

Chittenden County Regional Planning Commission & City of Burlington

# WINOOSKI AVENUE TRANSPORTATION STUDY REPORT

REPORT | February 13, 2020

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#### **Disclaimer**

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## LIST OF ABBREVIATIONS

AADT	Annual Average Daily Traffic
CCRPC	Chittenden Regional Planning Commission
GMT	Green Mountain Transit
HCL	High Crash Location
LOS	Level of Service
LTS	Level of Traffic Stress
PAC	Project Advisory Committee
PMP	Parking Management Plan
SSTA	Special Service Transportation Agency
TAZ	Transportation Analysis Zone



## EXECUTIVE SUMMARY

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The Winooski Avenue Transportation Study has been conducted by the City of Burlington in partnership with the Chittenden County Regional Planning Commission. The study supports the City of Burlington's efforts to create multimodal Complete Streets throughout the City. The two-mile corridor from Riverside Avenue at the north end to Howard Street/Saint Paul Street to the south runs through the center of Burlington. It provides mobility to and from the City and access to homes, shopping, and employment.

Winooski Avenue is a gateway to the City. It connects diverse land uses along the corridor and those beyond. It contains 7 of the 20 priority intersections for safety improvements identified in planBTV Walk Bike. Sixteen percent of bicycle crashes and 17% of pedestrian crashes in the City in the past five years were along Winooski Avenue. The corridor also includes six Vermont Agency of Transportation High Crash Locations.

This study aims to identify ways to address safety challenges, maintain a high level of multimodal mobility, and support community and economic development aspirations as set forth by the planBTV comprehensive plan for the City of Burlington.

## CORRIDOR VISION

The vision developed during the study process guided the development and selection of a preferred alternative. The vision included the following elements:

- Traveling along and across Winooski Avenue will be safe, inviting, and convenient for people of all ages and abilities using any mode of transportation.
- Walking and bicycling will be viable and enjoyable ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.
- Businesses along and near Winooski Avenue will flourish with an activated streetscape and convenient access.
- The mobility and parking needs will be balanced for property owners, residents, businesses, and the greater transportation system.
- The street can adapt to changes to the transportation system and land use.





## VALUE OF THE COMMUNITY

Public collaboration was integral throughout the study. Critical to the project's success was leveraging the power of a Project Advisory Committee (PAC). The PAC comprised local neighborhood planning assemblies, community organizations, elected City Council members, and local advocates and other experts to advise the project at key junctures. Their seven meetings were open to the public and helped engage a wide cross-section of the population. Three public meetings provided open forums for comments, insights, and the sharing of perspectives. The project team also connected directly through stakeholder interviews, drop-in opportunities at local businesses, library displays, and email communications.

Public feedback guided the development of the alternatives, the evaluation criteria, and ultimately the selection of a preferred alternative.

## PROCESS

The study evaluated existing conditions in the corridor to inform what improvements the alternatives should include. An iterative alternative development process occurred over several Advisory Committees and two Public Meetings. Extensive public engagement through focused interviews, web surveys, in-person discussions, email, and meetings provided additional guidance.

A preferred alternative emerged out of this process with a timeline and an implementation roadmap.

## PREFERRED ALTERNATIVE

### Interim Improvements (2020)

1. A comprehensive Parking Management Plan (PMP) is recommended to identify strategies for managing parking in the Pearl Street to Riverside Avenue study area. No changes to on-street parking will be made until agreement on the outcomes of the PMP.
2. Improve bicycle wayfinding between the southbound Winooski Avenue bicycle lane and the northbound Union Street bicycle lane.
3. Advance pilot projects or demonstrations to test mini-roundabouts on North Winooski Avenue.
4. Address commercial loading and driveway queuing on Winooski Avenue in the downtown.
5. Evaluate public safety impacts, traffic operations, driveway access, Marketplace garage circulation, roadway dimensions, and VTrans approvals for improvements that can reduce turning conflicts and prioritize protection for people walking and biking in the downtown.

## Shorter-Term Improvements (2020–2021)

**Northern Segment:** Retain current vehicle pattern (two-way north of Union Street/Decatur Street and one-way southbound to Pearl Street). Stripe on-street bicycle lanes in both directions between Pearl Street and Riverside Avenue. On-street vehicle parking on the east side would be removed between Pearl Street and North Street and between Union Street/Decatur Street and Riverside Avenue. Implement the mini-roundabouts. Consider additional improvements for pedestrian safety at the intersections of Archibald Street and Riverside Avenue.

**Downtown Segment:** Restripe the roadway for one southbound vehicle lane, one northbound vehicle lane, a center turning lane, northbound and southbound bicycle lanes, and protection for pedestrians and bicyclists, when possible.

**Southern Segment:** Incorporate continuous bicycle lanes in both directions and remove east-side parking between King Street and Main Street.

**Corridor-wide:** Improve high-priority transit stops and pedestrian crossings.

## Longer-Term Improvements (Beyond 2021)

Modify roadway for two-way traffic for all modes north of Pearl Street; add protected bicycle lanes, where feasible; bury utilities; incorporate stormwater management; improve transit stops; add street trees, benches, and other pedestrian amenities; and incorporate additional on-street parking, where feasible.



# 1.0 INTRODUCTION

The Winooski Avenue Transportation Study is a transportation corridor study of Winooski Avenue. The study supports the City of Burlington's efforts to create multimodal Complete Streets routes throughout the City.

As shown in Figure 1, Winooski Avenue stretches nearly two miles from Riverside Avenue in the Old North End to the Howard Street and St. Paul Street intersection in the South End. The corridor serves as the principal north-south connection through the heart of the City. It provides both access and mobility for residents, employees, visitors, and business users.

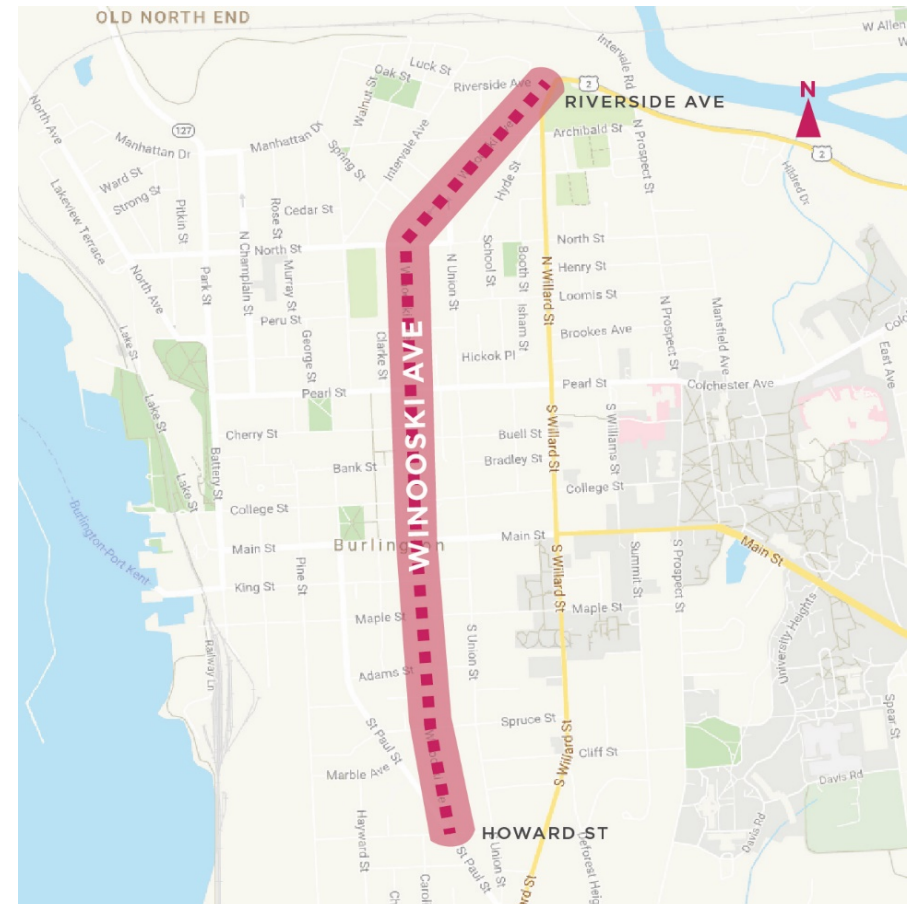
This study follows an earlier technical analysis of Winooski Avenue and Union Street that provided understanding of the vehicular traffic operational implications of five alternative traffic reconfigurations.<sup>1</sup> Of the five reconfigurations analyzed, Complete Streets improvements that maintain two-way vehicle travel while better serving all modes on Winooski Avenue would be the least disruptive to existing vehicle traffic in the downtown study area.

## 1.1 WHAT IS THIS STUDY?

This study is a comprehensive transportation study of the entire Winooski Avenue corridor. The study supports multimodal improvement strategies that address safety, capacity, and connectivity.

<sup>1</sup> Winooski Avenue Circulation Study. June 2017. <https://studiesandreports.ccrpcvt.org/wp->

FIGURE 1: STUDY AREA



**“Complete Streets are corridors that provide safe, inviting, and convenient travel for all users of all ages and abilities—including motorists, pedestrians, bicyclists, and public transportation riders.”**

—City of Burlington Public Works Complete Streets

<content/uploads/2017/07/Winooski-Avenue-Circulation-Study-Final-Report.pdf>

## 1.2 WHY ARE WE STUDYING WINOOSKI AVENUE?

Winooski Avenue is an important and heavily used corridor that features diverse land uses. Despite its importance, a comprehensive corridor study has not yet been conducted.

Although the corridor functions as a geographic gateway to the City, it does not feel that way. Its multimodal facilities are inconsistent and not intuitive to use.

Moreover, 7 of the 20 priority intersections identified in planBTV Walk Bike are along Winooski Avenue. And 16% of bicycle crashes and 17% of pedestrian crashes in the City in the past five years were along Winooski Avenue. Six VTrans High Crash Locations (HCLs) also occur along the corridor—four intersections and two segments.

Earlier transportation plans identified that reconnecting Pine Street and St. Paul, both currently in design, would create additional opportunities for changes to Winooski Avenue.

In addition, planBTV Walk Bike called for protected bicycle lane(s) the entire length of the corridor in its five-year action plan. Despite planBTV's recommendation, a course of action and a holistic understanding of how to approach that concept have not yet been investigated.

## 1.3 STUDY OUTCOMES

This study seeks to identify how Winooski Avenue can become a Complete Street, providing “safe, inviting, and convenient travel for all users of all ages and abilities.” (Burlington Complete Streets Guidance)

- Study the feasibility of and implementation options for low-stress bicycle facilities along the entire corridor in the long term. (planBTV Walk Bike Master Plan, p. 82)
- Design Winooski Avenue as a self-enforcing 25-mph street. (planBTV Walk Bike Master Plan, p. 74)
- Study alternatives and make recommendations to improve safety at the seven priority intersections along Winooski Avenue identified in planBTV Walk Bike. (planBTV Walk Bike Master Plan, pp. 76-79)

This study also seeks to evaluate Winooski Avenue's relationship with parallel streets and the street network. It undertakes such an evaluation in terms of integration of transportation modes, connectivity, capacity, and safety. The goal is to develop alternatives that support improvement to these elements to the extent possible.

## 1.4 CORRIDOR VISION

The Project Advisory Committee (PAC) identified this vision for the corridor based on input from the community:

- Traveling along and across Winooski Avenue will be **safe, inviting, and convenient** for people of all ages and abilities using any mode of transportation.
- **Walking and bicycling will be viable and enjoyable** ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.
- **Businesses along and near Winooski Avenue will flourish** with an activated streetscape and convenient access.





- The **mobility and parking needs will be balanced** for property owners, residents, businesses, and the greater transportation system.
- The street can **adapt** to changes to the transportation system and land use.

The City of Burlington's planBTV Walk Bike Master Plan is an instrumental document that has set a bold and visionary mode share target for the City. Changing travel behavior is challenging and requires significant effort sustained over time.

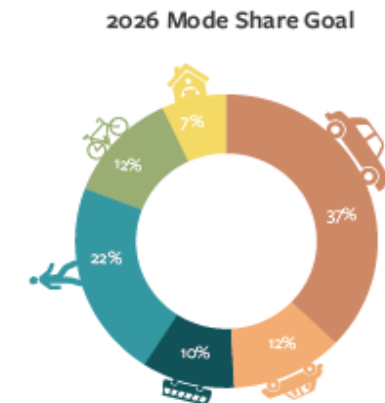
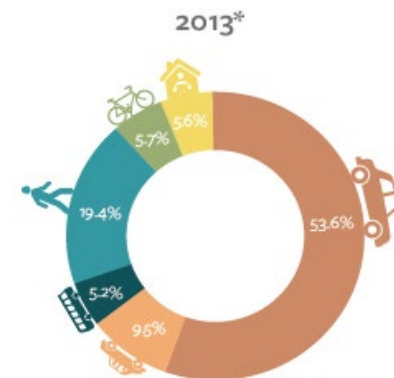
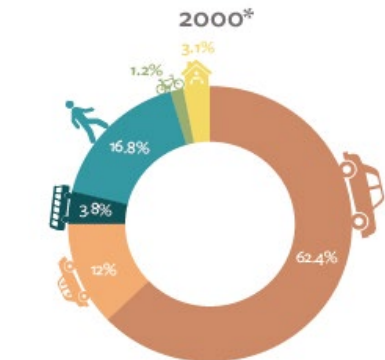
The planBTV Walk Bike Master Plan includes several actions that would bring about this change. Winooski Avenue is a focal point of these actions. To that end, Burlington has made significant investments in walking and bicycling infrastructure since 2000, with results evident in the following documented changes in mode share (Figure 2):

- In 2000, car modes were nearly 75%, walking nearly 17%, bus riding nearly 4%, and bicycling just over 1%.
- As of 2013, car modes were approximately 64%, bus riding at 5.2%, and active modes at 25%.
- The future combined mode share goals in 2026 for bicycling, walking, and bus riding are nearly double those reported in 2000.

To help the City meet its stated mode share goals, the Winooski Avenue Transportation Study must identify the challenges and find solutions to encourage more trips to be made by noncar modes.

**FIGURE 2: BURLINGTON'S MODE SHARE—PAST, PRESENT, AND FUTURE GOAL**

**Journey to work**



Source: planBTV Walk Bike

## 1.5 INTEGRATION OF MODES

Both the planBTV Walk Bike Master Plan and the Regional Active Transportation Plan identified integration of modes as a goal. The following points identify practical applications and meanings behind this concept:

- Safety for one mode supports safety for all modes.
- Intersections are where all modes meet and cross each other.
- Higher vehicle volumes negatively affect comfort and safety of other users, namely pedestrians and bicyclists.
- A good transit system needs good pedestrian infrastructure. Beyond accessible sidewalks in good condition, this means lighting, shelters, and benches.
- Bikeshare and carshare locations near transit support a systematic option to driving. Placing bus stops, bikeshare hubs, and carshare hubs close to each other allows each mode to support the use of other modes.
- Bicycling and vehicles benefit from quality pavement conditions. Both modes have safety risks associated with ruts, poor lane markings, and insufficient drainage.
- Using the public right-of-way for access and enjoyment of adjacent land is often at odds with using the space to facilitate through traffic. Integration of modes builds a platform for discussing and identifying solutions.
- Certain types of on-street parking spaces could be shared with each other. One example is sharing loading zones with ride-hailing drop-off/pickup activities since these uses occur at different times of day.

- Land-use site development polices can support transit, walking, and bicycling and encourage shared auto use.

## 1.6 PROJECT GOVERNANCE

The City and the Chittenden Regional Planning Commission (CCRPC) managed the project with the support from the project team. These entities formed the project steering committee.

A Project Advisory Committee (PAC) comprised representatives of many organizations, businesses, nonprofits, local neighborhood associations, and other stakeholders identified by the steering committee. See Section 4.2 for additional information on the PAC.

The PAC provided input at key junctures and provided a communication conduit (two way) with the community. Figure 3 depicts the project team's structure.

**FIGURE 3: PROJECT TEAM STRUCTURE**



Source: RSG



## 2.0 LITERATURE REVIEW

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Over the past two decades, segments and intersections of Winooski Avenue have been examined as part of stand-alone studies and included in larger plans. Relevant studies and plans informed this transportation study, incorporating findings from past analyses and ensuring consistency with guidelines set forth by public agencies.

### 2.1 STUDIES

Four studies of intersections or segments along Winooski Avenue are summarized below.

#### **Winooski-Howard-St. Paul Intersection Scoping Study**

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*City of Burlington, 2018*

**Description:** Study of alternatives to improve bicycle and pedestrian mobility and safety at this five-way intersection in the South End.

**Conclusions:** The final recommendation was to construct a new signal system with pedestrian push buttons, an accessible crossing of South Winooski Avenue, and curb extensions. In the short term, do a semipermanent quick-build project, and in the medium term, construct an accessible pedestrian crossing of South Winooski Avenue.

#### **Winooski Avenue Circulation Study Technical Assessment**

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*CCRPC, 2017*

**Description:** This is the technical assessment of five traffic circulation reconfigurations for Winooski Avenue (and consequently Union Street). It used three performance measures: delay, level of service (LOS), and queue length.

**Conclusions:** The Complete Streets reconfiguration was found to have the least impact on surrounding traffic and allow for two-way bicycle facilities along the entire corridor. It involves keeping vehicle directionality the same, converting the four-lane segment between Pearl Street and Main Street to three lanes (a northbound lane, southbound lane, and center turn lane), and removing parking in some corridor segments.

#### **N. Winooski Avenue & Archibald Street Intersection: Pedestrian Safety and Mobility Evaluation**

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*CCRPC, 2011*

**Description:** A technical study of pedestrian improvements at this skew intersection in the Old North End.

**Conclusions:** Five options were offered, with the conclusion that all were viable. Corner radii reduction (Option E) was recommended for further exploration since it provided a cost-effective solution without creating significant vehicular or maintenance restrictions. These improvements have been implemented, including pedestrian push buttons and accessible crosswalks.

#### **South Winooski Avenue Lane Reduction**

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*CCRPC, 2002*

**Description:** Studied a four- to three-lane conversion between Main Street and Pearl Street.

**Conclusions:** The study concluded that the conversion would work well and reduce crashes between College and Pearl Streets. Between College Street and Main Street, lane reduction was not recommended; study found it would significantly increase delays unless the green signal time was changed, which may then impact east-west travel on Main Street.

## Downtown One-Way to Two-Way Conversion Memo

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*City of Burlington, 2000*

**Description:** Traffic model and operational study identifying hourly flow changes for converting one-way streets to two-way. Discussed pros and cons of one-way versus two-way streets. Study focused on South Winooski and South Union.

**Conclusions:** The study concluded that the two-way conversion would work reasonably well. Largest change in vehicle delay would occur at Union/Main Street intersection. South Winooski would see overall flows increase with a northbound option introduced. Street widths limit opportunity to provide two-way vehicle flow, on-street parking, and bicycle lanes.

## 2.2 PLANS

Various public agencies have put forth plans relevant to Winooski Avenue in recent years, including the City of Burlington, Green Mountain Transit, the Chittenden County Regional Planning Commission, and VTrans. These plans are summarized below.

### Great Streets Downtown Standards

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*City of Burlington, Draft Status*

**Description:** A set of standards to support Burlington's vision of having a vibrant, walkable, and sustainable downtown.

**Relevant Guidance and Sections:** Great Streets standards apply to downtown, which is defined as a 6 x 6 block grid bounded by Pearl, Maple, Battery, and Union streets. Chapter 2 includes existing conditions and design considerations of downtown streets, and Chapter 3 recommends street types of each street segment.

## NextGen Transit Plan

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*GMT*

**Description:** This plan provided a comprehensive analysis that revised the fixed route bus service that GMT provides within its service area.

**Relevant Guidance and Sections:** Three service improvement scenarios have been developed for Green Mountain Transit's (GMT) local routes serving Chittenden County. All scenarios include a mix of revised route alignments and schedule changes.

Major themes guiding the scenario development:

- Simplified service.
- Core network of major local routes.
- More evening service.
- Better weekend service.
- Minimum service frequencies.
- One-seat ride between Downtown Burlington and the Airport.

### planBTV Walk Bike

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*City of Burlington, 2017*

**Description:** The planBTV Walk Bike Master Plan identifies walking and bicycling infrastructure issues and priorities in Burlington. It identifies opportunities from pilot projects to long-term visions.

**Relevant Guidance and Sections:** Many sections of this plan are relevant to Winooski Avenue. They are identified by section and page number below.

- Engineering Action Plan (pp. 67–72).





- Slow Zone Priorities (p. 74).
- Priority intersections for safety upgrades (pp. 76–79).
- Proposed long-term network (p. 82).
- Priority Action List for Subarea 2 (p. 106).
- Project lists for years 2-5 in Subarea 2 (p. 108) and Subarea 3 (p. 131) (and following pages for details).
- Improvement Concepts (North Winooski Avenue Protected Bike Lane Concepts on pp. 117–118, South Winooski Avenue Bikeway Concept on p. 121, and South Winooski Avenue + Bank Street Intersection Upgrade Concepts on pp. 122–124).
- Vision Zero elements (pp. 140–144).
- Winter Cycling Action Plan (pp. 145–148).
- Bicycle Parking Action Plan (pp. 150–152).

### **Regional Active Transportation Plan**

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*CCRPC, 2017*

**Description:** Supports the regional ECOS Plan and was developed in coordination with other concurrent local, regional, and state planning efforts. Includes a series of proposed infrastructure and noninfrastructure recommendations organized around the five E’s—education, encouragement, enforcement, engineering, and evaluation.

**Relevant Guidance and Sections:** See p. 1 for important points and issues identified during the development of this plan.

Winooski Avenue is identified as a High-Priority corridor in the Proposed Regional Active Transportation Network. (p. 2)

### **VTrans On-Road Bicycle Plan Phase 1**

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*VTrans, 2016*

**Description:** A planning effort to categorize state roads into high, moderate, and low use/priority corridors based on current and potential bicycle use.

**Relevant Guidance and Sections:** The entire Winooski Avenue corridor is listed as a High-Use/High-Priority route.

### **Downtown Parking and Transportation Management Plan**

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*City of Burlington, 2015*

**Description:** A parking management plan (PMP) for downtown with parking occupancies, observations, and management proposals.

**Relevant Guidance and Sections:**

- Future land-use and parking demands. Recommendations based on summary of existing demand and supply. (See Section 3: Future Demand)
- Recommendations for future governance and management of parking data, collection, and analysis. (See Section 5: Parking and Transportation Management District)

## planBTV Downtown & Waterfront

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*City of Burlington, 2013*

**Description:** A comprehensive land-use and development plan focused on Burlington's Downtown and Waterfront.

### **Relevant Guidance and Sections:**

- "Provide an integrated transportation system" was #3 of the Top 5 List of priorities the public wanted in this plan. (p. 43, "Burlington Values")
- Notes that "the streetscape created by the private realm is as important as any of the elements or provisions found in a conventional complete street package." (p. 68, "Themes in Detail")
- Connections through the former Town Center Mall were identified to reconnect Pine Street and St. Paul Street to repair the street grid and provide relief to Battery Street and South Winooski Street. (pp. 110–111)
- No specific section of the plan dedicated to Winooski Avenue.

## Transportation Plan for the City of Burlington: Moving Forward Together

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*City of Burlington, 2011*

**Description:** The initiation of a "living vision" for transportation in the City. Creates a multimodal perspective and starts to define priorities for specific facilities—setting up Complete Streets, Great Streets, and modal-focused streets.

### **Relevant Guidance and Sections:**

- Street types within the City (Figure 2, p. 7). Winooski Avenue between Pearl and Main Streets is specified as a Complete Street. North and south of this, Winooski Avenue is classified as a bicycle street.
- Complete Street design guidance (p. 8).
- Defines indicators of progress toward goals of the plan (p. 11).



## 3.0 EXISTING CONDITIONS

### 3.1 LAND USE

Winooski Avenue is one of the few north-south streets within the City of Burlington. The variety and location of land uses along the corridor make it unique. The corridor has mixed-use and residential land uses along its length, with the mixed-use segment between Pearl Street and Main Street part of Burlington's downtown core.

The corridor comprises four general zones:

- **Far north:** neighborhood mixed use (commercial and residential).
- **North:** residential (medium and high density).
- **Central:** mixed use (downtown core).
- **South:** residential (medium density).

Figure 4 depicts Burlington's zoning districts.

The corridor serves two primary functions. It provides regional access to the core of the City, and it also provides local access for the residential and various commercial land uses located along the corridor.

These competing uses create tension. Such tension is common along transportation corridors that require both mobility and access within the same space. This tension manifests in competition for space among shorter- and longer-distance travelers and in the need for localized parking or placemaking.

Ultimately, land use is the fundamental input when determining the character and role of a corridor. The future alternatives must consider that tension and balance competing needs.

FIGURE 4: CITY ZONING DISTRICTS



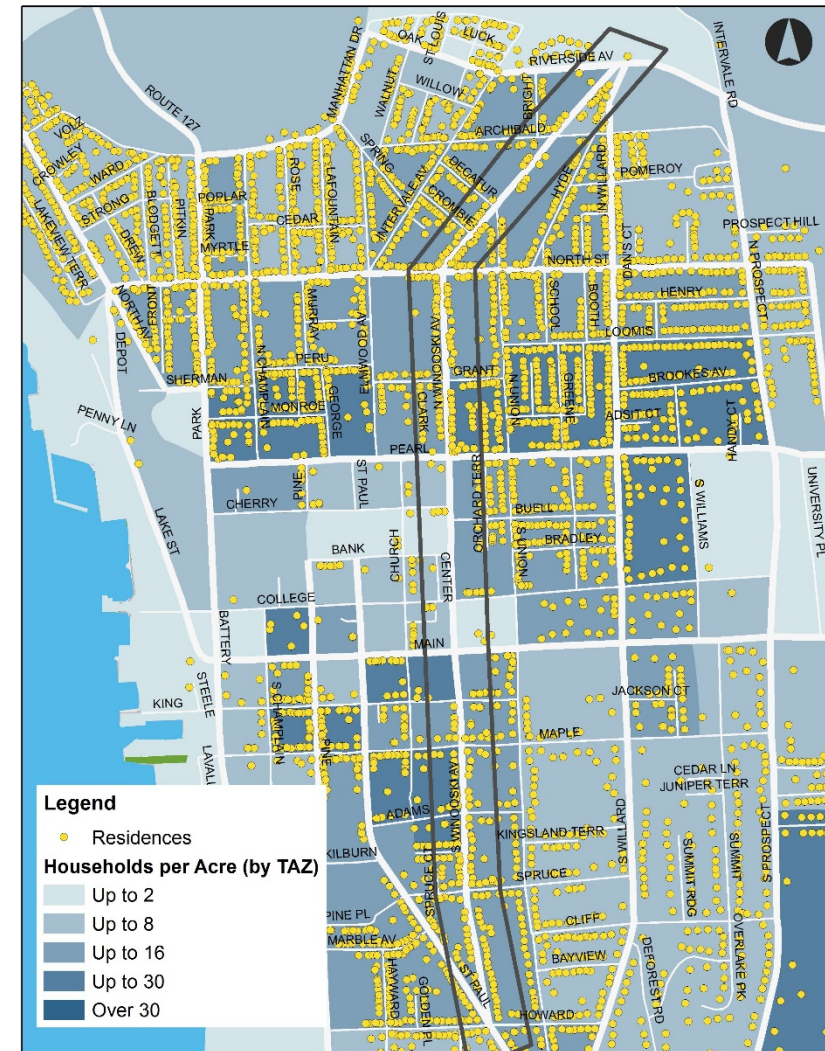
Source: City of Burlington Planning and Zoning

## Housing and Employment

Determining the character of the Winooski Corridor requires understanding its current uses, including for housing and employment. To this end, analyzing housing and employment can reveal patterns and relationships at the root of travel demand. For instance, proximity between housing and employment can support walking, bicycling, and other active modes and indicate areas of parking demand.

