE: 11,250 SQ. FT.
EXISTING STRUCTURES: 1596 SQ. FT.
EXISTING COVER: 2544 SQ. FT. (23%)
PROPOSED SLAB FOOTPRINT: 820 SQ. FT.
PROPOSED GRAVEL DRIVEWAY: 1200 SQ. FT.
PROPOSED COVER: 3616 SQ. FT. (32%)



PLOT PLAN
SCALE: 3/32" = 1'

132 Spruce Street
Burlington, VT 05401

Lewis Creek Company
18a Morse Drive Essex Junction VT 05452

PLOT

SCALE: SEE VIEW
DATE: 7/23/2019

SHEET NUMBER

RECEIVED
JUL 23 2019

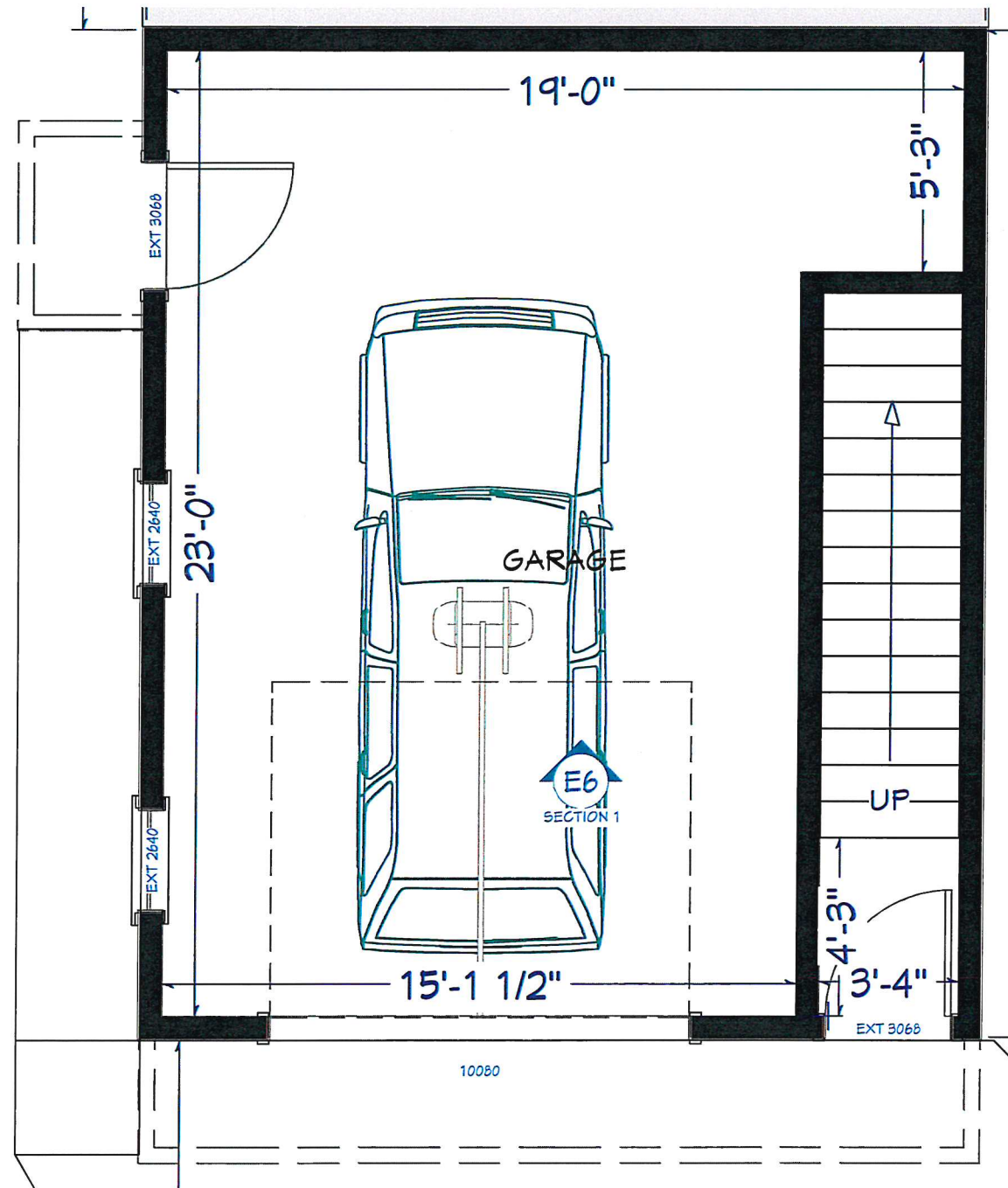
DEPARTMENT OF
PLANNING & ZONING

SHEET NUMBER
SCALE: SEE VIEW
DATE: 7/23/2019

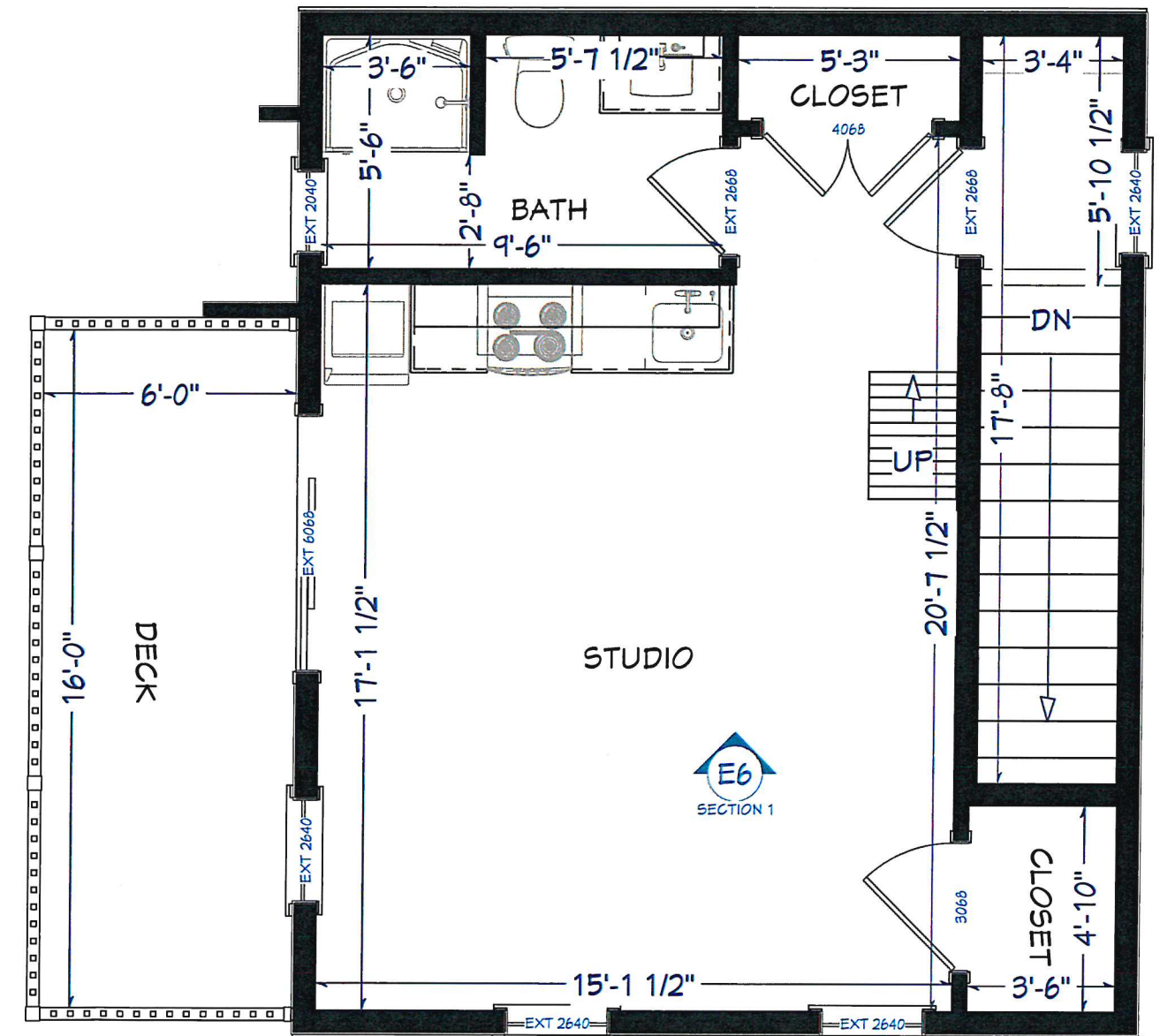
FLOOR PLANS

132 Spruce Street
Burlington, VT 05401

Lewis Creek Company
18a Morse Drive Essex Junction VT 05452



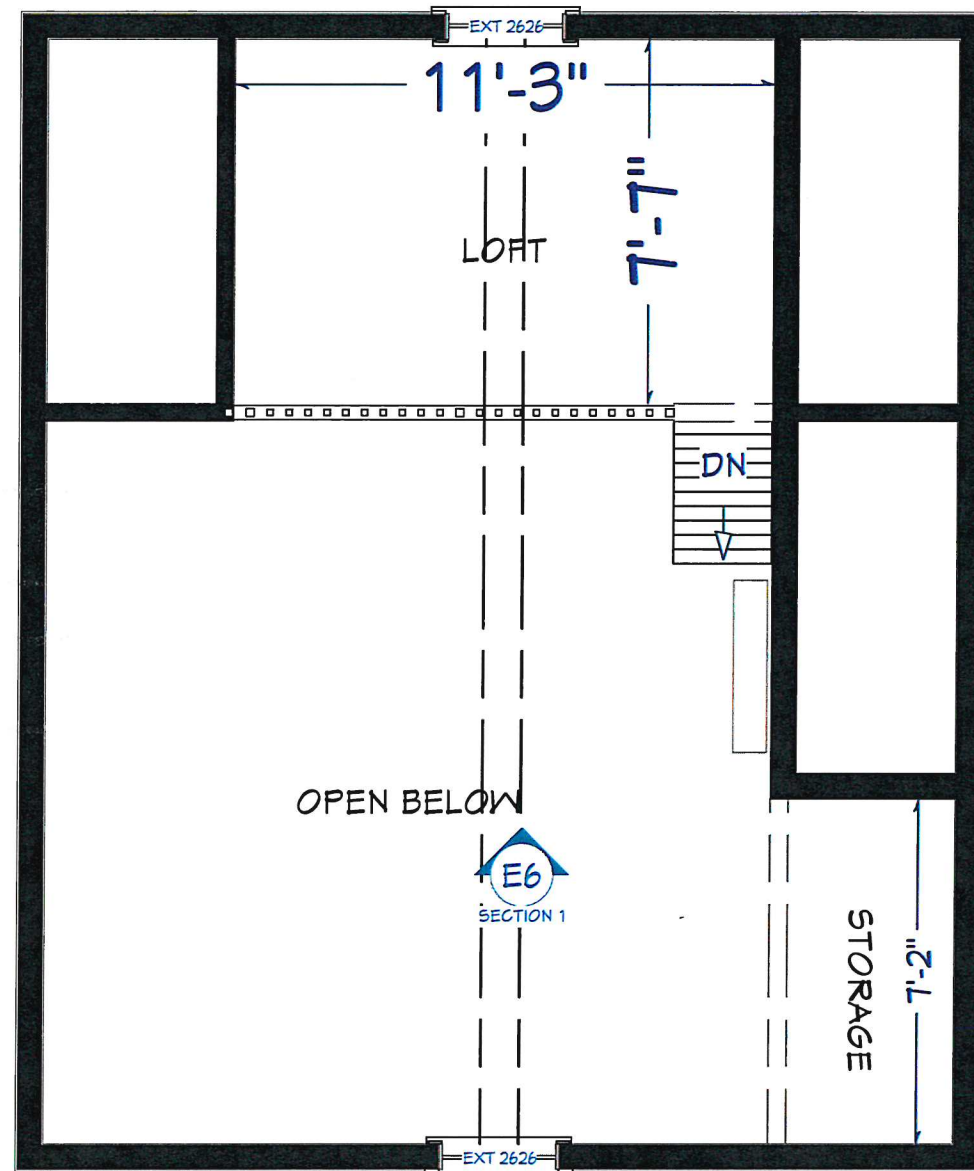
FIRST FLOOR
SCALE: 1/4" = 1'



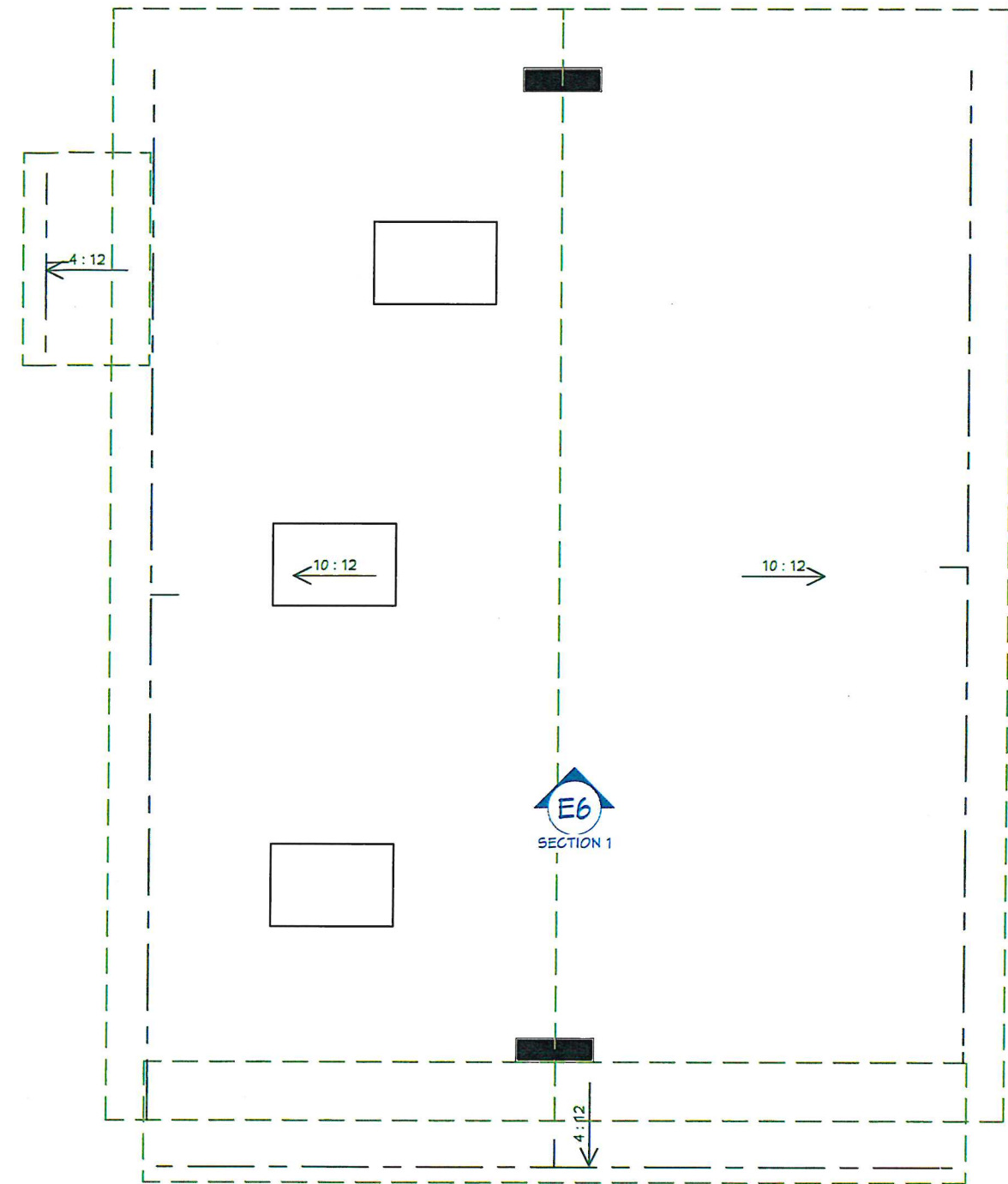
SECOND FLOOR
SCALE: 1/4" = 1'

RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING



LOFT
SCALE: 1/4" = 1'



ROOF PLAN
SCALE: 1/4" = 1'

132 Spruce Street
Burlington, VT 05401

Lewis Creek Company
18a Morse Drive Essex Junction VT 05452

SCALE: SEE VIEW
DATE: 7/23/2019

FLOOR PLANS

SHEET NUMBER

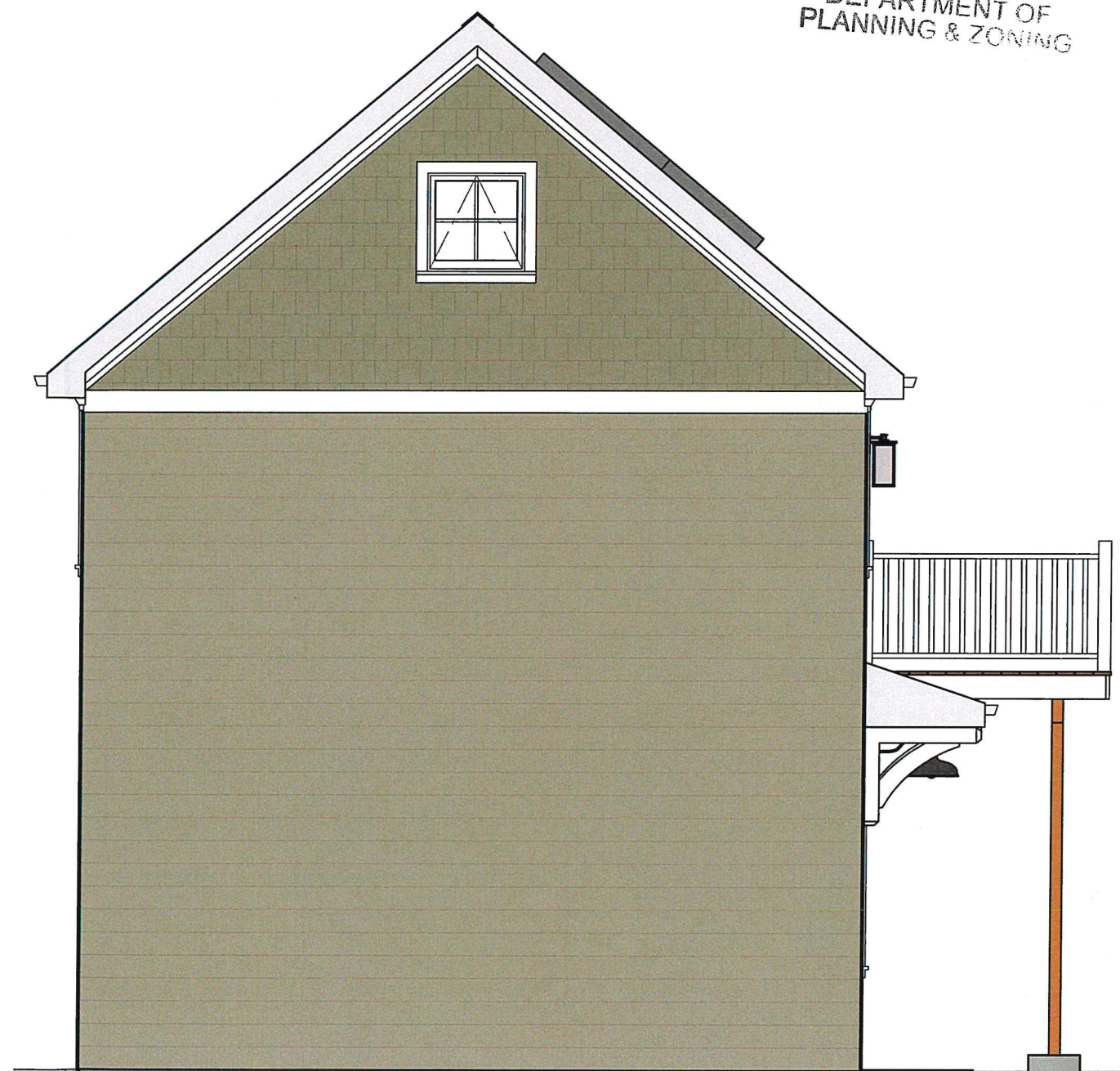
RECEIVED
JUL 23 2019

JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING



SOUTH ELEVATION
SCALE: 1/4" = 1'



NORTH ELEVATION
SCALE: 1/4" = 1'



132 Spruce Street
Burlington, VT 05401

Lewis Creek Company
18a Morse Drive Essex Junction VT 05453

EXTERIOR

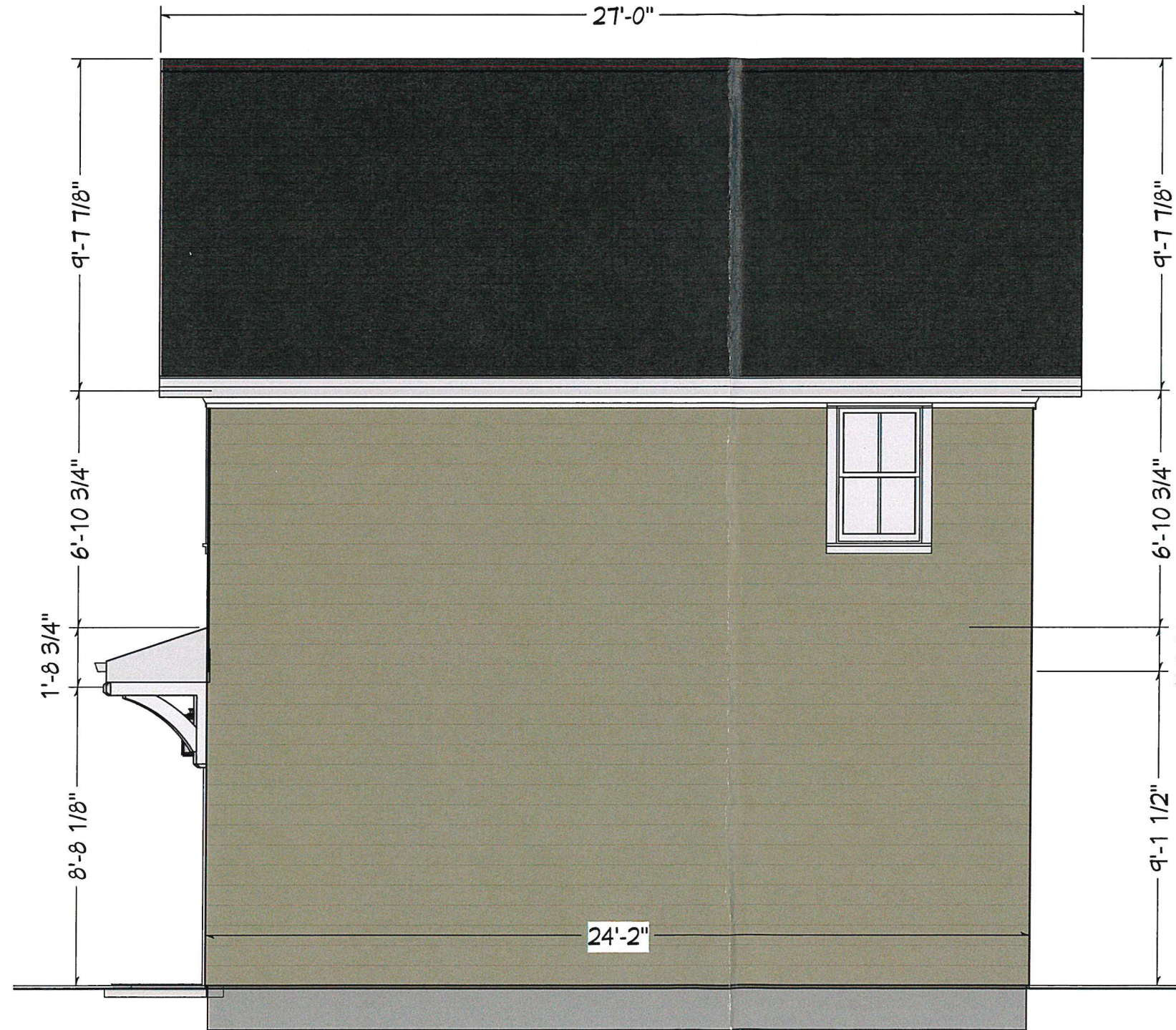
SCALE: SEE VIEW

SHEET NUMBER



RECEIVED
 JUL 23 2019
 DEPARTMENT OF
 PLANNING & ZONING

WEST ELEVATION
 SCALE: 1/4" = 1'

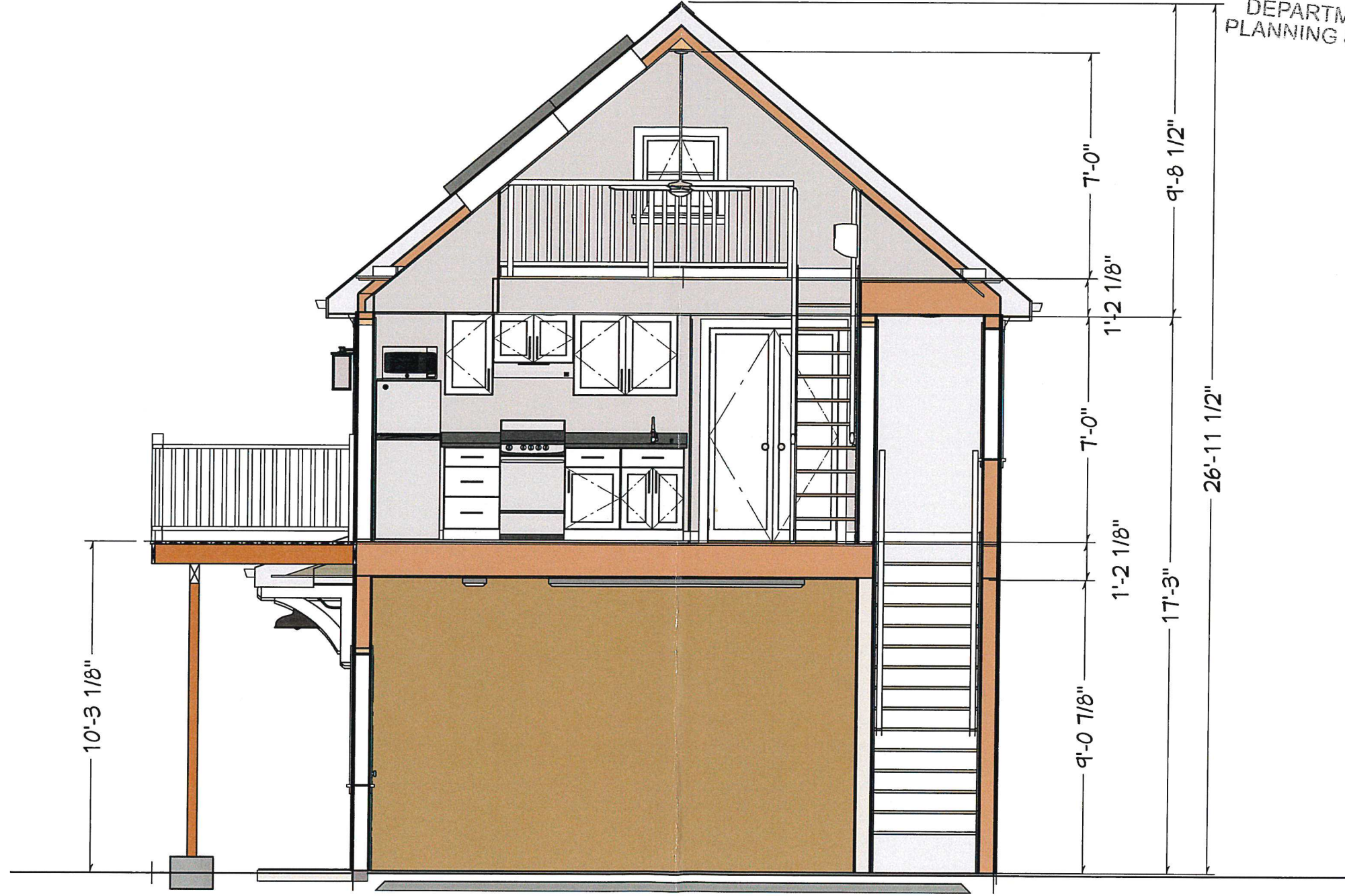


RECEIVED

JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING





RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

Ryan Morrison

From: Laura Massell
Sent: Friday, August 09, 2019 11:48 AM
To: Ryan Morrison
Subject: Fw: Garage Construction at 132 Spruce St

[WARNING]: External Message

Dear Ryan Morrison,
I sent this to David White, received an out of office message, and am sending it to you as the Associate Planner.

Thank you for your help with these questions.

Laura

From: Laura Massell
Sent: Friday, August 9, 2019 11:15 AM
To: dewwhite@burlingtonvt.gov
Subject: Re: Garage Construction at 132 Spruce St - draft

Dear City of Burlington Zoning officials,

Our neighbors at 132 Spruce Street wrote to us in late May regarding their interest in replacing their small 1 level garage with a 2 story unit to be used for house guests and a rental unit - including air bnb. Their email (below) suggests a potential construction start date in late June. We live at 35 Kingsland Ter, and perhaps because we are not contiguous neighbor, we may have been excluded from any notifications from the city. I am writing because we were out of town for the month of July with no access to email/phone, and would be not happy to see a 2 story rental unit in our back yard view-shed -- without at least a chance to officially weigh in on the project. Have project designs been submitted to the City? If so, is it possible to extend appeal windows on this project?

I've included a copy of our last correspondence with the neighbors, who said they would share a copy of the proposed design, but we haven't yet received one.

Thank you,

Laura Massell
35 Kingsland Ter
802 735 6845

1. Come to the Dept. of Planning and Zoning, **apply for a Zoning Permit** and pay the applicable Fee. Be sure to post the "Z-Card" public notice where it can easily be seen from the street.
2. The permit application is **processed by P&Z staff**. Simple projects can be acted on by staff and usually only take a few days depending on their workload. More complex projects have to be reviewed by the Development Review Board and can take several weeks.
3. Once an application has been approved, there is a **15 day appeal period** required by state law before you can actually get your permit.
4. After the appeal period ends, you will need to come to the Dept. of Planning & Zoning to **sign and pick up your Zoning Permit** - be sure you have completed any pre-release permit conditions and you will need to pay any outstanding Fees.

From: Karen Nordstrom

Sent: Friday, May 24, 2019 1:18 PM

To: Laura Massell; [REDACTED] David Massell

Subject: Re: Garage Construction at 132 Spruce St

Hi Laura,

Thank you for sharing your concern.

Happy to send over drawing and placement, when it's in its penultimate format. As of yet, we've not submitted it to the city.

Kind Regards,
Karen

From: Laura Massell

Date: Friday, May 24, 2019 at 12:16 PM

To: Karen Nordstrom

[REDACTED], David Massell

Subject: Re: Garage Construction at 132 Spruce St

I think it's fair to say that we'd prefer not to have a 2-story building in our backyard view shed.

Would you please send around the proposed building drawing, site placement, and communication you've had with the city about this project?

Thank you,
Laura

From: Karen Nordstrom

Sent: Thursday, May 23, 2019 9:08:02 PM

To: Laurel Broughton; Stefanie Waite; William Purdy; Laura Massell; David Massell

Subject: Garage Construction at 132 Spruce St

Greetings Neighbors,

As you may know, we will be moving forward with garage construction this summer at 132 Spruce St. Because we value our relationships with each of you that share a border with our property, we simply want to gauge your feedback on our plan. We are currently working closely with a Design/ Build team in Burlington on this project, so that our project aligns perfectly with all city codes. As part of this build, we are strongly considering adding a second story apartment to the construction, which will serve our interests to both house guests, and will likely be utilized at times as a rental (long-term or Air B and B format). Our communications with the builder indicate that we will be able to begin this construction in late June. If you have any questions or concerns, please let us know.

Warm Regards,
Karen & Ernesto

LIFESPAN[®]

SOLID SELECT

Lifespan Solid Select at a glance	2
Specifications	3
Product Overview – From Forest To Home	5
Performance	8
Handling and Installation	10
Limited lifetime warranty against fungal decay and insect attack	12
Information Sources	13

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING





Lifespan® Solid Select at a glance

Wood has long been the choice of builders. It is beautiful, versatile and easy to work with. However, wood in an exterior situation is also subject to rot, fungal decay and insect attack. With LIFESPAN SOLID SELECT pressure treated, primed boards, wood now comes with long-lasting durability and low-maintenance peace of mind.

LIFESPAN SOLID SELECT is protected with the combination of a pressure treatment using organic biocides to ward off insects and fungal decay, a proprietary water repellency system to maximize dimensional stability and an alkyd-based primer to provide superior durability against the elements. This allows LIFESPAN SOLID SELECT to be offered with a limited lifetime warranty against fungal decay and insect damage, including termites.

The raw material for LIFESPAN SOLID SELECT comprises high grade clear lumber produced from pruned radiata pine logs. These come only from renewable sources and we utilize leading technology and innovative techniques to maximize the recovery of logs into finished products and minimize waste in our mills.

LIFESPAN SOLID SELECT is manufactured in our Forest Stewardship Council® (FSC®) certified mills (FSC® SCS-COC-00198).

- Limited lifetime substrate warranty against fungal decay and insect damage, including termites
- Manufactured from solid high grade wood with no fingerjoints or knots
- Pressure treated with an EPA approved organic preservative, delivering treatment to the core
- Non-corrosive to fasteners
- FSC® certified
- Multi-layer protection resists water uptake and enhances dimensional stability
- Alkyd primer provides smooth defect-free surface ready for top-coating
- Suitable for exterior and interior needs
- Real wood!!

This Manual has been developed to provide information for the use of LIFESPAN SOLID SELECT in interior and exterior above ground building applications (American Wood Preservers Association (AWPA) UC3A (painted) and UC3B (unpainted) use classes).

Fletcher Wood Solutions

Fletcher Wood Solutions (dba Taupo Wood Solutions) is the USA domiciled sales and marketing division of Tenon Manufacturing, a part of the Tenon Limited group of companies. Tenon Manufacturing operates pine-manufacturing facilities in Taupo, New Zealand and is the largest manufacturer of defect-free, appearance grade radiata pine products in New Zealand.

Fletcher Wood Solutions distributes its clear boards, mouldings, LIFESPAN products, and lumber to the North American market through its proven and completely integrated supply chain. In addition, Fletcher Wood Solutions maintains direct access to one of the largest FSC® certified pine plantation forests in the world, and its manufacturing plants have been certified by the Forest Stewardship Council® (FSC® SCS-COC-00198).

Liability

Fletcher Wood Solutions and Tenon accept neither liability nor responsibility if the information contained in this Manual is incorrectly or inappropriately applied or interpreted, nor if LIFESPAN SOLID SELECT is used in a manner other than as explicitly set out in this Manual.

Fletcher Wood Solutions has taken care to ensure that the information contained in this Manual was correct at the time of writing. However, Fletcher Wood Solutions and Tenon reserve the right to make changes or improvements to this Manual and to LIFESPAN SOLID SELECT without prior notice.

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING



Specifications

Product range

LIFESPAN SOLID SELECT products are suitable for a range of interior and exterior above ground building applications. Examples of such products include:

Exterior Woodwork

- Fascia
- Trim boards: surfaced all sides, eased edges or with one rough-sawn face
- Exterior mouldings (brick mould, lattice, quarter round, etc.)

Siding

- Available in a range of patterns

Windows

- Window components (sash, casement sash, jambs)
 - machined cut stock
- Mouldings: brick mould

Exterior doors

- Door frames
- Stiles, rails (especially door bottoms)
- Sill substrate
- Mouldings: brick mould

Interior Woodwork

- Baseboard
- Crown Backer
- Trim around doors and windows

Quality standards

Material

Manufactured from C & Better Select grade kiln dried, tree farmed, radiata pine – however minor blemishes that will not be visible through a paint coat or affect performance are permitted.

Treatment

Solvent treated with active ingredients tebuconazole, propiconazole and permethrin to 0.08% m/m total azole average (0.06% m/m minimum).

Treatment is in accordance with NZS3640 and AS 1604.1:H3 standards (0.06% minimum), which exceed AWP requirements (0.0185% minimum).

Priming

Two coats high-quality alkyd primer applied at 3-4 wet mils. Total dry film build 3-4 mils.

Quality

No material visible defects: birdseye, tear out, etc. allowed prior to last primer coat.

Machining

Pitch marks 1/16" maximum

Length Tolerance

0+1/2"

Width Tolerance

+0-1/32" (+0-0.5mm) – at time of manufacture.

Thickness Tolerance

+0-1/32" (+0-0.5mm) – at time of manufacture.

Moisture Content

10-15% MC (90% of pieces).

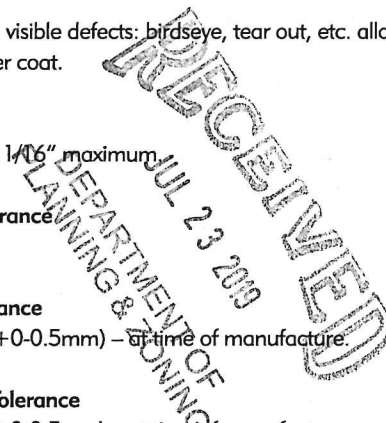
Straightness (as permitted by WWP Lumber Grading Rules)

Cup: 1/32" in up to and including 6", 1/16" in 8", 3/32" in 10", and 1/8" in 12" Bow: 1-1/2" in 16ft.

Crook: 1" in 4", 7/8" in 6", 3/4" in 8", 5/8" in 10", and 1/2" in 12" (All on 16ft basis).

Twist: 1/4" in 4", 3/8" in 6", 1/2" in 8", 5/8" in 10", and 3/4" in 12" (All on 16ft basis).

1. Distortion permitted in occasional pieces
2. Distortion assessed at time of manufacture, there may be some movement in response to atmospheric humidity changes and subsequent moisture content changes after manufacture.

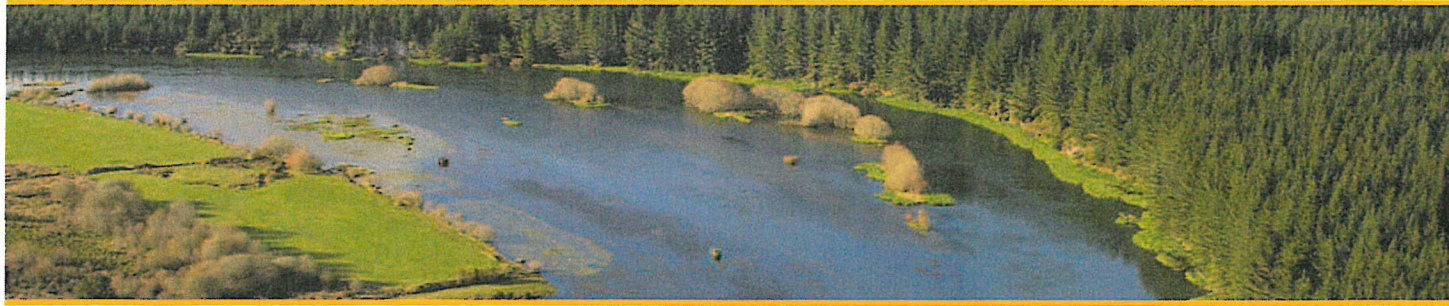




RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

- ▼ 1. Exterior woodwork including fascia, trim boards, exterior mouldings
- ▼ 2. Interior woodwork including trim, crown molder, and baseboard
- ▼ 3. Siding and claddings
- ▼ 4. Exterior doors including frames, stiles, rails, sill substrate, mouldings
- ▼ 5. Window components and mouldings, casement sash, sash jambs



Product Overview – From Forest to Home



Environmental certification

LIFESPAN SOLID SELECT is manufactured with radiata pine from environmentally certified pine tree farms. Our processing mills are certified by the FSC® (www.fsc.org), demonstrating that they meet strict environmental, social, and economic standard.

We utilize leading technology and innovative techniques to maximize the recovery of logs into finished products and minimize waste in our mills. We use geothermal energy in our kiln drying operations, with the geothermal fluid being reinjected after use, thereby saving the use of fossil fuels and minimising greenhouse gases. Our equipment includes optimizing scanners in the sawmill, optimized ripping, and modern Weinig high-speed planers for a moulding quality finish.

Preservative

LIFESPAN SOLID SELECT has been treated with a solvent-based (non-aqueous), colorless, organic (metal free) wood preservative (LOSP-Light Organic Solvent Preservative). Three active ingredients (propiconazole, tebuconazole and permethrin) synergistically provide protection against a wide range of fungi, insects and rot:

- Propiconazole and tebuconazole are EPA approved systemic fungicides, used widely to control mould and mildew in agricultural and horticultural applications. Together, they protect lumber from a wide range of wood destroying fungi.
- Permethrin is an EPA registered insecticide used to protect wood against termites and borers. Permethrin has low mammalian toxicity and is approved for use in many agricultural, household and pharmaceutical applications.

This combination has been specifically formulated as an EPA approved wood preservative. It can be used in American Wood Preservers Association UC3A and UC3B applications. The chemicals are insoluble in water, remaining permanently in the wood and not leaching into the soil. The LOSP used in LIFESPAN SOLID SELECT is non-corrosive to fasteners, so LIFESPAN can be used with regular galvanized fasteners in exterior applications and any fastener type in interior applications.

Pressure treatment

Unlike traditional dip treatments and newer spray-on treatments that only reach outside surfaces, LIFESPAN SOLID SELECT is pressure treated, ensuring that the organic biocide penetrates and protects the entire sapwood substrate with precise quantities of preservative. This process avoids the surface roughness and grain-raising often associated with water-borne preservatives.

During pressure treatment, the wood is also impregnated with waxes and resins, which bond with the wood. These resist moisture uptake, enhancing the dimensional stability of LIFESPAN SOLID SELECT even when exposed to harsh environments of high humidity and precipitation. After treatment, the solvent is allowed to evaporate sufficiently to permit subsequent priming, packaging and shipping.