Figure 5 depicts the housing and employment data by density in each transportation analysis zone (TAZ) used in the CCRPC's regional traffic model (the model is not used in this study, but it is used).<sup>2</sup> The residential zones along the corridor—north of Pearl Street and south of Main Street—are consistent with the rest of the City, with an average density of up to 16 households per acre.

FIGURE 5: HOUSING DENSITY AND LOCATIONS (2015)



Source: CCRPC and RSG

<sup>2</sup> The CCRPC Regional Travel Demand Model is not used in this study. However, it has been used in the Phase 1 study and is used

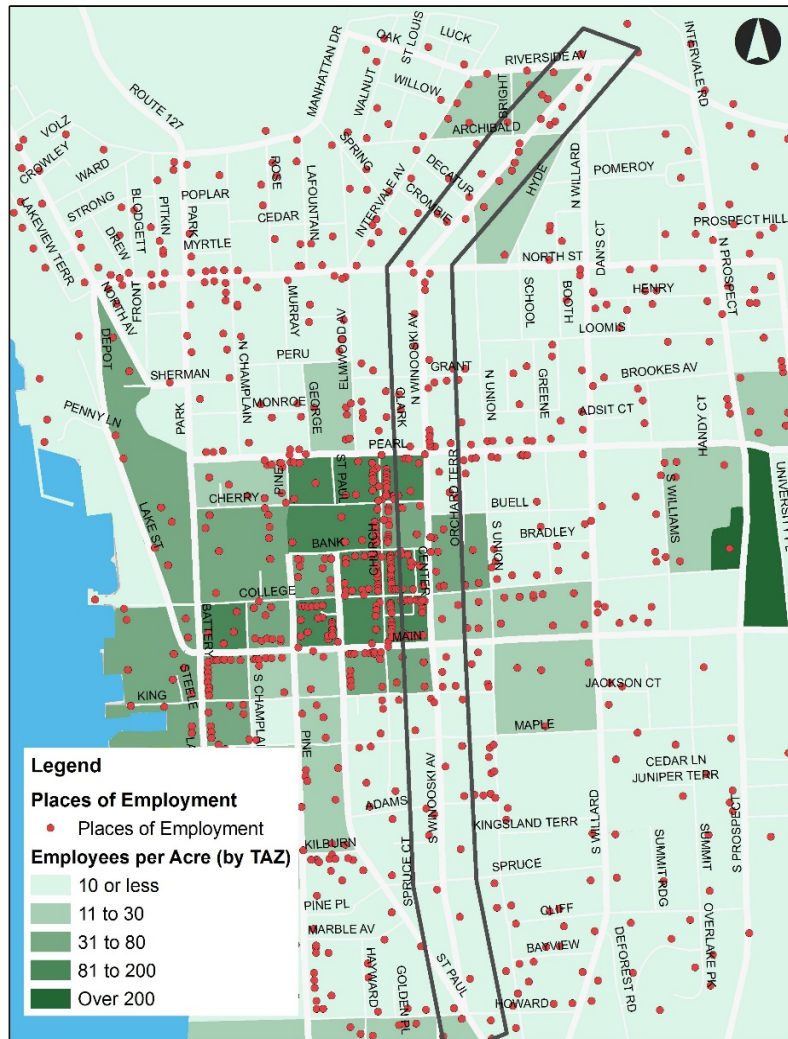
extensively in Chittenden County and Burlington to forecast traffic demands.





The employment density (Figure 6) is close to an inverse of the household density, with the downtown core providing most of the employment.

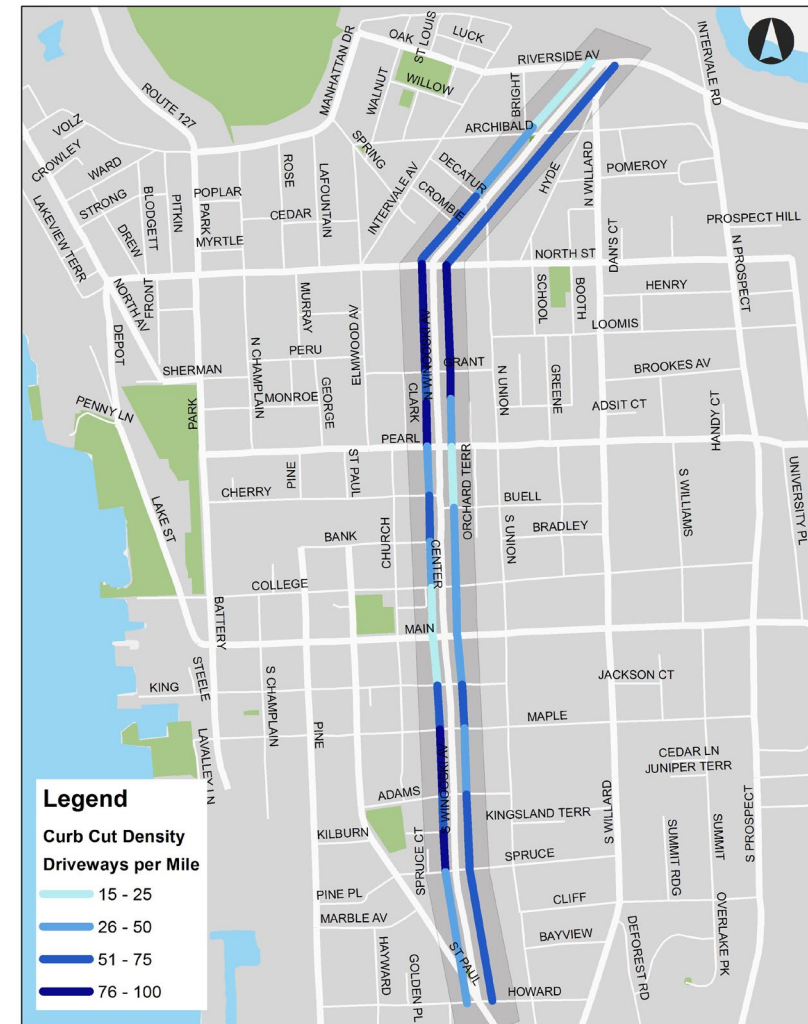
**FIGURE 6: EMPLOYMENT DENSITY AND LOCATIONS**



Data Source: CCRPC Regional Model

The curb cut density (Figure 7) demonstrates a correlation between density and the number of curb cuts. This information is particularly important when considering on-street parking, types of bicycle facilities, and number of conflict points along lengths of the corridor.

**FIGURE 7: CURB CUT (DRIVEWAY) DENSITY**



Source: RSG

## 3.2 MULTIMODAL INFRASTRUCTURE

Four corridors serve the primary north-south movement through Burlington:

- Battery Street/St. Paul Street/North Champlain Street.
- Winooski Avenue.
- Willard Street.
- Prospect Street.

Aside from Winooski Avenue, these corridors provide two-way mobility for vehicles and pedestrians along their lengths. None of these corridors provide bicycle facilities along their entire lengths.

Winooski Avenue's pavement width<sup>3</sup> is 29 feet south of King Street and 36 to 43 feet north of King Street. It has six distinct cross sections, as shown in Figure 8, with differences in the presence, type, and directionality of travel lanes, bicycle facilities, and on-street parking. Sidewalks are on both sides of the street (outside of the paved width), but all other cross-section elements are inconsistent.

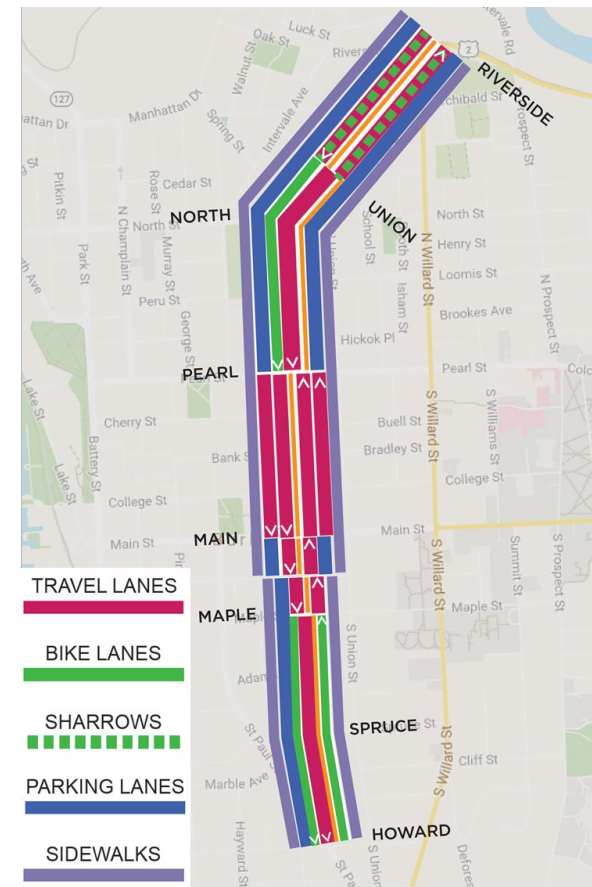
The inconsistency of travel lanes and bicycle facilities may make bicycling less desirable and both modes more confusing and less efficient. At intersections, changes from one cross section to

**On-street parking** is inextricably linked to multimodal infrastructure and connectivity due to the space it consumes in the public right-of-way, and safety issues such as “dooring” that can occur when car doors are opened as a bicyclist is passing. Parking is discussed in Section 3.4.

another may cause additional confusion, which may lead to unexpected turning movements and crashes.

The following subsections dive into the primary modes used along Winooski Avenue—walking, bicycling, driving, and riding transit—and how the corridor is and is not currently meeting the needs of these modes and user groups.

**FIGURE 8: CROSS-SECTION OVERVIEW**



Source: RSG

<sup>3</sup> Pavement width is the distance between curbs, including parking and travel lanes; it excludes sidewalks and green belts.





## Walking

Walking is a fundamental mode of transportation and ensuring that safe and accessible pedestrian facilities are present throughout the corridor is essential.

Winooski Avenue has continuous and consistent sidewalks along the length of the corridor. The standard five-foot wide sidewalk is the predominant facility type, with a handful of locations having slightly wider facilities.

Throughout most of the corridor, the sidewalks are buffered from travel lanes by a green belt at least five feet wide. No green belt exists between Pearl Street and Main Street except on the east side north of Bank Street, though some areas along this stretch have street trees in the sidewalk. Generally, areas with wider sidewalks do not have a green belt; one positive aspect is exchanged for another due to space constraints.

All signalized intersections in the study corridor, except for the southern terminus at Howard Street, have pedestrian push buttons and a walk phase. Some signals in the downtown core (Pearl Street to Main Street) have the pedestrian walk phase called during every signal phase (“recall”) regardless of whether a person pushes the button or not.



*Wide sidewalk with street trees outside City Market, adjacent to four lanes of traffic on Winooski Avenue*

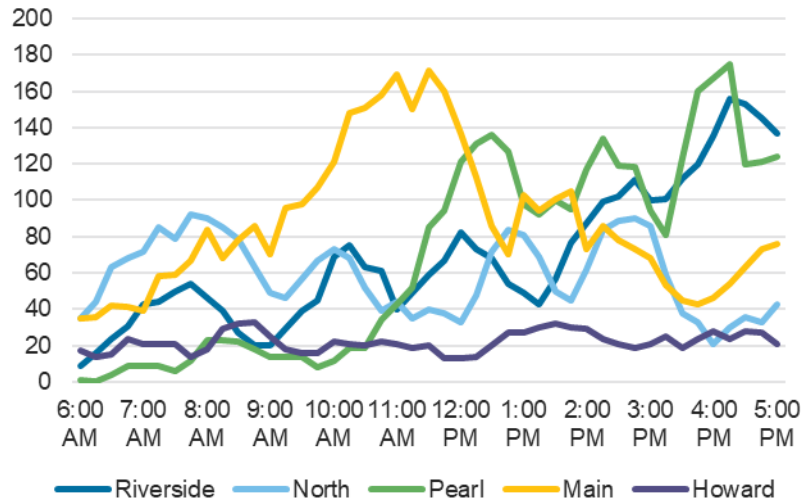


*Typical sidewalk along Winooski Avenue outside of the downtown core*

## Pedestrian Volumes

Pedestrian volume data are available from turning-movement counts at major intersections along Winooski Avenue (Figure 9).

**FIGURE 9: HOURLY PEDESTRIAN VOLUMES AT MAJOR INTERSECTIONS**



Source: CCRPC and RSG

Figure 9 depicts how different locations along Winooski Avenue have different pedestrian demands, both in overall volume and by time of day.

- The **Howard Street** intersection in the mostly residential South End has a relatively steady pedestrian volume and lower pedestrian volume relative to the other intersections along the corridor.
- The **North Street** intersection has midrange volumes that follow school travel times.
- The **Pearl Street** and **Riverside Avenue** intersections (both in mixed-use areas) have increasing pedestrian

volumes as the day progresses, with peaks at commuting times and lunch time.

- **Main Street** has a clear peak volume at midday and has the highest total daily volume of these five intersections.

Sidewalk areas along Winooski Avenue exhibit signs of high demand and inadequate facilities, such as areas with trampled grass right next to the sidewalk. This was observed in several locations along the corridor.



*Inadequate Sidewalk Width On Winooski Avenue (Left: North of Pearl Street, looking south; Right: North Winooski Avenue)*

## Rating Pedestrian Facilities

Factors that affect the experience of people using pedestrian infrastructure include demand (number of users), the width of the facilities, surface conditions, the distance and type of buffer between pedestrian facilities and the roadway, the comfort and exposure of adjacent land uses, and the speed and volume of adjacent vehicular traffic. At intersections, accessible curb cuts,





tactile ramps, and signal phasing are basic infrastructure that should be present throughout the corridor.

A pedestrian quality-of-service rating study was created to reflect criteria important to the City of Burlington. Figure 10 shows the pedestrian quality of service. The quality of service is a function of the physical elements rather than the number of pedestrians (e.g., density of users) given the scarcity of pedestrian count data.

Metrics used in the proposed pedestrian quality-of-service system include the following:

- Ratio of buffer width (including green belt, bicycle lanes, and parking lanes) and number of travel lanes.
- Buffer type (e.g., green belt, concrete).
- Street tree density.
- Percentage of block immediately adjacent to large parking lot.
- Sidewalk width lacking (generalizes that the entire segment between Main and Pearl Streets should be five feet wider).
- Longest curb cut.

**FIGURE 10: EXISTING PEDESTRIAN QUALITY OF SERVICE ALONG WINOOSKI AVENUE**



Source: RSG

## Bicycling

Bicycling is gaining popularity as a form of transportation, and not just recreation, around the country and in Burlington. For many people, it is a primary way to move around town, whether due to its affordability, its convenience, or its health, social, or environmental benefits.

### Why are walking and bicycling important for Burlington?

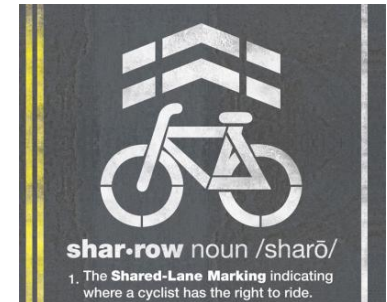
*Excerpt from planBTV*

“First, people care about it! Even with limited infrastructure and no comprehensive plan in place, census data shows that more Burlington residents are getting to work by bicycle or on foot. Second, safer walking and bicycling conditions will improve the quality of life for everyone. A growing body of data from around the country documents that growth in walking and bicycling brings a host of environmental and economic benefits tied to reduced traffic congestion, reduced vehicle emissions, lower road maintenance costs, savings in healthcare costs, increased independence for those who can't drive, and more.”

Winooski Avenue is a desirable corridor to ride a bicycle. It is a primary north-south corridor through Burlington that links neighborhoods and provides access to many businesses, homes, and services. It also has relatively flat terrain. However, the inconsistency of bicycle facilities, segments, and driveways with high volumes of vehicles, and challenging intersections, may result in people avoiding bicycling or feeling unsafe bicycling along parts of the corridor.

Bicycle facilities along Winooski Avenue include the following:

- Shared-lane markings (“sharrows”) between Riverside Avenue and Union Street/Decatur Street.
- A wide southbound bicycle lane between Union Street/Decatur Street and Pearl Street.
- No bicycle infrastructure between Pearl Street and Maple Street.
- Northbound (contraflow) and southbound bicycle lanes between Maple Street and Howard Street.



### Rating Bicycle Facilities

The primary factors that make a roadway better or worse for bicycling include the bicycle facility type and the roadway context. Roadways are “rated” for bicycling according to the **level of stress** bicyclists may experience based on these factors.





Factors that affect the stress level of bicyclists can include the following:

- Vehicle traffic speed and volume.
- Heavy vehicle (truck) volumes.
- Separation of bicycle facilities from vehicular traffic—by distance or a physical buffer.
- Presence of on-street parking.
- Driveway density.
- Pavement condition.

For example, a roadway with high motor vehicle speeds and volumes would be a high-stress roadway to a bicyclist, while a quiet residential street would be low stress. On the quiet residential street, there may be no need for bicycle facilities, but on the more heavily trafficked street, unprotected or protected bicycle lanes may be necessary to reach a low-stress environment for bicyclists.

**Bicycle Level of Traffic Stress (LTS)**<sup>4</sup> is one method used to “rate” bicycle facilities based on roadway context. The following are descriptions of each of the four traffic stress levels:

- **LTS 1:** Presenting little traffic stress and demanding little attention from cyclists, and attractive enough for a relaxing bicycle ride. Suitable for almost all cyclists, including children trained to safely cross intersections. Strong separation from all except low-speed, low volume traffic. Simple crossings.
- **LTS 2:** Presenting little traffic stress and therefore suitable to most adult cyclists but demanding more

attention than might be expected from children. Except in low-speed/low volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings. Physical separation from higher-speed and multilane traffic. Crossings that are easy for an adult to negotiate.

- **LTS 3:** More traffic stress than LTS 2, yet markedly less than the stress of integrating with multilane traffic, and therefore welcome to many people currently riding bikes in American cities. Crossings may be longer or across higher-speed roads than allowed by LTS 2, but are still considered acceptably safe to most adult pedestrians.
- **LTS 4:** A level of stress beyond LTS3. Involves interaction with higher-speed traffic or close proximity to high-speed traffic. (Note: not applicable to Winooski Avenue.)

In a region that experiences snow and freezing weather in winter, pavement condition and striping condition—both of which experience seasonal wear and tear—are particularly important factors.

The LTS system has a series of tables that can be used to determine the appropriate LTS for a given roadway segment. These evaluation criteria consider the number of travel lanes, bicycle lane width (or sum of bicycle lane width and parking lane width if next to a parking lane), prevailing speed, and amount of bicycle lane blockage (such as high parking turnover).

<sup>4</sup> Mineta Transportation Institute. 2012. “Low-Stress Bicycling and Network Connectivity,”

<http://transweb.sjsu.edu/sites/default/files/1005-low-stress-bicycling-network-connectivity.pdf>.

Using these criteria tables alone, the LTS for segments along Winooski Avenue ranges from LTS 1 to LTS 3. This finding does not intuitively match the LTS descriptions above. This mismatch may stem from several factors:

- Winooski Avenue meets the system’s low-speed threshold with a speed limit of 25 mph (which vehicles largely conform to—see Section 3.3 of this report). However, relative to the rest of the City, 25 mph is typical and may still feel fast to some bicyclists, especially considering other factors such as traffic volume and number of driveways.
- The LTS tables use number of lanes rather than vehicle volume as a way to make the ratings accessible without volume data. This can oversimplify the ratings.
- Separate tables are used to define LTS at intersections<sup>5</sup>. As a result, a segment with higher-stress intersections throughout would *not* have a higher LTS to reflect that. Winooski Avenue has several high-stress intersections.

**To better match the intention of the LTS ratings in a way that fits in the context of Burlington, the City has developed a draft set of criteria for rating level of stress:**

- **LTS 1:** Bicycle paths, protected bicycle lanes, and greenways.
- **LTS 2:** Bicycle lanes and buffered bicycle lanes on lower-volume streets.\*
- **LTS 3:** Bicycle lanes and buffered bicycle lanes on higher-volume streets\* or shared-lane markings.

- **LTS 4:** No designated bicycle facilities or markings on higher-volume streets.\*

*\*An AADT of 5,000 vehicles per day may be an appropriate threshold between lower-volume streets and higher-volume streets.*

**FIGURE 11: BICYCLE LTS USING CITY CRITERIA**



Source: RSG and City of Burlington  
Although on-road northbound bicycling is not permitted between Pearl Street and Decatur Street, many people cycle northbound, either “salmoning” in the southbound bicycle lane or against traffic in the travel lane

<sup>5</sup> High stress intersections lack continuous infrastructure and have greater number of vehicle conflicts.



## Bikesharing

Bikesharing is an innovative transportation program, ideal for short-distance, point-to-point trips. Hub-based bikesharing offers users the ability to pick up a bicycle at any self-serve bicycle station and return it to any other bicycle station located within the system's service area. Users can access the system through low-cost subscriptions ranging from a few dollars for one day use to annual memberships.

Greenride Bikeshare launched in Burlington, Winooski, and South Burlington in April 2018 with the first phase of a multiyear rollout. The Greenride system is currently a hub-based bikeshare model, requiring users to end their trip at a hub or pay an additional \$5 fee when locked away from a hub.

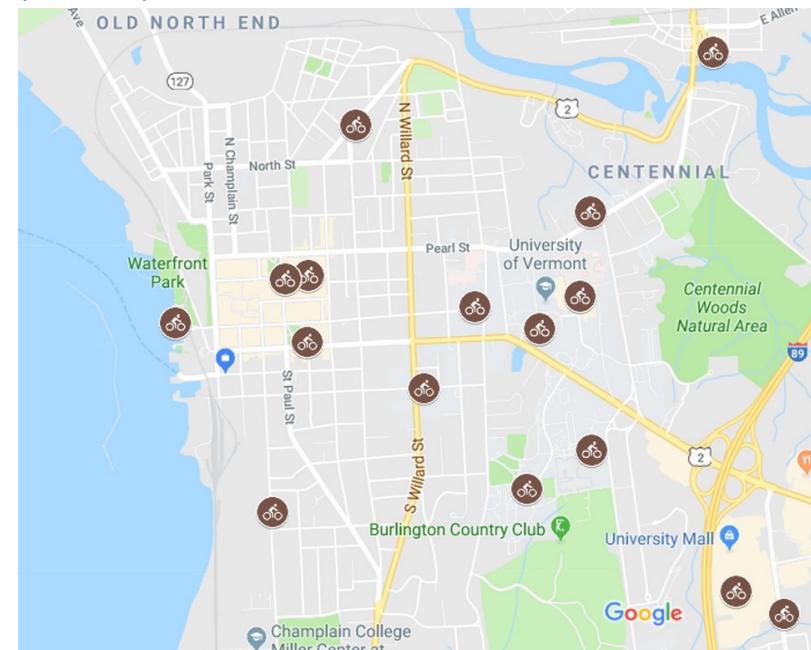
Greenride will eventually provide a high level of coverage throughout Burlington and adjacent communities. Phase 1 deployed 17 hubs. Phases 2 and 3 will introduce another 20–25 hubs and increased flexibility of “virtual hubs” (locations where dockless bikes can be parked), an additional 100 bikes, and a replacement to an all e-bike fleet.

One hub is located along the study corridor at 237 North Winooski Avenue, a building with 28 apartments and a yoga studio. Another two hubs are located nearby on Church Street. A map of existing Greenride hubs in Burlington is shown in Figure 12.



*Greenride Bikeshare hub at 237 North Winooski Avenue*

**FIGURE 12: GREENRIDE BIKESHARE HUBS IN BURLINGTON (PHASE 1)**



Source: Greenride Bikeshare



## Driving

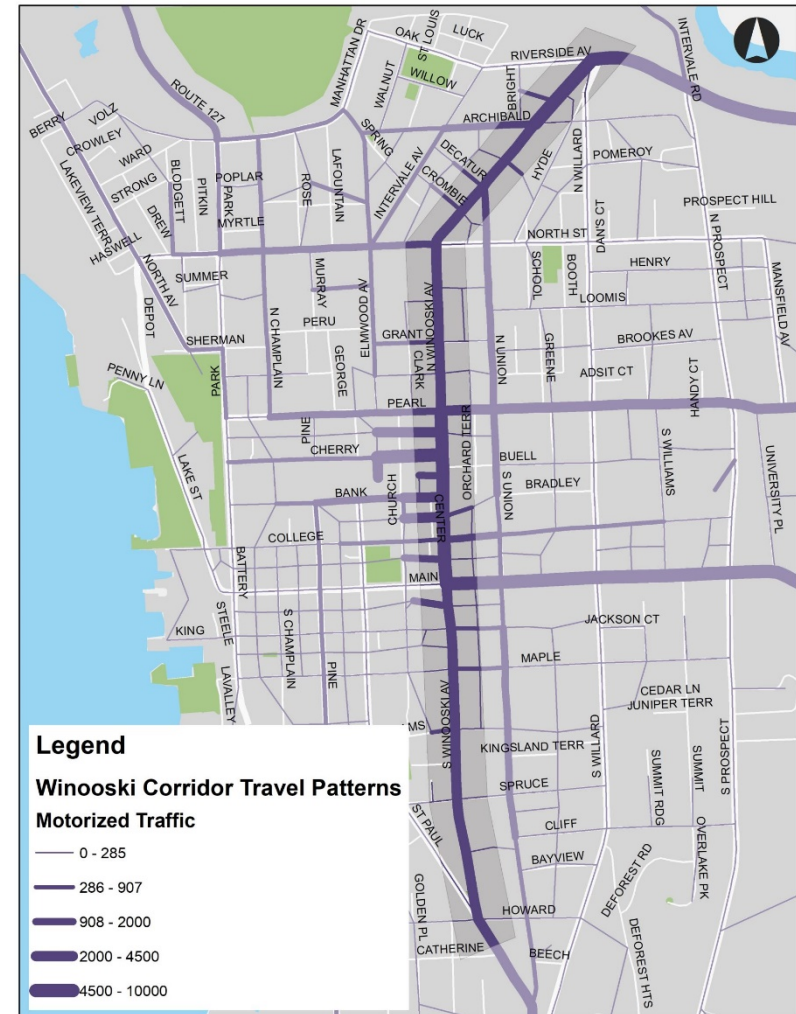
In recent years, the proportion of people using different modes of transportation has shifted. The result of this shift has been a reduction in driving, though it remains the predominant mode choice. In addition, many people who use other forms of transportation also occasionally drive. Most of the right-of-way along Winooski Avenue is designated for vehicles, whether in the form of travel lanes or parking.