Primer system

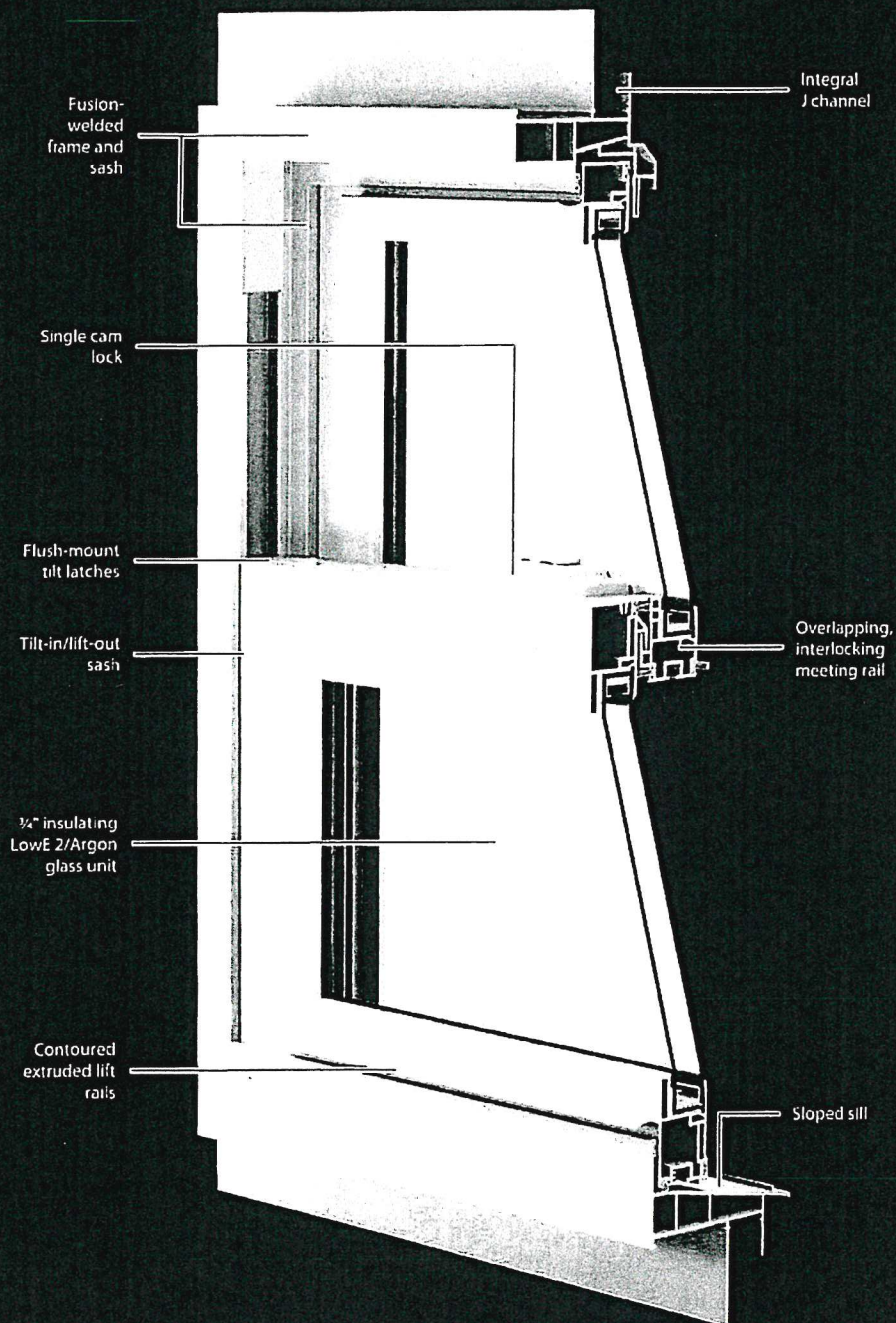
LIFESPAN SOLID SELECT factory-applied two-coat alkyd primer system further protects against water infiltration and weathering. The first full primer coat provides deep penetration and high film build to provide water repellence and to limit cracking. The second primer coat acts as an undercoat, providing a smooth, even, defect-free surface for topcoating. The primers used in LIFESPAN SOLID SELECT are supplied by PPG Industries.

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

RECEIVED
JUL 23 2013
DEPARTMENT OF
PLANNING & ZONING

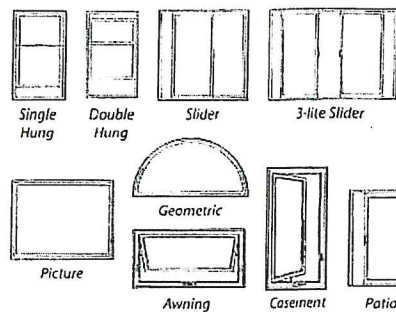
contractor

FEATURES:



perfection
by NORANDEX

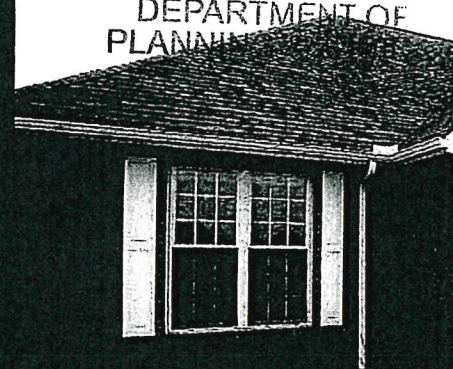
STYLES:



INTERIOR COLORS

White Standard
Tan Optional
Driftwood Optional
RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING



WARRANTY:

TRANSFERABLE LIFETIME LIMITED WARRANTY

- Lifetime Vinyl
- 20 Years Hardware
- 20 Years Insulated Glass Unit
- 20 Years Screens



AAMA GOLD LABEL CERTIFICATION
Highest level of testing for quality and performance



NORANDEX

FEATURES AND OPTIONS

600

FRAME

Frame Construction: Fusion Welded
Frame Thickness, Outer Walls: 0.072
Frame Width: 4-3/8"
Frame Profile: Stepped
Sill: 8-degree Sloped
Weep System: Tank System and Covered Weeps
Profile: Multiple Chambered

SASH

Sash Construction: Fusion Welded
Sash Thickness, Outer Walls: 0.072
Equal Lite: Yes
Edges: Sculpted
Interlocks: Overlapping and Interlocking, Reinforced (Meeting Rail)

Lift Rail: Sculpted
Operation: Tilt In/Lift Out

GLASS

Standard Glazing: LowE 2/Argon
IG Thickness: 3/4"
Glass Pane: Dual
Glass Strength: Single
Glass Options: Tempered, Tinted Bronze or Grey, Obscure, Double Strength, LowE 3 or ENERGY STAR Glass Packages

HARDWARE/ACCESSORIES

Tilt Latches: Flush Mount
Vent Latches: Air Latch (optional)
Type of Lock: Cam Action Lock
No. of Locks: Two Standard ≥ 28"
Balance System: 1/2" Stainless Steel Constant Force
Standard Screen: Full Screen, Fiberglass Mesh, Extruded Frame
Screen Option: Half Screen
Screen Cloth Option: Aluminum Mesh

contractor

FRAME

Frame Construction: Fusion Welded
Frame Thickness, Outer Walls: 0.072
Frame Width: 2-13/16"
Frame Profile: Beveled
Sill: 10-degree Sloped
Weep System: Tank System and Covered Weeps
Profile: Multiple Chambered

Sash Construction: Fusion Welded
Sash Thickness, Outer Walls: 0.072
Equal Lite: Yes
Edges: Squared
Interlocks: Overlapping, Interlocking Full Interlock (Meeting Rail)

Lift Rail: Integral
Operation: Tilt In/Lift Out

GLASS

Standard Glazing: LowE 2/Argon
IG Thickness: 3/4"
Glass Pane: Dual
Glass Strength: Single
Glass Options: Tinted Bronze or Grey, Obscure, Tempered, Double Strength, LowE 3 or ENERGY STAR Glass Packages

HARDWARE/ACCESSORIES

Tilt Latches: Flush Mount
Type of Lock: Cam Action Lock
No. of Locks: Two Standard ≥ 28"
Balance System: 1/2" Stainless Steel Constant Force
Standard Screen: Half Screen, Fiberglass Mesh, Rollformed Frame
Screen Option: Full Screen
Screen Cloth Option: Aluminum Mesh
Screen Frame Option: Extruded

300

FRAME

Frame Construction: Fusion Welded
Frame Thickness, Outer Walls: 0.072
Frame Width: 3-3/4"
Frame Profile: Stepped
Sill: 13-degree Sloped
Weep System: Tank System and Covered Weeps
Profile: Multiple Chambered

SASH

Sash Construction: Fusion Welded
Sash Thickness, Outer Walls: 0.072
Equal Lite: Yes
Edges: Squared
Interlocks: Overlapping, Interlocking Full Interlock (Meeting Rail)

Lift Rail: Integral
Operation: Tilt In/Lift Out

GLASS

Standard Glazing: LowE 2/Argon
IG Thickness: 3/4"
Glass Pane: Dual
Glass Strength: Single
Glass Options: Tinted Bronze or Grey, Obscure, Tempered, Double Strength, LowE 3

HARDWARE/ACCESSORIES

Tilt Latches: Flush Mount
Type of Lock: Cam Action Lock
No. of Locks: Two Standard ≥ 28"
Balance System: 1/2" Stainless Steel Constant Force
Standard Screen: Half Screen, Fiberglass Mesh, Rollformed Frame
Screen Option: Full Screen
Screen Cloth Option: Aluminum Mesh
Screen Frame Option: Extruded

builder

FRAME

Frame Construction: Fusion Welded
Frame Thickness, Outer Walls: 0.072
Frame Width: 2-13/16"
Frame Profile: Beveled
Sill: 10-degree Sloped
Weep System: Tank System and Covered Weeps
Profile: Multiple Chambered

Sash Construction: Fusion Welded
Sash Thickness, Outer Walls: 0.072
Equal Lite: Yes
Edges: Squared
Interlocks: Overlapping, Interlocking Full Interlock (Meeting Rail)

Lift Rail: Integral
Operation: Tilt In/Lift Out

GLASS

Standard Glazing: LowE 2/Argon
IG Thickness: 3/4"
Glass Pane: Dual
Glass Strength: Single
Glass Options: Tinted Bronze or Grey, Obscure, Tempered, Double Strength, LowE 3 or ENERGY STAR Glass Packages

HARDWARE/ACCESSORIES

Tilt Latches: Flush Mount
Type of Lock: Cam Action Lock
No. of Locks: Two Standard ≥ 28"
Balance System: 1/2" Stainless Steel Constant Force
Standard Screen: Half Screen, Fiberglass Mesh, Rollformed Frame
Screen Option: Full Screen
Screen Cloth Option: Aluminum Mesh
Screen Frame Option: Extruded

GLOSSARY

LowE Glass

Glass with a transparent metallic oxide coating which allows short-wave energy to pass through but reflects long-wave infrared energy, improving the U-value.

Visible Transmittance

Visible Transmittance (VT) measures how much light comes through a product. The visible transmittance is an optical property that indicates the amount of visible light transmitted. VT is expressed as a number between 0 and 1. The higher the VT, the more light is transmitted.

ENERGY STAR®

ENERGY STAR is a program of the U.S. Environmental Protection Agency that helps us all save money and protects the environment through energy-efficient products and practices. Windows and doors that meet ENERGY STAR guidelines have been tested for optimum energy efficiency.

Argon Gas

This odorless, colorless, non-toxic gas is six times denser than air. When used to replace air between glass panes in insulating glass units, it helps reduce temperature transfer.

U-value

The U-value or U-factor is commonly described as the amount of heat transferred through a material. The lower the U-factor, the slower the rate of heat flow and the better the insulating value.

Solar Heat Gain Coefficient (SHGC)

The SHGC refers to the amount of heat from the sun that windows and doors allow into the home. The lower the number, the greater the ability to reduce the amount of heat absorbed into the home.

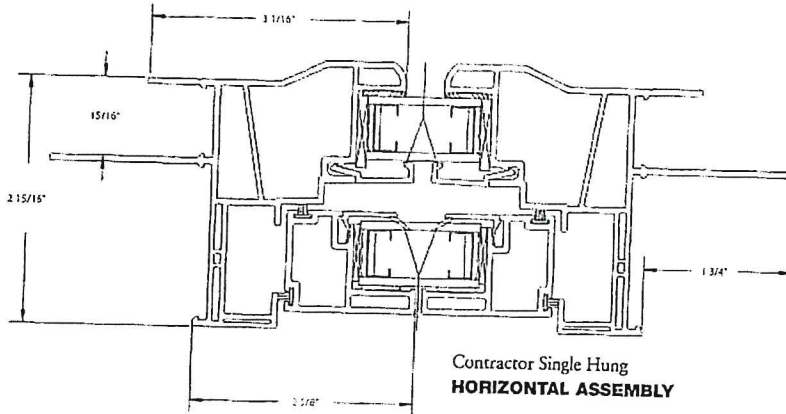
RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING

CONTRACTOR SIZE & STYLE GUIDE

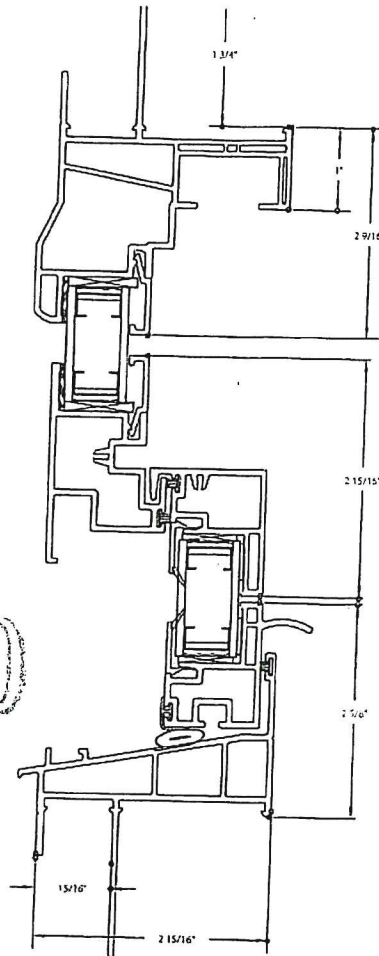
ARCHITECTURAL DETAILS

Contractor Single Hung

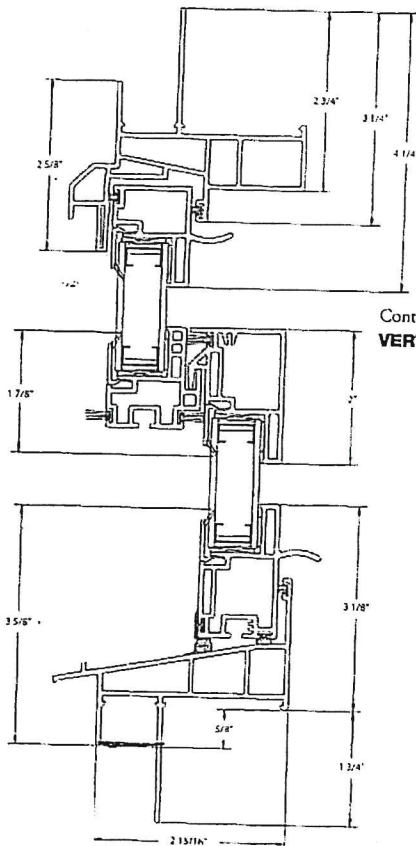


Contractor Single Hung
HORIZONTAL ASSEMBLY

Contractor Single Hung
VERTICAL ASSEMBLY

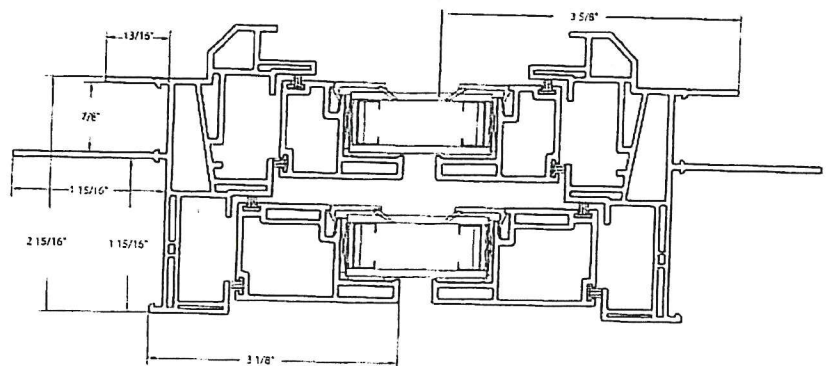


Contractor Double Hung



Contractor Double Hung
VERTICAL ASSEMBLY

Contractor Double Hung
HORIZONTAL ASSEMBLY



RECEIVED

JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING

7/2/2019

DataSheet - Smooth-Star



Therma-Tru Doors
P.O. Box 8780
Maumee, OH
Email: rclark@thermatru.com

Phone: (800) 537-8827
www.thermatru.com

Product Information

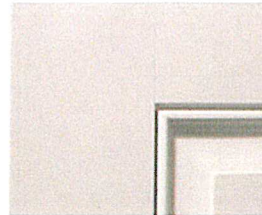
EasySpec S/N

Product/Model Name: Smooth-Star

Smooth-Star

Get the look of fine painted wood and the strength of steel with a front door from the Smooth-Star® Entry Door Collection. It's an excellent value in a fiberglass entry door, made of rugged compression-molded fiberglass with deep detailed panels. This design creates beautiful shadows and contours on your door's surface.

This perfectly stylish yet rugged fiberglass front door resists the dents and dings from day-to-day traffic, and will never rust or corrode.



Project Information

Project Name: Nordstrom-Mendez
Contact Name: Emily Morse
Project Location: 132 Spruce Street
Contact Email: emily@lewiscreekcompany.com

Selected Features and Options (Product Schedule)

Door Type	Single
Operation	Inswing
ADA Sill	No
Fire Door	No
Impact Rating	None
Height	6'-8"
Style	Glazed
Glazed Style Shape	Craftsman Lite 2 Panel Shaker

Glazing	Clear / Low E
---------	---------------

Simulated Divided Lites	Craftsman 2
-------------------------	-------------

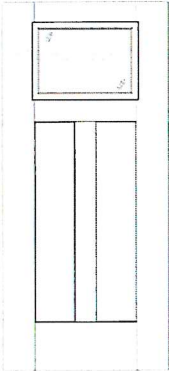
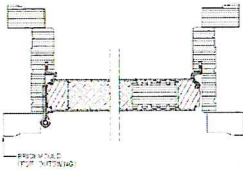
Glass Door ID	2610
---------------	------

CAD Preview

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

7/2/2019

DataSheet - Smooth-Star

THERMA-TRU DOORS		THERMA-TRU DOORS 1750 Indian Wood Circle Maumee, OH 43537 1 (800) 843-7628 www.thermatru.com
Project Name: Nordstrom-Mendez Project Location: 132 Spruce Street		
FRONT ELEVATION DRAWING SCALE 1/1	VERTICAL SECTION DRAWING SCALE 4/1	
		
S2610	HORIZONTAL SECTION DRAWING SCALE 4/1	
		
DISCLAIMER: THERMA-TRU RESERVES THE RIGHT TO MODIFY OR CHANGE DRAWINGS AND SPECIFICATIONS WITHOUT NOTICE. PLEASE CONTACT YOUR LOCAL REPRESENTATIVE FOR CLARIFICATION.		
NOTES: 1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. 2. DO NOT SCALE DRAWINGS.		
 Fiberglass Entry Door Smooth-Star		
PROTECTED BY COPYRIGHT ©2015 Thermo-Tru		Revision Date: 2016-10-03 S/N: 79811

Specifications

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

Specifier Notes: Standards listed by reference including revisions by issuing authority. This article does not require compliance with standards, but is merely a listing of those that may be used.

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM E 90 – Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
 - 2. ASTM E 283 – Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Difference Across the Specimen.
 - 3. ASTM E 330 – Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - 4. ASTM E 331 – Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
 - 5. ASTM E 413 – Classification for Rating Sound Insulation (STC).
 - 6. ASTM E 547 – Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Cyclic Static Air Pressure Difference.
 - 7. ASTM E 1300 – Standard Practice for Determining Load Resistance of Glass in Buildings.
 - 8. ASTM E 1332 – Standard Classification for Determination of Outdoor-Indoor Transmission Class.
 - 9. ASTM E 2235 – Standard Test Method for Determination of Decay Rates for Use in Sound Insulation Test Methods.
- B. Canadian Standard:
 - 1. CAN4-S104 – Standard Method for Fire Tests of Door Assemblies.
- C. Environmental Protection Agency and Department of Energy:
 - 1. Energy Star Program Requirements Product Specification for Residential Windows, Doors, and Skylights.
- D. Code of Federal Regulations:
 - 1. CFR 1201 Part 2 – Safety Standard for Architectural Glazing Materials.
- E. National Accreditation & Management Institute (NAMI)
- F. National Fenestration Rating Council
 - 1. NFRC 100 – Procedure for Determining Fenestration Product U-Factors.
 - 2. NFRC 200 – Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance (VT) at Normal Incidence.
 - 3. NFRC 400 – Procedure for Determining Fenestration Product Air Leakage.
- G. National Fire Protection Association
 - 1. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies
- H. Underwriters Laboratory
 - 1. UL 10B – Standard for Fire Testing Door Assemblies.
 - 2. UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies.

Fiberglass Entry Doors
08 16 13

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

1.4 PERFORMANCE REQUIREMENTS

Specifier Notes: Performance ratings for doors vary by product, configuration, and size. Current performance information is found at www.thermatru.com. Consult your local Therma-Tru Architectural Sales Specialist for more information. Delete the following performance requirements if not required.

- A. Doors shall have a structural design pressure rating of DP [____].
- B. Doors shall have an impact design pressure rating of DP [____].
- C. Door Unit Air Leakage, NFRC 400, 1.57 psf (25 mph): 0.50 cfm per square foot of frame or less.
- D. Door Unit Water Penetration: No water penetration through door unit when tested in accordance with ASTM E 331 or ASTM E 547 with water applied at rate of 5 gallons per hour per square foot at 0 psf.
- E. Doors shall have a minimum STC rating of [____] or a minimum OITC rating of [____].
- F. Doors shall have a positive pressure certified fire door rating of [____] minutes.
- G. Doors shall have a minimum/maximum U-Value of [____] and a minimum/maximum SHGC of [____].
- H. Doors shall qualify for Energy Star Rating.

1.5 SUBMITTALS

- A. Refer to Division 01 33 00 Submittal Procedures [Insert division number and title].
- B. Product Data: Submit door manufacturer current product literature, including installation instructions.
- C. Shop Drawings: Submit manufacturer's shop drawings, indicating dimensions, construction, component connections, anchorage methods and locations, accessories, hardware locations, and installation details.
- D. Samples: Submit full-size or partial full-size verification sample of door illustrating glazing system, quality of construction, texture, and color of finish.

1.6 QUALITY ASSURANCE

- A. Mockup:
 - 1. Provide sample unit of representative product size and using manufacturer approved installation methods to determine acceptability of door installation methods. Comply with Division 01 43 39 Quality Assurance
 - 2. Approved mockup shall represent minimum quality required for the Work.
 - 3. Approved mockup shall [not] remain in place within the Work.