### Vehicle Volumes

Winooski Avenue is an important driving route to and through the core of Burlington. Figure 13 shows that most of the corridor's traffic enters and exits Burlington via Riverside Avenue, Pearl Street, and Main Street. Union Street is an important parallel street due to its function with Winooski Avenue as a one-way travel pair.

Along Winooski Avenue, the highest traffic volumes occur within the four-lane section between Pearl Street and Main Street, with an average annual daily traffic around 11,000 vehicles (Figure 14).

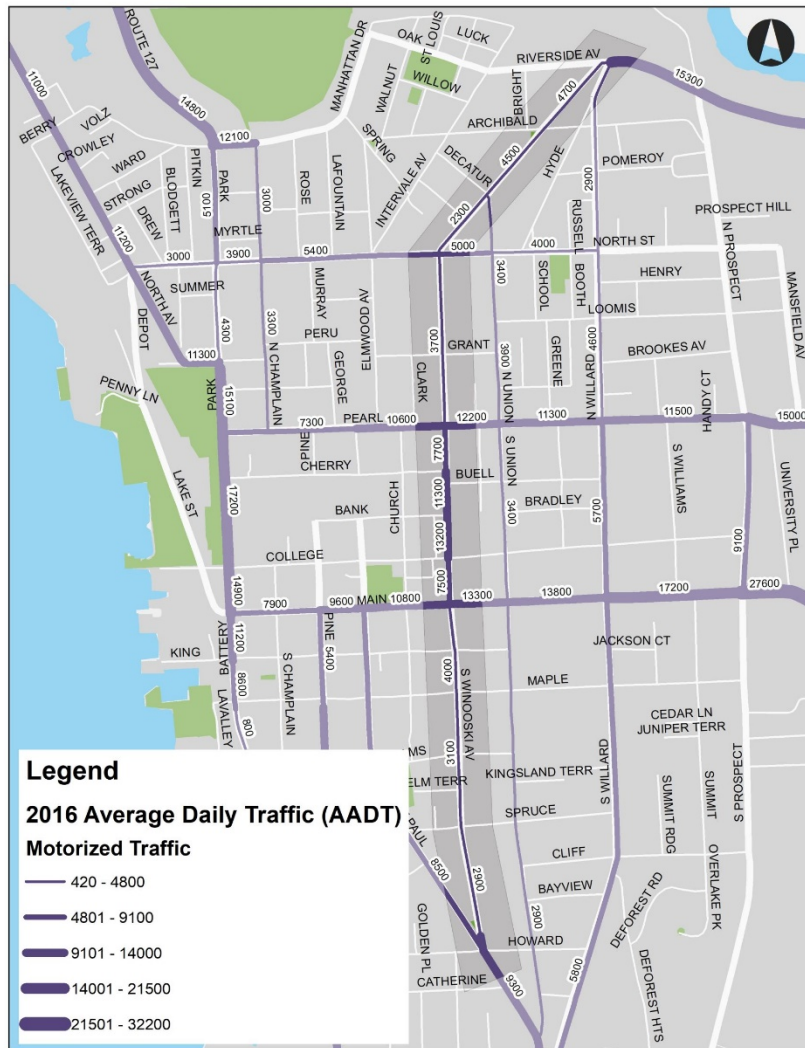
**FIGURE 13: TRAVEL PATTERNS OF VEHICLES ACCESSING WINOOSKI AVENUE**



Source: CCRPC Regional Traffic Model

This map is based on a "select link" analysis; the volumes shown only include vehicles that drive on Winooski Avenue as part of their trips

**FIGURE 14: DAILY TRAFFIC VOLUMES (2016)**



Data Source: VTrans

## Rating Driving Facilities

Vehicle infrastructure can be rated using the LOS system at intersections, which is based on the average delay experienced by motorists during the peak hour of an average day. It runs on a scale from A (lowest delay) to F (highest delay). Delay is impacted by vehicle volumes, number of lanes (including turn lanes), traffic control type (e.g., signalized, unsignalized, and roundabout), and signal phasing.

In urban areas such as the project location, higher LOS ratings (signifying lower delay) are not necessarily desirable. The CCRPC and the City of Burlington generally aim for LOS D, and LOS E can even be acceptable. Within local permit applications, the City can determine acceptable levels of congestion. The City does not have a formally adopted congestion policy or guidance on when to use alternatives to the VTrans policy during statewide Act 250 permitting.

Figure 15 and Figure 16 show the LOS and queues at key intersections along the study corridor and pertinent adjacent streets during the weekday AM and PM peak hour, respectively.

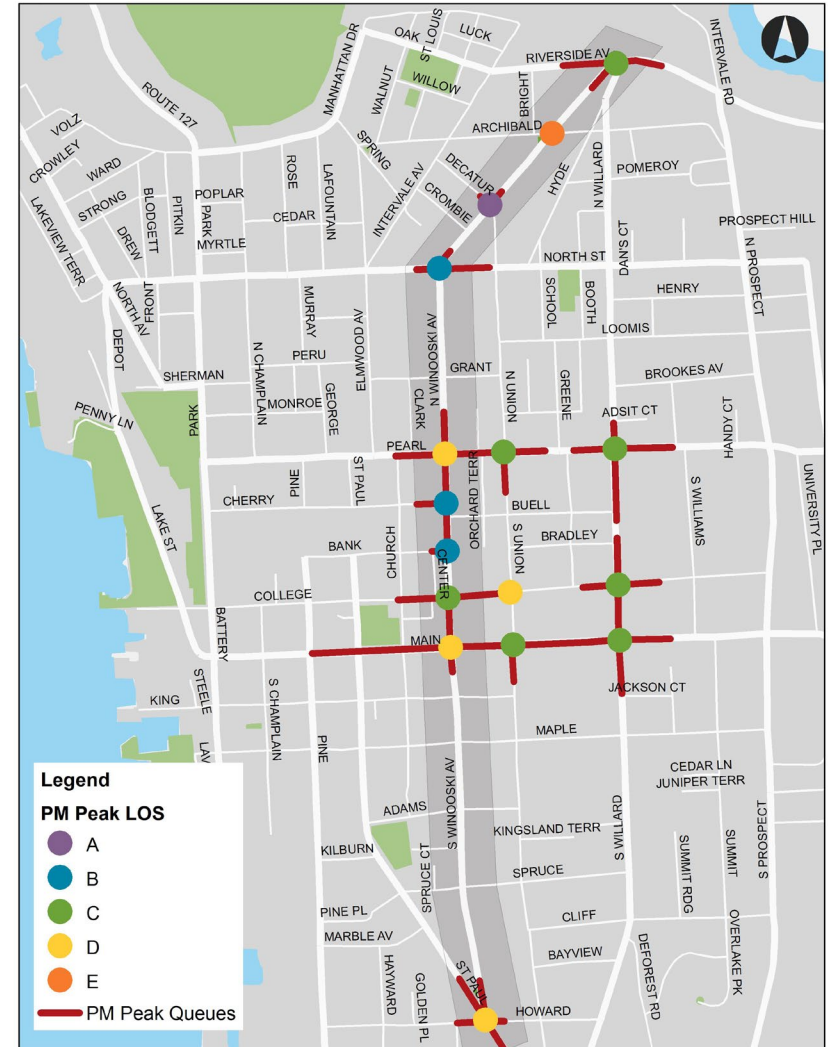
The midday peak hour was not evaluated, though congestion can be observed in the downtown core during midday. Also, the City Market driveway and Marketplace Garage exit were modeled as intersections for traffic analysis but are not shown on the map or summaries within this report.

**FIGURE 15: INTERSECTION LOS AND QUEUES IN AM PEAK HOUR**



Data Source: Microsimulation analysis performed by RSG

**FIGURE 16: INTERSECTION LOS AND QUEUES IN PM PEAK HOUR**



Data Source: Microsimulation analysis performed by RSG



The traffic operations summarized in Figure 15 and Figure 16 provide a limited view of traffic operations within the study corridor.

The standard methodology (based on the Highway Capacity Manual) has limitations when conditions outside of the study, such as the frequent long queues along Main Street, impact the operations along Winooski Avenue. Queues can often extend from the “jug handle” at Main Street/Spear Street/East Avenue and continue westerly down the hill along Main Street. These queues can affect the ability for vehicles to exit Winooski Avenue onto Main Street.

The delay shown is averaged for a full hour of analysis, which does not explicitly account for short periods when average delays are much longer.

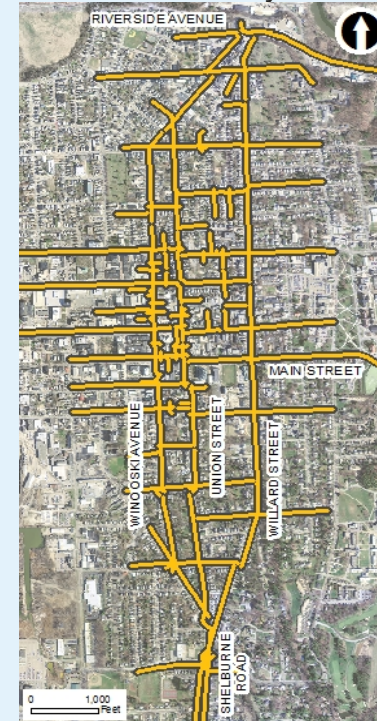
Even with these limitations, the modeling of operations within the corridor offer valuable insights into how changes in lane allocation, turn lanes, driveways, and future traffic demands may change relative to the current conditions.

## About the Traffic Model

The traffic model that vehicle volume and LOS data in this report is based on is implemented in the TransModeler™ software program. It was originally developed as a subarea focus area from the CCRPC regional travel demand model.

The Winooski Avenue Traffic Microsimulation Model includes detailed information on roadway classifications, speeds, geometrics, intersection controls, signal timings, and traffic volumes. The Phase 1 Winooski Study included an assessment of existing conditions and several possible future configurations.

### *Extent of traffic analysis model*





*Midday queuing along Winooski Avenue (looking north from Bank Street intersection)*

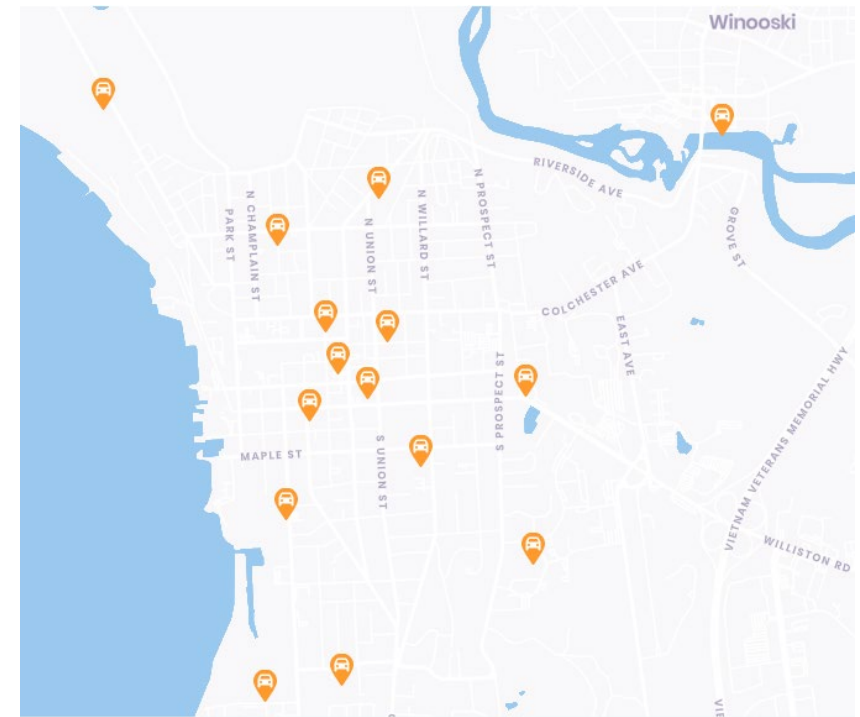
## Carsharing

Carsharing allows people to rent cars for short periods of time, which can make it possible for households that use these services to own fewer personal vehicles. This service is available in Burlington through CarShare Vermont, which offers monthly and yearly memberships to access its fleet of vehicles parked in neighborhoods around the City and in nearby Winooski.

One hub is located along the study corridor at 258 North Winooski Avenue (Silversmith Commons), and six other hubs are available within a quarter-mile walk from Winooski Avenue. These hubs are all in high demand due to the high density of both residential and business user groups along Winooski Avenue and in downtown Burlington.

For carsharing to work efficiently and meet the needs of a community, it needs convenient, multimodal access to its hubs and safe, accessible locations for hubs. Bicycle parking is available at or adjacent to all the carshare hubs.

**FIGURE 17: CARSHARE HUBS**



Source: CarShare Vermont

## Delivery Vehicles

Nonresidential land uses often require use of commercial delivery vehicles and benefit from dedicated loading zones. Zones identified by a loading zone sign prohibit noncommercial vehicles, or those with a loading zone permit or coupon, from using the space.

Locations such as in front of the eating and entertainment establishments just north of Pearl Street have high levels of on-

demand mobility demand and the need for a loading zone. The two uses seldom overlap.



Loading zone on Winooski Avenue at the former Sam's Wood Furniture near Riverside Avenue

## Shared Mobility

Transportation network companies (TNCs) such as Uber and Lyft have proliferated by offering new technologies to deliver on-demand car travel options. Traditional taxi companies have started using similar phone-based travel technology. TNCs and taxi companies provide car travel without the need to own a personal vehicle; these services also provide employment for the drivers. The vehicle-for-hire companies pay 25 cents per trip to the City of Burlington. From November 2016 through

<sup>6</sup> Davis, Mark. 2017. "Uber Has Sped to the Top of Burlington's Ride-for-Hire Heap," <https://www.sevendaysvt.com/vermont/uber-has-sped-to-the-top-of-burlingtons-ride-for-hire-heap/Content?oid=9196614>.

<sup>7</sup> Uber Health [uberhealth.com](https://uberhealth.com)

September 2017, there were 427,828<sup>6</sup> vehicle-for-hire trips originating in Burlington.

On-demand delivery is starting to become more visible in Burlington. Mr. Delivery and Uber Eats are two example delivery services from restaurants that add to the already established and growing trend of grocery store deliveries from Price Chopper and Hannaford. All these services substitute an individual need for travel with an often more efficient delivery service combining several orders in one vehicle.

Both Uber<sup>7</sup> and Lyft<sup>8</sup> are experimenting with contracts with health providers to enable on-demand mobility for patients who may have limited travel options.

The on-demand economy, combined with the market penetration of smartphones, has increased the number of goods and services that can be procured and delivered, thereby reducing individual trips. At this time, Burlington does not have any parking designated for TNCs.

## Taking Transit

GMT is a transit system like few others. It is a medium-sized system whose core services are focused on a small city and urban area, but one that has also grown rapidly over the past 15 years to provide service throughout much of northern and central Vermont.

### *Ridership and Connectivity*

The Downtown Transit Center located on St. Paul Street between Cherry and Pearl Streets is the hub of the GMT local

<sup>8</sup> Forbes. January 29, 2020.

<https://www.forbes.com/sites/brucejapsen/2020/01/29/lyft-signs-ride-share-deal-with-the-big-health-system-commonspirit/#6c135fc24593>



system. Buses traveling to and from here require travel across, if not on, Winooski Avenue.

GMT recently completed the NextGen Transit Plan, the first comprehensive evaluation of the complete transit system in many years. The reboot changed the routes on the Winooski Avenue corridor, they include:

### Gold Line (City Loop)

- 30-minute service during weekdays and Saturday, 60-minute service on Sunday.
- 6:30 a.m. to 6:30 p.m. weekdays and Saturday, 8:30 a.m. to 6:30 p.m. on Sunday.

### Green Line (Riverside/Winooski)

- 30-minute service during day and 60-minute service after 8:25 p.m. 6:00 a.m. to 11:00 p.m. weekdays.
- 30- to 60-minute service on Saturday. 6:00 a.m. to 11:00 p.m. Saturday. 60-minute service on Sunday, 7:40 a.m. to 6:00 p.m.

### Blue Line (Essex-Shelburne via Downtown Burlington)

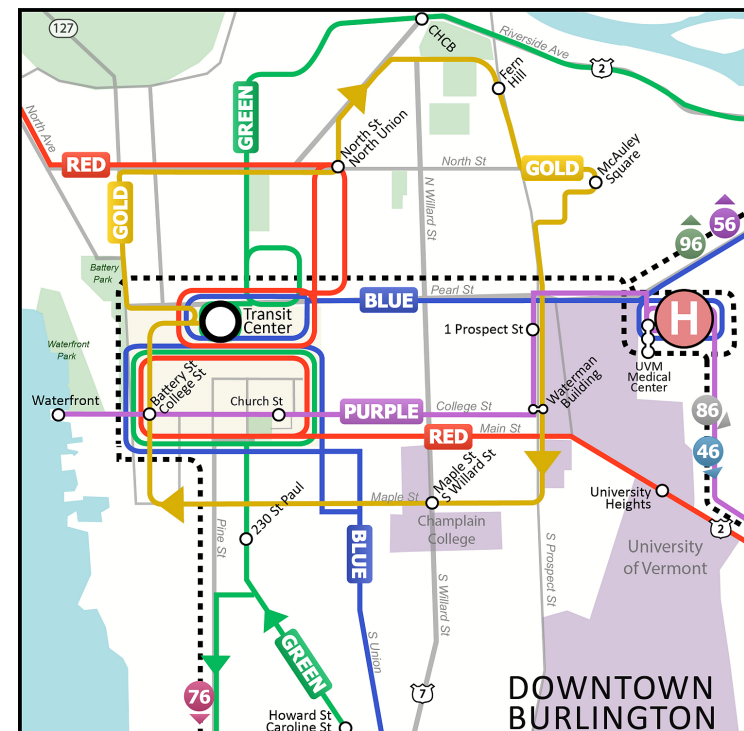
- Major Urban Local route.
- Weekday 20-minute service during day and 30- to 60-minute service at night. Service from 6:00 a.m. to 11:00 p.m.
- 30-minute service on Saturdays and 60-minute after 8:35 p.m. Service from 6:00 a.m. to 11:00 p.m.
- 45-minute service on Sundays between 8:35 a.m. and 7:00 p.m.

### Red Line (North Avenue to Williston)

- Detailed schedule shows bus travels on Union Street and Winooski Avenue only between Pearl Street and North Street. 20-minute service during weekdays, 6:00 a.m. to 11:00 p.m. 30-minute service on Saturdays, 6:00 a.m. to 11:00 p.m. and 45-minute service on Sundays, 8:00 a.m. to 6:00 p.m.

Figure 18 shows the local routes in Burlington that travel along or across Winooski Avenue. No existing route travels exclusively along Winooski Avenue.

**FIGURE 18: GMT LOCAL BUS ROUTES**

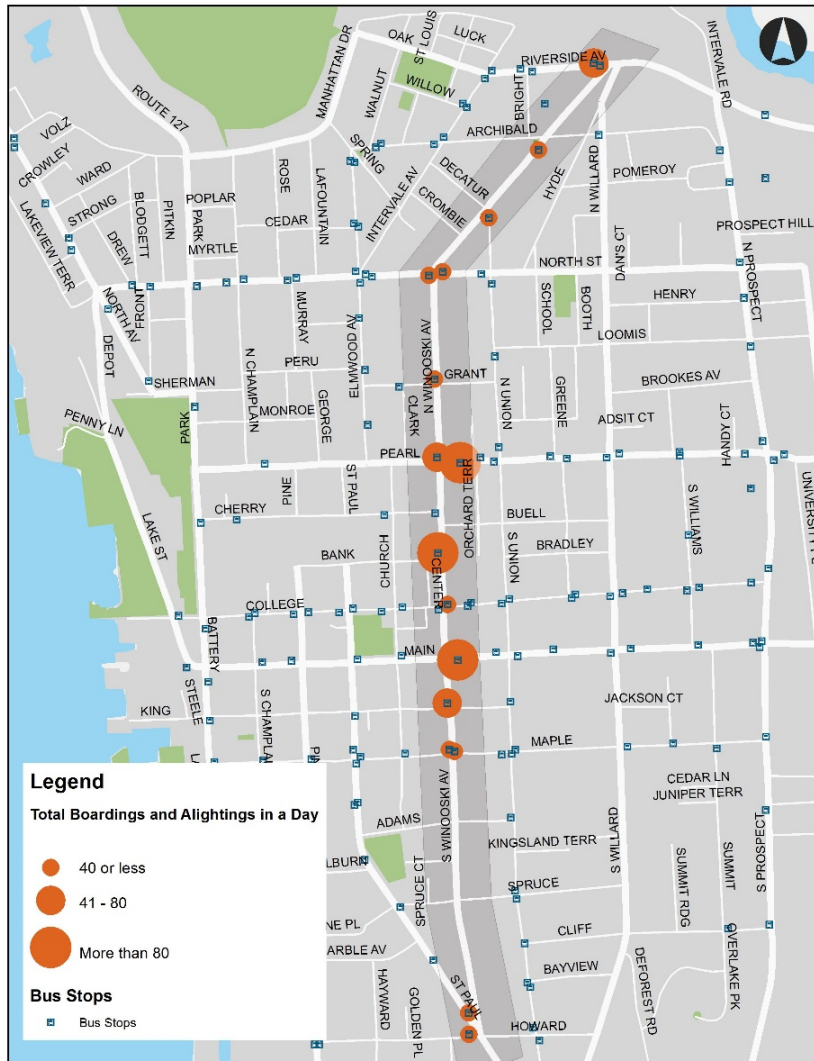


Source: GMT



Figure 19 shows ridership data for the bus stops along Winooski Avenue, in the form of total boardings and alightings in one day. The places of high bus demand correlate with areas of high employment and mixed-use land development.

**FIGURE 19: GMT BUS STOP DEMAND (2017)**



Source: GMT and RSG

## Bus Stop Infrastructure

Bus stop infrastructure varies along the corridor, with most stops consisting of a simple static sign and an informal waiting area on the sidewalk or greenbelt.

Table 1 shows a generalized concept of the type of amenities that could be at bus stops. A review of the bus stops along the corridor found that few of the standard amenities are present, and high-demand spots are particularly deficient. GMT is actively updating the Bus Stop Guidelines with target amenities based on location and ridership demand.

**TABLE 1: CONCEPT BUS STOP AMENITIES**

AMENITY	LOCAL STOP <40 BOARDINGS	LOCAL STOP > 40 BOARDINGS	COMMUTER STOP
Lighting	✓	✓	✓
Static sign	✓	✓	—
Dynamic sign	—	✓	✓
Shelter	—	✓	✓
Seating	✓	✓	✓
Trash/Recycling	—	✓	✓



Table 2 shows the amenities found at bus stops along Winooski Avenue.

**TABLE 2: BUS STOP AMENITIES ON WINOOSKI AVENUE**

Stop	Shelter	Bench	Schedule/ Map	Trash/ Recycling	Lighting
Community Health Center	No	No	Yes	No	No
Opp. Community Health Center	No	No	Yes	No	No
No. Winooski Ave @ Archibald St	Yes	In Shelter	Yes	No	In Shelter
No. Union St @ No. Winooski Ave	Yes	In Shelter	Yes	No	In Shelter
North St @ N Winooski Ave	No	No	No	No	No
North St @ N. Winooski Ave	No	No	No	No	No
No. Winooski Ave @ Grant St	No	No	No	No	No
No. Winooski Ave @ Pearl St	No	No	No	No	No
<b>Pearl St @ N Winooski Ave</b>	No	No	No	No	Yes
<b>S. Winooski Ave @ Bank St</b>	No	No	No	No	No
College St @ S Winooski Ave	No	No	No	No	No
<b>Main St @ S. Winooski</b>	No	No	No	No	No
<b>S. Winooski Ave @ King St</b>	No	No	No	No	No
S. Winooski Ave @ Maple St	No	No	No	No	No
Maple St @ S. Winooski Ave	No	No	No	No	No
Howard and Caroline Sts	No	No	No	No	No

Source: RSG

Stops in bold font have more than 40 boardings a day; “no” in red means that this amenity is not present but should be according to Table 1



Archibald Street bus stop with shelter

Bicycle parking is another frequent amenity to improve modal integration. Frequently, bicycle parking spaces are available within a few hundred feet of bus stops even though no bus stop appears to have bicycle parking immediately proximate.



SB Bus Stop near Bank Street: no schedule or map, and trampled grass is evidence of high demand



### 3.3 SAFETY

Section 3.2 discussed many of the factors that affect comfort and perceived safety for each mode of transportation, safety can also be evaluated using historical crash data.

#### Crash History

Crash history is the primary metric used for understanding road safety and determining logical improvements. The following charts and information are based on a five-year window of crash data<sup>9</sup> along Winooski Avenue, between January 1, 2013 and December 31, 2017. Crashes reviewed include crashes at intersections along Winooski Avenue that may have occurred on the cross streets. Any plan or study attempts to use the most current available data at that time, which may result in some variations in the analysis between the current study and past studies.

#### *Winooski Avenue Crashes Relative to Local and State Data*

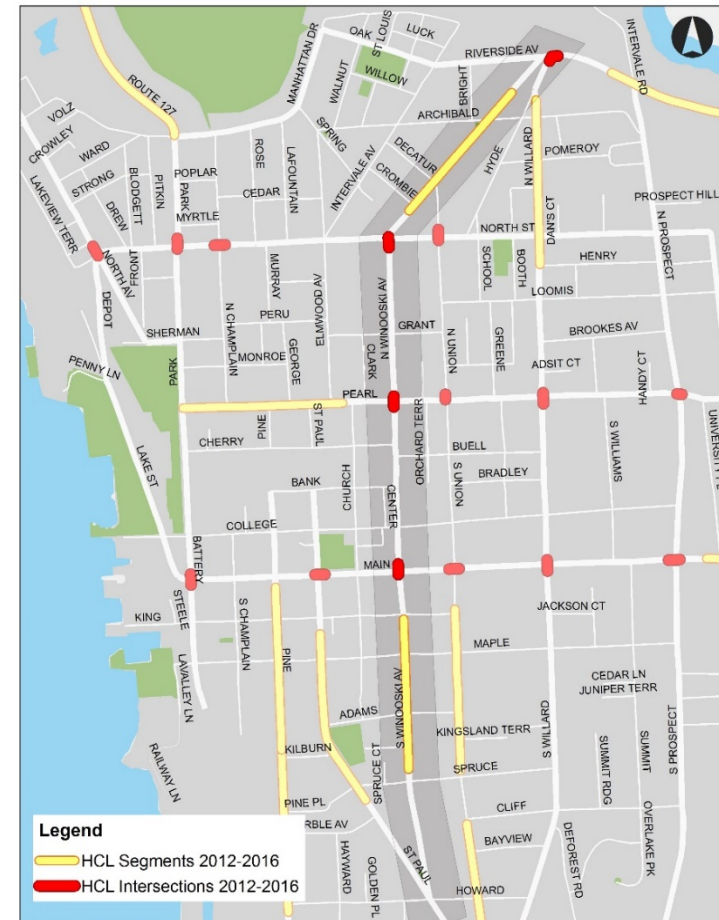
Crashes along Winooski Avenue account for the following:

- **10% of all crashes** in Burlington.
- **9% of injury crashes** in Burlington.
- **16% of bicycle crashes** in Burlington.
- **17% of pedestrian crashes** in Burlington.