Fiberglass Entry Doors
08 16 13

RECEIVED
JUL 23 2019
DEPARTMENT
PLANNING

C. Quality Assurance Submittals:

1. Provide documentation for specified performance as required.
2. Manufacturers' installation instructions.

D. Manufacturer Qualifications: Manufacturer shall have successful experience in producing the type of product required for project applications equivalent to the requirements for this project.

Specifier notes: Therma-Tru manufactures fiberglass door slabs and related components and sources them to distributor and dealer fabricators for system assembly. Fabricators will have successful experience in producing the type of product required equivalent to the project requirements.

E. Installer Qualifications:

1. [Optional: Installer holds current credential as a NAMI Certified Installer of Therma-Tru Side Hinged Door Installations and as a Therma-Tru® Certified Installer.]

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Refer to Division 01 60 00 Product Requirements.
- B. Delivery: Deliver materials to site undamaged with labels clearly identifying manufacturer, product name, and installation instructions
- C. Storage: Store materials in an upright position, off ground, under cover, and protected from weather, direct sunlight, and construction activities.
- D. Handling: protect materials and finish during handling and installation to prevent damage.

1.8 WARRANTY

- A. Refer to Division 01 78 36 Warranties
- B. Therma-Tru® standard limited warranty for fiberglass Therma-Tru® Door Product and genuine Therma-Tru® components, including rot-resistant frames, mullions, and brickmould sourced from Therma-Tru (excluding primed pine door frames and oak door frames, and non-rot resistant mullions and brickmould) used in commercial and multi-residential projects will be free from material and workmanship defects for a period of three years subject to certain limitations and restrictions. For complete details and current warranty information go to www.thermatru.com.

RECEIVED
JUL 23 2019

Fiberglass Entry Doors
08 16 13

DEPARTMENT OF
PLANNING & ZONING

PART 2 PRODUCTS**2.1 MANUFACTURER**

- A. Basis of design:
Therma-Tru Corp.
1750 Indian Wood Circle
Maumee, OH 43537
(419) 891-7400
(800) 843-7628
www.thermatru.com
Contact:
Rod Clark
458-206-8532
rclark@thermatru.com
- B. Substitutions: Not permitted
- C. Requests for substitutions will be considered in accordance with provisions of Division 01 60 00.

2.2 FIBERGLASS ENTRY DOORS

- A. Fiberglass Entry Doors: All fiberglass doors manufactured by Therma-Tru®. Specification is for complete entry systems with components manufactured by Therma-Tru® and assembled by independent fabricators.
1. Select: [Smooth-Star®], [20 Min Fire Door]
 2. Construction:
 - a. Smooth Star®
1/16-inch minimum thickness, proprietary fiberglass-reinforced thermoset composite, surface lightly textured. Door edges are machinable kiln-dried pine, primed, lock edge reinforced with engineered lumber core, lockset area reinforced with solid blocking for hardware backup. Door bottom edge is moisture- and decay-resistant composite. Core is foamed-in-place polyurethane, density 1.9 pcf minimum.
 - b. 20 Min Fire Door
Proprietary cement based core.
 3. Door Style
 - c. Smooth-Star®
 1. Enter Style Number [SS].
- B. Frames: Provided and assembled by third party fabricators to exacting specifications from Therma-Tru to help maximize system performance. Therma-Tru® strongly recommends the use of rot-resistant frames, mullions, and brickmould sourced from Therma-Tru, however, the use of a non

Fiberglass Entry Doors
08 16 13

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

Therma-Tru® frame system (or a Therma-Tru Primed Pine Frame or Therma-Tru Oak Frame) will not automatically void the entire limited warranty. Refer to 1.8.B for clarification.

1. Milled from 5/4 kiln-dried material with profiled ½" stop and 6 degree sill gain prep.
2. Jamb Width [Standard 4 9/16"] Optional: [5 ¼"] [6 9/16"]
3. Rot Resistant – frames, mullions, and brickmould sourced through Therma-Tru.

D. Sills

1. Inswing: [Composite Adjustable] [Hardwood Adjustable] [Basic Fixed]
[Basic Composite Adjustable]
2. Outswing: [Composite Outswing] [Aluminum with Thermal Break] [Coastal]
3. Other: [Public Access Sill]
4. Finish: [Mill] [Bronze] [Satin nickel]

2.3 HARDWARE

Specifier Notes: Fiberglass entry doors are available with optional Therma-Tru factory installed multi-point lock; prepped for standard locking hardware; or no bore.

A. Hinges, Steel: [adjustable] [ball bearing] [spring loaded] 4 x 4 x 0.098 inches finish to match hardware, plated screws to match

1. Finish: [US4, Zinc dichromate] [US3, bright brass] [US5, antique brass] [US15, brushed nickel] [US17A, black nickel] [US26, polished chrome] [US10B, oil rubbed bronze] [US32D stainless steel]

Specifier Notes: Multi-point locking system is optional. Delete if not required.

B. Locking Hardware:

1. Multi-point lock system includes stainless steel face plate: [Lever Style] [Grip Style]
2. Multi-point lock system handle set options Lever Style: [Heirloom] [Venture] [Millennium]
3. Multi-point lock system handle set options Grip Style: [Forte] [Prospect]
4. Finish Lever Style: [US3, bright brass] [US5, antique brass] [US15, brushed nickel] [US17A, black nickel] [US26, polished chrome] [US10B, oil rubbed bronze]
5. Finish Grip Style: [US15, brushed nickel] [US17A, black nickel] [US10B, oil rubbed bronze]

Specifier Notes: Decorative and specialty glass is standard and included with the select model numbers.

2.4 GLAZING

1. Therma-Tru factory glazed with double pane Flush Glaze construction.

2.5 INSTALLATION ACCESSORIES

- A. Sill pan
- B. Corner seal pad
- C. Rain deflector

Fiberglass Entry Doors
08 16 13

RECEIVED
JUL 23 2019
DEPARTMENT OF
PLANNING & ZONING

- E. Rain Guard
- F. Sill Cover

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive doors. Notify Architect in writing any unacceptable conditions that would adversely affect installation or subsequent performance of the product. Do not proceed with installation until unsatisfactory conditions are corrected.

3.2 INSTALLATION

- A. Install fiberglass doors in full compliance with Therma-Tru® written instructions and approved shop drawings.
- B. Install 20 minute doors with permanent fire door certification label in compliance with the requirements of the labeling agency and NFPA.
- C. Maintain alignment and compatibility with adjacent work.

3.3 FINISHING

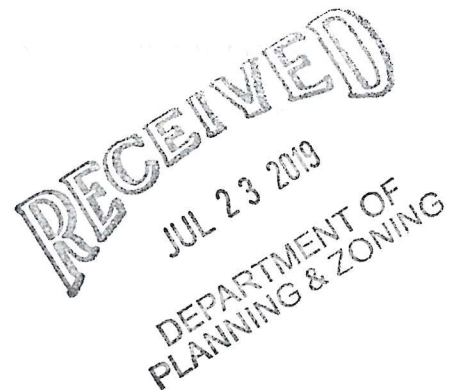
- A. Finish in compliance with Therma-Tru® written recommendations. Guidance for proper finishing is available at www.thermatru.com – “Recommendations for Proper Finishing and Painting or Staining.”
- B. Pre-Finish - *PrismaGuard*™ proprietary finish professionally applied in a controlled environment for enhanced durability - **Stain** [Wildflower Honey], [Rustic Clay], [Barley], [New Earth], [Autumn Harvest], [Redwood], [Mulberry], [Driftwood], [Raven].
Paint [Alpine, [Cypress], [Granite], [Ruby Red], [Cabernet], [Indigo], [Chestnut], [Onyx].

3.3 Protection

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products prior to Substantial Completion in accordance with Therma-Tru written recommendations. Guidance for proper finishing is available at www.thermatru.com – “Recommendations for Proper Finishing and Painting or Staining.”

END OF SECTION

Fiberglass Entry Doors
08 16 13



Note:

This page is a summary of the features and options you selected for the above product and is made available for information purposes only. You must confirm this information and product availability with the manufacturer listed above prior to using for planning purposes. Additional options may also be available.

GRAND HARBOR[®]

collection



America's Favorite Garage Door



RECEIVED
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING

*Model GH12, SQ24 Windows,
Sandtone Base, Standard White Overlay,
Spade Lift Handles and Step Plates*

*Model GH21, XA24 Faux Top Section, Standard White Overlay,
Spade Lift Handles and Step Plates. Doors painted by consumer.*



RECEIVED LESS
JUL 23 2019

DEPARTMENT OF
PLANNING & ZONING

The Grand Harbor® Collection

**Enhance the classic details of your home
without breaking your budget.**

When budget is the deciding factor, this low-maintenance, insulation-optional steel frame carriage house style garage door combines clean lines and classic charm to provide a popular style at a great value.

Accented with decorative black wrought iron hardware, these doors have the appearance of a swing-out door, but offer the convenience of modern overhead operation.

Department of Permitting & Inspections

Zoning Division
149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Ted Miles, Zoning Specialist
Charlene Orton, Permitting & Inspections Administrator



TO: Development Review Board
FROM: Scott Gustin
DATE: August 20, 2019
RE: 20-0030CA; 3090 North Avenue

=====

Note: These are staff comments only; decisions on projects are made by the Development Review Board, which may approve, deny, table or modify any project. THE APPLICANT OR REPRESENTATIVE MUST ATTEND THE MEETING.

Zone: W-RL Ward: 7N

Owner/Applicant: Winooski Valley Park District

Request: Create conservation park and canoe drop-off. Work to include access road repair, installation of gates and kiosk, and landscaping.

Applicable Regulations:

Article 4 (Maps & Districts), Article 8 (Parking)

Background Information:

The applicant is seeking approval to convert a former marina into parkland. Building demolition has been approved under separate permit. This application includes only the change in use to a park and related installation of gates, kiosks, and landscaping.

The property sits within the Special Flood Hazard Area. This location triggers Development Review Board review under the SFHA criteria of Sec. 4.5.4. Project plans have been provided to the state floodplain coordinator. Comments have been received and are incorporated into these findings.

The property is also affected by several other overlays including buffers for wetlands, natural areas, and riparian corridors. The Mouth of the River overlay affects the property as well.

The Conservation Board reviewed this application at their August 5, 2019 meeting and unanimously recommended project approval as presented.

Previous zoning actions for this property:

- 8/9/18 Approval to demolish buildings, footings, foundations, docks, and utilities
- 9/29/11, Approval to remove chimney
- 9/17/09, Approval to re-side the residence with vinyl siding

Recommendation: Consent approval as per, and subject to, the following findings and conditions.

I. Findings

Article 4: Maps & Districts

Sec. 4.4.5, Residential Districts:

(a) Purpose

(2) Waterfront Residential Low Density (W-RL)

The subject property is located in the W-RL zone. This zone is intended primarily for low density residential development in the form of single detached dwellings and duplexes with consideration given to design review. Several non-residential uses are allowed. Parks are one of those uses.

(Affirmative finding)

(b) Dimensional Standards & Density

No residential use remains on the property and none is proposed.

Lot coverage will remain unchanged.

Interestingly, the property is comprised of four separate lots. No buildings or new impervious surfaces are proposed. Setbacks are unaffected.

Proposed kiosk and gates are well below the maximum permissible height of 35.’ **(Affirmative finding)**

(c) Permitted & Conditional Uses

The proposed park is a permitted use in the W-RL zone. **(Affirmative finding)**

(d) District Specific Regulations

1. Setbacks

No setback encroachments are sought. **(Not applicable)**

2. Height

No height bonuses are being sought. **(Not applicable)**

3. Lot Coverage

No lot coverage bonuses are being sought. **(Not applicable)**

4. Accessory Residential Structures and Uses

No accessory structures subject to this criterion are proposed. **(Not applicable)**

5. Residential Density

No residential occupancy is proposed. **(Not applicable)**

6. Uses

No neighborhood commercial use is included in this proposal. **(Not applicable)**

7. Residential Development Bonuses

No development bonuses are being sought. **(Not applicable)**

Sec. 4.5.4, Natural Resource Protection Overlay (NR) District

(c) District Specific Regulations: Riparian and Littoral Conservation Zone

The subject property is largely affected by the Riparian and Littoral Conservation Zone (250' width from the 100' lakeshore elevation and from the bank of the Winooski River). This overlay zone limits the clearing of trees over 6" caliper and addresses new stormwater outfalls. No trees are to be cleared, and no new stormwater outfalls are proposed. The Conservation Board reviewed the proposal and expressed no concerns. **(Affirmative finding)**

(d) District Specific Regulations: Wetland Conservation Zone

(6) Criteria for Review

The property is affected by the buffer zones of nearby wetlands. The Conservation Board reviewed the application and found that impacts to the pertinent functions and values of these wetlands will be de minimus. Unlike most projects, this project amounts to deconstruction and naturalization. **(Affirmative finding)**

(e) District Specific Regulations: Natural Areas Zone

(5) Criteria for Review

The property is contained within the Derway Island natural area buffer. As with the above natural resource overlays, the Conservation Board reviewed the application and found impacts to be minimal. Existing impacts to the natural area will be removed by conversion of the marina to a naturalized park. **(Affirmative finding)**

(f) District Specific Regulations: Special Flood Hazard Area

(7) Special Review Criteria

A. The danger to life and property...

The proposed work is minimal and will have no perceptible effect on flood heights or velocities. **(Affirmative finding)**

B. The danger that material may be swept onto other lands...

The gates and kiosks must be constructed and anchored such that they will remain in place during times of flooding. **(Affirmative finding as conditioned)**

C. The proposed water supply and sanitation systems...

Demolition of the onsite septic system and removal of utilities was included under separate permit. **(Not applicable)**

D. The susceptibility of the proposed facility and its contents to flood damage...

No structures will remain on the property following its conversion to a park. The proposed gates and kiosks are minimally susceptible to flood damage. **(Affirmative finding)**

E. The importance of the services provided...

The proposal removes what could reasonably be viewed as inappropriate development (totally within the flood zone and affected by multiple natural resource overlays) and replaces it with a naturalized landscape far less susceptible to damage from flooding and river corridor migration. **(Affirmative finding)**

F. The availability of alternative locations...

Parkland could be located elsewhere; however, in this location parkland is a more appropriate use of land given the overlays affecting it. **(Affirmative finding)**

G. The compatibility of the proposed use with existing development...

As previously noted, the conversion to parkland is compatible with the variety of natural resource lands in close proximity to the property. **(Affirmative finding)**

H. The relationship of the proposed use to the Municipal Development Plan...

The Open Space Protection Plan is incorporated into the Municipal Development Plan by reference. The proposed naturalization work will lessen existing impacts and encroachments upon nearby wetlands, significant natural areas, and the Winooski River corridor. Removal of the marina and replacement with parkland is compatible with the provisions of the Open Space Protection Plan. **(Affirmative finding)**

I. The safety of access to the property...

The proposed work will not affect access to the property during times of flooding. The access road exists and will remain. During times of flooding, it may be under water. With no remaining buildings or other significant structures, lack of access will be less important now than when a marina existed onsite. **(Affirmative finding)**

J. The expected heights, velocity, duration, rate of rise...

The maximum regulatory flood elevation along the lakeshore is 102' above sea level. Just around the corner at this site, the elevation is essentially the same. The proposed naturalization of the site will have no adverse impact on flood height, velocity, duration, rate of rise, or sediment transport. **(Affirmative finding)**

K. Conformance with all other applicable requirements...

See Articles 4, 5, and 6 of these findings.

Sec. 4.5.6, Mouth of the River Overlay District

(c) District Specific Regulations: Mouth of the River Overlay

1. Uses

A. Exception for Non-Residential Marine and Recreational Uses

This criterion is aimed at permitting otherwise un-permitted uses in this area of the W-RL zone. Parks are permitted throughout the W-RL zone and are not addressed under this criterion. **(Not applicable)**

Article 8: Parking

The subject property is located within the neighborhood parking district. Within that district, parks have a minimum parking requirement of 5 spaces per playing area. There are no playing areas in the proposed park. Arguably, there is no parking requirement. Nevertheless, the site plan depicts space for up to 10 parallel parking spots along the periphery of the access drive. **(Affirmative finding)**

II. Conditions of Approval

1. Per Sec. 4.5.4, (f) 8, construction within the Special Flood Hazard Area is subject to the following conditions:

C. All development:

- (i) New construction and/or substantial improvements to structures shall be reasonably safe from flooding and be:

1. Designed and adequately anchored to prevent flotation, collapse, or lateral movement during the occurrence of the base flood;
 2. Constructed of materials resistant to flood damage;
 3. Constructed by methods and practices that minimize flood damage; and
 4. Constructed with electrical, heating, ventilation, plumbing and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding;
- (ii) All development shall be designed to minimize flood damage to the proposed development and to public facilities and utilities;
- (iii) All development shall be designed to provide adequate surface drainage to reduce exposure to flood hazards;
- (iv) All new construction and substantial improvements that have fully enclosed areas below the lowest floor shall:
1. Be solely used for parking of vehicles, storage, or building access, and such a condition shall clearly be stated on any permits; and,
 2. Be designed to automatically equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters. Such designs must be certified by a registered professional engineer or architect, or meet or exceed the following minimum criteria: A minimum of two openings of two walls having a total net area of not less than one square inch for every square foot of enclosed area subject to flooding shall be provided. The bottom of all openings shall be no higher than one foot above grade. Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters;
- (v) All necessary permits shall be obtained from those governmental agencies from which approval is required by federal or state law.
- D. Residential Development:
- (i) Not applicable.
- E. Non-Residential Development:
- (i) All new construction and substantial improvements for nonresidential purposes shall have the lowest floor, including basement, elevated one foot or more above the base flood elevation. Existing non-residential structures may be flood proofed where designed to be watertight to one foot or more above the base flood elevation, with walls substantially impermeable and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy. A permit for a proposed building to be flood proofed shall not be issued until a registered architect or engineer has reviewed the structural design, specifications and plans and has certified that the design and methods of construction are in accordance with meeting the provisions of this subsection.
- F. Water Supply Systems:
Not applicable;
- G. On-Site Waste Disposal Systems:
Not applicable;
- H. Recreational Vehicles:
(i) Not applicable.

2. Any outdoor signage will require a separate zoning permit.
3. Standard permit conditions 1-15.



Department of Planning and Zoning

149 Church Street, City Hall
Burlington, VT 05401-8415

Phone: (802) 865-7188

Fax: (802) 865-7195

www.burlingtonvt.gov/pz

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

Zoning Permit Application

Use this form for ALL zoning permit applications. See the relevant checklist for specific requirements.

PROJECT LOCATION ADDRESS: 3090 North Avenue Extension

PROPERTY

OWNER*: Winooski Valley Park District

*If condominium unit, written approval from the Association is also required

POSTAL ADDRESS: 1 Ethan Allen Homestead

CITY, ST, ZIP: Burlington, VT 05408

DAY PHONE: 802-863-5744

EMAIL: nickwarner@wvdp.org

SIGNATURE:

I am the owner. In addition, I duly authorize the applicant (if noted) to act on my behalf for all matters pertaining to this zoning permit application.

APPLICANT: same

POSTAL ADDRESS:

CITY, ST, ZIP:

DAY PHONE:

EMAIL:

SIGNATURE:

Description of Proposed Project: Create conservation park/canoe drop off

Existing Use of Property: ☐ Single Family ☐ Multi Family: #___ Units ☐ Other: vacant

Proposed Use of Property: ☐ Single Family ☐ Multi Family: #___ Units ☐ Other: park

- Does your project involve new construction, addition, alteration, renovation, or repair to a structure that is heated or cooled? Yes ☐ No ☐
(If yes, the Vermont Residential Building Energy Standards (VRBES) apply. Visit the P&Z Office, Public Service Board or PSB website for details)
- Will 400 sq ft or more of land be disturbed, exposed and/or developed? Yes ☐ No ☐
(If yes, you will need to submit the 'Erosion Prevention and Sediment Control Plan' questionnaire, with a site plan)
- For Single Family & Duplex, will total impervious area be 2500 sq ft or more? Yes ☐ No ☐
(If yes, you will need to submit the 'Stormwater Management Plan' questionnaire, with a site plan)
- Are you proposing any work within or above the public right of way? Yes ☐ No ☐
(If yes, you will need to receive prior approval from the Department of Public Works)

Estimated Construction Cost (value)*: \$ 38,500

(*Estimated cost a typical contractor would charge for all materials and labor, regardless of who physically completes the work)

Within 30 days of submission, the permit application will be reviewed for completeness, and, if complete, will be processed administratively or referred to a board for review. All permit approvals or denials are subject to an appeal period (15 days administrative permit; 30 days for board permit). A building (and/or electrical, mechanical, plumbing, curb cut) permit will also be required. Contact the Department of Public Works at 802-863-9094 to inquire. Please ask for assistance if you have any questions about filling this form. Call the Planning and Zoning at 802-865-7188, or visit the office in the lower level of City Hall, 149 Church Street.

Office Use Only: Zone: RLW Eligible for Design Review? y Age of House 1964 Lot Size 2783
Type: SN___ AW___ FC___ BA___ COA 1___ COA 2 x COA 3___ CU___ MA___ VR___ HO___ SP___ DT___ MP___
Check No. 17525 Amount Paid 192 Zoning Permit # 20-00306A

DERWAY COVE RESTORATION ZONING PERMIT APPLCIATION: SUPPORTING DOCUMENTS

- A. PROJECT DRAWINGS
- B. PERMIT ADDENDUM
- C. ECOLOGICAL REPORT
- D. PHASE I ESA EXECUTIVE SUMMARY
- E. NATURAL RESOURCE INVENTORY

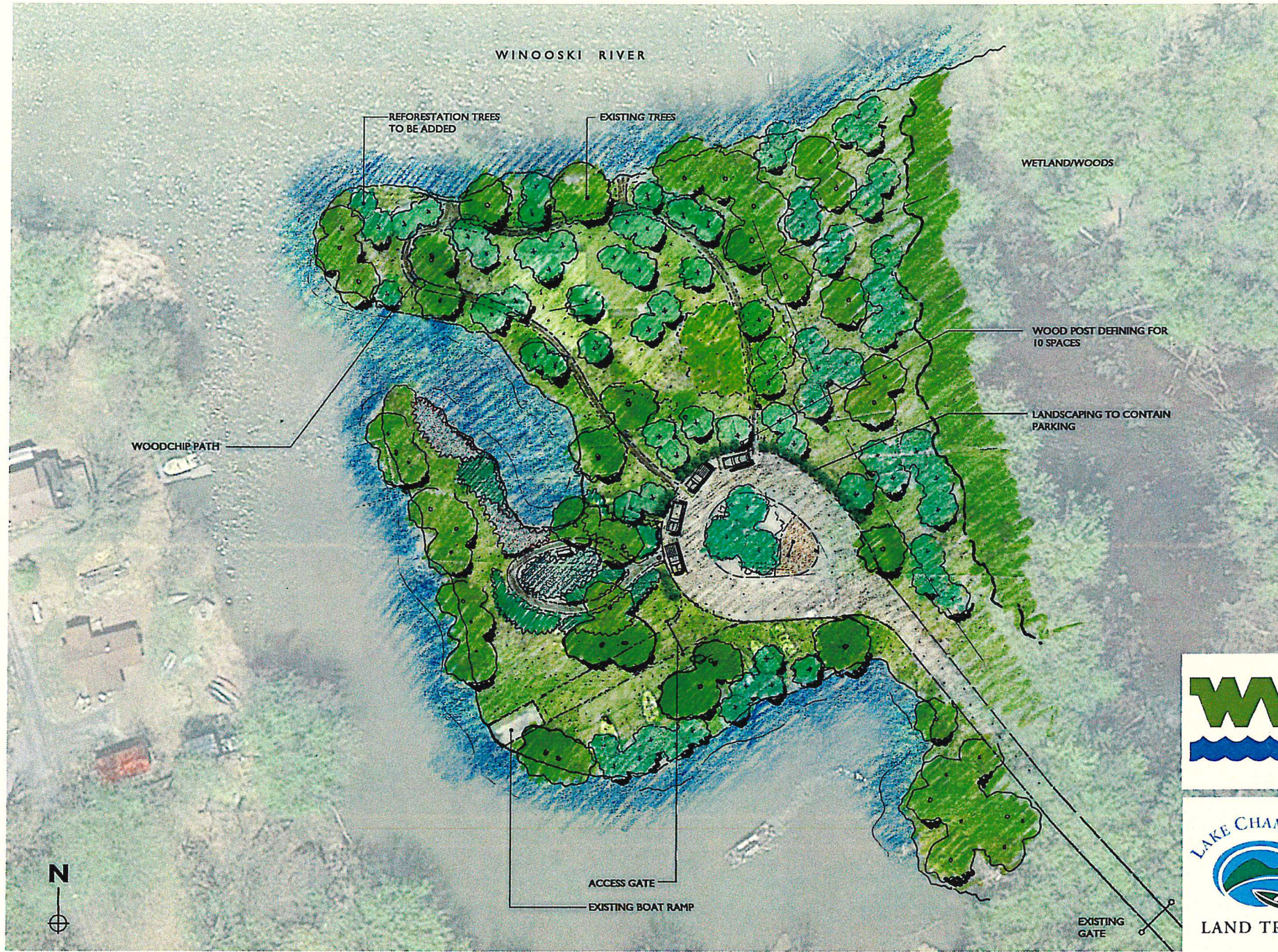
RECEIVED

JUL 09 2019

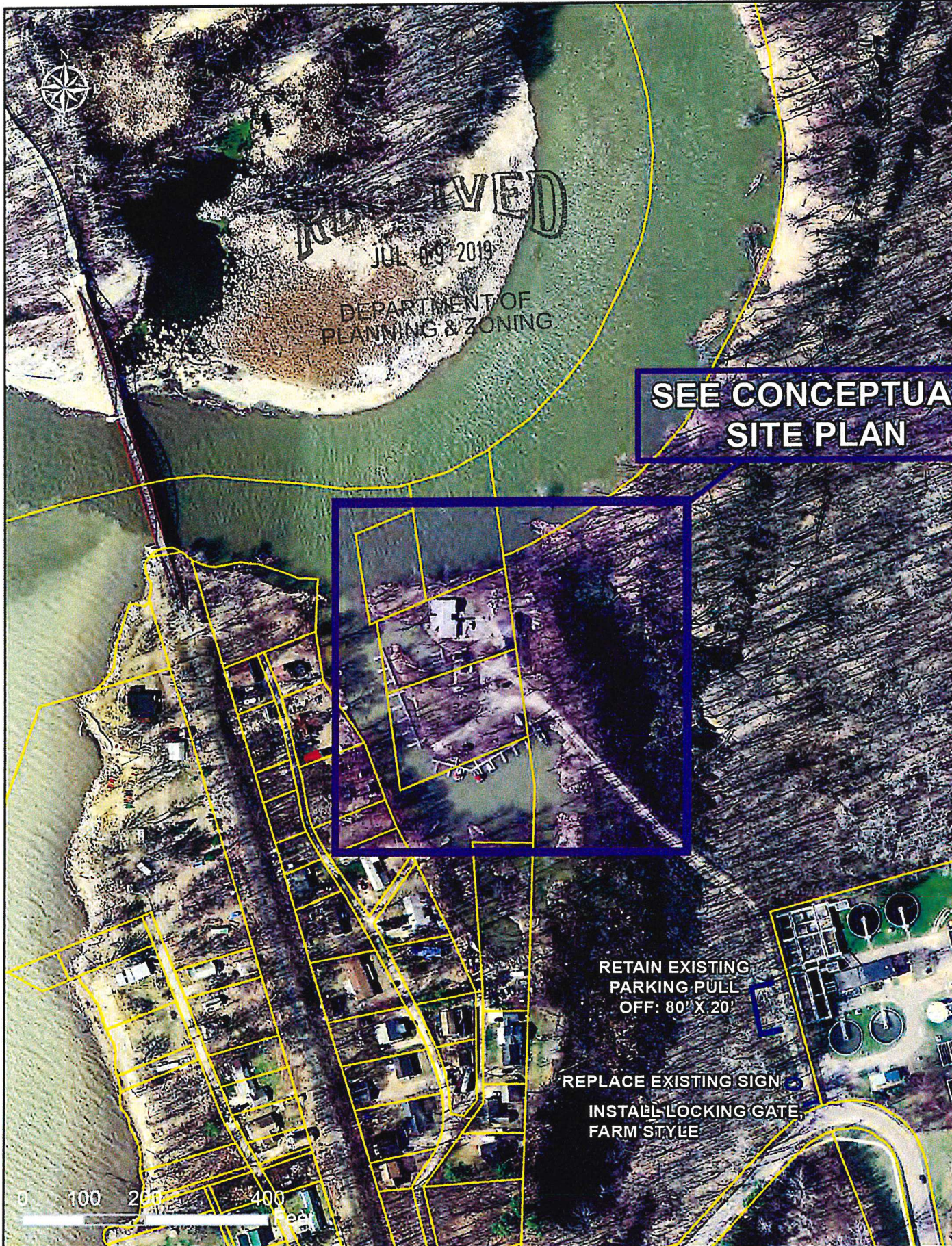
DEPARTMENT OF
PLANNING & ZONING

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING



1" = 30'-0"
06.28.2019



RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

SEE CONCEPTUAL
SITE PLAN

RETAIN EXISTING
PARKING PULL
OFF: 80' X 20'

REPLACE EXISTING SIGN
INSTALL LOCKING GATE
FARM STYLE

DERWAY COVE | BURLINGTON, VT





RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

PERMIT ADDENDUM: DERWAY COVE RESTORATION

Derway Cove was acquired by Winooski Valley Park District (WVPD), in partnership with the Lake Champlain Land Trust (LCLT), with funds from the City of Burlington, Vermont Housing and Conservation Board, and supporters of WVPD and LCLT in August 2018. This project presents a unique situation in which all structures, hardscape, and utilities are being removed (under a previous zoning permit) to create a new natural area with public access and a car top canoe/kayak drop off spot. The Derway Cove conservation project will become a model for restoring floodplain areas while protecting significant rare plants.

This permit application is for the restoration of the site as a conservation park and canoe/kayak launch site. Post-demolition all buildings, docks, utilities, foundations, and pavement will have been removed, the site will be stabilized, with all open areas planted and/or mulched under the previous permit.

Directly adjacent to the 143 acre Derway Island Natural Area and the ¼ acre Mayes Landing, the Derway Cove conservation project creates an uninterrupted 2-mile stretch of permanently protected shoreline. The site will be permanently protected under a conservation easement which will be co-held by the Vermont Housing and Conservation Board and the Lake Champlain Land Trust as soon as the site is restored. The site has exceptionally high conservation values. It is located in a floodplain, adjacent to a huge wetland complex, and is located on the Winooski River shoreline.

At this time, no docks or other shoreline improvements are anticipated. Should a proposal for a dock or other built amenity emerge, a state permit application (as well as relevant federal approvals) would be acquired along with local approvals.

WVPD and LCLT have prepared four relevant documents: a **Natural Resource Inventory**, an **Ecological Assessment**, a **Phase I Environmental Site Assessment**, and an **Interim Management Plan**. These documents form the basis for park design and uses, and are included as exhibits for this application. They evaluate the ecological impacts of the design and intended uses of the planned park, ensure that there are no hazardous materials issues, and lay the groundwork for park development.

The general approach for park development involves:

- Remove all buildings, foundations, and pavement (being completed under a previous permit);
- Retain access road, gravel turnaround and launching area;
- Retain all existing trees, including many large native trees appropriate to the site;
- Remove invasive plants;
- Introduce key native shrubs and trees to restore floodplain forest environment.

Derway Cove is within the Design Review Overlay and Natural Resource Protection Districts, and is impacted by Riparian and Littoral Conservation Zone, Wetland Conservation Zone, Natural Areas Zone, and Special Flood Hazard Area as well as the Mouth of the River Overlay.

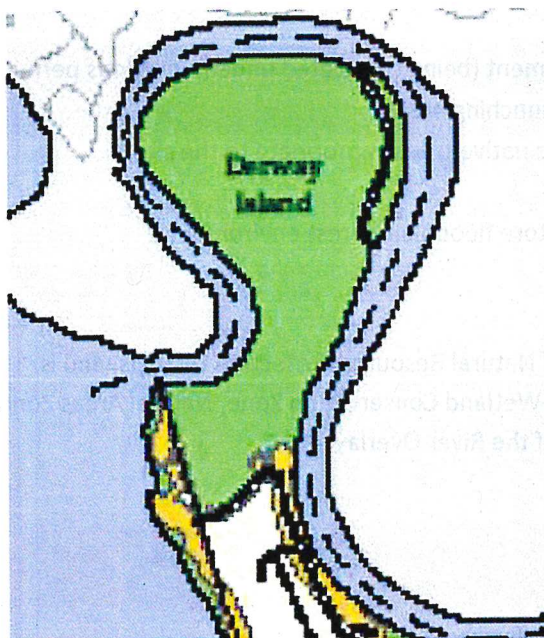
All the stipulations of the Natural Resource Protection District are being met or exceeded. The project:

- builds on the important investment of the City of Burlington and other funders who supplied funds to acquire the land;
- re-naturalizes of the site, protects surface waters and wetlands (from encroachment by development), and from sources of non-point pollution;
- increases natural lakeshore vegetative cover, and the protection of native plants and vegetative cover that provide lake shore land wildlife habitat;
- protects the functions and values of Burlington's wetlands;
- protects and enhances water quality from sources of non-point pollution;
- preserves (and adds) natural features and communities for education and research – also provides access to a site previously in private hands;
- provides permanent opportunities for public access;
- facilitates connections and corridors for wildlife, creating an uninterrupted 2-mile stretch of permanently protected shoreline (Mayes Landing, Derway Cove, Derway Island);
- conforms to the requirements of the National Flood Insurance Program by removing all buildings and infrastructure;
- minimizes losses of life and property from flood-related hazards by removing impervious surfaces and re-vegetating the site;
- eliminates the potential for flood loss or damage to life and property by removing structures and restoring the flood resiliency of the site. The restored site will absorb floodwaters, phosphorous, and sediments at the delta of the Winooski River.

RECEIVED
JUL 09 2019
DEPT.

The development of the park for public access triggers a response to numerous regulatory overlays:

Riparian and Littoral Conservation Zone



All future uses of Derway Cove are allowable under this section including vegetative, access road (existing) and trail maintenance. The main uses will be "Recreational and educational activities such as hiking, walking, fishing, nature study, and bird watching and associated boardwalks and unimproved trails" as stated in subsection 4.

No prohibited or regulated uses will be implemented. No riprap or other artificial shoreline stabilization will be installed, except for very small repairs of existing areas in the access

road to minimize hazards. Regulated uses include: installation of flood-tolerant informational kiosk mounted on 2 four by fours, installation of farm gate and bollard, retention of existing infrastructure (gravel access road, turnaround, and canoe launch ramp).

Wetland Conservation Zone

All future uses of Derway Cove are allowable under this section. This project removes infrastructure and re-creates the flood-plain forest environment for most of the site. Thus the wetland buffer areas will be enhanced from an ecological perspective - the criteria under Section 6 are not only met, but these values enhanced through the deconstruction of the former marina, house, and multiple outbuildings and the creation of a new conservation park.

Vegetative, access road (existing) and trail maintenance will take place to control invasive species, and promote the introduction of new plantings. The main uses will be "Recreational and educational activities such as hiking, walking, fishing, nature study, and bird watching and associated boardwalks and unimproved trails" as stated in subsection 4.

No pesticides or chemicals will be used at the site except for the management of invasive species as laid out in the zoning ordinance. No off-road vehicles will be allowed.

Regulated uses include: installation of informational kiosk, installation of farm gate and bollard, retention of existing gravel access road, turnaround, and launch ramp, and basic maintenance of the road and turnaround.

An erosion control plan for the site is being submitted with this application.

Natural Areas Zone

The entire site is within this zone. All future uses of Derway Cove are allowable under this section.

Regulated uses include: installation of informational kiosk, installation of farm gate and bollard, retention of existing gravel access road, turnaround, and launch ramp, and basic maintenance of the road and turnaround.

No pesticides or chemicals will be used at the site except for the management of invasive species as laid out in the zoning ordinance. No land disturbing activities will occur, and off-road vehicles will not be allowed.



Special Flood Hazard Area (shown in red)

All future uses of Derway Cove are allowable under this section.

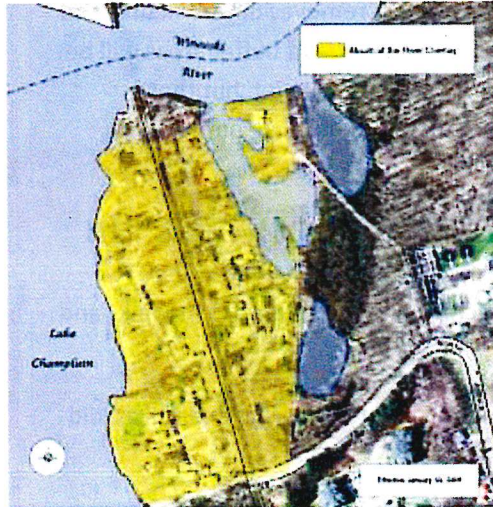
Regulated uses include: installation of informational kiosk, installation of farm gate and bollard, retention of existing gravel

RECEIVED
JUL 09 2019

DEPARTMENT OF

access road, turnaround, and launch ramp, and basic maintenance of the road and turnaround.

No pesticides or chemicals will be used at the site except for the management of invasive species as laid out in the zoning ordinance. No off-road vehicles will be allowed.



Mouth of the River Overlay

This project meets the requirements of this overlay. The infrastructure of the former marina being completely removed, creating a public park open from dawn to dusk (meeting the requirements of 6AM-11PM operational hours).

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

C

BRETT ENGSTROM – ECOLOGIST & BOTANIST
836 RT. 232, MARSHFIELD, VT 05658
(802) 426-3534
ENGSTROMBRETT@GMAIL.COM

Site Visit Report of River's End Marina Ecological Reconnaissance

Brett Engstrom for Lake Champlain Land Trust

17 May 2018

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

On May 15, 2018, I did a brief ecological reconnaissance at the ~2-acre River's End Marina site located near the mouth of the Winooski River in Burlington, Vermont. My task was to do an assessment for the presence/absence of rare, threatened, and endangered (RTE) species; suitable habitat for RTE species; and restoration opportunities with RTE species in mind. Management recommendations to mitigate impacts of public access on RTE species are also included.

Data from the Vermont Natural Heritage Inventory (formerly Natural Heritage Program) show a plethora of RTE species known from the Winooski River adjacent the site and 3 rare plants from the site area in general. Also, significant natural communities – silver maple-sensitive fern floodplain forest and lakeside floodplain forest - occur immediately east of the site. The river and marina lagoon are shown as habitat for no less than 5 rare freshwater mussels of which all are state-listed threatened or endangered; 7 rare fish of which 3 are threatened or endangered; and 1 rare amphibian. Because all of these animals are aquatic species, they were not considered part of the site and were not searched for.

Three RTE plants are known from the site's general vicinity: creeping lovegrass (*Eragrostis hypnoides*), Georgia bulrush (*Scirpus georgianus*), and Torrey's bulrush (*Schoenoplectus torreyi*). Of these 3 species, only the creeping lovegrass is currently known from the vicinity based on a 1998 record of species on Derway Island shoreline. This is a species of big lake and river shores, especially evident in low water years. It was abundant on the extensive sandy lakeshore across the river at Delta Park during the exceptionally low lake levels of 2016 (Engstrom pers. obs.). The two bulrush species are both historical from the vicinity. The Georgia bulrush is only known historically in Vermont, and is known from Derway Island vicinity based on a 1904 specimen. It is a plant of wet meadows, marshes, shores, and ditches. Torrey's bulrush, an emergent species of fresh waterbodies and marshes, was last recorded from Burlington lake shore in 1911 and near mouth of the river in 1895. It has been searched for in the vicinity in the last few years without success.

None of the 3 rare plants were observed during the 2.5 hours I spent surveying the site's ~2 acres of land. I also walked the access road causeway which crosses a long abandoned channel which is part of the state-significant wetland/floodplain forest complex, and did not see evidence of these species. The lake/river level at time of survey was high, so no shore revealed. Also, it is important to note that all three of these plants fruit late summer into the fall. Since fruiting condition is requisite for identification of these species, this spring survey is obviously a poor time to search for the plants. That being said, I did not see any evidence of bulrushes that might be Georgia or Torrey's bulrush, both of which are perennials and might still have last year's

BRETT ENGSTROM - ECOLOGIST & BOTANIST
836 RT. 232, MARSHFIELD, VT 05658
(802) 426-3534
ENGSTROMBRETT@GMAIL.COM

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

fruiting stems visible. I did find one clump of sedge leaves (bulrushes are in the sedge family) on current high water shoreline which might be a bulrush, though I could not say for sure since there was no fertile material present.

Suitable habitat for these RTE species, especially along the shore, is possible, but not likely. This rests on the fact that the marina lagoon is obviously dredged so as to make a fairly deep water access for boats. Furthermore, the property's river shore sits on the outside of the curve - the cutting side - of the river channel, hence not likely to have much for sandy shore deposits. In contrast, directly across the river on the inside of the river channel curve there is extensive sandy shore exposed during medium to low water levels. The property's present soil surface is raised above normal high water presumably by fill and is covered by buildings, roads, parking, and lawn. The most natural vegetation exists behind the building on east side of the lot. It was unclear whether this is marina property. Given the string of mature swamp white oaks growing in this area, it might be naturally high ground of an old levee deposit associated with the abandoned channel. This wooded area had a representative mix of native floodplain forest trees, ferns, and herbs. Though seemingly the most natural, this area is not likely habitat for the 3 RTE plants.

The lowest ground found at the boat ramp and drive leading down to it, and adjacent lawns to either side, has the greatest potential for RTE plants outside of shores. I could imagine that this area, if not maintained as lawn, might become wet meadow habitat over time. And the rare creeping lovegrass, which is annual plant species accustomed to fluctuating water levels and considerable disturbance associated with its beach/shore habitat, could appear at the boat ramp, or possibly in the lawn in this low ground. Given its creeping growth habit, I think that any foot traffic, or mowing for that matter, would not affect any lovegrass plants if they appeared in the area. The probability of Georgia bulrush at this site is very remote given the site's compromised habitat and that the species has not been found in Vermont for over 100 years.

Given that the entire property sits in the FEMA-mapped, 100-year floodway, the potential for restoration of the land towards a more natural floodplain forest, or at least a riparian forest, condition is probably pretty good. The many native trees, shrubs, and groundcover species presently growing at the site are good indicators of this potential. But the potential for restoration of the site for RTE plant species habitat is not good, at least anytime in the near future. Past dredging, filling, and development of the site, in combination with its position on the outside of the river bend, has greatly diminished the potential shore and marsh habitat for these rare species.

My recommendations to mitigate impacts of public access on potential RTE species and their habitats would be to limit car parking to a maximum of 10 spaces, and that parking, driveways, and picnic area be kept within the current building footprints and driveways. I recommend that no additional fill be applied onsite, except perhaps to fill potholes in driveways; native trees, shrubs, and groundcover of species found onsite or in adjacent natural communities be used for any revegetation efforts; and that the shoreline and lower ground be

BRETT ENGSTROM - ECOLOGIST & BOTANIST
836 RT. 232, MARSHFIELD, VT 05658
(802) 426-3534
ENGSTROMBRETT@GMAIL.COM

allowed to naturally revegetate, though invasives, of which none were noted onsite, could be controlled as needed. Lastly, another site visit to do a more thorough ecological inventory should be done in the late summer/early fall when water levels are usually low and the RTE species would be identifiable.