**High crash locations (HCLs)** are defined as intersections or segments where the actual average crash rate exceeds the

statewide average crash rate for a similar roadway facility. These are shown in Figure 20.

**FIGURE 20: HCLs**



Source: RSG

<sup>9</sup> Obtained via the VTrans Public Crash Data Query Tool, a database that includes crash data from both local and state police. <http://apps.vtrans.vermont.gov/CrashPublicQueryTool>.

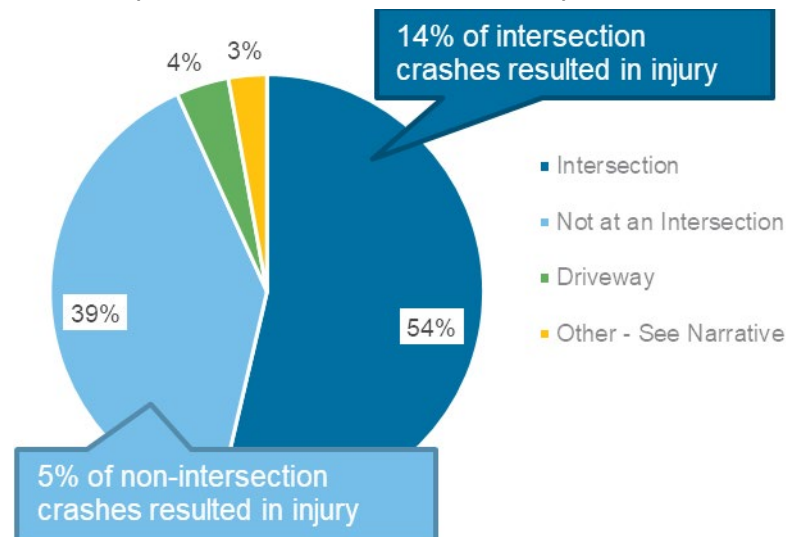
HCLs can help identify points of interest, but they do not always tell the full story. For example, the segment between Pearl Street and Main Street has the highest number of crashes along Winooski Avenue, yet it does not meet the requirements to be classified as an HCL.

The two-segment HCLs (north of North Street and south of King Street) are located along roadway segments with many curb cuts and on-street parking (see Figure 7), which introduce turning traffic and a higher number of conflict points.

### Crashes Along Winooski Avenue

Excluding crashes in parking lots, 54% of crashes along Winooski Avenue occurred at intersections, 4% occurred at driveways, and 40% occurred away from driveways or intersections. Figure 21 summarizes crash location type.

**FIGURE 21: CRASH LOCATION TYPES ALONG WINOOSKI AVENUE (NOT INCLUDING PARKING LOTS)**



Source: VTTrans Public Crash Data Query Tool

Figure 22 is a heat map that provides an overview of all crashes along Winooski Avenue. The four-lane segment between Pearl Street and Main Street has experienced the highest number of crashes along the corridor.

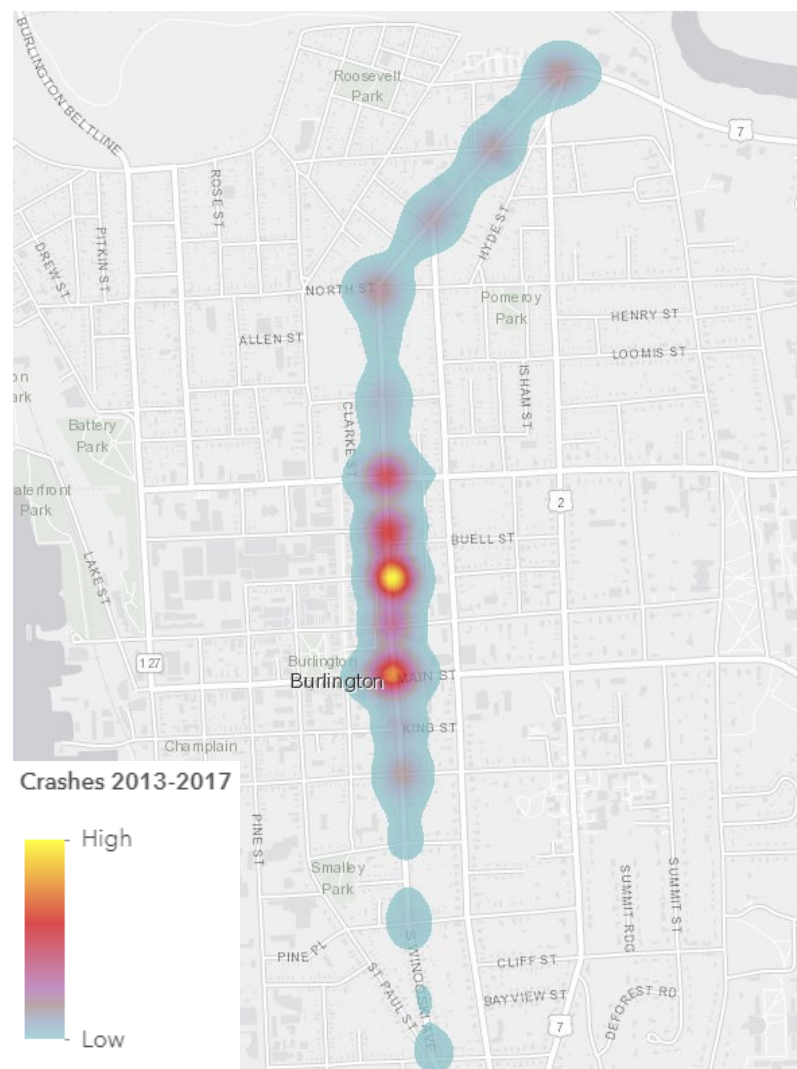
Figure 23 is a heat map of bicycle and pedestrian crashes along Winooski Avenue. Hot spots are centered at intersections, where bicyclists and vehicles must navigate lane changes, turning movements, and each other.

The busier and larger intersections along the four-lane segment have the highest number of bicycle and pedestrian crashes.

A heat map is a helpful visualization tool to quickly identify areas or locations with greater or lower intensities.

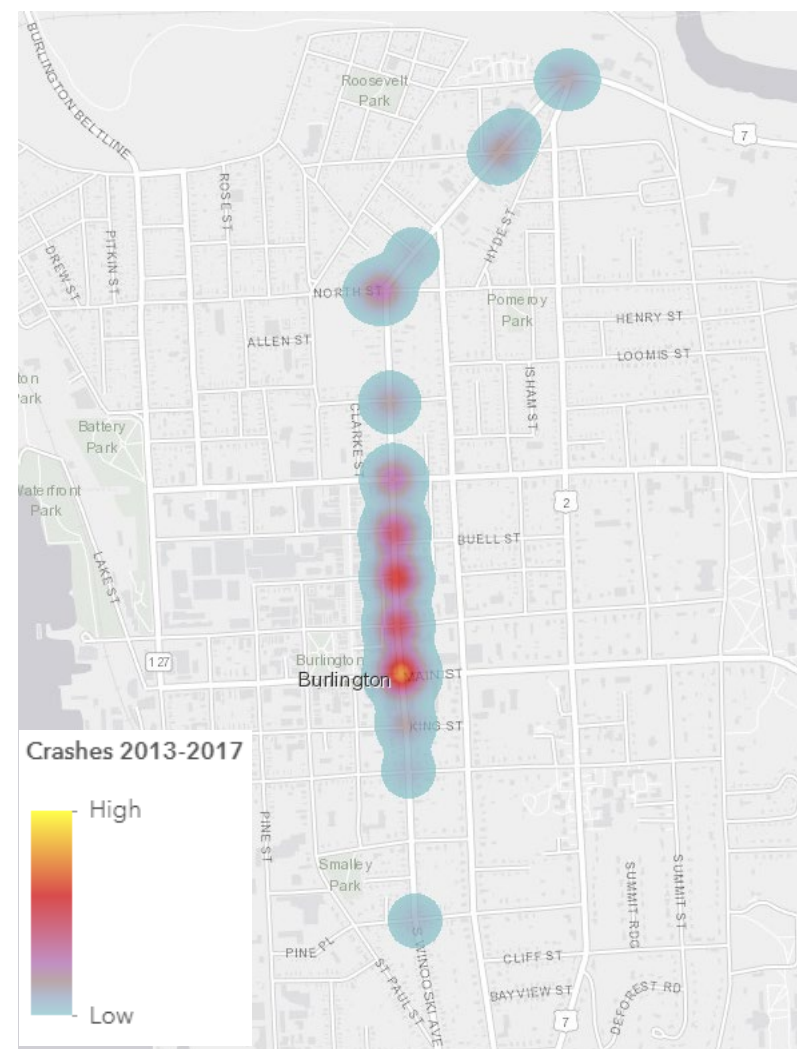


**FIGURE 22: HEAT MAP OF ALL CRASHES ALONG WINOOSKI AVENUE**



Source: VTrans Public Crash Data Query Tool

**FIGURE 23: HEAT MAP OF BICYCLE AND PEDESTRIAN CRASHES ALONG WINOOSKI AVENUE**

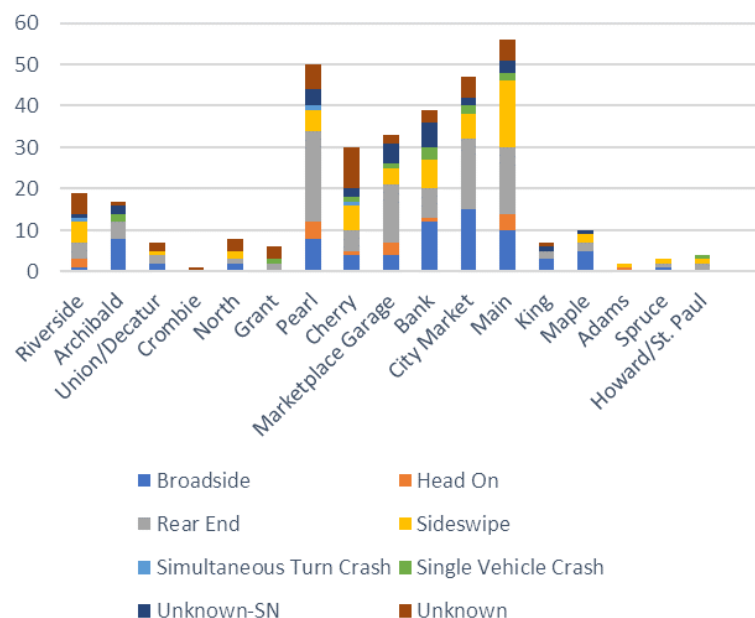


Source: VTrans Public Crash Data Query Tool

Note: "High" and "low" numbers of crashes are relative to the highest and lowest numbers along Winooski Avenue, not any other point of reference

Figure 24 displays details of crash types along Winooski Avenue.

**FIGURE 24: COLLISION TYPES AT INTERSECTIONS**



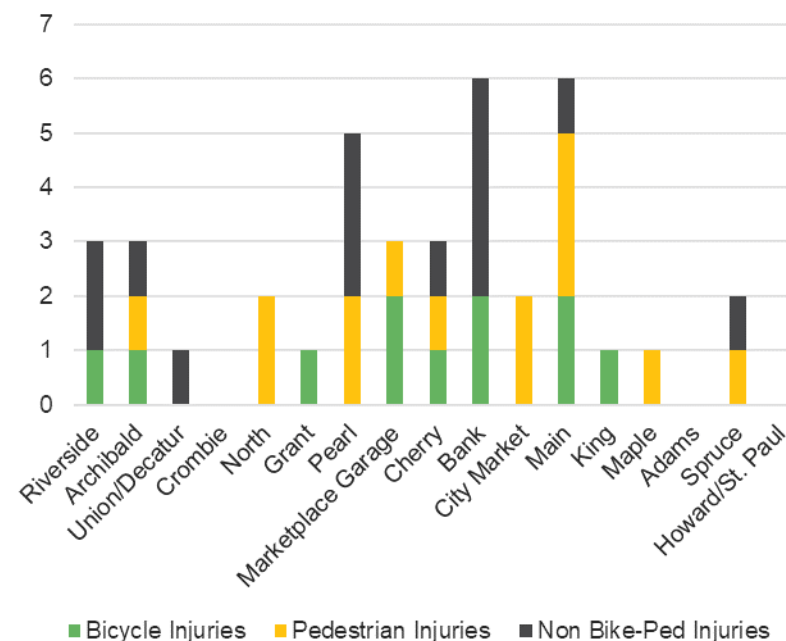
*67% of injury crashes (excluding those in parking lots) occurred at intersections.*

Source: VTrans Public Crash Data Query Tool  
 “Unknown-SN” refers to crashes marked as “Other—See Narrative” in the crash database; the project team did not review narratives.

The intersection crash data indicate that congestion and lane configurations are the two most likely contributors to crashes; congestion can lead to rear-end crashes, and various lane configurations can result in sideswipes. Most intersection crashes occurred between Pearl Street and Main Street. City Market and Marketplace Garage exit have similar numbers of crashes as street intersections.

Injury crashes by mode at each intersection are shown in Figure 25.

**FIGURE 25: INJURIES AT INTERSECTIONS, BY MODE**



Source: VTrans Public Crash Data Query Tool

Bank Street, Main Street, and Pearl Street had the highest total number of injury crashes.

**Note regarding City Market data:** An additional 62 crashes at City Market were categorized as “Parking Lot” in the VTrans data. Parking lot crashes are assumed to be within the parking lot and not at the intersection of the roadway, but some may be at the roadway. The data have not been evaluated to this level of detail.





A bicyclist and vehicles navigate the City Market driveway at Winooski Avenue

## Speeds

Vehicle speed is relevant to the safety of all modes of transportation. Vehicle speeds along Winooski Avenue appear to be consistent with the corridor's speed limit of 25 mph.

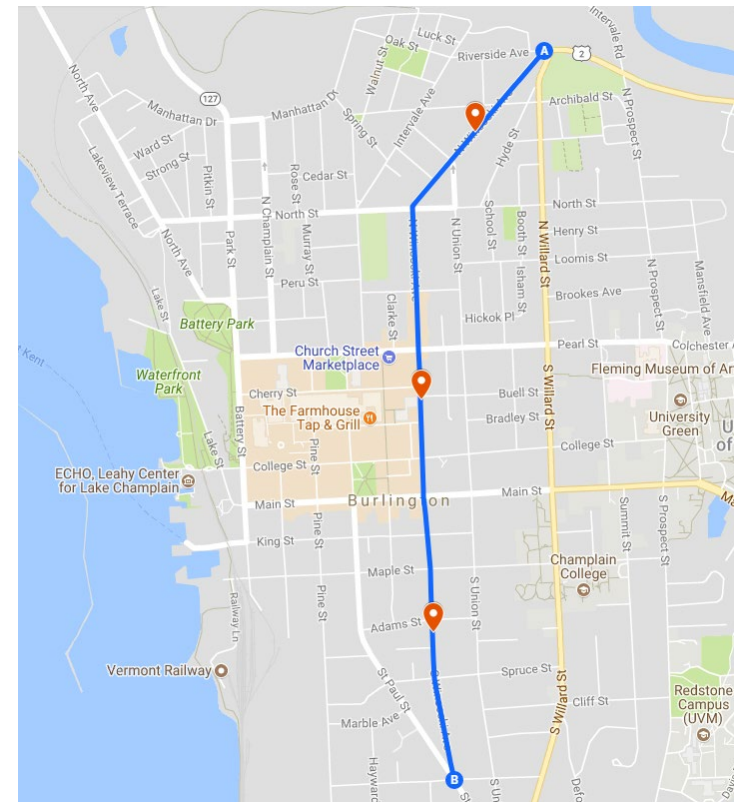
The 85th percentile speed—the speed at which 85% of drivers drive at or below—is a common metric used in speed studies rather than average or median (50th percentile) speed. This metric was found based on speed data collected at three locations along the corridor, described below and shown in Figure 26.

- Between Archibald Street and Decatur Street (Union Street) on North Winooski Avenue, where there are two travel lanes. This location is also along an HCL segment. **85th percentile speed, 2018: 25 mph**

- Between Bank Street and Cherry Street on South Winooski Avenue, where there are four lanes. **85th percentile speed, 2018: 25 mph**
- Between Adams Street and Elm Terrace on South Winooski Avenue, where there is one southbound travel lane. This location is also along an HCL segment. **85th percentile speed, 2014: 28 mph**

planBTV Walk Bike identifies priority streets for speed control. The plan recommends making Winooski Avenue a Corridor Slow Zone, to be designed for  $\leq 25$  mph.

**FIGURE 26: SPEED STUDY OBSERVATIONS**



Source: RSG



### **Corridor Slow Zone Streets** (*planBTV Walk Bike*)

Corridor Slow Zone streets are categorized as such because they generally move higher volumes of traffic and connect multiple neighborhoods, provide a link to neighboring municipalities, feature a higher intensity of land use, and may have a crash history suggesting the need to control speeds. In these locations, street design should encourage a maximum speed of 25 mph.

## **3.4 PARKING ANALYSIS**

This study identifies how the existing parking supply may be affected by possible changes to the roadway operation and design to achieve the multimodal goals for the corridor.

### **On-Street Parking**

Winooski Avenue has 347 on-street parking spaces. Seventeen of these spaces have special permitted uses: loading zones, accessible spaces, or 15- minute parking. Of the 330 remaining spaces, 70% have no parking regulations, and the rest are metered or have 1- or 2-hour limits.

Intersection and adjacent streets with residential permit programs include the following:

- Grant Street between Winooski Avenue and Union Street: seven days a week all times of the year.
- Spruce Street between Winooski Avenue and Willard Street: weekdays from 6:00 a.m. to 6:00 p.m.
- Union Street between Pearl Street and Buell Street: seven days a week all times of the year.

Figure 27 shows parking regulation types along Winooski Avenue. No on-street parking exists along the four-lane segment between Pearl Street and Main Street. For one block north and south of the four-lane segment, there are metered spaces. In the residential areas south of King Street and between Grant Street and Archibald Street, there are no parking regulations. The segment between Archibald Street and Riverside Avenue has the most restrictive parking regulations with one-hour (only three spaces on the northern end) and two-hour parking for neighborhood commercial activities and community services.

The corridor includes four accessible parking spaces:

- One space in front of the McClure Community Resource Center on the corner King Street.
- One space in front of 35 North Winooski Avenue between Grant and Pearl Streets.
- One space in front of Pathways Vermont Community Center just south of Archibald Street.
- One space in front of Legal Aid at 264 North Winooski between Union and Archibald Streets.



FIGURE 27: ON-STREET PARKING REGULATIONS



Source: RSG

General unrestricted parking encompasses the majority of spaces, although there are some locations with loading, accessible, and other specific regulations.

## Off-Street Parking

The **Marketplace Garage**, which occupies most of the block between Bank Street and Cherry Street, exits onto Winooski Avenue and has 389 parking spaces. The garage also houses a two-vehicle CarShare Vermont hub, covered bicycle parking, and secure bicycle parking lockers with spaces for up to 10 bikes.

**City Market** is a landmark in downtown Burlington. The grocery store co-op generates a substantial amount of travel demand from all modes. The contiguous lot has nearly 100 parking spaces, split between the private City Market entity and publicly available spaces.

The **Main Street lot** has 42 public parking spaces charged at \$1.50 per hour.

The **Center Street lot** is a private lot with 35 public parking spaces charged at \$4.00 per hour.

**Courthouse Plaza Garage** is a private lot with 284 spaces available to the public for \$3.00 per hour all day Saturday and Sunday to Friday from 1:00 p.m. to 2:00 a.m.

## Existing Demand vs. Supply

Properties north of Pearl Street are generally on larger lots that have some supply of parking off the street. Some commercial land uses between North Street and Riverside Avenue have been identified as locations with limited off-street parking supply.

South of Maple Street, the corridor is residential in nature and appears to have smaller lots and less space for off-street parking. The topography of the hill, the high residential density, and smaller lots all create a higher overall demand for the on-street parking spaces.

## On-Street Vehicle Parking Occupancy—Observations

Vehicle parking counts were conducted over seven periods over the second half of 2018 (Table 3).

**TABLE 3: PARKING COUNT DATES**

DAY OF WEEK (TIME)	DATE
Sunday AM (11:00 a.m.)	7/22/18
Friday AM (11:15 a.m.)	8/10/19
Monday AM (11:15 a.m.)	10/1/18
Monday PM (3:00 p.m.)	10/1/18
Wednesday PM (7:15 p.m.)	10/17/18
Saturday AM (10:00 a.m.)	11/3/18
Saturday PM (5:30 p.m.)	11/3/18

The observations captured several days and the effects of summer and school period demands for on-street parking.

## Discussion

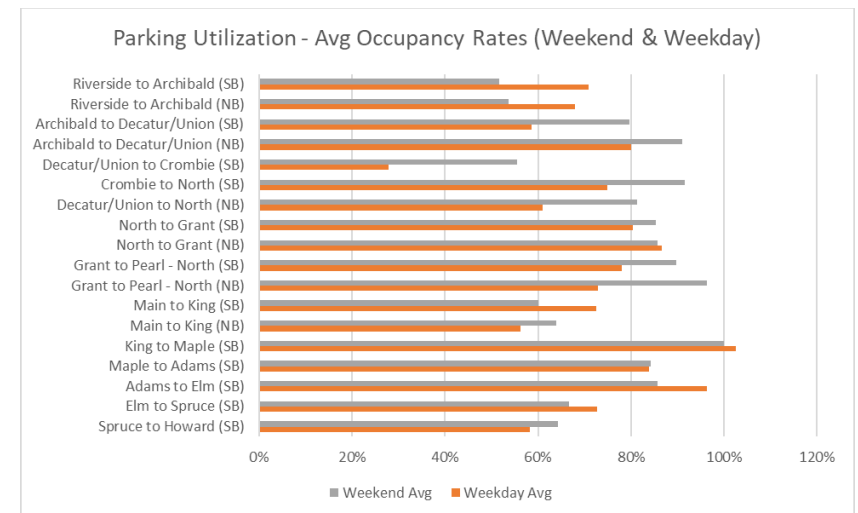
Vehicle parking is a sensitive topic as land uses have developed over time, sometimes without sufficient off-street space to accommodate the associated vehicle parking. Over time, businesses and residents alike have grown accustomed to using the public right-of-way for long-term vehicle parking. However, parking consumes valuable public space that can be used to meet other needs of the transportation system and the social fabric of the community.

The City has modal objectives to reduce reliance on the single-occupancy vehicles and to encourage carpooling, taking transit, walking, and bicycling. However, this process requires time for personal behavior to change and these options to become viable. This temporal disconnect creates a “chicken-and-the-egg” challenge to urban transportation.

The vehicle parking demand along the Winooski corridor is evident, although the patterns are difficult to discern and do not lend themselves to a simple explanation.

Areas managed by time-limited or metered parking have lower parking utilization, given the turnover encouraged. Several segments (both on the northern and southern) outside the downtown area that show higher demands during the weekdays than on weekends. The segment between Pearl Street and Archibald Street indicates that weekend use is higher than weekday use; this suggests residential land uses rather than commercial uses.

**FIGURE 28: OBSERVED ON-STREET PARKING OCCUPANCY**



Source: RSG



**TABLE 4: ON-STREET VEHICLE PARKING OCCUPANCY (PERCENTAGE OF SPACES OCCUPIED)**

SEGMENT	CURB	DIRECTION	SUNDAY AM	FRIDAY LATEAM	MONDAY LATEAM	MONDAY LATE AFTERNOON	WEDNESDAY PM	SAT AM	SAT AFTERNOON	OVERALL AVG	WEEKDAY AVG	WEEKEND AVG
Spruce to Howard (SB)	West	SB	79%	60%	45%	43%	86%	57%	57%	61%	58%	64%
Elm to Spruce (SB)	West	SB	64%	27%	91%	73%	100%	73%	64%	70%	73%	67%
Adams to Elm (SB)	West	SB	86%	114%	100%	86%	86%	100%	71%	92%	96%	86%
Maple to Adams (SB)	West	SB	76%	100%	88%	100%	47%	82%	94%	84%	84%	84%
King to Maple (SB)	West	SB	100%	100%	100%	100%	110%	100%	100%	101%	103%	100%
Main to King (NB)	East	NB	42%	42%	58%	67%	58%	42%	108%	60%	56%	64%
Main to King (SB)	West	SB	60%	60%	90%	50%	90%	40%	80%	67%	73%	60%
Grant to Pearl - North (NB)	East	NB	54%	75%	35%	75%	107%	114%	121%	83%	73%	96%
Grant to Pearl - North (SB)	West	SB	61%	93%	48%	71%	100%	100%	108%	83%	78%	90%
North to Grant (NB)	East	NB	68%	86%	86%	82%	93%	93%	96%	86%	87%	86%
North to Grant (SB)	West	SB	81%	69%	84%	91%	78%	88%	88%	83%	80%	85%
Decatur/Union to North (NB)	East	NB	80%	36%	52%	68%	88%	76%	88%	70%	61%	81%
Crombie to North (SB)	West	SB	75%	50%	75%	75%	100%	100%	100%	82%	75%	92%
Decatur/Union to Crombie (SB)	West	SB	44%	33%	22%	11%	44%	67%	56%	40%	28%	56%
Archibald to Decatur/Union (NB)	East	NB	80%	47%	67%	87%	120%	93%	100%	85%	80%	91%
Archibald to Decatur/Union (SB)	West	SB	83%	43%	57%	39%	96%	70%	87%	68%	59%	80%
Riverside to Archibald (NB)	East	NB	33%	72%	50%	61%	89%	56%	72%	62%	68%	54%
Riverside to Archibald (SB)	West	SB	39%	77%	68%	84%	55%	32%	84%	63%	71%	52%



## Smart Use

The City of Burlington is taking a smart use approach to the management of its parking supply. The Downtown Parking Plan states the following:

A “smart use” philosophy, on the other hand, acknowledges that parking is a critical asset to the health and vitality of a downtown but is more entrepreneurial in its approach. Parking is part of a total accessibility strategy that also incorporates alternative modes of transportation for bringing citizens and visitors to and from the downtown. “Smart use” promotes active management of existing assets; with the development of new parking facilities only occurring once all existing assets are utilized to their maximum potential. Under a “smart use” approach, the true cost to provide parking is incorporated parking prices, to make sure the system is fiscally sustainable.<sup>10</sup>

The segments with parking meters within the corridor appear to be under the 85th percentile occupancy often used in the “smart use” philosophy as the target occupancy for managed parking.

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<sup>10</sup> Park Burlington, <https://parkburlington.com/> see the Downtown Parking Transportation Plan. [https://parkburlington.com/wp-](https://parkburlington.com/wp-content/uploads/2015/12/Downtown-Parking-Transportation-Plan-Final-Draft-V.5.pdf)

[content/uploads/2015/12/Downtown-Parking-Transportation-Plan-Final-Draft-V.5.pdf](https://parkburlington.com/wp-content/uploads/2015/12/Downtown-Parking-Transportation-Plan-Final-Draft-V.5.pdf).



## 4.0 PUBLIC ENGAGEMENT

### 4.1 OVERVIEW

The project team developed a Public Participation Plan (Appendix B) that was informed by the CCRPC's Public Participation Plan<sup>11</sup> and the City of Burlington Public Works' Public Engagement Plan.<sup>12</sup>

Public participation objective: *The public will be engaged during every stage of the study using a variety of tools and formats to arrive at recommendations that reflect the needs of the community and minimize undesirable impacts.*

The project team and steering committee partnered with the public in each aspect of the decision-making, including the development of alternatives and the identification of the preferred solution. These activities were guided by the **Collaborate** approach identified within the spectrum of participation (Figure 29).

The public engagement process was guided by these four elements:

1. PAC.
2. Public Forums.
3. Stakeholder Interviews.
4. Continuous Communication.

<sup>11</sup> Chittenden County Regional Planning Commission. 2014. "2014 Public Participation Plan," [http://www.ccrpcvt.org/wp-content/uploads/2016/01/CCRPC\\_2014\\_PPP\\_Amended\\_2017.pdf](http://www.ccrpcvt.org/wp-content/uploads/2016/01/CCRPC_2014_PPP_Amended_2017.pdf).

FIGURE 29: CCRPC SPECTRUM OF PARTICIPATION

Spectrum of Participation				
INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
The CCRPC will provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	The CCRPC will obtain public feedback on analysis, alternatives and/or decisions.	The CCRPC will work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.  <i>At the INVOLVE level and above, staff will complete the CCRPC Equity Impact Worksheet.</i>	The CCRPC will partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	The CCRPC will place final decision-making in the hands of the public.
CHARACTERISTICS OF PARTICIPATION				
· Primarily one-way channel of communication	· Primarily one-way channel of communication	· Two-way channel of communication	· Two-way channel of communication	· Two-way channel of communication
· One interaction	· One to multiple interactions	· Multiple interactions	· Multiple interactions	· Multiple interactions
· Term-limited to event	· Short to medium-term	· Medium to long-term	· Medium to long-term	· Medium to long-term
· Addresses immediate need of county and community	· Shapes and informs county programs	· Advancement of solutions to complex problems	· Advancement of solutions to complex problems	· Advances solutions to complex problems
STRATEGIES OF PARTICIPATION				
Website & online calendar, database, informational brochures, posters and flyers, display ads, press releases, social media, email announcements, newsletters	Public hearings & legal ads, work groups, comment forms, surveys and questionnaires, visualization techniques, analysis reports, technical assistance studies	Advisory/steering committees, project meetings/workshops/open houses/forums, direct mailings, staff outreach, CCRPC Equity Impact Worksheet	Community or co-led committees, advisory boards, coalitions and partnerships, policy development and advocacy	Community-led planning efforts, community-hosted forums

Source: International Association of Public Participation; [www.iap2.org](http://www.iap2.org)

### 4.2 PROJECT ADVISORY COMMITTEE

The project was guided by the PAC that represents various City and community entities. Meetings with the PAC occurred at strategic points within the overall project to obtain input on draft deliverables and upcoming steps. The following groups were represented on the PAC:

- Department of Planning and Zoning.
- City Council.

<sup>12</sup> City of Burlington, Department of Public Works. 2017. "Public Engagement Plan," [https://www.ccrpcvt.org/wp-content/uploads/2017/08/BurIDPW\\_Public\\_Engagement\\_Plan\\_20171207.pdf](https://www.ccrpcvt.org/wp-content/uploads/2017/08/BurIDPW_Public_Engagement_Plan_20171207.pdf).

- Community and Economic Development Office.
- Burlington Business Association.
- Church Street Marketplace.
- Old North End Arts and Business Network.
- Burlington Walk-Bike Council.
- GMT.
- AARP Vermont.
- Central District: one resident representative.
- East District: one resident representative.
- South District: one resident representative.

The PAC met seven times over the course of the project at critical junctures within the study process.

- **Meeting 1** (May 2, 2018): Reviewed the history of plans and studies of Winooski Avenue and relevant City and regional plans that informs the scope of work for this study.
- **Meeting 2** (July 23, 2018): Reviewed the existing conditions along Winooski Avenue.
- **Meeting 3** (Oct. 23, 2018): Summarized public engagement and stakeholder interviews. Established study vision and initial intersections and segments for improvement alternatives.
- **Meeting 4** (January 29, 2019): Identified preliminary options for improving the corridor to address existing issues and challenges identified during the public engagement.
- **Meeting 5** (March 26, 2019): Developed refined options with three primary alternatives and subalternatives. The

meeting summarized additional data collected, such as parking and additional public comments. Initial evaluation criteria were reviewed.

- **Meeting 6** (Oct. 22, 2019): Reviewed the alternatives and the evaluation results to recommend a set of options to be presented at Public Meeting #3.
- **Meeting 7** (Jan 28, 2020): Reviewed the recommended alternatives and the feedback at the Public Meeting #3 and selected a Preferred Alternative to carry into the City approval process.

## 4.3 PUBLIC MEETINGS

The project convened three public meetings that provided a widely accessible forum that engaged and solicited a wide set of input and opinion from a diverse stakeholder group. The three meetings were held at key deliverable points within the study: existing conditions, development of alternatives, and feedback on the recommended alternative. Public meetings were advertised using Front Porch Forum announcements, fliers on building doors and cars along the corridor, the project website, the project's email database, direct emails to stakeholder groups and City committees, online meeting and event calendars, and more.

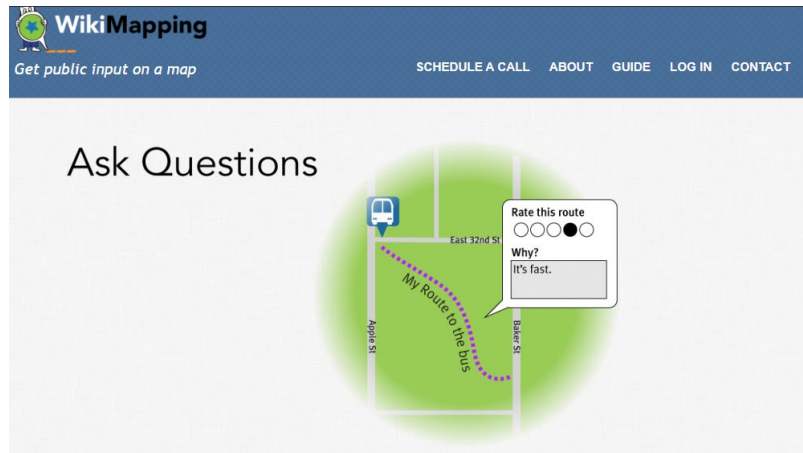
### Public Meeting 1

The first public meeting was held in September 5, 2018 in the Contois Auditorium. The meeting focused on the project team providing a technical review of the existing conditions observed within the study corridor. The meeting ended with participants submitting concerns, challenges, and other comments into a WikiMaps existing conditions web-survey. Prior to the meeting the project team staffed an information table at City Market



grocery store on Winooski Avenue to share project information with customers. The project team also led a walking tour along part of the corridor to discuss various issues with the public and listen to their experiences, concerns, and ideas (Section 4.6).

*WikiMapping is an online survey and public engagement platform using maps to obtain input.*



## Public Meeting 2

The second public meeting was held on June 4, 2019 in the Old North End Community Center. The meeting focused on soliciting feedback on the array of alternatives considered, whether additional alternatives should be considered, and the evaluation criteria that will be used to evaluate alternatives.

Comments posted that could apply to any alternative:

- “Underground utilities. Ornamental lights. District heating infrastructure.”
- “Please prioritize street trees in corridor design! Street trees improve health, raise property values, mitigate storm water, reduce crime rates, improve mental health, etc etc etc. They are not an afterthought.”

- “Don’t reduce parking before reducing parking demand. Focus on long term how to reduce parking demand.”

**TABLE 5: ALT 1 (BICYCLE LANES) BOARD**

CONCEPT	# OF RELATED COMMENTS
Not enough protection for bicyclists	3
Opposed to sharrows	2
Reduce the speed limit	2
Need two-way car travel between Pearl and North	1
Need parking on both sides Pearl to Riverside	1

Unique and constructive comments:

- Does not achieve key criteria of safe, low-stress bicycling.
- Two-way Winooski Avenue connects ONE to downtown.

As part of public outreach for the initial alternatives, a project display was available at the public library for a week, with project staff available during certain times. Staff also hosted a drop-in opportunity at a local business on Winooski Avenue as another way to answer questions and gather public feedback.

**TABLE 6: ALT 2 (PROTECTED BICYCLE LANES) BOARD**

CONCEPT	# OF RELATED COMMENTS
Opposed to loss of parking (bad for business)	5
Do not remove or minimize trees or green belt	4
“Best” alternative	3



**TABLE 7: ALT 3 (TWO-WAY PROTECTED BICYCLE LANES) BOARD**

CONCEPT	# OF RELATED COMMENTS
Good/safe for bicyclists	7
Alt 3 is the “best”	6
Concerned about turning bicyclists	6
Better for bicyclists accessing City Market	3
Combined bicycle lanes are snow-plow friendly	2
Keep/need street trees	2

### Public Meeting 3

The third public meeting was held on November 13, 2019 in the Old North End Community Center. The meeting focused on presenting the recommended alternative and receiving comments.

As with Public Meeting 2, additional public outreach included a project display at the public library for a week, and another drop-in opportunity at a local business on Winooski Avenue to answer questions and gather public feedback.

Public comments were submitted both through email and print outs from a period spanning from September 21, 2019 to December 5, 2019. Appendix B includes the public comments received. The project team collected the following statements:

- Stressed the need for continuous bicycle lanes throughout the corridor.
- Most (although not all) prefer protected bicycle lanes for safety reasons, and several commenters shared that they had felt unsafe or had been injured while cycling along the corridor.

- Commonly reasons for support include safety, accessibility, and equity.
- Many argued that on major arteries like Winooski Avenue the public right-of-way should be prioritized over private vehicle storage.
- Argued loss of parking would negatively impact local business (including landlords who would struggle to lease units without parking), especially since there is limited off-street parking in the area.
- Argued that cyclists are in the minority and bicycle infrastructure go unused during the winter.
- Common reasons for concern included accessibility and equity, particularly that the loss of parking will limit accessibility to nonprofits in the area (e.g., Howard Center, Community Health Center, Feeding Chittenden) especially for the disabled.

Even those who had concerns with Winooski Avenue expressed support for moving ahead with improvements to the corridor section between Main Street and Pearl Street (cited as the most dangerous stretch).

## 4.4 STAKEHOLDER INTERVIEWS

The project benefits from having a diversity of interests represented on the PAC and from numerous public engagement opportunities. However, to ensure the project team heard from as many interests as possible, members of the project team identified other stakeholders to better understand Winooski Avenue through their perspectives.



All thoughts, suggestions, and ideas discussed in the following sections were raised by interview participants and paraphrased (or, when possible, directly attributed).

As part of the Existing Conditions process, the project team conducted conversational interviews with people from the following organizations:

- University of Vermont
- Howard Center
- Champlain College
- Chittenden Area Transportation Management Association (CATMA)
- City Market
- Burlington Fire Department
- Burlington School District Transportation
- Parents from Integrated Arts Academy
- GMT
- Association of Africans Living in Vermont (AALV)
- North End Studios
- Vermont Department of Health
- Radio Bean/ ¡Duino! (*Duende*)
- Old Spokes Home
- Local Motion
- African Market
- Shinjuku Station
- East West Cafe

Several themes emerged from these conversations. Many interviewees view Winooski Avenue as a central corridor that provides access to and from the City, but the four-lane section between Main Street and Pearl Street is challenging for all users (walkers, bikers, transit, autos). It sends the message that the person is getting to someplace else and serves as access to other places, rather than being a “place” or destination of its own.

People also like the vibrancy and sense of place of the Old North End and its diversity of people and businesses. The businesses on North Winooski are “in the spirit” of the Old North End, and a desire exists to build community and culture around them and their unique aesthetic. Strong sentiments were not expressed about the residential neighborhood south of Maple Street. People like that it feels “calm, peaceful, quieter” than the four-lane section between Main Street and Pearl Street, and that it has two-way bicycle facilities. However, the contraflow lane (heading northbound) might cause confusion for people driving. One person, however, noted that the section between Main and King streets “feels weird,” like a person is not supposed to go into that southern neighborhood. That section of Winooski Avenue has parking on both sides of roadway and then transitions to one-way southbound with two-way bicycle traffic.

One question asked of stakeholders was, “What is the first word (or three) that comes to mind when you think about Winooski Avenue?” Some themes about the corridor that emerged from these comments include that it’s a City gateway, it traverses different neighborhoods that continue to evolve and grow, the traffic patterns can be confusing, there’s a lack of continuity, and the downtown section is intimidating and ugly.

Discussion of specific themes and issues are summarized as follows.

## **Vehicle Parking**

Interviewees expressed diverging interests in either the need to keep on-street parking or remove it to provide additional roadway space for other uses like bicycle infrastructure. As one person put it, “This study will come down to a trade-off between on-street parking and on-road use like bike lanes.” They expressed a need for more short-term parking spaces for customers and deliveries, clarity about where parking is legal or illegal, adequate width to pass when snow accumulation causes parked cars on both sides of street to creep away from the curb into the roadway, opportunities for public access to nearby parking lots, and consideration for additional parking on nearby streets if it is removed from Winooski Avenue.

## **Bicycle Facilities and Bicycle Parking**

Interviewees generally appreciated that there is bicycle infrastructure in the south and north ends of Winooski Avenue. However, interviewees expressed that any bicycle-related changes need to be consistent throughout the corridor, such as bicycle lanes on both sides of the roadway, or a protected two-way bicycle lane on one side. Most people noted the lack of any bicycle infrastructure between Main and Pearl streets. Specific challenges for people bicycling were noted at the Riverside/Winooski Avenue intersection and downtown between Main and Pearl streets. Loading zone conflicts with bike parking near Radio Bean should be improved. Beyond infrastructure, education was suggested so that people on bikes know the rules of the road.

## **Pedestrian Amenities**

While there is a connected sidewalk network throughout the corridor, interviewees noted an absence of benches, green space, and the close proximity to the roadway downtown even though the sidewalks are wide. People liked the landscaping in front of Howard Center, City Market, and the Ronald McDonald House, as well as the public art and murals, quirky character, lighting, and aesthetics of downtown. Street trees could make the downtown section feel “denser and tighter” to reduce speeding and improve the downtown aesthetics. Intersections are challenging in many ways: pedestrian crossing times could be longer for people with disabilities, Grant Street and Decatur Street do not feel safe to cross, the Pearl/Winooski intersection is not well known as an all-way pedestrian crossing, and the Archibald/Winooski intersection is large and intimidating.

## **One-Way Versus Two-Way Traffic Pattern**

People noted that the inconsistent traffic configuration can be confusing for tourists and limit access to neighborhoods. Turning North Winooski from Pearl to Union into a two-way street would open access to Old North End and businesses, help the northern section feel “less desolate,” and help address wrong-way bicycling. However, others noted this one-way section is “slower,” feels more bicycle/pedestrian friendly, and could become the “traffic dump” to access the City of Winooski if it were two-way traffic.

## **Transit**

Existing GMT service only uses a portion of Winooski Avenue, and GMT staff noted that they would prefer to utilize Winooski Avenue more as a north/south route. One-way streets such as parts of North and South Winooski are not insurmountable for transit service, but these streets are not ideal for passenger



pickup/drop-off. Lane width can be tight for transit between Cherry and Main streets and stopped vehicles on narrow Union Street delays transit service.

## Main Street to Pearl Street

Interviewees expressed many issues about the four-lane section between Main Street and Pearl Street, including left-turning traffic blocking the inside travel lanes, weaving traffic, Special Service Transportation Agency (SSTA) and deliveries blocking lanes, lack of bicycle infrastructure, unwelcoming feel for people walking, large and wide curb cuts, jaywalking near City Market, challenging left turns out of driveways, parking garage and driveway conflicts, buses changing lanes between College Street and Main Street, gas stations feel out of place, and it feels like an alley for other businesses.

People expressed concerns about adding new bicycle lanes on South Winooski, especially on the City Market side given the existing challenges (e.g., turning traffic, delivery trucks, proximity of signals, jaywalking, SSTA blocking a lane).

People offered potential solutions, including the following:

- Make City Market entrance from Winooski Avenue one-way, make parking lot spaces angled, exit onto Union Street, then make Buell Street two way to get back to Winooski Avenue.
- Consider opening up the entrance to Orchard Terrace from City Market parking lot.
- Connect City Market parking lot to UPS lot and make four-way signalized intersection at Bank Street.

- Incorporate roundabouts throughout the Winooski Avenue corridor.
- Add an artistic structure or something else at the corner of Winooski Avenue and Main Street to convey it as a gateway intersection to the central business district.

Other general suggestions are the need to consider traffic flows with future developments like CityPlace Burlington, UVM's multipurpose center, and the new YMCA. Interviewees expressed a desire to use pop-up projects to get real-world experience and feedback on project recommendations.

## Open Streets BTV Summary

The project team also hosted a public information table at Burlington's Open Streets event on September 30, 2018. The table was located on North Winooski Avenue at the intersection with North Union Street and Decatur Street in the heart of the Old North End. Project team members spoke with people as they enjoyed Open Streets activities in the public space, asked them what they liked about Winooski Avenue and what they would change about it, and asked them to write comments and draw on maps and paper.<sup>13</sup>

People commented that they liked the sense of community in the Old North End, being close to neighborhood schools, the proximity and diversity of businesses and restaurants, the newly created Old North End Greenway and planters, street trees, and the bicycle lane on North Winooski. They noted that Winooski Avenue between Main and Pearl streets is difficult for people walking and bicycling.

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<sup>13</sup> Comments are available on the project website ([tiny.cc/WinooskiAveStudy](https://tiny.cc/WinooskiAveStudy)).



People wanted to see a protected bicycle lane the length of the corridor and safe intersections for bikers, consideration of roundabouts, parking available for residents, and more Community Health Center parking at Riverside. People also noted the need for more affordable housing. People also offered suggestions to slow down traffic through the neighborhood and the desire for more trees and grass.

## Old North End Business Summary

The project team met with Old North End businesses at Butch & Babes on November 6, 2019. Facilitated by Jane Knodell, the project team heard concerns for current parking capacity, concerns for any recommendations to remove parking, and interest in a parking study to understand the impact of parking removal.

## 4.5 CONTINUOUS COMMUNICATION

The project steering committee maintained contact with the relevant neighborhood planning assemblies and the many organizations and interested parties throughout the corridor. Individual meetings were held to solicit input on the alternatives under consideration and the alternatives that were refined after the evaluation process. The project website<sup>14</sup> was an important resource highlighting the most recent project information. Project updates and opportunities to provide public comment were communicated via the Constant Contact email platform to a contact database with more than 500 recipients.

<sup>14</sup> Chittenden County Regional Planning Commission. "Winooski Avenue Corridor Study," [https://www.ccrpcvt.org/our-](https://www.ccrpcvt.org/our-work/transportation/current-projects/corridors-circulation/winooski-avenue-corridor-study/)

FIGURE 30: PROJECT WEBSITE

## WINOOSKI AVENUE CORRIDOR STUDY

### LATEST NEWS

The [final PAC meeting](#) is scheduled for Tuesday, January 28, 7-9 p.m., Firehouse Gallery, Second Floor, 135 Church St at which they will review the [draft implementation plan](#) with near and long-term options.

View the November 13 public meeting [presentation](#) and download the [near-term corridor option](#) (large 23 Mb file).

Use this [3D Visualization Tool](#) to view the draft alternative concepts. [Click here for a quick overview](#) on using the 3D tool.

To view all past meeting materials and current project documents, [click here »](#)

**NOTE:** you may have seen recent Front Porch Forum paid ads to download the Consensus app; this is an advertisement from a non-affiliated business and is not sponsored by the City or CCRPC.

Source: CCRPC

[work/transportation/current-projects/corridors-circulation/winooski-avenue-corridor-study/](https://www.ccrpcvt.org/our-work/transportation/current-projects/corridors-circulation/winooski-avenue-corridor-study/).



4.6 SPECIFIC CHALLENGES WITHIN THE CORRIDOR

The project team conducted a survey of existing issues using the WikiMaps platform (wikimapping.com) to canvas the community (see screenshot in Figure 31) on what issues and challenges they experienced while traveling along or through the corridor. The respondents could identify a specific location, a segment of the corridor, or the entire corridor. The project team summarized the comments by travel model and by location in the corridor, as shown in Figure 32.