I made a list of plants and animals observed during the reconnaissance which will be available upon request.

One final comment: River's End Marina is in an ecologically rich environs, both in terms of plant and animal species diversity, and water/landscape/natural community setting. It is also a very beautiful site and a logical place for the public to access the lake and lower Winooski River.

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING



Phase I Environmental Site Assessment Report
Rivers End Marina
3090 North Avenue Extension
Burlington, Vermont 05408



November 27, 2017

Prepared for:
Winooski Valley Park District
1 Ethan Allen Homestead
Burlington, Vermont 05408



21 North Main Street
Waterbury, Vermont 05676
(802) 917-2001
www.leenv.net

LEE #17-095

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING



Phase I Environmental Site Assessment Report
Rivers End Marina, Burlington, VT

Contents

1.0	EXECUTIVE SUMMARY	3
2.0	INTRODUCTION	5
3.0	SITE DESCRIPTION	6
4.0	USER SUPPLIED INFORMATION	7
5.0	RECORDS REVIEW	9
6.0	SITE RECONNAISSANCE	11
7.0	INTERVIEWS	11
8.0	FINDINGS	13
9.0	OPINION	14
10.0	CONCLUSIONS	15
11.0	DEVIATIONS	16
12.0	ADDITIONAL SERVICES	17
13.0	REFERENCES	17
14.0	SIGNATURES OF ENVIRONMENTAL PROFESSIONAL	18
15.0	QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL	18
16.0	APPENDICIES	19

Appendices:

- A. Maps
- B. Photographs
- C. Regulatory Records Documentation
- D. Interview Documentation
- E. Site Reconnaissance Checklist
- F. Qualifications of Environmental Professionals
- G. Additional Environmental Resources

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING



1.0 EXECUTIVE SUMMARY

LE Environmental LLC (LEE) conducted a Phase I Environmental Site Assessment (ESA) of four separate tax map parcels and structures at 3088-3090 North Avenue Extension in the City of Burlington, Chittenden County, Vermont (property; see Appendix A). The ESA was conducted pursuant to the American Society of Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-13). This assessment was conducted for the Winooski Valley Park District of Burlington, Vermont. The owners of record are Catherine DeGuise Bowler, Mark M. Roussel, Pamela Darby and Bruce DeGuise.¹ The user of this document is the Winooski Valley Park District.

The property hosts a single-family residence and the Rivers End Marina. The marina includes approximately 36 slips for small boat docking, a boat launch ramp, a store, small shop and a boathouse. There is a repair shop on the property that appears to have been used for mechanical work.

Total acreage provided by the City Assessor's office is 2.44 acres. Of this, the Winooski River covers approximately 0.75 acres and approximately 1.7 acres is above the water line. The property is located on a former island to which a causeway has been developed off of North Avenue Extension. The causeway does not extend onto the property according to parcel mapping. The Burlington North Wastewater Treatment Plant is located approximately 500 feet to the southeast of the easternmost property line.

The property was not developed during the oldest physical settings resource used in this Phase I ESA (1869) nor did it appear to be developed in 1906, 1943, or 1954. A photo taken in the mid-1950's shows a camp on the property. A 1964 air photo and a 1972 map show structures on the property.

The Rivers End Marina was developed on the property in the 1960's and continues in operation as of the date of this report. The property currently has four structures including a residence, a 2-bay garage, a marina service building housing a marina store and repair garage, and a boathouse. The marina includes a repair shop where light mechanical repairs were and are performed. A maintenance pit formerly in the shop has been filled in. Gasoline was sold on the property from an AST from 1974-1975. The AST was located where the current propane tank is. No stains, odors or sheens were noted.

The property is not included on any of the environmental regulatory databases searched during this Phase I ESA, nor are any of the adjoining properties. The Agency of Natural Resources does not have any record of the property or the business on the ANR Atlas. Small quantities of hazardous substances and petroleum

¹ Burlington City Assessor's office and City Land Records; V. 1260, Page 382.



Phase I Environmental Site Assessment Report
Rivers End Marina, Burlington, VT

products were noted during the site reconnaissance inside the boathouse, repair shop, and inside the 2-bay garage. No spills were noted.

LEE has reviewed the information provided in this report and has identified one REC as defined by ASTM. The REC is the filled-in maintenance pit in the repair garage. The repair garage existed for many years and maintenance on boats and possibly other vehicles was performed. Maintenance pits often had fluids drained into them and some pits have outlets to drain the fluids out of the pit. The date that the pit was filled in is not known. There is a likelihood that environmental contamination could exist below the filled in pit and if plans to excavate the pit are made, contingency should be provided to manage contaminated soil if it exists. Alternatively, a Phase II ESA could be performed in the maintenance pit area to test in advance whether environmental contamination is present.

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING



RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

RIVERS END MARINA

NATURAL RESOURCE INVENTORY



Prepared by Remy Crettol

DRAFT REPORT

December 2017

(Revised 4/11/17)

RECEIVED

JUL 09 2019

Table of Contents

Site Overview.....	1
Study Site.....	1
Site History.....	1
Geology and Soils.....	1
Bedrock.....	1
Soil.....	1
Slope.....	1
Water Resources.....	2
Watershed.....	2
Water Quality.....	2
Flooding.....	2
Habitat and Wildlife.....	3-4
Habitat and Conservation Value.....	3
Natural Communities.....	3-4
Rare, Threatened, and Endangered Species.....	4
Wildlife.....	4-5
Cultural Resources.....	5
Marina Operation.....	5
Recreational Resources.....	5
Environmental Site Assessment.....	5
Appendix 1.1: Aerial Image 1.....	6
Appendix 1.2: Aerial Image 2.....	6
Appendix 1.3: Aerial Image 3.....	7
Appendix 2.1: Bedrock Geology.....	7
Appendix 3.1: Soil Map.....	8
Appendix 3.2: Hydric Soils.....	8
Appendix 3.3: Soil Fact Sheet.....	9
Appendix 4.1: Slope Map.....	10
Appendix 5.1: Winooski River Basin Map.....	11
Appendix 6.1: Priority Waters Map.....	12
Appendix 7.1: Flood Zone Map.....	13
Appendix 7.2: Aerial Flood Image.....	14
Appendix 8.1: Habitat Block Map.....	14
Appendix 8.2: Water Quality Blueprint Map.....	15
Appendix 9.1: Rare, Threatened, Endangered Plant & Animal Map.....	15
Appendix 10.1: Plant Species Table.....	16
Appendix 11.1: Wildlife Image 1.....	17
Appendix 11.2: Wildlife Image 2.....	17
Appendix 11.3: Mammal Species Table.....	18
References.....	19

Site Overview

Study Site

Situated near the mouth of the Winooski River, Rivers End Marina is a 2.44 acre parcel located in Burlington's New North End. The property abuts Derway Island Nature Preserve to the south and the east, Mayes Landing to the west, and Delta Park to the north across the Winooski River. (*Appendix 1.1, 1.2, 1.3*) The property is surrounded by water; by the Winooski River to the north, wetland to the east, and by a basin to the west and south which is currently used as a small boat marina. The remainder of the land has been maintained as grass lawn, gravel driveway, concrete boat ramp and multiple buildings - however, a number of mature trees are present including swamp white oak, silver maple, green ash, and black willow. Shrubs typical of floodplain forests are successful on the outer edges of lawn including common buttonbush, nannyberry, and common winterberry as well as wild raisin and American witch hazel.

Site History

Rivers End Marina was once an island before the Bowler family constructed an access road in the 1960's that is still in use. Since then the site has been significantly altered with fill by the Bowlers. The shoreline is continuously eroding as the site is located on the outer edge of the last bend of the Winooski River. Over time, rock and concrete fill have been placed along the bank in an attempt to stabilize the shoreline. The marina has been dredged to allow boat passage; most recently in 2013 with a retrospective permit issued by the USACOE.

Geology and Soils

Bedrock

Iberville Formation - Noncalcareous black shale interbedded with occasional dolomite beds and in the lower part with calcareous shale.¹ (*Appendix 2.1*)

- Primary Rock Type: black shale
- Secondary Rock Type: dolostone

Soils

Rivers End Marina features post glacial fluvial deposits with recent alluvium. (*Appendix 3.1*) The limerick silt loam soil is poorly drained so water movement on the surface is moderately high. (*Appendix 3.3*) The parent material consists of coarse-silty alluvium. Depth to a root restrictive layer is greater than 60 inches. Soils are hydric and continuously saturated for periods of one or two weeks or more during the growing season.² (*Appendix 3.2*)

Slope

Slope of the site is flat with only a minor increase in elevation in the north western corner of the property. (*Appendix 4.1*)

¹ Schweitzer, Peter. "Iberville Formation." *Mineral Resources Program*, USGS, 27 Oct. 2015, mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=VTOi%3B0.

² *Natural Resources Atlas*, Vermont ANR, anrmaps.vermont.gov/websites/anra5/.

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

Water Resources

Watershed

The Rivers End Marina parcel is located near the mouth of the Winooski River in the Lower Winooski River Watershed which is a sub-watershed of the Winooski River Basin. The Lower Winooski River Watershed is defined as the area from the confluence of the Little River with the Winooski River downstream to the mouth of the Winooski at Lake Champlain. The sub-watershed described below includes the Winooski main stem plus any tributary and its watershed except for the Huntington River watershed.³ (*Appendix 5.1*)

Water Quality (*Appendix 6.1*)

303(d) List of impaired streams and rivers

- This surface water, described as "**WINOOSKI RIVER, MOUTH TO WINOOSKI DAM (~10.5 MILES)**" is impacted by **BURLINGTON CSOs** and the pollutant(s), **E. COLI**, causing it to not meet the Vermont Water Quality Standards. The surface water is impaired where a total maximum daily load (TMDL) is required.²

Priority Streams and Rivers List

- This surface water, described as "**LOWER WINOOSKI RIVER**" is impacted by **LOCALLY ABUNDANT EURASIAN WATERMILFOIL GROWTH** and have made it a priority for management where aquatic habitat and/or other designated uses are not supported.
- This surface water, described as "**WINOOSKI RIVER, MOUTH TO WINOOSKI DAM**" is impacted by **ELEVATED LEVELS OF Hg IN WALLEYE** and the pollutant(s), **MERCURY**, making it a priority for management where aquatic habitat and/or other designated uses are not supported.

Stressed streams and Rivers List

- This surface water, described as "**WINOOSKI RIVER, FROM MOUTH UP TO ALDER BROOK**" is impacted by **STORMWATER, INDUSTRY, AG, MANY SOURCES** and the pollutant(s), **SEDIMENTS, NUTRIENTS, TEMP, STORMWATER, TOXIC COMPOUNDS...**, prohibiting the waters from attaining a higher water quality.

Flooding

Rivers End Marina is located in the Floodplain of the Winooski River. However, the filled portion of the parcel is not in the annual flood zone because fill has been added over the years to increase its elevation to 99.5-102 feet above sea level. FEMA predicts it has a 1% annual chance of flood hazard. (*Appendix 7.1*) In large flood events the property still becomes inundated as seen in the 2011 flooding from hurricane Irene. (*Appendix 7.2*) Most of the property is maintained as grass lawn but if left to rewild, the Silver Maple Sensitive Fern Riverine Floodplain Forest community that borders the west side of the property would naturally develop on site.

³ *Winooski River Watershed Water Quality and Aquatic Habitat Assessment Report*, Vermont ANR, 28 April 2008, dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_basin8.assessment_report.pdf.

Habitat and Wildlife

Habitat and Conservation Value

The Rivers End Marina would expand one of the largest habitat blocks in the lower Winooski River valley which currently includes Derway Island, Half Moon Cove, and Delta Park. (*Appendix 8.1*) Together they make up over 658 acres of high priority conservation land, 77% of which is classified as wetlands and 55% of which is core habitat.² The Bowler parcel ranks in the 80th-90th percentile for combined conservation and water quality values. (*Appendix 8.2*)

In the Vermont ANR "Biofinder" system, the site ranks highly for:

- Highest Priority Internal Forest Blocks
- Highest Priority Connectivity Blocks
- Priority Riparian Area
- Riparian Habitat Connectivity
- Exemplary Surface Waters

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

Rare, Threatened, and Endangered Species

About fourteen rare threatened or endangered plant and animal species occupy the site or its waterways. (*Appendix 9.1*) This likely includes unique aquatic and terrestrial habitat for plant species, critical spawning habitat for certain rare threatened and endangered fish species, nesting habitat for turtles, nesting or feeding habitat for birds, and habitat for freshwater mussels.

Natural Communities

If Rivers End Marina is left to natural succession, three uncommon natural communities could develop as the site matures: lakeside floodplain forest, silver maple-sensitive fern riverine floodplain forest, silver maple-ostich fern riverine floodplain forest. *See appendix 10.1* for a list of plants, shrubs, and trees currently established on site.

Lakeside Floodplain Forest

- State Rank: S3-Uncommon Natural Community
- Description: Typically occur in former lake coves and at the mouths of rivers as a complex of wetland forest types. Soils are usually silt or clay loams which retain water in dry seasons but are flooded during spring and tolerate long periods of inundation. Due to flooding lakeside floodplain forests experience alluvial deposition from lake flooding providing rich growing conditions.⁴
- These soils support the dominant vegetation that includes:
 - Trees: silver maple, green ash, and American elm
 - Shrubs: winterberry holly, buttonbush
 - Herbaceous Layer : sensitive fern, whitegrass, and wood nettle
- Location: This natural community can be found on the southern end of the marina and continues into Derway Island on the western side of the access road. *Over time, the management of the site as a natural area and changes in the river corridor will determine extent to which the floodplain forest could establish on the site.*

⁴ Thompson, Elizabeth H., and Eric R. Sorenson. *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*. Vermont F&W and The Nature Conservancy, 2000.

Silver Maple-Sensitive Fern Riverine Floodplain Forest

- State Rank: S3-Uncommon Natural Community
- Description: Occurs on low gradient floodplains adjacent to rivers and deltas at slightly higher elevations than the aforementioned lakeside floodplain forest. Silver maple-sensitive fern riverine floodplain forests receive annual flooding; in some cases in the fall and spring. Soils are alluvial and typically silt loam with mottling in soil surface. Generally no surface organic layer because leaf litter decomposes quickly and mixes with new alluvium.⁴
- These soils support the dominant vegetation that includes:
 - Trees: silver maple, green ash, American elm, swamp white oak (uncommon although currently well established at site)
 - Shrubs: winterberry holly (uncommon although currently present at site)
 - Herbaceous Layer: sensitive fern, wood nettle
- Location: This natural community can be found along the eastern edge of the property that abuts Derway Island behind where the current garage/storage building is located. *This community would likely expand its range into portions of the site which are allowed to re-naturalize.*

Silver Maple-Ostrich Fern Riverine Floodplain Forest

- State Rank: S3-Uncommon Natural Community
- Description: Found on moderate gradient portions of major rivers. These floodplains receive annual overbank flooding but for most of the year remain well above the water table most of the year. Alluvial soils are primarily sandy loams that are well to moderately well drained. Typically no surface organic layer due to annual soil deposition.⁴ These soils support the dominant vegetation that includes:
 - Trees: silver maple (abundant), cottonwood, American elm, black willow, box elder, hackberry
 - Shrubs/Vines: riverbank grape, nannyberry, chokecherry (occasional)
 - Herbaceous Layer: ostrich fern, wood nettle
- Location: *This natural community will likely develop in the highest elevation of the property in the northwest corner where it abuts Derway Island. Small patches of ostrich fern are already present.*

RECEIVED
JUL 09 2019

Wildlife

Mammalia

Proximity to the Winooski River and the riverside inlet attract many semi-aquatic mammals such as river otter, beaver, muskrat, and American mink. Wildlife tracking projects that have been conducted at Derway Island prove that this area is highly valuable for deer overwintering and breeding habitat. (See Appendix 11.1, 11.2) In addition, red fox, raccoon, river otter, mink, beaver, muskrat, white-tailed deer, and fisher have all been tracked near the edges of the property. (See Appendix 11.3)

Aves

Floodplains near the mouth of the Winooski River support migrating birds including veery, yellow warbler, eastern pewee, northern rough winged swallow, great crested flycatcher, blue-gray gnatcatcher, northern oriole, warbling vireo and many more.⁴ The river frontage and inland lakeside floodplain also provides valuable habitat for waterfowl and nesting cavities for wood ducks and pileated woodpeckers. Trees that have drifted downstream and been lodged in the river bank provide perches for belted kingfisher and green heron.

DEPARTMENT OF
PLANNING & ZONING

Amphibia & Reptilia

Seasonally wet areas of the property and surrounding area provide breeding habitat for leopard frog, American toad, wood frog, and spring peeper. The marina also provides habitat and nesting opportunity for turtle species such as snapping turtle, painted turtle, and northern map turtle.

Fish

Common fish species found at the mouth of the Winooski include chain pickerel, largemouth and smallmouth bass, northern pike, walleye, brown bullhead, yellow and white perch, carp, pumpkin seed, and crappie. Uncommon species that may be supported include landlocked Atlantic salmon, lake trout, brown trout, and the endangered lake sturgeon. The marina itself provides refuge for small fish populations.⁵

Cultural Resources

Marina Operation

There is a 31-slip marina catering to small boat operators. Located in a shallow water basin, a launching ramp, parking area, and sales of bait and snacks are featured. The Bowler family residence is located on-site, and is occupied year-round. Winter storage is also provided to marina customers. The access from the marina basin to the river can be compromised due to siltation and low water: in 2016, the marina shut down early due to historically low water levels.

Recreational Resources

This site offers river frontage and fishing access at the mouth of the Winooski River. The location has potential for car-top boat access, birding or picnicking and offers easy access to the Burlington bike path.

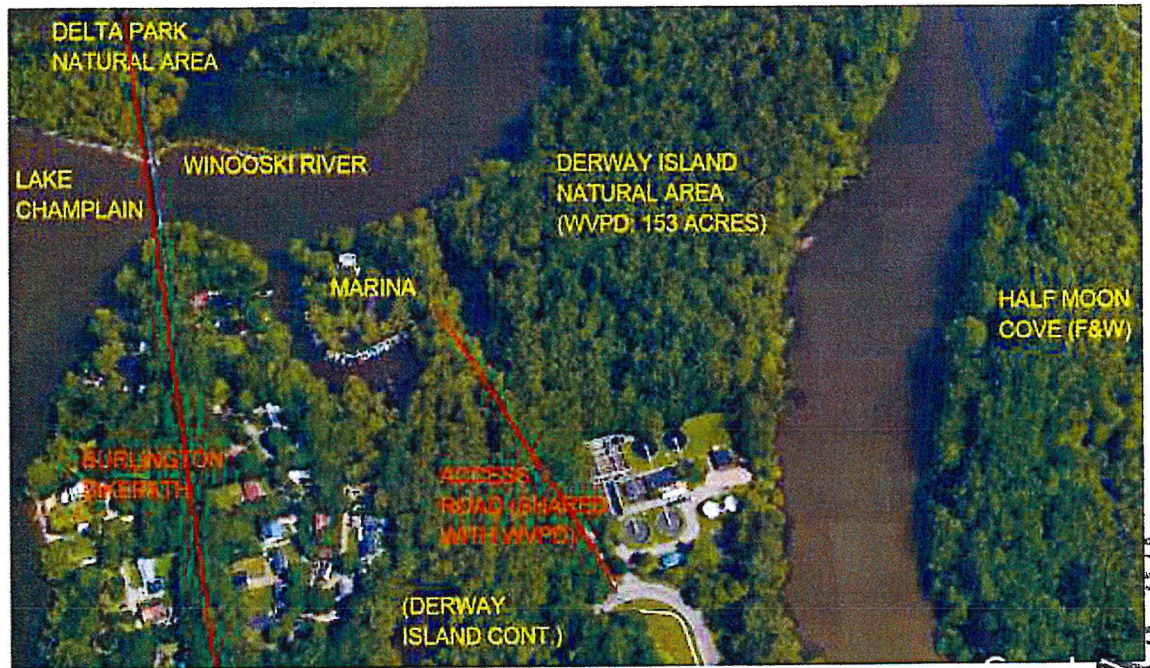
Environmental Site Assessment

A Phase I Environmental Site Assessment was performed on the property and completed November 27, 2017 by LEE Environmental. This was commissioned by the Winooski Valley Park District as part of the due diligence process for acquisition. It found one "Recognized Environmental Condition" related to a mechanical pit located in the garage. There was no staining, odors, or floor drains so it is not anticipated to be an issue.

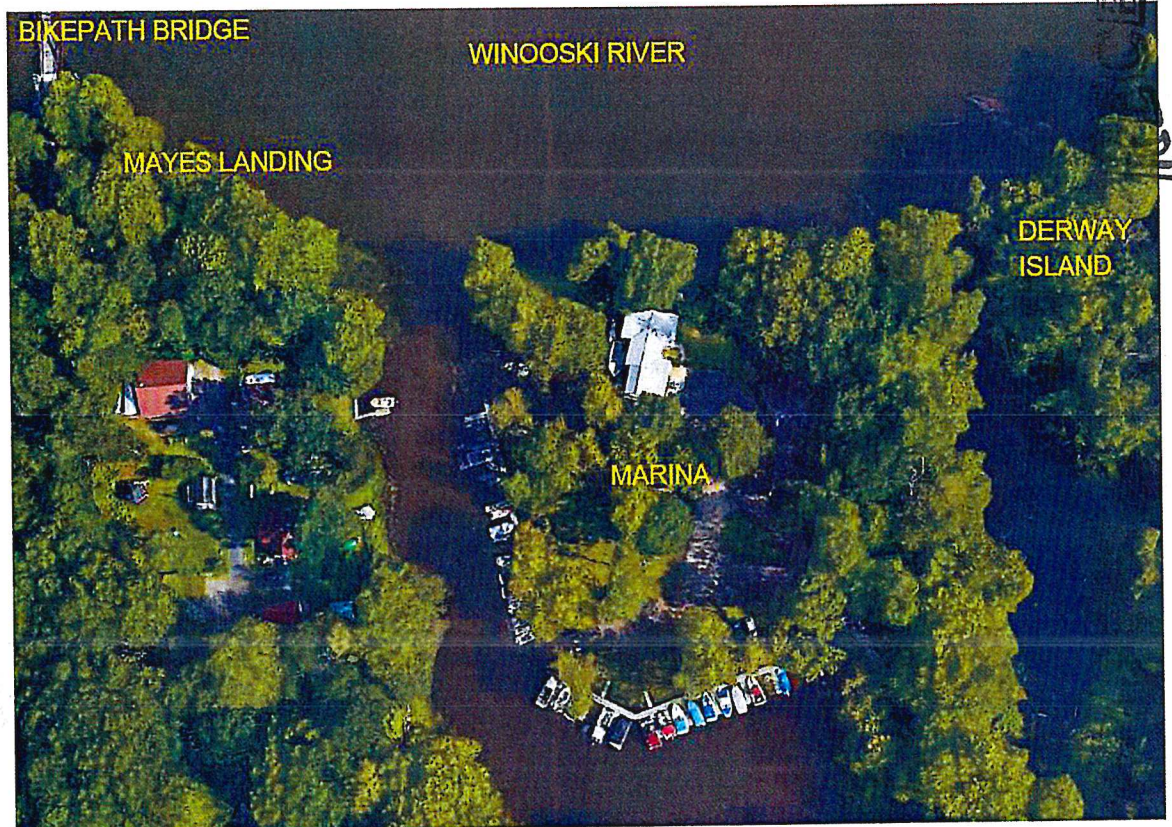
⁵ *Lower Winooski River, Colchester.* Vermont Fish and Wildlife, www.vtfishandwildlife.com/fish/fishing_opportunities/family_friendly_fishing/lower_winooski_river_colchester/.

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING



Appendix 1.1- Aerial image of Rivers End Marina, access road, and surrounding lands.



Appendix 1.2- Close up of Rivers End Marina and surrounding land.

JUL 09 2019



Appendix 1.3- Aerial image of Rivers End Marina and surrounding land looking south.



Appendix 2.1- Bedrock Geology "Oib" defined as Iberville Formation. Mapped by VT ANR.

RECEIVED
JUL 09 2019
DEPARTMENT OF



RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

Appendix 3.1- "al" defined as alluvial: limerick silt loam. Mapped by VT ANR.



Appendix 3.2- Hydric soil. Mapped by VT ANR.

USDA Natural Resources
Conservation Service

Soil Fact Sheet

Chittenden County, Vermont

Le: Limerick silt loam

The Limerick component makes up 85 percent of the map unit. The natural drainage class is poorly drained. Water movement in the most restrictive layer is moderately high. This component is on flood plains on river valleys. The parent material consists of coarse-silty alluvium. Depth to a root restrictive layer is greater than 60 inches.

Important farmland classification: Statewide (b) Land capability: 3 w Vermont Agricultural Value Group: 4d

Vermont Residential Onsite Waste Disposal Group and Subgroup: IVa

This unit is generally not suited as a site for soil-based residential wastewater disposal systems, based on a review by the Natural Resources Conservation Service of criteria set forth in the Vermont 2007 Environmental Protection Rules. Excessive soil wetness in association with the minimal slope is the limiting condition. Prolonged periods of saturation at or near the soil surface do not allow for the proper functioning of septic systems.

PHYSICAL AND CHEMICAL PROPERTIES							EROSION FACTORS		
Soil name	Depth (In)	Typical texture	Clay (Pct)	Soil reaction (pH)	Permeability (In/Hr)	Organic matter (Pct)	Kw	Kf	T
Limerick	0-5	SIL	4-10	5.1 - 7.3	0.6-2	2.0-5.0	.43	.43	5
	5-28	SIL	2-10	5.6 - 7.3	0.6-2	0.0-2.0	.64	.64	
	28-65	SIL	1-8	5.6 - 7.3	0.6-2	0.0-2.0	.64	.64	
WATER FEATURES							SOIL FEATURES		
Soil name	Hydrologic group	Depth to seasonal high water table (Feet)	Flooding		Ponding		Hydric soil?	Depth to bedrock (range in inches)	
			Frequency	Duration	Frequency	Duration			
Limerick	B/D	0.0-1.5	Frequent	Brief (2 to 7 days)	None		Yes	--	
LAND USE LIMITATIONS					AGRICULTURAL YIELD DATA				
Soil name	Land use	Rating	Reason **	Crop name		Yield / acre			
Limerick	Dwellings with basements:	Very limited	Flooding	Grass-clover		5.6 AUM			
Limerick	Pond reservoir areas:	Somewhat limited	Seepage	Corn silage		20 Tons			
				Grass-legume hay		3.5 Tons			
WOODLAND MANAGEMENT									
Soil name	Management concern	Rating	Reason	Vermont natural communities					
Limerick	Harvest equip operability:	Poorly suited	<30cm to water table for >=6mos	Silver Maple-Sensitive Fern Riverine Floodplain Forest, Alluvial Shrub Swamp, Alder Swamp, River Mud Shore, Red Maple-Black Ash Swamp					
Limerick	Road suitability:	Poorly suited	Flooding						
Limerick	Erosion hazard (off-road):	Slight							

Appendix 3.3- USDA Soil Fact Sheet: Limerick silt loam

Link to full size PDF: <https://anrmaps.vermont.gov/websites/SOILS/007/Le.pdf>

RECEIVED

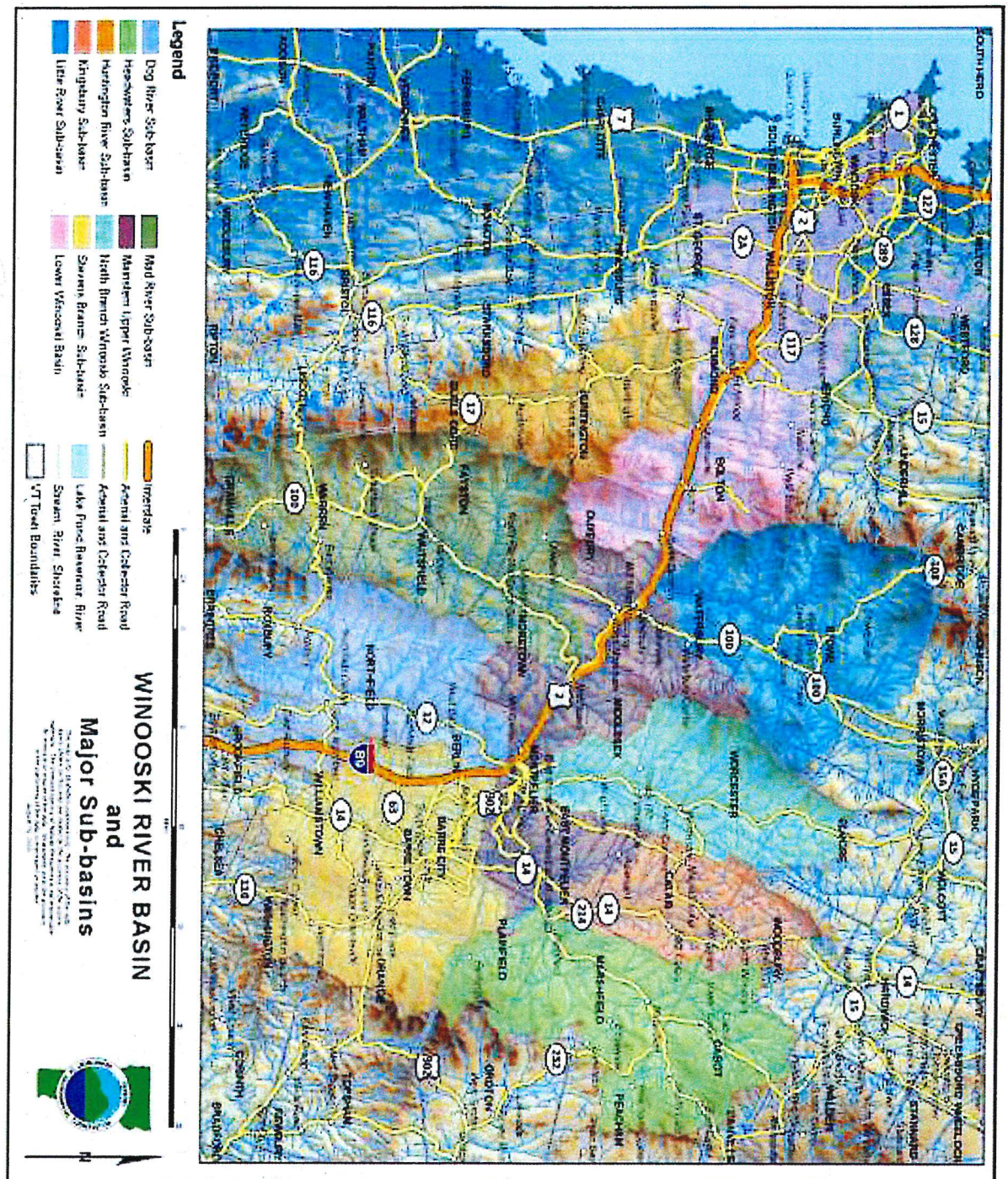
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING



RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

Appendix 4.1- Slope of landscape. Gray is flat, green is slight slope, yellow and orange is moderate, red is steep. Mapped by VT ANR.



Appendix 5.1- Winooski River basin and major sub-basins. Mapped by VT DEC.

Link to full size PDF: <http://dec.vermont.gov/sites/dec/files/wsm/mapp/docs/p1/basin&colormap.pdf>

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

Jonesville to Mouth: Winooski Planning Basin



Legend

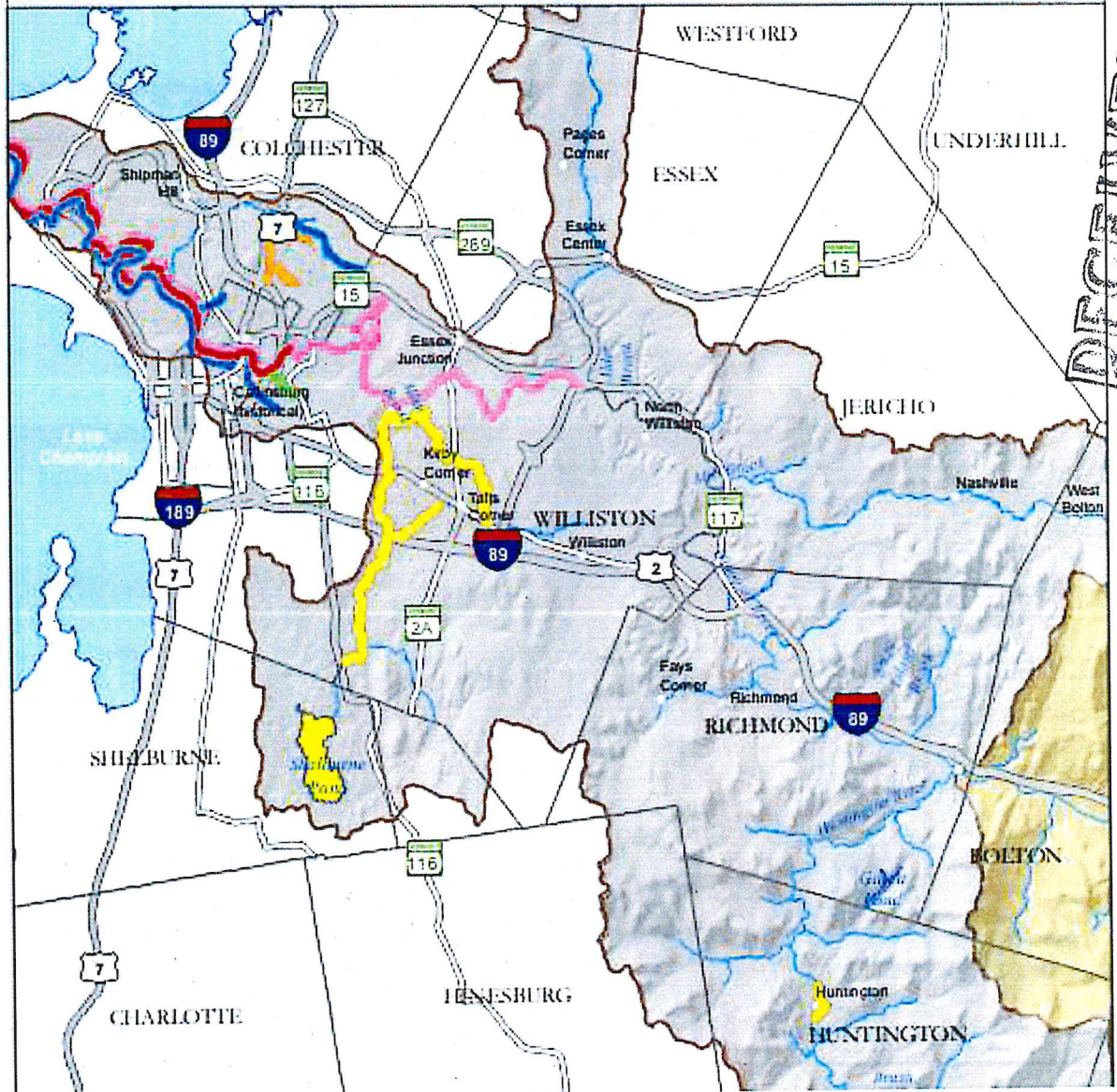
- Watershed Boundary (HU10)
- 2010 VT 303(d) List of Waters
- Impaired surface waters

2010 VT List of Priority Waters

- TMDL not required
- Further assessment
- Approved TMDL
- Altered exotic species
- Alter flow regulation
- Channel alteration

1:150,000

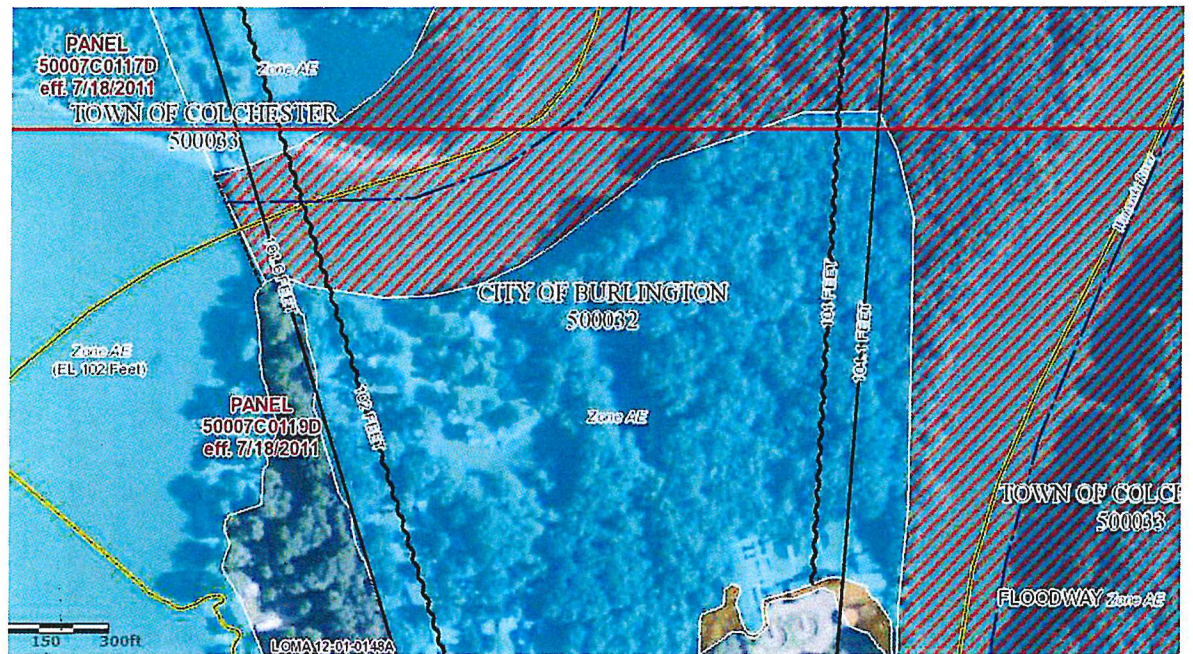
Scale Date: January 2012



Appendix 6.1- 2010 VT list of 303(d) & priority waters in Winooski River basin. Mapped by VT DEC.

Link to full size PDF: https://anrweb.vt.gov/PubDocs/DEC/WSMD/Mapp/Docs/mp_basin8mapJonesville.pdf

UNCLASSIFIED



Appendix 7.1- Flood zones at mouth of the Winooski River and legend. Mapped by FEMA.

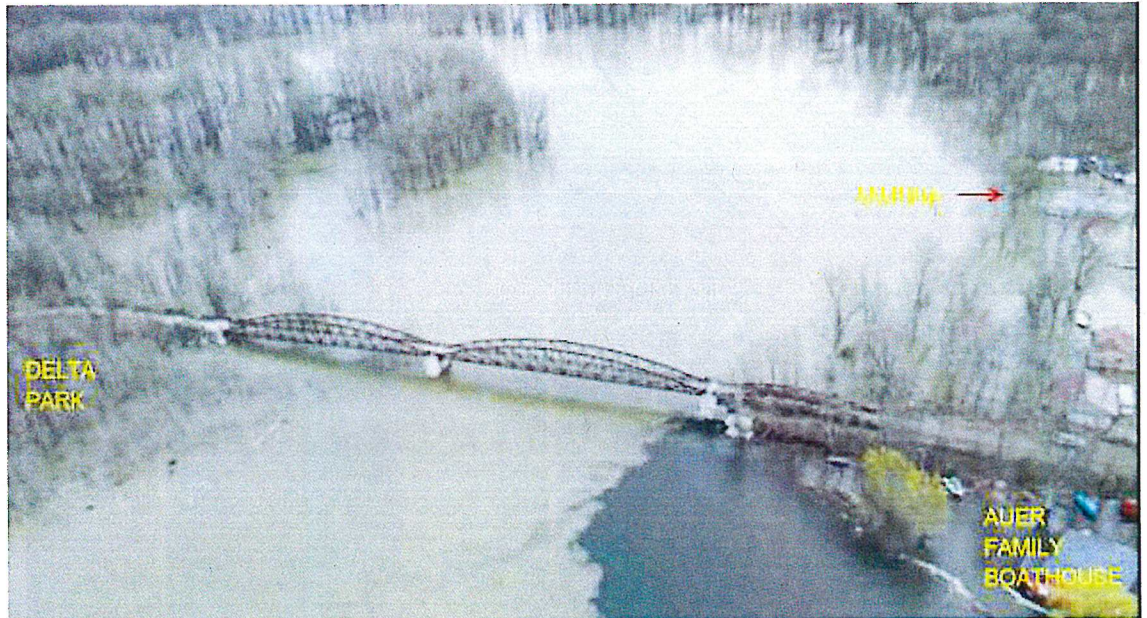
Flood Hazard Zones

-  1% Annual Chance Flood Hazard
-  Regulatory Floodway
-  Special Floodway
-  Area of Undetermined Flood Hazard
-  0.2% Annual Chance Flood Hazard
-  Future Conditions 1% Annual Chance Flood Hazard
-  Area with Reduced Risk Due to Levee

RECEIVED

JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

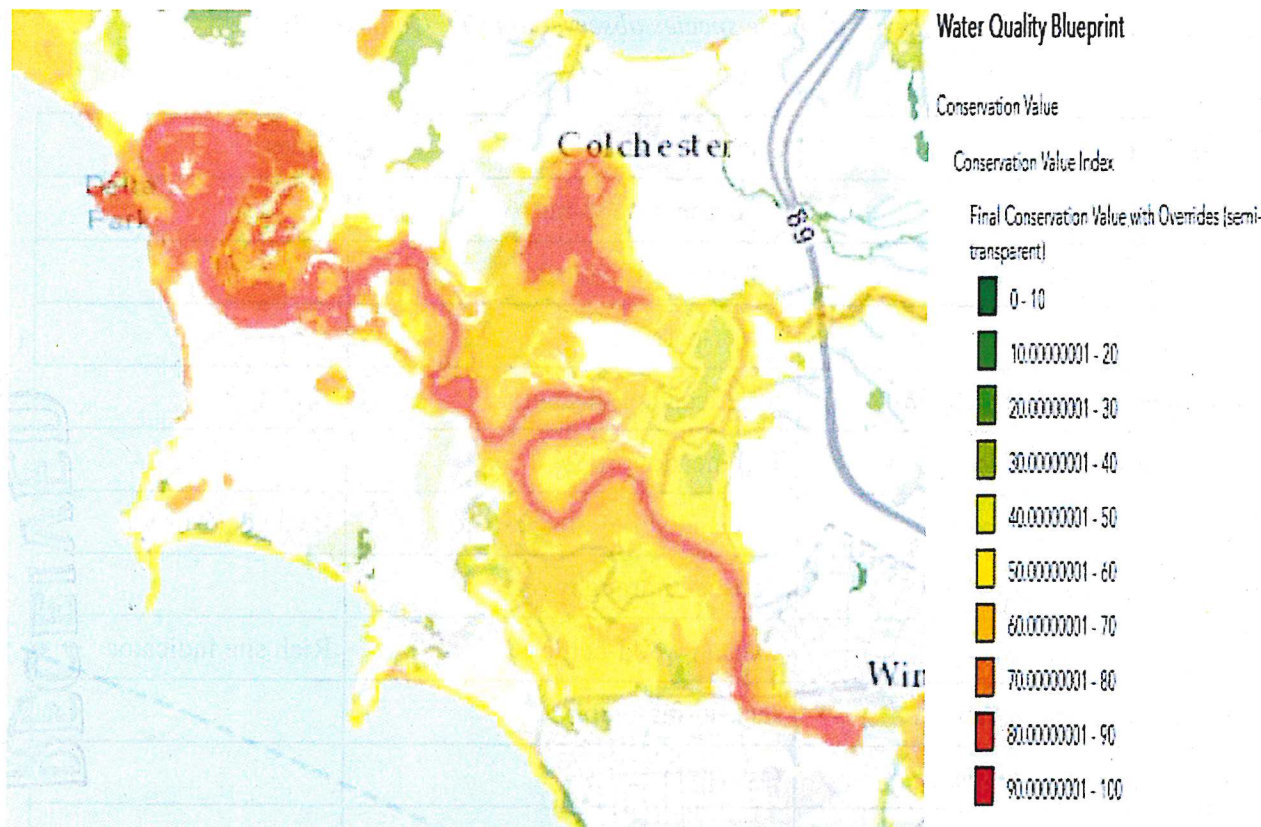


Appendix 7.2- Aerial photo from 2011 flood event with Rivers End Marina completely submerged.