FIGURE 31: WIKIMAPPING EXISTING CONDITIONS WEB-SURVEY

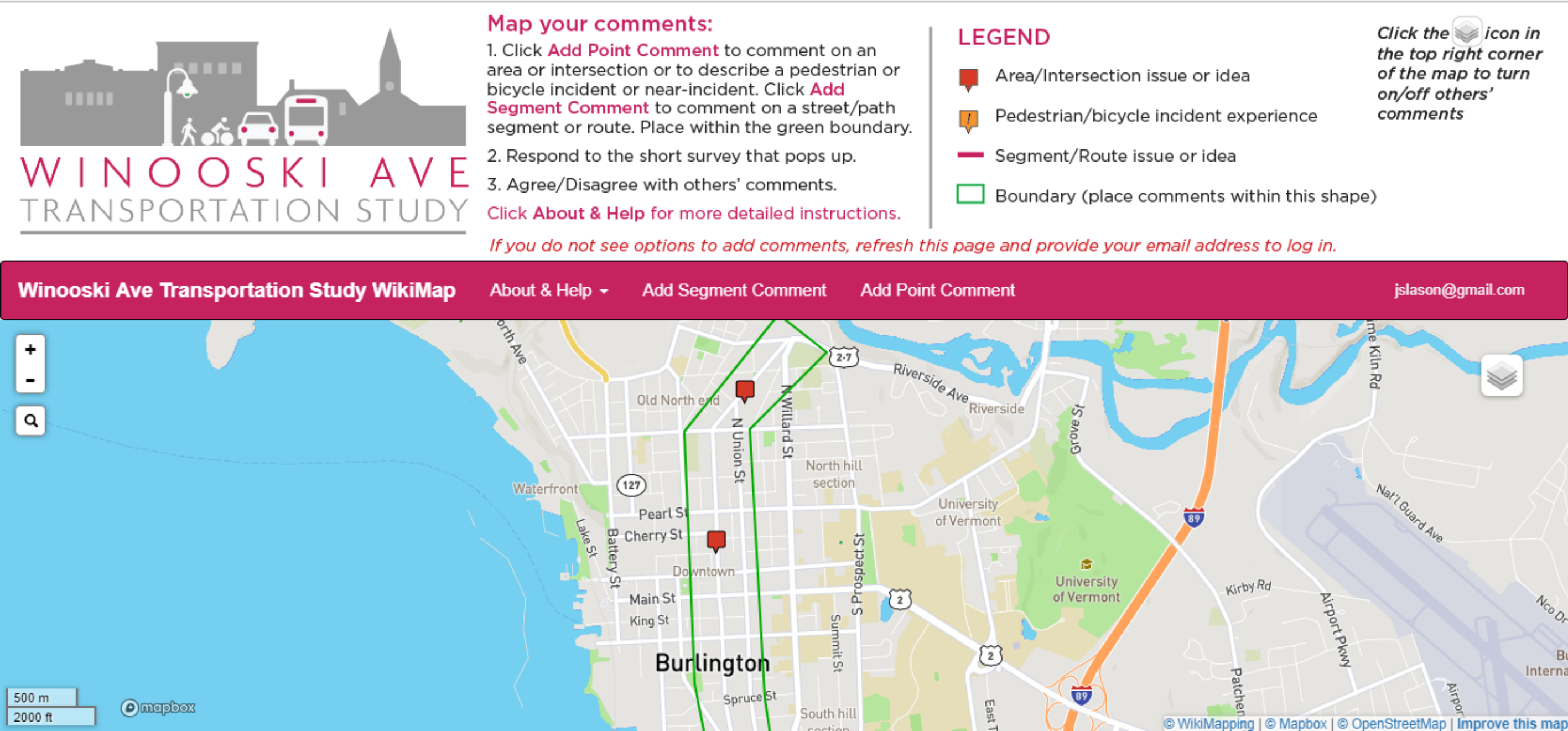




FIGURE 32: CHALLENGES EXPERIENCED ON THE STUDY CORRIDOR

Riverside Ave to North St		North St to Pearl St		Pearl St to Main St		Main St to Howard St		General/Entire Corridor	
Better Bicycle Infrastructure									
5	<b>No safe transition from bike path to street</b> Bicycles are often travelling in both directions even though it's one way Sharrows are not suitable for this segment; need real bike lanes Need a bike box for bicycles turning onto Decatur from Winooski Ave								
2	<b>Weight sensors do not work for cyclists at light @ Riverside</b> Riverside Ave intersection - difficult for bikers and walkers to cross Riverside Ave intersection - better markings for bicycles and cars Almost hit by a door in the bike lane Add two-way separated bike lane to terminus of Winooski Ave								
2	<b>Don't drop the bike lane at Pearl Street</b> Like the bike box at Winooski/North St								
2	<b>Door zone bike lane is scary to bike in</b> <b>Bike lanes both ways through this section</b> North St intersection - bike lane markings/car markings are not clear North St intersection - serious danger for right-hooks								
2	<b>Remove parking on N Winooski Ave and add bike lanes</b> Leave car traffic one-way, remove parking and add bike lanes Pearl St intersection - add bike signal or bike box Pearl St intersection - confusing for bikes and drivers Make a place for bicycles that is not the sidewalk (or the street in traffic) Extend the one way traffic and prioritize bus flow At Pearl/Winooski - markings for bicycles turning onto Pearl from Winooski Ave More bike racks everywhere Bike crossing at Bank/Winooski Add a protected bike lane Good section but needs protected bike lane Need bike lanes around Edmunds and Champlain College  Signage for bikes turning against traffic Like the two way bike lanes (contra flow) Bicycle lanes should be protected Main St intersection - add bike box or bike signal  King St intersection - hard for bicycles because of grade, but a common route Abrupt ending to NB bike lane at Maple St - only way to go is up Maple St (very steep) Continue bike lanes from Maple to Main Cars often stop in the bike lanes and block them Cyclists shouldn't have to stop at stop signs through this section Difficult to bike up Howard St and take a left onto bike lane on S Winooski Maintaining bike lanes - potholes are dangerous Adopt new bike lanes from the ONE All bicyclists should be on the street, not sidewalks, if over the age of 12 Bike path to bike lane connection Enforce 4 ft passing law Create a good module for bike safety and education Make bicycle and car safety compulsory in schools Make a nearby road a bicycle thoroughfare (bikes only) Connect the bike lanes in the north end and south end Remove parking and add more bicycle facilities Want to see more changes like the ones on Pearl St at Willard								
6	<b>Add protected bike lanes along the entire corridor</b>								
Pedestrian & Streetscape Improvements									
2	<b>N Winooski/Archibald intersection - takes forever to cross as a pedestrian</b> Like the public art near North St Improve the park at Riverside Ave Sight distance turning right from Hyde St to Riverside Ave - many near misses with pedestrians Archibald St intersection is too big, improve with rain gardens or bump outs								
2	<b>Underutilized parking lot @ North End Studios - use as parking for businesses?</b>								
4	<b>Make "diagonal" crossings at N Winooski/Pearl St or grid entire intersection</b> Old North End Variety Store has underutilized parking lot - add parklet? Utility poles on both sides of street - unattractive Pearl St intersection - pedestrian light doesn't work (E/W walk signal shows red during ped phase) "Soul-killing parking lot, derelict motel, please do better!" at S Winooski/Main St Only pedestrian crossing light is at Bank St Parking garage intersection is dangerous Good sidewalks Ped signals would help at S Winooski/Howard intersection Pedestrian crossing is not good at Spruce St intersection - steep angle and slippery Exclusive pedestrian phase at S Winooski/Howard intersection Improve lighting from S Winooski from King St to Adams St (trees block out light) King St intersection - add rain gardens or bump outs Howard St intersection - too big, needs bump outs Howard St intersection - No pedestrian route crossing Winooski Ave Howard St intersection - long wait times, confusing to know when bikes and peds should cross Clearer signage Too many distractions More trees More crossings Improve lighting, especially on bike lanes  More space for people, less space for parked vehicles Less tobacco use at N Winooski and Pearl Ticket jay walkers								
Better Transit									
	Extend the one way traffic and prioritize bus flow Bus stop on Winooski Ave near Buell St is in a bad spot Pearl St intersection - relocate bus stop on NW side of intersection								
5	<b>Light rail/street cars or elevated line N-S and E-W</b>								
Improve the Traffic Circulation									
	Need a simple way out of the old north end (from N Winooski)								
2	<b>North St/Winooski Ave intersection has poor visibility + confusing traffic pattern</b> Pearl St & Winooski intersection is very important route for cars getting from center of town to ONE Grant St to Pearl St should be two way								
3	<b>Consider two way traffic for all forms of transportation</b> Pearl St intersection - consider a roundabout Many conflicts along this segment								
9	<b>City Market: priority, access, safety, flow issues</b> Extend the one way traffic and prioritize bus flow Make this segment 3 lanes: 2 SB lanes (one transit only) and 1 NB lane Set cross turn rules to not allow favoring peak traffic times - eg no left turns 7-9AM								
6	<b>Rethink traffic circulation in this section (road diet?)</b> No left turn in or out from City Market								
2	<b>Parking garage intersection is dangerous</b> Enter & exit City Market from Union St Only College St intersection - left green arrow from Winooski Ave onto College St Delivery trucks block the road near College St intersection Crossing area near the co-op turn in Main St intersection - roundabout Stop signs are annoying for all users - what about mini roundabouts? Main St/Winooski Ave intersection - cars run this red light often Almost impossible to turn left onto Winooski Ave from Main St eastbound Main St intersection - congested and dangerous for everybody Why is there two-way traffic Maple to Main? Eliminate one way streets Corridor should be continuous								
Traffic Calming									
2	<b>N Winooski/Unionr intersection: Union to Winooski acts as a yield instead of stop</b>								
2	<b>Need to slow down traffic from Pearl to Main - this is downtown</b> Observe lots of speeding  Adams St to Spruce St is a speedway for cars Slow traffic down Make the speed limit 15 mph Red light and speed cameras Speed humps								
This list aggregates comments from our City Market outreach, the public meeting, and the Wikimap. <b>Bolded comments were mentioned multiple times</b>									

This list aggregates comments from our City Market outreach, the public meeting, and the Wikimap.  
**Bolded comments were mentioned multiple times**

Source: RSG



## 5.0 PROJECT ALTERNATIVES

### 5.1 OVERVIEW

The project team developed an array of alternatives for the study corridor based on the existing conditions outlined in Section 3.0 and the public input received through meetings, forums, web surveys, and comments sent to the project team.

The project alternatives focused on infrastructure improvements that would mitigate existing deficiencies, address challenges and issues identified by the public, and align with the vision and goals of the project.

Initially, the focus was on specific segments and intersections within the corridor. It became apparent that a corridor-wide lens was necessary to develop options that can make localized improvements but also remain consistent at a corridor level.

Thirteen alternatives were ultimately developed that articulated a complete solution at the corridor level but had differences in specific locations or segments along the corridor.

The 13 alternatives were evaluated and refined to create shorter- and longer-term options for the three primary segments within the corridor: northern (between Riverside Avenue and Pearl Street), downtown (between Pearl Street and Main Street), and southern (between Main Street and Howard Street/St. Paul Street).

### 5.2 INTERSECTIONS AND SEGMENTS

The first set of alternatives developed for future improvements in the corridor looked at identifying key nodes within the study area. These included: north of Union Street, Union Street intersection, downtown (including Pearl Street intersection through to include Main Street intersection), and south of Main Street. The nodes were further explored to identify how the downtown intersections can be designed to improve pedestrian and bicycle safety while maintaining adequate mobility.

#### Roundabouts

This investigation was critical to identify that single-lane roundabouts, while able to provide sufficient capacity for all modes, would require additional right-of-way to be purchased in the downtown area. Purchasing right-of-way in the downtown area is outside of the scope of this project and, in some cases, may be costly or affect significant structures. Full roundabouts at Pearl Street, Bank Street, and College Street all would impact existing structures and require additional right-of-way. Mini-roundabouts would not impact existing structures at Bank Street and College Street, but pedestrian volumes and proximity to adjacent intersections limited the capacity of mini-roundabouts at these locations.

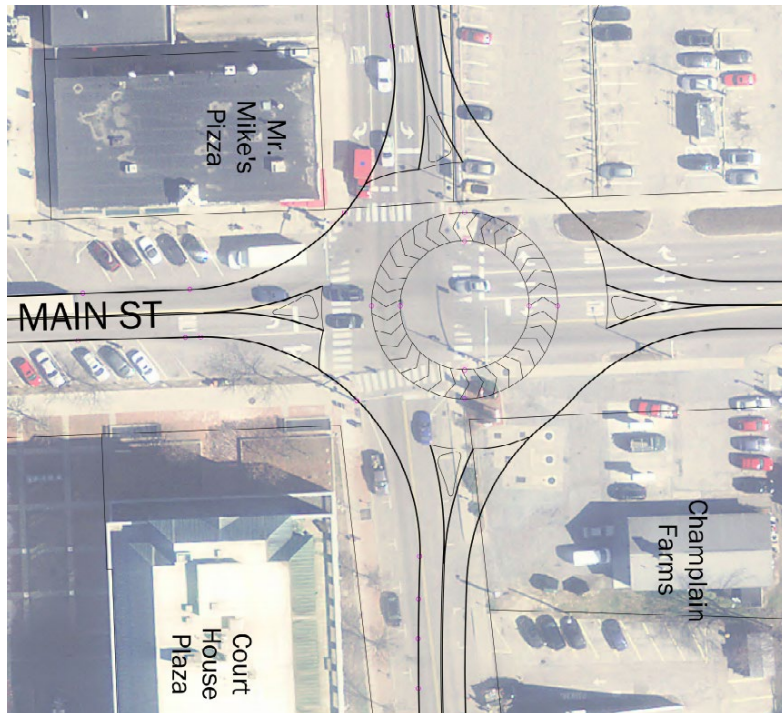


## Main Street

A single-lane roundabout at Main Street, at a size to accommodate trucks with 53-foot trailers, would also require right-of-way from the gas station on the southeast corner and land from the publicly owned parking lot on the northeast corner. Main Street is the subject of an upcoming Great Street project that will develop short- and long-term improvements along the Main Street corridor.

The concept for the 130-foot inscribed diameter for the roundabout is shown in Figure 33. A small roundabout may work; however, mountable curbs would be necessary to accommodate the larger 53-foot trailers that are common on Winooski Avenue.

**FIGURE 33: MAIN ST. ROUNDABOUT SKETCH - 130' DIAMETER**



Source: D&K

## Mini-Roundabouts

Mini-roundabouts are a smaller option with less capacity than single-lane roundabouts. These are most often found in suburban or in locations with fewer pedestrian, bicycle, and vehicle demands than the downtown area of the corridor.

Mini-roundabouts are planned at North Street and the Union Street/Decatur Street intersections. A mini-roundabout is designed to reduce vehicle delay (relative to signals or the all-way stop at Union Street), provide pedestrians priority (pedestrians have the right-of-way across the legs of the intersections), and provide calming effects by slowing speeds.

## Roundabouts and Bicycle Lanes

The constrained corridor challenges implementation of bicycle lanes and roundabouts, particularly for a two-way bicycle track (two-way bicycle lanes together on one side of the street). Bicycle track facilities would typically continue along the outside of a roundabout (at the sidewalk level) and have a special crossing of any legs of the roundabout. The space required would exceed the limited right-of-way (nominally 66 feet) in the Winooski Avenue corridor.

## Putting it Together

The space constraints limit the applications of roundabouts within much of the corridor and affect the types of cross sections and bicycle facilities that can be introduced. This insight resulted in a shift in focus to the cross sections that could fit within the corridor.

## 5.3 SCHEMATICS

The project team developed improvement alternatives within the corridor into a set of schematics. These schematics offered a high-level representation of the types of facilities to accommodate specific modes of travel in the corridor.

Using the existing conditions schematic (see Figure 8) as the base, future alternatives change the facilities throughout the corridor. In all, the project team developed 13 variations and organized these into three overall alternatives:

- **Alternative 1: basic bicycle facilities** are added into the corridor (Figure 34).
- **Alternative 2: protected bicycle lanes** are added into the corridor (Figure 35).
- **Alternative 3: two-way bicycle track** is added to the east side of the corridor (Figure 36).

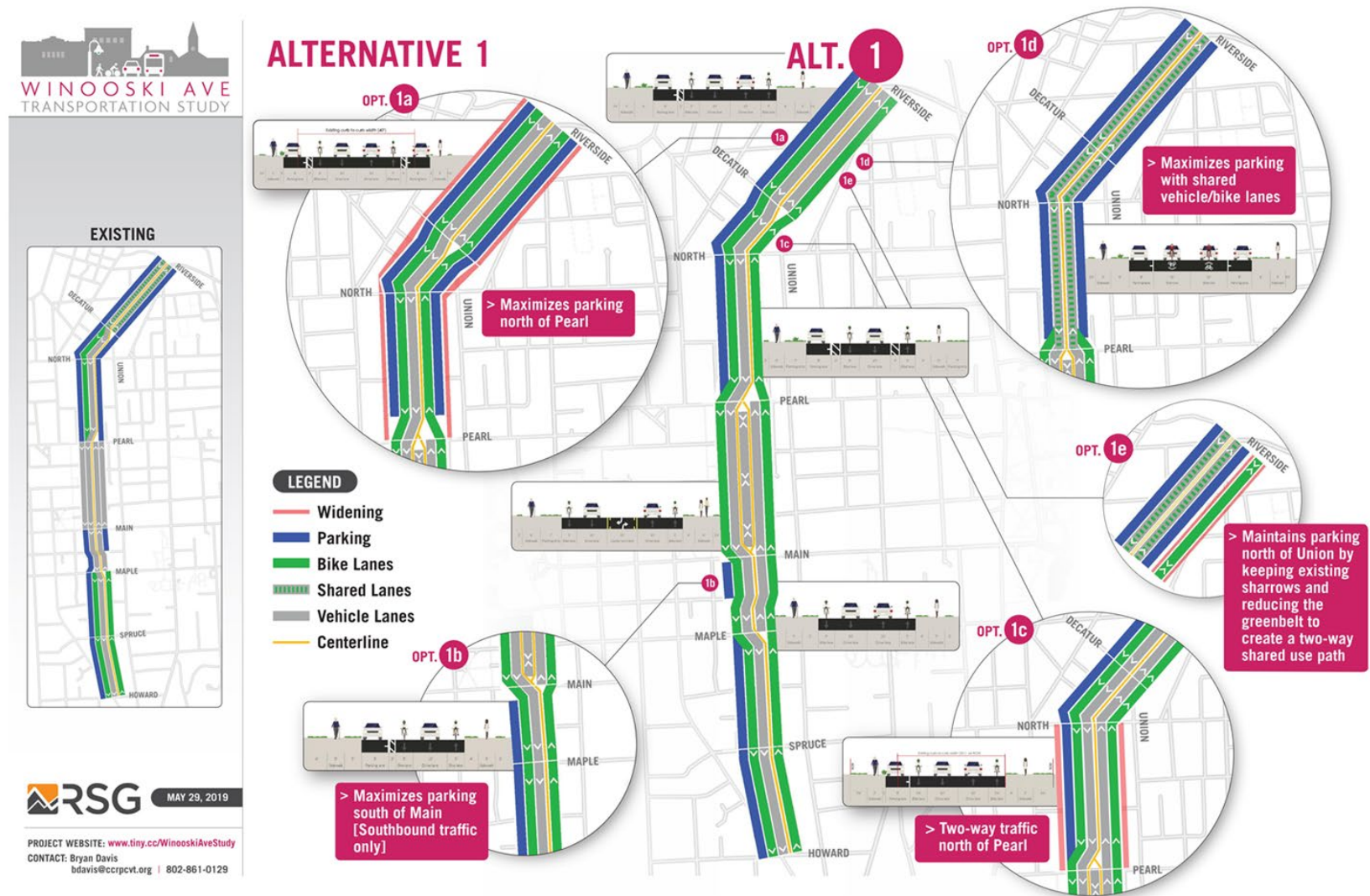
Many subalternatives were created to incorporate additional vehicle parking, possible widening of the roadway (while avoiding additional right-of-way), protecting bicycle lanes with bollards or with vehicles, and changing the vehicle lanes.

The alternatives were developed to respond to the many varied yet common themes that emerged from the public engagement process throughout the project. Many of these recurring themes included the following:

- Continuous, dedicated bicycle lanes are critical, and protected is preferred.
- High demand exists for parking, especially on North Winooski.
- Pearl Street to Main Street is aggressive, stressful, dangerous, and unattractive.

- Street tress and green strips (for locating benches and other amenities) are crucial for an inviting corridor.

FIGURE 34: SCHEMATIC—ALTERNATIVE 1



Source: RSG



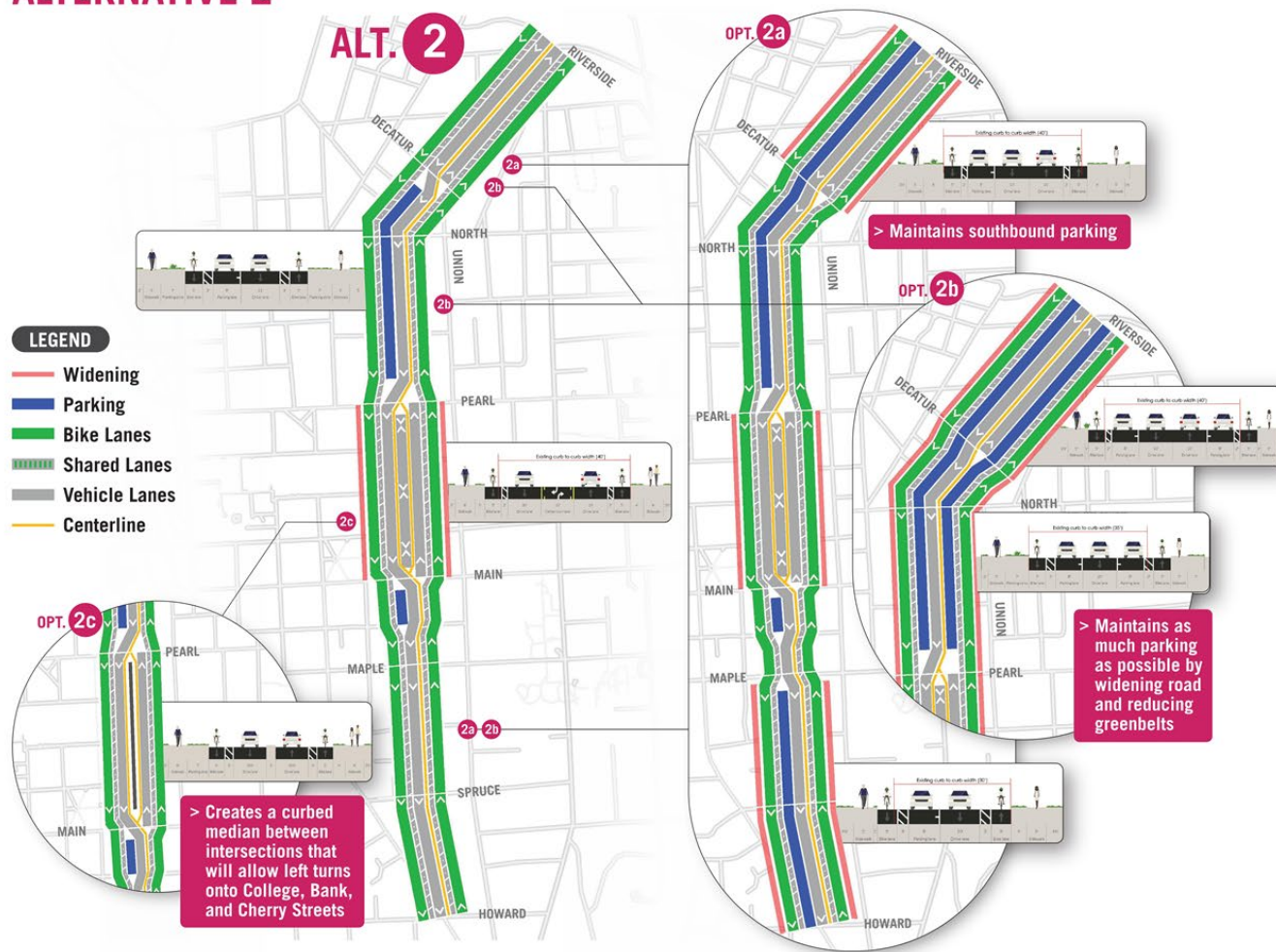


FIGURE 35: SCHEMATIC—ALTERNATIVE 2



**RSG** MAY 29, 2019  
PROJECT WEBSITE: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)  
CONTACT: Bryan Davis  
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## ALTERNATIVE 2



Source: RSG



FIGURE 36: SCHEMATIC—ALTERNATIVE 3

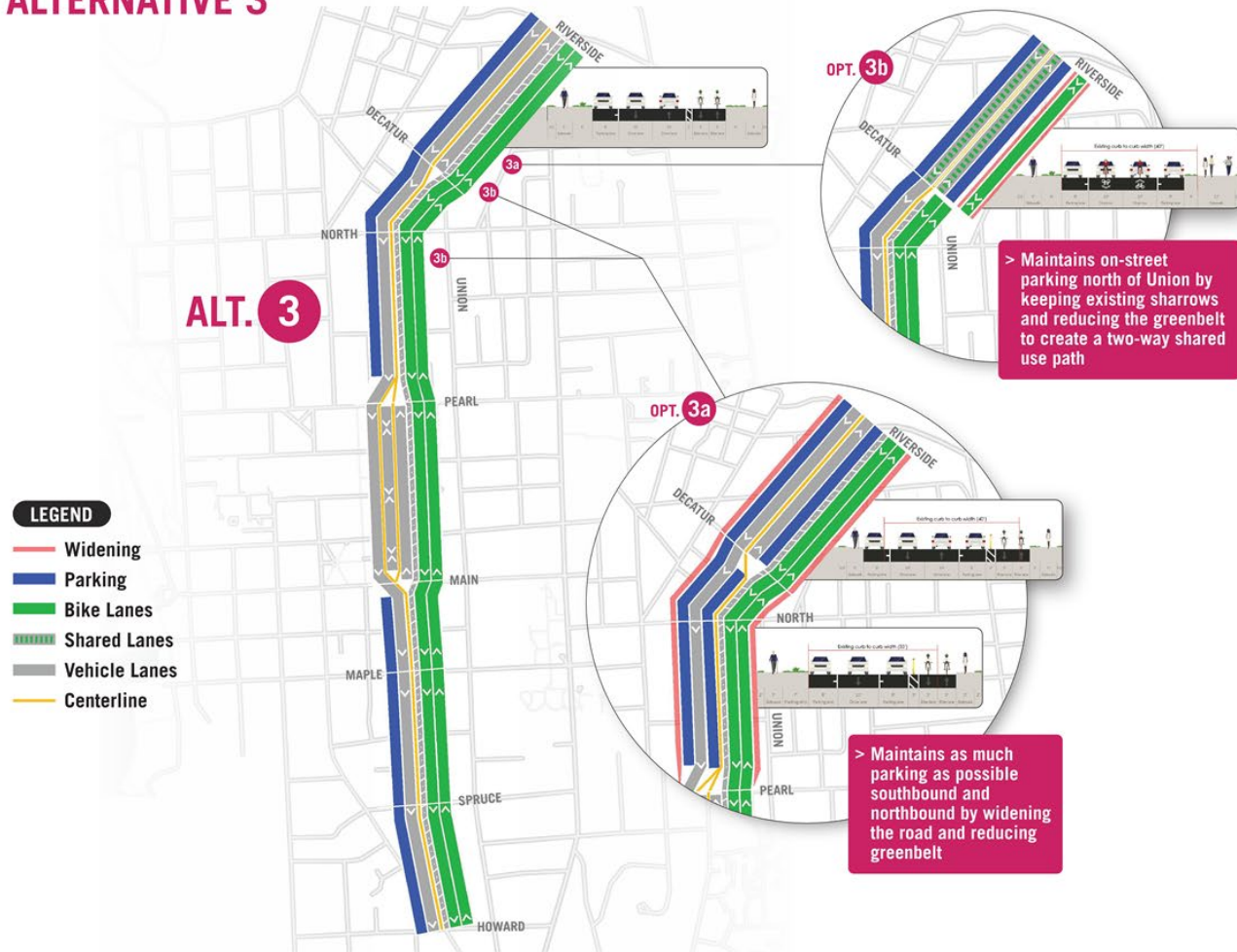
WINOOSKI AVE  
TRANSPORTATION STUDY



RSG MAY 29, 2019

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ALTERNATIVE 3



Source: RSG



## 5.4 EVALUATING THE ALTERNATIVES

The project team identified common themes that emerged from the engagement process (see Chapter 4.0) to evaluate how well the alternatives achieve the study vision and meet the goals and objectives set for the project. (Refer to Appendix C for more detail on the evaluation process.)






The evaluation criteria were presented at the second public meeting and they were rated as appropriate and acceptable by nearly all the public feedback received. Climate change was not explicitly considered since it is assumed that the vehicle volumes along the corridor would remain the largely the same, thus no difference in vehicular emissions.<sup>15</sup>

The existing conditions analysis showed that the character of Winooski Avenue changes significantly throughout the corridor. To account for this changing context, the alternatives were evaluated on a section-by-section basis. The sections are as follows:

- Riverside Avenue to Union Street/Decatur Street.
- Union Street /Decatur Street to Pearl Street.
- Pearl Street to Main Street.
- Main Street to Maple Street.
- Maple Street to Howard Street.

<sup>15</sup> There will be minor differences in vehicle delay during peak periods. Shifting from signals to mini-roundabouts may improve flow in the northern segment. Removing a vehicle lane in the south may increase vehicle miles and detours, thereby increasing emissions. The downtown segment may have slightly more delay at certain

TABLE 8: EVALUATION CRITERIA

	<p>City of Burlington's Bicycle LTS &amp; Safety Criteria:</p> <ul style="list-style-type: none"> <li>• LTS 1: Bicycle paths, protected bicycle lanes, greenways.</li> <li>• LTS 2: Bicycle lanes and buffered bicycle lanes on lower-volumes streets (AADT&lt;5,000).</li> <li>• LTS 3: Bicycle lanes and buffered bicycle lanes on higher-volume streets (AADT&gt;5,000).</li> <li>• LTS 4: No designated facilities or markings on higher-volumes streets.</li> </ul> <p>Driveways increase the number of potential crossing conflicts. The LTS was adjusted to account for relative number of driveways.</p>
	<p>Pedestrian Quality of service: A metric like bicycle LTS that accounts for sidewalk presence and width, street trees, number of curb cuts, quality of sidewalk, and lateral distance to moving vehicles.</p>
	<p>Change in Parking spaces: Number of parking spaces lost as a result of the project alternative.</p>
	<p>Street Trees Impacted: The number of street trees that may be affected by the project alternative.</p>
	<p>Change in Green Strip Width: The number of feet that moving the curb and widening the road will reduce the green strip.</p>

intersections and driveways during the busiest parts of the day. Overall, the daily volumes are not expected to change in any meaningful amount. Thus, there will be minimal impact on net GHG emissions associated with vehicles on the corridor.



**Cost:** A preliminary estimate of project costs for the improvements in the project alternative.



**Neighborhood Access:** The degree to which users can directly access land uses along the corridor without detours. For example, one-way provides less access than two-way vehicle lanes.



**Vehicle Operations and Safety:** The degree to which safety is enhanced or deteriorated by the changes.



**Transit Quality of Service:** How is transit (through mobility and bus stop access) affected by the changes?

A spreadsheet tool with each alternative and its “score” based on these criteria helped the project team quantify the pros and cons of each project alternative. Each of the criteria were evenly weighted.

The evaluation of the alternatives identified that Alternative 1 variations (see above, Section 5.3) scored the highest when aggregated over the corridor. Each alternative was scored for each of the five segments identified above. Across each of the five segments, the project team averaged the scores for all the alternatives.

For each alternative, the project team divided the evaluation score by the corridor average score. This new normalized score is summed across the segments to create an overall corridor score.

The evaluation scoring is represented in the color scale in Figure 37. The scale indicates how far Good (Green) or Poor (Red) the alternative performs relative to the average.