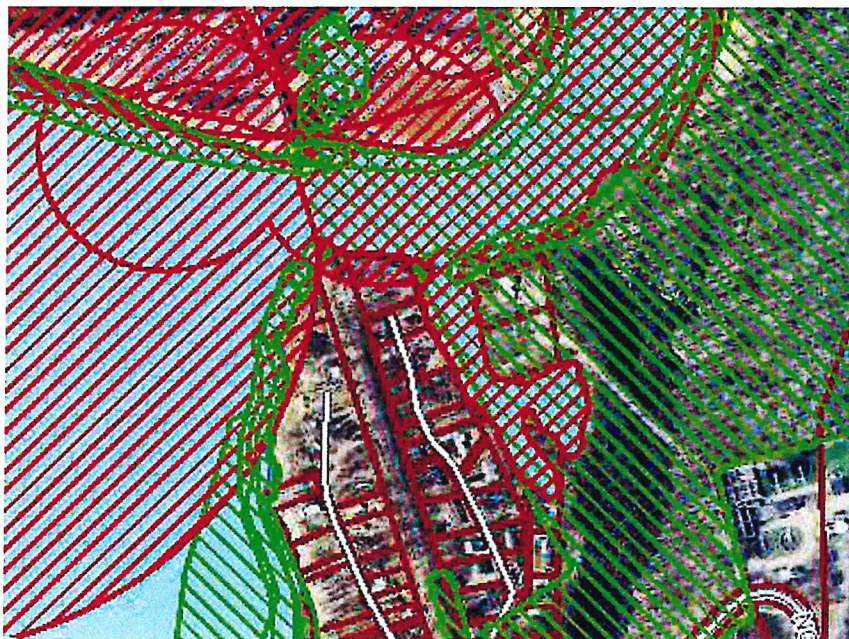


Appendix 8.1- Habitat Block at the mouth of Winooski River which includes Delta Park, Derway Island, and Halfmoon Cove. Mapped by VT ANR.

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING



Appendix 8.2- TNC Water Quality Blueprint. Mapped by TNC VT and VT Fish and Wildlife.



RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

Appendix 9.1- Red indicates rare threatened or endangered animal species; green indicates rare threatened or endangered plant species. Mapped by VT ANR.

Appendix 10.1- Plant, shrub and tree species observed on site. October 2017.

Plant species observed:

Species	Common Name	Notes
<i>Apios americana</i>	Common ground-nut	
<i>Sagittaria latifolia</i>	Common arrowhead	
<i>Sium suave</i>	Water-parsnip	
<i>Amphicarpaea bracteata</i>	American hog-peanut	
<i>Thalictrum pubescens</i>	Tall meadow-rue	
<i>Lysimachia hybrida</i>	Lowland yellow-loosestrife	Ranked S1 in VT
<i>Eupatorium perfoliatum</i>	Boneset thoroughwort	
<i>Laportea canadensis</i>	Canada wood-nettle	Rich site indicator
<i>Arisaema triphyllum</i>	Jack-in-the-pulpit	
<i>Matteuccia struthiopteris</i>	Ostrich fern	
<i>Onoclea sensibilis</i>	Sensitive fern	

Shrub species observed:

Species	Common Name	Notes
<i>Cephalanthus occidentalis</i>	Common buttonbush	
<i>Viburnum nudum</i>	Withe-rod/Wild raisin	
<i>Viburnum lentago</i>	Nannyberry	
<i>Ilex verticillata</i>	Winterberry Holly	
<i>Hamamelis virginiana</i>	American Witch-hazel	

Tree species observed:

Species	Common Name	Notes
<i>Acer saccharinum</i>	Silver Maple	
<i>Quercus bicolor</i>	Swamp White Oak	
<i>Salix nigra</i>	Black Willow	
<i>Fraxinus pennsylvanica</i>	Green Ash	

RECEIVED
JUL 09 2019



Appendix 11.1- Four doe's in the foreground with a buck close behind. Derway Island.



Appendix 11.2- Close-up of buck following behind only seconds after. Derway Island.

RECEIVED
JUL 09 2019

DEPARTMENT OF
PLANNING & ZONING

Appendix 11.3- Large mammal species recorded at Derway Island by Remy Crettol. Winter 2016-2017.

Species	Common Name	Notes
<i>Neovision vison</i>	American mink	Tracks
<i>Lontra canadensis</i>	North American river otter	Game Camera
<i>Castor canadensis</i>	American beaver	Many old and active lodges
<i>Odocoileus virginianus</i>	White-tailed deer	Overwintering and breeding habitat
<i>Vulpes vulpes</i>	Red fox	Game Camera and Tracks
<i>Martes pennanti</i>	Fisher	Tracks
<i>Ondatra zibethicus</i>	Muskrat	Tracks
<i>Procyon lotor</i>	Common raccoon	Game Camera

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

References

Lower Winooski River, Colchester. Vermont Fish and Wildlife, www.vtfishandwildlife.com/fish/fishing_opportunities/family_friendly_fishing/lower_winooski_river_colchester/.

Natural Resources Atlas, Vermont ANR, anrmaps.vermont.gov/websites/anra5/.

Schweitzer, Peter. "Iberville Formation." *Mineral Resources Program*, USGS, 27 Oct. 2015, mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=VTOi%3B0.

Thompson, Elizabeth H., and Eric R. Sorenson. *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont*. Vermont F&W and The Nature Conservancy, 2000.

Winooski River Watershed Water Quality and Aquatic Habitat Assessment Report, Vermont ANR, 28 April 2008, dec.vermont.gov/sites/dec/files/wsm/mapp/docs/mp_basin8.assessment_report.pdf.

RECEIVED
JUL 09 2019
DEPARTMENT OF
PLANNING & ZONING

Department of Permitting & Inspections

Zoning Division
149 Church Street
Burlington, VT 05401
Telephone: (802) 865-7188
(802) 865-7195 (FAX)
(802) 865-7142 (TTY)

*William Ward, Director
Scott Gustin, AICP, CFM, Principal Planner
Mary O'Neil, AICP, Principal Planner
Ryan Morrison, Associate Planner
Layne Darfler, Planning Technician
Ted Miles, Zoning Specialist
Charlene Orton, Permitting & Inspections Administrator*



TO: Development Review Board
FROM: Scott Gustin
DATE: August 20, 2019
RE: 19-0930CA; 221-223 St. Paul Street

=====
The appellant and appellee have requested that this appeal hearing be deferred to the Development Review Board's October 1, 2019 meeting.

Burlington Development Review Board

149 Church Street, City Hall
Burlington, VT 05401

www.burlingtonvt.gov/pz/DRB

Telephone: (802) 865-7188

Fax (802) 865-7195

Brad Rabinowitz

AJ LaRosa

Springer Harris

Geoff Hand

Zoraya Hightower

Brooks McArthur

Kienan Christianson

Vacant, (Alternate)

Ravi Venkataraman, (Alternate)



BURLINGTON DEVELOPMENT REVIEW BOARD Tuesday August 20th 2019, 5:00 PM Contois Auditorium, City Hall, 149 Church St, Burlington, VT Draft Minutes

Board Members Present: B. Rabinowitz, A. LaRosa, Z. Hightower, B. McArthur, K. Christianson, R. Venkataraman (Alt)

Board Members Absent: G. Hand, S. Harris

Staff Present: Mary O'Neil, Ryan Morrison, Layne Darfler

I. Agenda

Public hearing item 1 has been deferred, items 3 and 4 have requested deferrals, and item 6 has withdrawn their application

II. Communications

None

III. Minutes

Minutes from the previous meeting will be discussed at deliberation

IV. Consent

- 1. 20-0030CA; 3090 North Ave (RL-W, Ward 7N) Winooski Valley Park District**
Create conservation park and canoe drop-off. Work to include access road repair, installation of gates and kiosk, and landscaping. (Project Manager: Ryan Morrison)

There was no objection to the project being on the consent agenda by the Board and no members of the public stepped forward to testify.

A. LaRosa, motion to approve and adopt staff findings and recommendations

B. McArthur, seconds the motion

5-0-0

V. Public Hearing

- ~~**1. 19-0930CA; 221-223 Saint Paul Street (FD5, Ward 5S) Dennis Ailor**~~
~~Appeal administrative decision for request to re-grade and stabilize slope where prior retaining wall was removed.~~

Appeal deferred to October 01, 2019

Motion made by A. LaRosa, Second by K. Christianson

5-0-0

- 2. 20-0037CA/MA; 266 College Street (FD5, Ward 8E) Hotel Y Burlington, LLC**
Building renovations and addition for hotel, below grade parking structure, and rooftop bar and restaurant. (Project Manager: Scott Gustin and Mary O'Neil)

The programs and services of the City of Burlington are accessible to people with disabilities. Individuals who require special arrangements to participate are encouraged to contact the Zoning Division at least 72 hours in advance so that proper accommodations can be arranged. For information call 865-7188 (TTY users: 865-7142).

Printed on 100% Recycled Paper

C. Buckley, provided project overview. Changes since sketch plan review are minimal, adjusted design to respond to DAB and continued to try to comply with Form District checklist requirements. Asking Board to grant the additional height. S. Silver: discussed the project plan, goal, and impact to the City. 142 room hotel, meeting spaces, event space, rest/bar, underground parking.

M. O'Neil: Staff review has successfully worked through the checklists; 3 things the boards looking at, height allowance up to 65 feet. Second is alternative compliance in two areas one being additional height beyond 65 feet-that's 20% bonus, demonstrating specific reason. Third area is floor to floor height on first floor- in Form District codes 14 ft is required. The project is showing just over 12 feet and their design team can go into that further. Board is also looking at conditional use for partial demo of historic building and restaurant use within 100 ft of residential area.

C. Buckley: continued project overview. Historic aspect, green roof, rooftop amenities, bar etc. The reason for height allowance, trying to align floors with original "Y" building. Proposing to remove a large portion of "Y" that has those level changes. The 65 ft falls in middle of 6th floor. The building steps back as it goes West in order to have a useful ceiling height on 6th floor we feel we need to go 7% higher than the 4 feet. We would like to pop up an additional 3ft on very West side of building so the bar/restaurant can have higher ceiling and give more room for HVAC.

A. LaRosa, concerns about accessibility issues with drop-offs at entrance and not at their desired drop-off spot. C. Buckley, discussed drop off location and garden bump-outs as well as possible signage for parking areas. A. LaRosa, asked how far bump-outs protrude. C. Buckley, provided visuals. Parking/drop-off area vegetation bump-outs will not protrude further than current parking spaces. This is consistent with Plan Btv great streets program and their already implemented bump-outs to create shorter crossings for pedestrians. B. Rabinowitz added it would be easier for social drop-offs such as Uber or Lyft services to drop off at South Union St, what will deter them from doing that and holding up traffic. Concerns about traffic backing up on that four way intersection. C. Buckley stated there will be clear marking and the current use from the child care center at the Y is very intense and they feel their use of the location will not have such a great demand. J. Conley, there are two different items relevant. If someone can drop-off where not allowed they will. Whether it is an Uber or Lyft or taxi cab the passenger sits on opposite side so this drop off situation is set up for that. Instead of it being cars there or potentially double parking, with this bump-out they will be in the travel lane. For the people coming in their own car and needing the garage it is the most sufficient location. B. Rabinowitz, was the Public Works Dept reached out to about their preferred drop-off location? J. Conley, no discussion about drop-off location was had. Z. Hightower, concerned about bike safety. The bump-outs are hard for bikes to get around without going into traffic. Was there any discussion with the City about the bump-outs or mitigating someone pulling into a drop-off without looking for bikes? J. Conley, bike impacts were not looked at in this study. A. LaRosa, the traffic for the bar and restaurants, was that looked at in your study and was it for private use or public. J. Conley, yes the data points used discussed that use and believe it went off of public use of bar and restaurant. M. O'Neil provided the Department of Public Works statement.

B. Rabinowitz, issues with the treatment of the historic building at the corner entrance. C. Buckley, our approach is to add cladding over brick structure, helping to identify the entrance helps to add a contemporary feel. The experience from college St does not engage from the street, we feel that having some kind of more contemporary treatment at corner is important to signal to people that this is where the entrance is. You could argue that it is reversible as you can take the cladding off

and you can still read the cornice and brick work. B. Rabinowitz, leaving a small portion of the brick is concerning, I would prefer to see the brick come down through the front. You're tearing down the middle section that isn't a big deal because it's not original. This section at the entrance is original and needs to be looked at closer; this doesn't seem like the right solution. C. Buckley, we investigated several approaches here and maybe it's not the best but this seems like the one that has the lightest touch while still giving an appropriately prominent entrance. M. O'Neil, Design Advisory supported discretionary review for additional height. For the entrance in discussion, the ordinance states the standards relative to historic height and review applies. Following the form codes should not take away from the destruction of a historic structure. Basically historic trumps form code.

A. LaRosa, what is being attached to the front façade over the restaurant type seating? C. Buckley, there is a well-documented issue with snow and ice through the winter; we're proposing to add a canopy off south side of building to solve that issue. Proposing to add patio along south side to help engage the street and provide a more active street scape. Actively trying to promote buildings and streetscapes that are porous and promote more activity on the street.

C. Buckley, provided more discussion about height step backs. On the 6th floor there will be a well that includes the cooling tower so that it is sitting on 6th floor rather than on the roof. Felt it is a responsible thing to do when requesting more height. Provided surrounding views. Asking for relief on height. Also asking relief from floor to ceiling height. Need to maintain existing floor height of building. Entrance on the corner is a reasonable approach.

A. Rogers, provided a written statement. Raising concerns about scale and impact on neighborhood occupancy. Concerned about safety around parking entrance. Scale- the room number was presented as 110 at NPA, it is now in 140's not requesting higher than 144. Number of studies done seem to point to downtown being able to absorb the capacity and we feel that is not true and while they state they are absorbing the Y's traffic the Y is only moving up the street so that traffic isn't going anywhere. Parking downtown is a huge issue. Valet parking is an option. When you add the number of rooms, uses, etc there will no doubt be an impact on the surrounding community. The garage entrance and exit raises concerns as it is directly across from our driveway and it is already a dangerous area, it is an everyday challenge. Adds to our challenges to provide adequate handicap parking and drop-off, handicap have to get out in middle of the street and there is no way to go around them. The extra traffic causes more stress than what has been shown in the traffic study. Added concern about the bump-outs, the landscaping comes out far enough where anyone coming out of the garage would have to come into the street to see to get out. We hope the city would improve the sightlines on the street. Safety on College Street. Historic property in historic district- the project overpowers the historic nature. Nervous about the scale of what's behind this project. The current sizeable trees are being removed; the City's plan originally was to have trees opposite each other to create almost an archway downtown.

S. Bushor: councilor Ruth and I met with members of church and developers. Primary concern with the bump outs and College St as a route to the waterfront and the College St Shuttle. There is parking on both sides, traffic with busses and parking on both sides gets tight and concerned about City asking developer to apply great streets criteria to College St. Don't see how this is going to work, the bump outs are not flexible like parking is. Concerned about bikers and having to navigate around a bump out, they tend to have to go into the road. Not necessary to shorten those crosswalks. When they made original presentation the entrance not being on college St is concerning. Public transit and social transit will not go off to the side they will

drop you off right at the entrance. The width of the sidewalk makes it appear they could put a drop off there. Valet could drive the car around the block. Concerned with College St impact. The bump out causes concern about egress in and out of parking garage.

T. O'Brien, question regarding extra height, are you setting a precedent for the rest of the block to have higher buildings. B. Rabinowitz, would be hard to compare this case to other cases. Great streets questions, the bump outs are they in our purview. M. O'Neil, almost all of that discussion is out of your review. The work in the public right of way will have to go through public works and city council. There has been communications between applicant team and arborist, but DRB doesn't have purview of right of way. The encroachment allowances are city council review and authority. B. Rabinowitz, what are the hours of use for dining on Union Street? S. Silver, on both sides they will be daytime use as nighttime activities will be on the rooftop. Lobby will wind down and activities will move to the rooftop.

B. Rabinowitz, can you show bike parking. C. Buckley provided visuals for where the outdoor and indoor bike storage would be located.

Z. Hightower, can you explain the discrepancy between the numbers provided to the NPA and the final number? C. Buckley, not sure where that number came from we have always said 140's. S. Silver, that may have been the number I said I could not do the project at.

Z. Hightower, any other possible step backs? C. Buckley, no further step backs as it would start to diminish the aesthetics. B. Rabinowitz, max height is at 72.5'. C. Buckley confirmed.

B. Rabinowitz, closed the public hearing.

~~3. 19-0980CA/MA; 110 Riverside Avenue (NACR, Ward 1E) Sisters & Brothers Investment Group, LLP~~

~~Continued review of 57-unit apartment building with underground parking. (Project Manager: Mary O'Neil)~~

Request for deferral to September 17th, 2019

~~4. 20-0086CU; 37 Village Green (RL, Ward 7N) Jean D. C. O'Sullivan~~

~~One bedroom bed and breakfast. (Project Manager: Ryan Morrison)~~

5. 20-0102CA/CU; 132 Spruce Street (RL, Ward 6S) Karen Nordstrom & V. Ernesto Mendez

Replace concrete driveway with gravel; construct a 20x24 two-story structure with garage below and an accessory dwelling unit above. (Project Manager: Ryan Morrison)

C. Swasey and E. Morse provided project overview. Second story to garage for accessory dwelling unit – 9ft first 7 ft- second. Added decks and porches to take advantage of lake view. A. LaRosa, we are just looking at the accessory dwelling unit. R. Morrison confirmed. A. LaRosa, long term rental not bed and breakfast. C. Swasey confirmed, use of accessory dwelling unit is for long term rentals not for bed and breakfast short term use.

L. Marsell, received an email from property owners about interest about building a rental unit. The email was described as variety of uses including "air bnb". Concerns about project, want to know what kind of protections we have regarding the owners

turning it into an “air bnb”. Owner occupied but what happens if the owners leave for long period of times? Does the property owner have to be there? B. Rabinowitz, the property has to be owner occupied, but the owners can take vacations. The site requirements for an accessory dwelling unit and bed and breakfast are very similar so the owners could come back in the future to request a bed and breakfast use, that is not before us today. K. Sturtevant, owner occupied is defined as living at the property 51% of the time. L. Marsell, historic neighborhood issue. The design doesn’t match, the decks propped by stilts is inconsistent. Height doesn’t exceed limit, wonder if it can be shorter by removing the loft. How much lawn space is being converted to hardscape, right now lot coverage is 32% proposed but does that include the slab patio to the north. Surface under the deck, increased width of the driveway, etc. exterior lighting was not include and because of the deck feature, any deck lighting would be high and would be a concern for back side neighbors, similar concern with slab patio lighting. R. Morrison, overall calculation is under the 35% without needing the patio bonus. L. Marsell, concerned about cement deck behind the apartment building. B. Rabinowitz, hard to tell someone that they cannot use their yard, if they are in compliance with the ordinance we can’t tell them what they can and can’t do with their yard.

A. LaRosa, what are the plans for the exterior lighting? E. Morse, wall mounted sconce lamp for code compliance, the unit is dark sky compliant as well. R. Morrison, they are proposing wall mounted sconce lighting by each door.

B. Rabinowitz, any landscaping being proposed? E. Morse, only regrading and reseeding. B. Rabinowitz, trees around garage, is that tree being removed? C. Swasey, only tree around the garage was the tree that fell on the old garage thus starting this process, so that tree is already gone.

B. Rabinowitz, closed the public hearing

~~6. 20-0119CU; 68 Gazo Avenue (RL, Ward 7N) Sandra St. Louis~~
~~Requesting change of use from residential to commercial for childhood education program. (Project Manager: Scott Gustin)~~

VI. Adjournment

The meeting adjourned at 6:45pm

Bradford L. Rabinowitz, Chair of Development Review Board

Date

Layne Darfler, Planning Technician

Date

Plans may be viewed in the Planning and Zoning Office, (City Hall, 149 Church Street, Burlington), between the hours of 8:00 a.m. and 4:30 p.m. Participation in the DRB proceeding is a prerequisite to the right to take any subsequent appeal. Please note that ANYTHING submitted to the Zoning office is considered public and cannot be kept confidential. This may not be the final order in which items will be heard. Please view final Agenda, at www.burlingtonvt.gov/pz/dr/ agendas or the office notice board, one week before the hearing for the order in which items will be heard.

The City of Burlington will not tolerate unlawful harassment or discrimination on the basis of political or religious affiliation, race, color, national origin, place of birth, ancestry, age, sex, sexual orientation, gender identity, marital status, veteran status, disability, HIV positive status, crime victim status or genetic information. The City is also committed to providing proper access to services, facilities, and employment opportunities. For accessibility information or alternative formats, please contact Human Resources Department at (802) 540-2505.