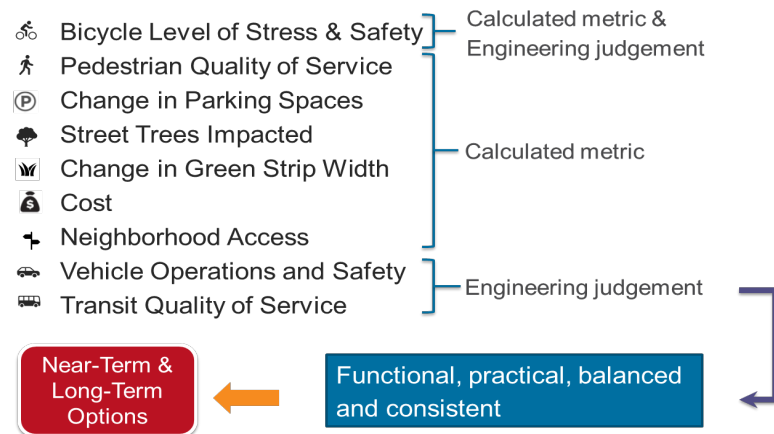
**FIGURE 37: CORRIDOR EVALUATION SCORES**

	Bike LTS with Driveway Density Factor	Ped quality of service	Parking change	Street trees impacted	Change in green strip width (LF)	Cost	Neighborhood Access	Vehicle Operations & Safety	Transit	Evaluation Ranking	
1										1	1
1A										8	1A
1B										2	1B
1C										5	1C
1D										4	1D
1E										3	1E
2										7	2
2A										11	2A
2B										13	2B
2C										6	2C
3										9	3
3A										10	3A
3B										12	3B



To supplement this empirical approach to evaluating the alternatives, the project team worked through a thorough vetting of the alternatives using engineering judgment, assessing the functionality, practicality, and consistency within the overall corridor. The flow chart is shown in Figure 38.

**FIGURE 38: EVALUATION PROCESS**



Source: RSG

## 5.5 RECOMMENDED ALTERNATIVE

The project alternative coming out of the evaluation process included elements of various alternatives, depending on the specific segment. The highlights of the alternative included the following elements:

- Improved safety and convenience for all users by reallocating road space between Pearl Street and Main Street and enhanced pedestrian safety at several intersections by narrowing crossings and reducing vehicle speeds.
- Connected, contiguous north-south bicycle facilities along the corridor.

- Retained existing vehicle parking along the west side of the avenue. Removing up to 111 vehicle spaces north of Pearl Street and 12 spaces south of Main Street of the 347 total spaces existing on Winooski Avenue.
- Improved business and resident access for all modes by making it a two-way street north of North Street in the shorter term and a two-way street between Riverside Avenue and Main Street in the longer term.

The project team presented the recommended alternative at the PAC's sixth meeting on October 13, 2019. The PAC identified that the corridor improvements represented an actionable and feasible plan. This determination was based on the possibility, in the shorter term, to avoid roadway widening, implement complete north-south bicycle connectivity, and remove vehicle parking spaces on the east side of Winooski Avenue between Riverside Avenue and Pearl Street.

The option was a compromise between a long-term vision for a complete multimodal facility complete with protected bicycle facilities and the reality on the ground today. Few options for protection exist without widening or without removing additional vehicle parking spaces.

The removal of parking in the alternative was identified by the PAC as a major point of concern. Subsequent feedback submitted by businesses and organizations in the Old North End (northern study area) received by the project team reiterated this concern. Businesses and organizations expressed concerns for their viability if the parking were removed on the east side.

The level of concern about on-street parking resulted in the introduction of a PMP to be introduced as an interim step prior to any physical changes to the existing vehicle parking supply.



A PMP is a stand-alone evaluation of vehicle parking demands and how those demands compare to the available supply and what management options can reduce demand or improve the utilization of the parking supply.

The recommended alternative was presented at the third public meeting, held November 13, 2019, where there were several comments on the alternative. Comments are summarized in Section 4.3 and included in Appendix B.

## 5.6 PREFERRED ALTERNATIVE

The project team revised the alternative based on feedback provided by the PAC, stakeholders, and the public on the recommended alternative.

The three segments—northern, downtown, and southern—have shorter-term and longer-term options that achieve the study vision:

- Traveling along and across Winooski Avenue will be **safe, inviting, and convenient** for people of all ages and abilities using any mode of transportation.
- **Walking and bicycling will be viable and enjoyable** ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.
- **Businesses along and near Winooski Avenue will flourish** with an activated streetscape and convenient access.
- The **mobility and parking needs will be balanced** for property owners, residents, businesses, and the greater transportation system. The preferred alternative included a revision to the shorter-term improvements that retained 25 spaces between North Street and Union Street. A

Parking Management would guide when and if other on-street parking can be removed to facilitate the short-term improvements identified.

- The street can **adapt** to changes to the transportation system and land use.



## 6.0 IMPLEMENTING THE PLAN

This chapter outlines a set of actions to turn the project alternatives into physical improvements on the ground. These actions represent the preferred alternatives selected by the PAC [and endorsed by City Council] after considering public input and alignment with the vision and goals for the corridor.

Three corridor segments emerged as having distinctly different opportunities to advance toward implementation:

- Northern Segment: Riverside Avenue to Pearl Street.
- Downtown Segment: Pearl Street to Main Street.
- Southern Segment: Main Street to St. Paul/Howard.

Implementing any project is a complex and lengthy process that requires a plan, actions, and a process to evaluate and respond to challenges and changing conditions. Each of these segments are explored in further detail below and have recommendations for interim actions before shorter- and longer-term implementation of the preferred alternatives.

### 6.1 PREFERRED ALTERNATIVES SELECTION

[This section will be completed after the final PAC meeting, TEUC meeting, and City Council meeting.]

## 6.2 PREFERRED ALTERNATIVES SUMMARY

### Interim Improvements

1. A comprehensive PMP is recommended to identify strategies for managing parking in the Pearl Street to Riverside Avenue study area. No changes to on-street parking will be made until agreement on the outcomes of the PMP.
2. Improve bicycle wayfinding between the southbound Winooski Avenue bicycle lane and the northbound Union Street bicycle lane.
3. Advance pilot projects or demonstrations to test mini-roundabouts on North Winooski Avenue.
4. Address commercial loading and driveway queuing on Winooski Avenue in the downtown.
5. Evaluate public safety impacts, traffic operations, driveway access, Marketplace garage circulation, roadway dimensions, and VTrans approvals for improvements that can reduce turning conflicts and prioritize protection for people walking and biking in the downtown.

### Shorter-Term Improvements

**Northern Segment:** Retain current vehicle pattern (two-way north of Union Street/Decatur Street and one-way southbound to Pearl Street). Stripe on-street bicycle lanes in both directions between Pearl Street and Riverside Avenue. On-street vehicle parking on the east side would be removed between Pearl Street and North Street and between Union Street/Decatur Street and Riverside Avenue. Implement the mini-roundabouts.

Consider additional improvements for pedestrian safety at the intersections of Archibald Street and Riverside Avenue. The parking management plan will guide the eventual design of the short-term improvement in the northern segment.

**Downtown Segment:** Restripe the roadway for one southbound vehicle lane, one northbound vehicle lane, a center turning lane, northbound and southbound bicycle lanes, and protection for pedestrians and bicyclists, when possible.

**Southern Segment:** Incorporate continuous bicycle lanes in both directions and remove east-side parking between King Street and Main Street.

**Corridor-wide:** Improve high-priority transit stops and pedestrian crossings.

## Longer-Term Improvements

Modify roadway for two-way traffic for all modes north of Pearl Street, protected bicycle lanes where feasible, underground utilities, incorporate stormwater management, improve transit stops, add street trees, benches and other pedestrian amenities, and incorporate additional on-street parking wherever possible.

## PARKING MANAGEMENT PLAN (PMP)

A PMP identifies the current supply of parking in the study area (public lots, private lots, and on-street), evaluates the current demand for vehicle parking, and identifies ways to utilize the existing supply more efficiently.

This PMP will cover the linear study area from Riverside Avenue to Pearl Street, with the potential to address North Street to Pearl Street and Riverside Avenue to North Street as two study areas. The PMP will extend one block either side of Winooski Avenue and will include interviews and intercept surveys with people visiting, living, and working in the study area.

The PMP will identify what type of parking management strategies are needed in the study area. It will also identify whether management alone (e.g., time-restricted parking to encourage turnover for neighborhood businesses, new loading zones, shared parking arrangements off-street) may be sufficient to offset the loss of on-street parking suggested by the alternatives.

A goal of the PMP is to preserve as much existing vehicle parking as possible through proactive corridor management.





## 6.3 NORTHERN SEGMENT: RIVERSIDE AVENUE TO PEARL STREET

The northernmost segment of the corridor extends from Riverside Avenue to Pearl Street and includes key intersections at North Street, Union/Decatur Street, Archibald Street, and Riverside Avenue.

**Preferred alternative:** Two-way traffic for all modes between Union Street and North Street.

### Riverside Avenue to Union Street/Decatur Street

#### Shorter Term

- Use the PMP to identify and create new loading zones, accessible spaces, time-restricted parking, opportunities for parking in place of greenbelts, and other parking strategies to mitigate impacts of on-street parking loss.
- Remove the east-side on-street parking, providing space to shift the centerline and accommodate on-road bicycle lanes on both sides.
- Bus stop improvements for Riverside Avenue bus stop (Green Line) outside the Community Health Center. This stop has high ridership demand and minimal amenities. Other northbound stops for the Gold Line should be evaluated based on amenity guidelines set by GMT.





- The midblock crossing north of Union Street should be reevaluated given pedestrian demands, lighting, visibility, and other considerations.
- Signal improvements to improve bicycle detection should be considered at Riverside Avenue to improve bicycle mobility between Winooski Avenue and the shared-use path along Riverside Avenue.

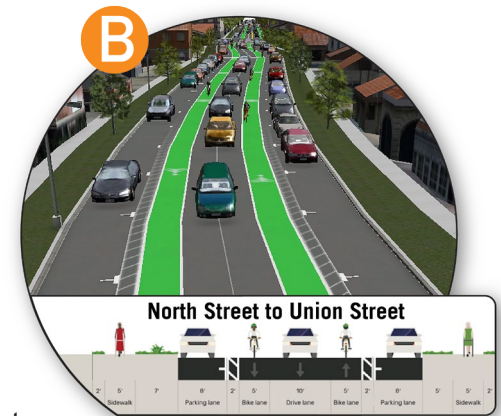
### Longer Term

- Modify the roadway to accommodate protected bicycle lanes or additional on-street parking, underground utilities, and additional street trees.
- Mitigate any impacts of widening by also doing “bulb-outs” with stormwater treatment and detention.
- In the longer term, two-way vehicle travel will be possible from Riverside Avenue to Main Street. GMT could initiate new southbound service, which would require identifying and improving bus stops.

## Pearl Street to Union Street/Decatur Street

### Shorter Term

- Before making changes to parking, wayfinding can be improved from Winooski Avenue onto Union Street to enhance the user experience for northbound bicycle travel via Union Street.
- Use the PMP to preserve parking and mitigate the loss of parking, create new loading zones, accessible spaces, time-restricted parking, and other management solutions.
- Maintain southbound-only motor vehicle travel and remove east-side on-street parking (45 spaces) between North Street and Pearl Street to accommodate the additional on-road bicycle capacity.



### Longer Term



- Modify the roadway to accommodate two-way travel for all modes, including transit, or protected bicycle lanes, underground utilities, and additional street trees.
- Remove the east-side parking (26 spaces) between Union Street/ Decatur Street to North Street to accommodate two-way travel for all modes, including transit, and buffered bicycle lanes.
- In the longer term, two-way vehicle travel will be possible from Riverside Avenue to Main Street. GMT could initiate new northbound service, which would require identifying and improving bus stops.

## North Street Intersection

**Preferred alternative:** Replace the signalized intersection with a mini-roundabout to reinforce slow speeds on North Street and Winooski Avenue and reduce delay for vehicles and pedestrians.

### Shorter Term

- Pilot the mini-roundabout with southbound-only vehicle and bicycle lanes to monitor the physical geometry, Fire Department access, and the interaction between the pedestrians, bicyclists, and vehicles. See Figure 39.

### Longer Term

- Upgrade the southern leg to reflect the two-way vehicle lanes. See Figure 40.

FIGURE 39: NORTH STREET INTERSECTION—SHORTER TERM

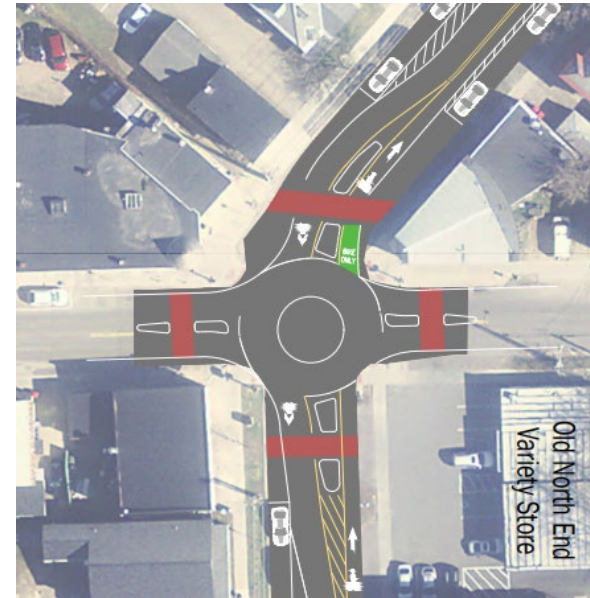
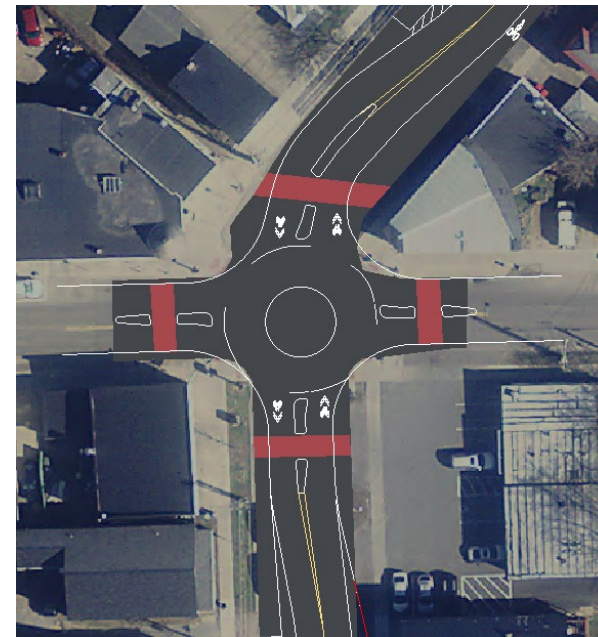


FIGURE 40: NORTH STREET INTERSECTION—LONGER TERM



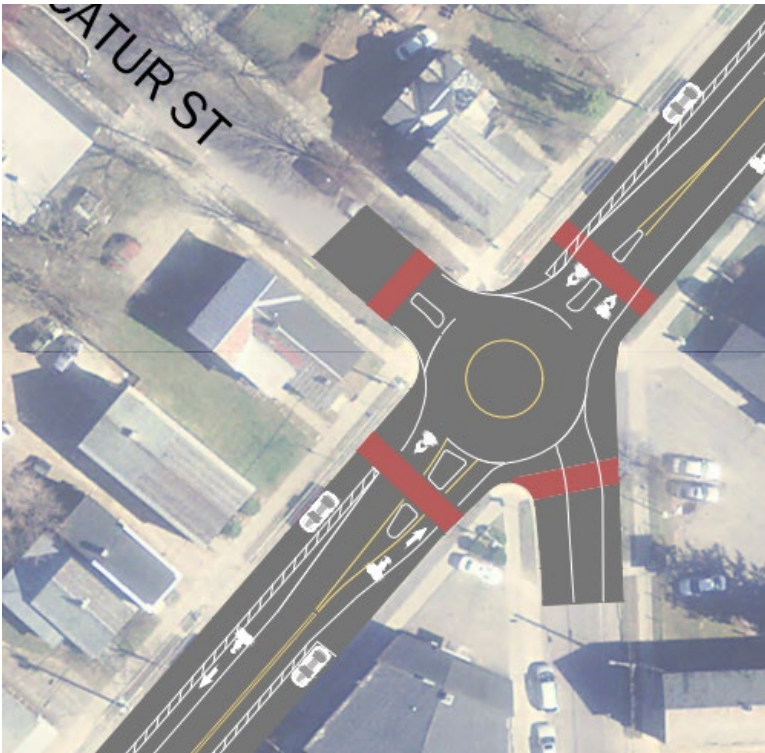
## Union Street Intersection

**Preferred alternative:** Replace the all-way stop controlled intersection with a mini-roundabout to reduce vehicular and bicycle delay, create a more logical control for Winooski Avenue, and maintain pedestrian right-of-way at the crossings.

### Shorter Term

- Pilot the mini-roundabout to evaluate how the intersection change performs and accommodates the needs of all users.
- Implement the mini-roundabout upon a successful pilot. See Figure 41.

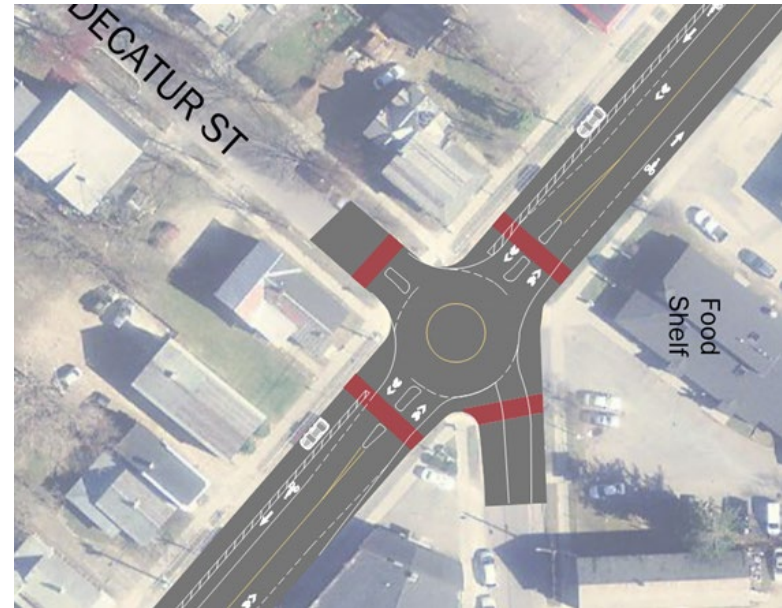
**FIGURE 41: UNION STREET INTERSECTION—SHORTER TERM**



### Longer Term

- Upgrade the southern leg to reflect the two-way vehicle lanes. See Figure 42.

**FIGURE 42: UNION STREET INTERSECTION—LONGER TERM**





## Pearl Street Intersection

### Shorter Term

- Relocate the east-side loading zones to the west side in the area near in the red box in Figure 43.

FIGURE 43: PEARL STREET LOADING ZONE POSSIBILITY



- As part of the Northern Segment improvements, remove east side on-street parking to accommodate the additional on-road bicycle capacity. The southbound approach would consolidate the lanes to a dedicated left and a shared right-through lane (Figure 44).

FIGURE 44: PEARL STREET INTERSECTION—SHORTER TERM



### Longer Term

- Modify the roadway to accommodate two-way travel for all modes, including transit, or protected bicycle lanes (Figure 45).

FIGURE 45: PEARL STREET INTERSECTION—LONGER TERM





## 6.4 DOWNTOWN SEGMENT: PEARL STREET TO MAIN STREET

**Preferred alternative:** Restripe the road to create one southbound vehicle lane, one northbound vehicle lane, a center turning lane, and northbound and southbound bicycle lanes (five-lane cross section).

### Shorter Term

- Restripe the roadway to remove the four-lane configuration and create the five-lane cross section.
- Enhance the significant southbound transit stop near Bank Street with a shelter and other amenities, as appropriate.
- Evaluate the operations and safety of a median and other streetscape enhancements.
- Prioritize protection for people walking and bicycling.
- Add street trees where possible and improve the pedestrian experience with benches, trees, and other amenities within the right-of-way.

### Longer Term

- Modify the roadway to accommodate underground utilities, additional street trees, stormwater detention and treatment, or protected bicycle lanes
- Implement other enhancements or pilot a center median if the evaluation warrants further consideration.
- GMT may route northbound buses along the corridor in the long-term given two-way vehicle travel north of

Pearl Street. Bus stops will be identified at that point for improvement.



## Bank Street Intersection/City Market Driveway

The Marketplace Garage entrance on Bank Street periodically queues from Bank Street back into Winooski Avenue, affecting safety and operations for all modes. The reasons vary, but queues often occur when the garage is full and drivers are not sure where to go.

With fewer vehicle lanes on Winooski Avenue, that blockage may cause additional queuing. However, it should be safer because people will not have the space or additional lanes to weave around queued vehicles.

The queuing from the garage can compound an already busy driveway at the City Market entrance just south of Bank Street. The two-way driveway has a high demand of turning vehicles in and out, as well as walkers/bikers across and into the driveway. These turning vehicles can use the future center turning lane, but the queuing space is limited.

### *Shorter Term*

- Investigate ways to reduce queuing associated with the Marketplace Garage Bank Street entrance. Improved signage and wayfinding can provide warnings in advance when the garage is full and can direct patrons to the Cherry Street entrance or to other parking options.
- Collaborate with City Market to improve the operations and safety at their driveway onto Winooski Avenue.
- Collaborate with City Market and SSTA/Paratransit curbside pickup at Howard Center (102 South Winooski Avenue) to replace on-curb pickup and loading in front of Howard Center with a parking space in City Market for SSTA operations when possible.

## Main Street Intersection

The Main Street intersection is the focus of a Great Street project along Main Street. Modest changes can be implemented until more substantial changes are undertaken.

### *Shorter Term*

- As part of the Downtown Segment restriping, reduce the pedestrian crossing widths by removing the dedicated right-turn lanes for southbound right and westbound right turns (Figure 46).
- Restrict commercial loading on the western curb on Winooski Avenue and relocate to occur on Main Street.

**FIGURE 46: MAIN STREET INTERSECTION—SHORTER TERM**





## 6.5 SOUTHERN SEGMENT: MAIN STREET TO SAINT PAUL/HOWARD

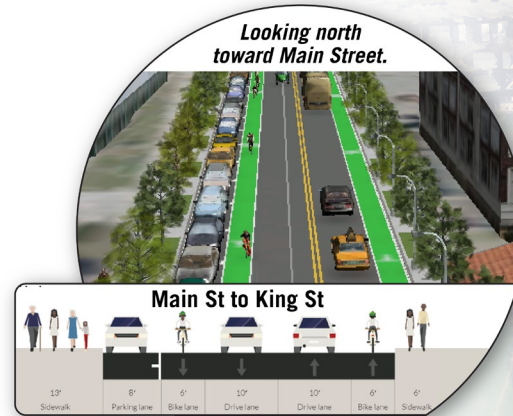
The corridor south of Maple Street is planned to remain in its current configuration.

**Preferred alternative:** Incorporate continuous bicycle lanes in both directions.

### Main Street to King Street

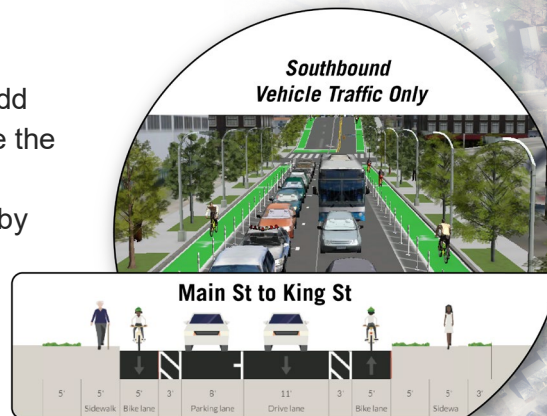
#### A Shorter Term

- Shift the center line of the street and incorporate northbound and southbound bicycle lanes.
- Maintain both southbound and northbound travel lanes.
- Remove the 12 metered curbside parking spaces on the east side.



#### B Longer Term

- Remove the northbound travel lane and add protected bicycle lanes, which will improve the operational efficiency at the Main Street–Winooski Avenue signalized intersection (by removing an approach lane to the signal).

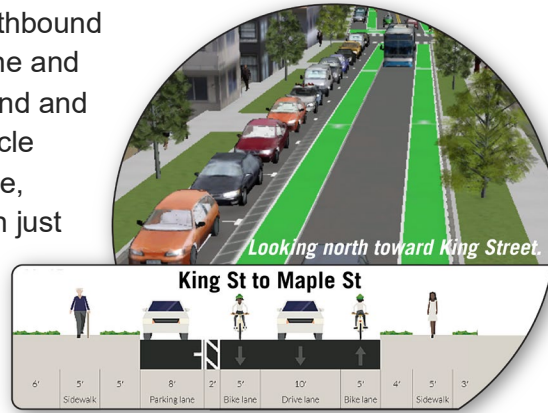




## King Street to Maple Street

### Shorter Term

- Remove the northbound vehicle travel lane and create southbound and northbound bicycle lanes. In essence, the cross section just south of Maple Street will be extended north through this segment of the corridor.



### Longer Term

- Explore roadway modifications between Main Street and King Street to create on-street parking spaces.

## 6.6 PROJECT COSTS

The preferred alternative construction costs are divided into the three project implementation segments for the shorter- and longer-term time periods.

Basic costs include just those physical works needed to remove the existing strips and replace new strips in the new configuration. Reconstruction costs assume the roadway surface is replaced, which VTrans is scheduled to undertake in 2022 along the entire corridor.

<sup>16</sup> The cost could increase dramatically with contaminated soil, electrical components affecting right-of-way, and replacing and upgrading stormwater systems.

## Shorter Term

### Northern Segment (Riverside Avenue to Pearl Street)

- Union Street mini-roundabout: \$115,000.
- North Street mini-roundabout: \$150,000.
- Striping Only (remove & restripe): \$45,000.

### Downtown Segment (Pearl Street to Main Street)

- Striping Only (remove & restripe): \$53,000.

### Southern Segment (Main Street to Maple Street)

- Striping Only (remove & restripe): \$10,500.

## Longer Term

The longer-term cost estimates in the northern segment include potential widening of the roadway and possibly undergrounding the existing overhead utilities. The southern segment is only revising the lane configuration between King Street and Main Street.

### Northern Segment (Riverside Avenue to Pearl Street)

- Without Utility Undergrounding: \$2.38 million.
- With Utility Undergrounding: \$10+ million.<sup>16</sup>

### Southern Segment (Main Street to King Street)

- Striping Only (remove & restripe): \$10,000.





## 6.7 IMPLEMENTATION TIMELINE

Although there are efficiencies of scale for planning, designing, and constructing, each of the three segments can be implemented concurrently or independently of each other.

### Northern Segment

#### 2020

- Conduct the PMP for the two study areas: Pearl Street to North Street and North Street to Riverside Avenue. Identify management or solutions to mitigate the loss of on-street vehicle parking by 2021.
- Conduct pilots for the two mini-roundabouts at North Street and Union Street.
- Initiate preliminary design and engineering. Develop plans for revising signage, striping, stormwater drains, and other infrastructure in the corridor. Identify where minor curb movement might accommodate some indented on-street vehicle parking spaces.
- Develop wayfinding signs for parking and bicycle travel to increase the use of the Union Street bicycle lanes in the near-term prior to any changes in on-street parking.

#### 2020–2021

- Initiate permanent installs of the mini-roundabouts upon successful trials.
- Consider additional improvements for pedestrian safety at the intersections of Archibald Street and Riverside Avenue.

#### 2021

- Complete physical work upon agreement on PMP outcomes. Retain current vehicle travel patterns, stripe bicycle lanes in both directions between, and remove east-side parking between North Street to Pearl Street and Riverside Avenue to Union Street.
- Improve transit stops outside the Community Health Center, reevaluate the midblock crossing north of Union Street, and improve bicycle detection at the Riverside Avenue traffic signal.

#### Beyond 2021

- Identify funding to modify the roadway for longer-term improvements, such as two-way traffic for all modes north of Pearl Street; expanded transit service; protected bicycle lanes, where feasible; underground utilities; incorporate stormwater management;



improve transit stops; add street trees, benches, and other pedestrian amenities; and incorporate additional on-street parking wherever possible.

## **Downtown Segment**

### **2020**

- Initiate preliminary design and engineering for one southbound vehicle lane, one northbound vehicle lane, a center turning lane, northbound and southbound bicycle lanes, revised signal designs and signal timings, stormwater drains, and other infrastructure in the corridor.
- Prioritize protection for people walking or bicycling.
- Develop wayfinding signs for City parking and bicycle travel.
- Assess Marketplace Garage entrance options.
- Engage with City Market and other property owners along the corridor.
- Evaluate the operations and safety of a raised median and other streetscape enhancements.
- Finalize design for the corridor changes and implement or pilot as much as possible in 2020.

### **2020–2021**

- Complete physical works.
- Install additional streetscape and safety enhancements and make final adjustments to shorter-term improvements in advance of roadway paving in 2022. Enhance the Bank Street transit stop, add street trees, and improve the pedestrian experience with benches, trees, and other amenities. Consider a median in place of the center turn lane.

### **Beyond 2021**

- Identify funding to modify the roadway for longer-term improvements such as protected bicycle lanes, expanded transit service, underground utilities, stormwater management, and a median.

## Southern Segment

### 2020–2021

- Initiate preliminary design and engineering to include bicycle lanes in both directions.
- Engage with property owners and neighborhoods affected by change in parking and change in vehicle lanes.
- Complete the shorter-term projects and restriping of lanes, implementing as much as possible in 2020.
- Make final adjustments to shorter-term improvements in advance of roadway paving in 2022.

### Beyond 2021

- Identify funding to modify the roadway for longer-term improvements such as protected bicycle lanes, parking, two-way travel for all modes, underground utilities, and stormwater management.



## APPENDIX A. PROJECT ADVISORY COMMITTEE

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*A study by the City of Burlington Department of Public Works in conjunction with the  
Chittenden County Regional Planning Commission*

## **Project Advisory Committee Meeting #1 Meeting Notes**

**Wednesday, May 2, 2018, 6:00 PM – 7:45 PM**

**Fletcher Free Library Community Room, 235 College Street, Burlington**

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 6:00PM by Chapin Spencer, Director of the Department of Public Works (DPW). Chapin discussed the importance of Winooski Avenue for the City; there are many ideas for how to improve mobility and the overall user experience. This is an opportunity to take a step back and clarify our goals and the PAC is a critical to that effort. He thanked the CCRPC for their support of this project.

Nicole Losch of DPW reviewed the agenda. There were no changes.

### **2) Public Comment Period**

Jon Slason of RSG opened the public comment period by saying that he'd like to have an informal meeting and committee members should feel free to ask questions at any point. The public will have a 10-minute comment period at the beginning of all PAC meetings, but the consultant team is available for calls, emails, etc.

Glen Eames, former bicycle business owner, has lived in Burlington for 30 years and has seen the cycling traffic quadruple. People are choosing to bike - there are full bike racks at 3 Needs, Radio Bean, and City Market. It's time to improve Winooski Avenue.

Tony Redington noted that Plan BTV and the Walk/Bike Master Plan provide a context for this study. Tony is interested in pedestrian safety. The section between Pearl and Main is a "Death Valley" where there is one pedestrian crash every year. Kurt McCormack is interested in a roundabout in front of his house.

Max Tracy, Ward 2 City Councilor, is excited this process is getting underway. He would like to take advantage of social media, advertising, etc. to promote all the meetings, including PAC meetings, with as much notice in advance as possible. There is intense interest in this corridor.

Alissa Faber lives on Crombie Street and regularly bikes this corridor. She has been in minor accidents on Winooski Ave. and is interested in having a voice in the project and hearing about possible improvements.

### **3) Future Meetings – Scheduling Preferences**

Diane Meyerhoff from the consultant team asked that everyone complete the scheduling form to help choose the best time for our next meetings. Bryan Davis of the CCRPC offered stipends through his agency as a way to make it possible for more people to participate by helping to pay for transportation, childcare, etc.

### **4) Committee Roles & Responsibilities**

Nicole reviewed the Committee's Roles & Responsibilities (see attachment). The core task is for members to represent the group that asked them to serve – both to share our information with your group and to bring their thoughts back to us. If members are unable to attend, we ask that you send someone in your place. We encourage members to attend the public meetings and events. The committee can appoint a Chair; the group can decide at the next meeting, if interested Councilor Jane Knodell supports the consultant team chairing the meetings. If at any time committee members feel they are not being heard or have suggestions for better committee management, they should bring those concerns to Jon.

Bryan noted that a series of stakeholder interviews will take place and would like PAC input on the list of interviewees. The list will be distributed for PAC input.

### **5) Introduction to the Winooski Avenue Study**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

Jon provided an overview of the project, beginning with the Organizational Chart. The PAC guides the whole process and the Steering Committee (DPW, CCRPC, and consultant team) will manage the study. Jon reviewed the consultant team's experience and roles in the project.

The study is a comprehensive transportation study of the entire Winooski Avenue corridor (from Riverside to Howard), to develop multimodal improvement strategies that address safety, capacity, and connectivity. The final deliverable is an actionable implementation plan with near-term and longer-term recommendations.

Jon reviewed the scope and schedule. Councilor Karen Paul expressed concern that a public meeting was scheduled for August – this is a bad time for public events as many people are on vacation. In order to increase participation, Erik Brown-Brotz would prefer to see multiple events over a few weeks rather than one event on one day. He also expressed concern that the public isn't involved until the end of each block of activity. He would like to see the public involved in the middle of the process. Jon responded that there will be many opportunities for input – including mapping, online surveys, and a website feedback loop. Public input will be solicited throughout the process. In addition, input from every public meeting will be addressed and incorporated into the study.

Nicole discussed the vision of Complete Streets for Burlington. She also outlined previous plans and studies that will be integral to the Winooski Avenue work and Jon provided additional detail. The PAC will receive a summary of these plans. Erik asked if Union Street is part of the study area. Jon responded that we don't yet know how it will be incorporated into the study; this will be determined as the study progresses.

Jon provided a map of the City's capital projects, noting that there is little work to be undertaken on Winooski Avenue in the near-term. This allows us to take the time to define our goals and lay out our priorities.

Jon described the Public Participation Plan for the study, which will be provided to the PAC. The public will be engaged during every stage of the study using a variety of tools and formats. There are four elements: stakeholder interviews, PAC, public forums, and continuous communication.

Jon reviewed existing conditions including space use and connectivity (curb-to-curb widths, travel lanes, bike accommodations, parking), traffic volumes, high crash locations (vehicles, pedestrian/bicycle).

## **6) Next Steps**

Jonathan described the next steps:

- Draft Vision and Goals for PAC review at mid-July meeting
- Get people on the mailing list
- Share review of previous studies and plans with the PAC
- Initiate various forms of online public engagement
- Steering Committee will begin stakeholder interviews

## **7) PAC Feedback**

The group broke into two groups to discuss the following questions:

1. Other stakeholders we should interview?
2. Why is this project important to you?
3. What are your goals for this study?
4. How can this study and its outcomes be most useful?
5. Specific issues or opportunities that we should know about?

Mike Lydon of StreetPlans summarized one group discussion:

- Concern about pedestrian access and safety
- Must include all corridor users in the study
- Strong patterns of behavior of one-way streets – concern about two-way bike travel on one-way streets
- Winooski Avenue changes will impact intersecting and parallel streets
- Protected bike lanes preferred
- Involve school community
- We need a holistic corridor plan with strategies and actions in the near- to mid-term
- Need to prioritize improvements to activate the corridor
- East-west connections need to be considered, especially for pedestrians

Jon Slason of summarized the second group discussion:

- Goal to develop a plan whereby residents and adjacent property owners can walk away proud and happy that they were engaged and involved. Realizing that they may not get their way, but that the process is transparent and visible to those interested in participating.
- Connect Winooski Avenue to the other heart of the City, Church Street. By fostering greater connectivity and safer multimodal travel, the City can use Winooski Ave to open up the downtown.



Karen Paul noted that City Market is discussing reconfiguring their parking lot. This is an opportunity for this study to work with them.

The meeting was adjourned at 7:45PM.

## Attendance

### Project Advisory Committee (PAC) Members

Erik	Brown-Brotz	Walk Bike Council
Jane	Knodell	City Council
Kirsten	Merriman Shapiro	CEDO
Karen	Paul	City Council
Charles	Simpson	Resident of South District
Meagan	Tuttle	Planning & Zoning
Derik	Wrightson	Burlington Business Assn.
Jess	Hyman	ONE Arts & Bus. Network
Rachel	Kennedy	GMT

### Stakeholder Group/Consultants

Eleni	Churchill	CCRPC
Bryan	Davis	CCRPC
Nicole	Losch	DPW
Mike	Lydon	Street Plans
Corey	Mack	RSG
Roxanne	Meuse	RSG
Diane	Meyerhoff	Third Sector Associates
Jonathan	Slason	RSG
Chapin	Spencer	DPW
Ursaki	Julia	Dubois & King

### Members of the Public

Max	Tracy
Tony	Redington
Karen	Yacos
Glenn	Eames
Alissa	Favor
Laura	Jacoby

### Study contacts:

Jonathan Slason, RSG, [jonathan.slason@rsginc.com](mailto:jonathan.slason@rsginc.com) (802-861-0508)

Bryan Davis, CCRPC, [bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org) (802-861-0129)

Nicole Losch, DPW, [nlosch@burlingtonvt.gov](mailto:nlosch@burlingtonvt.gov) (802-865-5833)

## **Attached: Roles & Responsibilities (DRAFT)**

**DRAFT OPERATING PROCEDURES FOR THE  
WINOOSKI AVENUE CORRIDOR STUDY PROJECT ADVISORY COMMITTEE (PAC)  
July 2018**

The Winooski Avenue Corridor Study is a transportation study of Winooski Avenue that is part of the city's goal to create multimodal, Complete-Street routes throughout the city. The final product will be an implementation and action plan with recommendations to address safety, capacity, and connectivity for all modes of transportation along this important north-south connection through Burlington. The study will respect the diversity of residents and stakeholders who live, work, and play in the corridor. As part of this work, a Project Advisory Committee (PAC) has been formed to assist the study's Steering Committee.

**I. Duties and Responsibilities**

- A. Members of the PAC are expected to: learn about the issues relevant to the project; disseminate this information to the community they represent; advise the Steering Committee of their opinions and those of their community in a timely manner; encourage early and broad community participation; and promote and affirm the outreach process for this effort. ***It is the responsibility of the committee member to regularly report to the organization or constituency to which s/he represents and to present to the Steering Committee the views of his or her constituency.***
- B. All participants are requested to respectfully listen to the opinions of others in an effort to ensure a constructive discussion and a successful outcome.
- C. PAC members will be expected to participate in scheduled public meetings and encourage others to attend and share their opinions at the meeting.
- D. We understand that members of the Committee have many personal and professional commitments aside from this one. However, we ask that members make every possible effort to attend the meetings consistently. Anyone who misses more than two meetings in a row will find it difficult to effectively participate in the work of the committee.
- E. The Steering Committee, consisting of staff from the Department of Public Works (DPW), Chittenden County Regional Planning Commission (CCRPC), and the Consultant team commits to the following responsibilities: to schedule PAC meetings on a regular basis that will allow the participants to consider issues and offer timely input; to consider and respond to this input and concerns; to provide understandable and accurate data and project information; to provide timely notice of meetings, with agendas; and to record and distribute accurate summaries of the discussions.

**II. Membership**

- A. Project Advisory Committee members will be invited to participate as follows: Burlington City Council, the Community and Economic Development Office, the Department of Planning and

Zoning, Green Mountain Transit, the Burlington Walk Bike Council, the Old North End Arts and Business Network, Church Street Marketplace, AARP Vermont, and the Burlington Business Association, as well as resident representatives from the Central, East, and South City Districts.

- B. The public is welcome to attend the committee meetings as observer and will be offered a chance to provide direct input during a public comment period.

III. Project Management and Committee Staffing

Overall project management will be provided by DPW and CCRPC staff. Professional analysis and technical assistance will be provided by a consultant team led by RSG. Third Sector Associates will assist with PAC and public/community outreach. Committee staffing and meeting facilitation will be provided by DPW and CCRPC staff with assistance from the consultant team.

IV. Consensus

The PAC will seek to achieve consensus; in the absence of a consensus, the opinions of the parties will be recorded in a written summary and taken into consideration by the Steering Committee. The Steering Committee values the contributions and opinions of the community and the individual participants but reminds the Committee that the City Council retains final decision-making authority with regard to the project.

V. Duration

The PAC will continue to function until a final report is presented to the Burlington City Council, anticipated mid-year of 2019.

VI. Meetings

- A. The PAC is expected to meet 5 times through the duration of the project as determined by the project work and schedule.
- B. All PAC meetings will have a 10 minute public comment period.
- C. All PAC meetings will be open to the public. Meeting dates, agendas, and notes will be posted on the project's website (<https://www.ccrpcvt.org/our-work/transportation/current-projects/corridors-circulation/winooski-avenue-corridor-study>)

*The Steering Committee appreciates the time and effort that individuals commit to this kind of project and thank you for representing your community and working to enhance the planning process.*





*A Study by the City of Burlington Department of Public Works in conjunction with the  
Chittenden County Regional Planning Commission*

## **Project Advisory Committee Meeting #2 Meeting Notes**

**Monday, July 23, 2018, 5:00 PM – 7:00 PM**

**Mt. Mansfield Conference Room, Community Health Center, Riverside Avenue, Burlington**

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 5:10PM by Jonathan Slason, Project Manager (RSG). Jonathan introduced the meeting and what was to be covered.

Bryan Davis (CCRPC) reviewed the stipend request forms and W-9 forms which are needed from PAC members who are volunteering their time to participate and wish to receive the stipend to help off-set any costs to participate in the PAC meeting. These need to be filled out for each meeting. The stipend can be used to cover a variety of costs if you are donating your time to be at the PAC meetings.

Bryan reviewed the PAC roles and responsibilities. Members are representing certain constituents, different parts of the community, and different neighbors. While PAC members bring your own opinions to the table, you are also representing those people in your communities so keep that in mind as we go through the conversations.

Bryan covered the Public Participation Plan (PPP) and asked for final comments or edits. After this meeting broad outreach to the public will begin through the project website, Constant Contact, the WikiMap, distributing postcards, Front Porch Forum and other methods, all as preparation for the public meeting in September. Postcards were made with the project introduction and the project website (shortened URL). [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

Kelly (AARP) supported the efforts to engage through a variety of means and occasions.

Bryan described the stakeholder interviews. To date he has met with Vermont Department of Health staff and parents from IAA. More are being scheduled through summer and early fall. Difficult to arrange school-based interviews during summer. Planned interviews are with UVM, Champlain College, CATMA, Greenride Bikeshare, and others. Please send along any specific organizations which should be approached for a stakeholder interview.

There were no changes to the agenda.

### **2) Public Comment Period**

Jonathan Slason (RSG) opened the public comment period by saying that he'd like to have an informal meeting, and committee members should feel free to ask questions at any point. The public will have a 10-minute comment period at the beginning of all PAC meetings, but the consultant team is available for calls, emails, etc.

No public comment.

### **3) General Project Information**

Jonathan asked the group to approve the PPP and the PAC guidelines. Approved through consensus. No dissenting opinions.

Both documents remain “living” through the project.

### **4) Exploration of the Existing Conditions along the Corridor**

Jonathan introduced the purpose of the existing conditions analysis/report. This is a working document until after the first public meeting on September 5<sup>th</sup>. It is an existing and near-term focused look at conditions along the corridor.

This draft is the first take from the consultant team. We will be incorporating insights from PAC members, organizations, stakeholder interviews and the wider public through the summer and into the Public Meeting.

Jonathan went through an extensive presentation of data, insights, and commentary on the existing conditions in the corridor.

- Why we are studying this corridor
- Goals of the study
- Public engagement
- Previous plans and studies
- Existing conditions

Key Takeaways from Existing Conditions:

- Gateway to City
- The needs of the corridor are challenging based on the various land use along the corridor. Unique among other North/South streets.
- Disconnected multimodal facilities
- Several safety issues
- Some flexibility to and opportunity to change lanes and capacity based on traffic capacity. Will likely create localized, short periods, of more intense delay and queuing.

#### Discussion:

Erik (Walk-Bike Council): Curb cut density map shows number of curbs only. Some investigation of length of open curbs would be helpful. Especially downtown (City Market, fire house, Free Press, gas station, etc.)

Meagan (City Planning & Zoning): planBTV has objective for Pearl St to Main St section to be a Slow Street - 20 mph. There is a clear desire to slow the speed below that through design, look and feel.

Jonathan: there is a lack of bicycle data. Some intersection pedestrian count data at intersections but not along segments.

Jonathan: 73% of people working in BTV live outside of BTV. Winooski corridor is a key route to access jobs and services.

#### *Vehicle level of service:*

Jonathan had covered the results of the traffic modeling. The results generally appear better than many people’s perception of the congestion downtown. The results represent the overall

average of vehicle delay at the intersection over the course of a whole hour. There would be approaches, or specific movements that are worse than this. Also, there would be periods within the peak hour that would see delay and queues much worse than this overall LOS would indicate.

Jane (City Council): noted that queues from some of the intersections, example being at Pearl, can block northward to Grant Street during the peak periods. This is not desirable as it can affect safety.

Jonathan: There will be tradeoffs. Even a LOS C may result in 15 to 30 minutes of long queues that block adjacent intersections or even mid-block crossings. However, the remaining time in the hour has better operations and lower levels of delay. A decision will be to investigate what level of congestion are we willing to tolerate and for what duration of time in order to achieve other outcomes.

Kelly: Especially consider the effects of queues on mid-block crossings and safety. Crossing queues is a challenge for pedestrians and is especially bad at Main Street.

The Project Team will find other ways to present the variety of insights that can be summarized regarding level of service and queues. We will consider intra-hour queue lengths and delay. Number of signal cycles is also something to consider as a metric.

#### *Bicycle level of service:*

Roxanne (RSG): Described bicycle level of stress. The City developed a system calibrated for use in Burlington based on a national approach. Lower stress facilities may entice more demand.

{ public }. The black line with no northbound bike lane. We should acknowledge that people currently violate this and travel north, either in the southbound bike lane or just against traffic.

#### *Pedestrian level of service:*

Jonathan: Summarized the Highway Capacity Manual approach for pedestrian level of service which is based largely on separation distance from moving cars, the speed of the vehicles, and the width of the pedestrian facility. Burlington generally performs very well simply due to the relatively low volumes and travel speeds. No assessment was done for the other method, which was density based (i.e., number of pedestrians in an area of the sidewalk).

Meagan: the Project team should review other potential metrics. The national LOS doesn't appear to align with people's perception. Quality of the sidewalk should matter, as well as the quality of the roadside environment. Density is also a concern. The demand and space around some of the busy areas, for example at the College Street corner, can be a poor level of service.

Kelly: right turn on red light is a safety risk for pedestrians. It has been identified by AARP members that they have conflicts and safety concerns between vehicles turning right turn on red and crossing pedestrians.

#### *Transit:*

Jonathan: Showed GMT bus ridership data per stops. No continuous bus route along Winooski Ave. Demand is served from a variety of bus routes. The NextGen plan appears to largely mirror existing routes along the corridor.

Jonathan: Bus stops are mostly inadequate in terms of their amenities that they provide.

Especially so at the busier stops. Bike racks are present, but clearly not integrated. The bike racks, when present, are often more than 100 feet away.

Rachel: GMT is in the process of formalizing bus stop guidelines. These would establish thresholds for what type of amenities may be appropriate for certain stops.

*Safety:*

Roxanne: Presented the crash data in the corridor.

Eleni: Suggested reviewing previous HCL lists to understand whether there is historic consistency.

Group discussion on how we might best engage private entities on the corridor which appear to have a significant affect. One example is the City Market driveway. This will happen through stakeholder interviews and through targeted engagement. The City is here representing the Marketplace Garage.

The Project Team will be working with the City and the Regional Planning Commission to collect additional parking occupancy data, bicycle counts, and traffic volumes at key driveways in the corridor. An emphasis will be at City Market and the parking garage.

Discussion to better understand the effects of adjacent streets and facilities. Desire to understand parking relationships with side streets and adjacent streets in the corridor, in addition to parking conflicts. Identify where opportunities may require green belt impacts. The Project Team hopes to incorporate any parking analysis work from the BBA.

Sean (Old North End Arts & Business Network): Burgeoning restaurant presence between North St and Riverside Ave. They have various needs and finding parking and other issues are an impediment. Is there way to incorporate these or bring them into the conversation.

Discussion: The project team should hear from them and the stakeholder reps as to what they need and how the project can incorporate and consider their input. If stakeholders can identify areas of interest, and key destinations for trucks and loading zones, that would be helpful.

Jonathan: The near-term traffic projections are being updated to reflect the changes associated with City Place. This would account for the changes in land use, but also the connected grid network. This may move some traffic off of Winooski and free up space for other users.

## **5) Future Meetings – Public Meeting**

September 5<sup>th</sup> – Public meeting.

The concept for now is:

an indoor session as well as an outdoor session, a basic led investigation of the four-lane section, maybe go down to Maple St, likely a presentation, poster boards, and access to the WikiMap.

## **6) Next Steps**

WikiMap: <http://wikimapping.com/wikimap/Winooski-Ave-Transportation-Study.html>

The Project Team reviewed and demonstrated the WikiMap. The link will be posted on the project website and included in a Constant Contact email blast from the RPC in the coming week.

6-Corridor Areas for further investigation:

Jonathan went through the request to receive initial suggestions for the six areas of focus along the corridor.



**Corridor Vision:**

Please send comments. The Project Team will begin using a method to obtain comments for the PAC to see all the other comments and provide feedback.

**Corridor Objectives:**

Jonathan introduced a nomenclature that the Vision is the Key Objective and there are other objectives for the corridor. Then initiatives are created to meet the goals. Metrics or Key Performance Indicators are ways to measure and evaluate progress.

The Project Team will be in touch with the PAC to coordinate and comment on the Vision and Objectives.

The meeting was adjourned at 7:05PM.

**Attendance****Project Advisory Committee (PAC) Members**

Erik	Brown-Brotz	Walk Bike Council
Alissa	Faber	Resident of Central District
Jane	Knodell	City Council
Sean	Melinn	ONE Arts & Bus. Network
Karen	Paul	City Council
Kelly	Stoddard-Poor	AARP
Meagan	Tuttle	Planning & Zoning
Rachel	Kennedy	GMT (alt)
Karina	French	Resident of South District (alt)

**Stakeholder Group/Consultants**

Eleni	Churchill	CCRPC
Bryan	Davis	CCRPC
Nicole	Losch	DPW
Roxanne	Meuse	RSG
Jonathan	Slason	RSG
Julia	Ursaki	Dubois & King

**Members of the Public**

Allegra	Williams
Andrew	Guerton
Karen	Yacos
Tony	Redington

**Study contacts:**

Jonathan Slason, RSG, [jonathan.slason@rsginc.com](mailto:jonathan.slason@rsginc.com) (802-861-0508)

Bryan Davis, CCRPC, [bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org) (802-861-0129)

Nicole Losch, DPW, [nlosch@burlingtonvt.gov](mailto:nlosch@burlingtonvt.gov) (802-865-5833)



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## **Project Advisory Committee Meeting #3 Meeting Notes**

**Tuesday, October 23, 2018, 5:00 PM – 7:00 PM**

**First United Methodist Church, Reid-Booth Room, 21 Buell Street**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 5:10 PM by Nicole Losch of the Department of Public Works (DPW). Nicole noted that the DPW Stormwater Team is identifying priority improvements to transportation facilities that enhance stormwater management. They are working closely with the consultant team.

### **2) Public Comment Period – No members of the public were present.**

### **3) Review of Stakeholder Interviews**

Bryan Davis of the CCRPC reminded those present that his agency offers stipends to committee members. Those interested should talk with him directly.

Bryan interviewed eighteen different stakeholder groups and summarized his findings:

- Main to Pearl downtown: challenging for everyone, lacks "sense of place"
- Lack of bike connectivity throughout corridor
- One-way segments could be confusing for visitors
- Potential for North Winooski to become two-way
- Desire for better access to Old North End
- Need short-term parking for businesses (deliveries, customers)
- More landscaping, benches, wayfinding, pedestrian safety at intersections
- No strong sentiments for residential southern section

The [Existing Conditions Report](#) has additional detail. Committee members are asked to review the report and send comments to Jonathan Slason ([Jonathan.Slason@rsginc.com](mailto:Jonathan.Slason@rsginc.com)).

### **4) Discussion of 6 Segments for Alternatives Development**

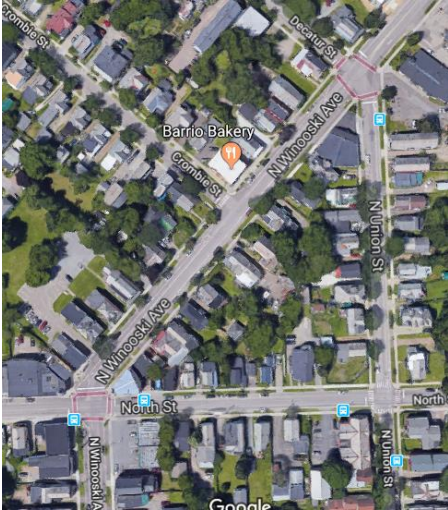
Jonathan Slason described six facilities or segments that are proposed for further study. These move from a corridor-level (high) focus to a more detailed, intersection-level analysis and discussion. Once the six facilities are finalized, design alternatives will be developed and evaluated. Alternatives will align with the corridor vision but also attempt to address the specific challenges and issues identified for each distinct facility.



### Facility 1: Riverside Avenue Intersection

Includes: Hyde Street, CHCB driveway, and approaches

Issues: High Crash Location (HCL) intersection is complicated with driveways, streets at acute angles, the shared use path ending abruptly, transit stops along Riverside (safety, amenities), lack of control at Hyde Street/N. Willard Street.



### Facility 2: Decatur and North Street

Includes: North Union Street and North Street intersections and all approaches

Issues: This segment is critical for evaluation of a two-way roadway. On-street parking and southbound bike lane serve adjacent businesses. Two-way biking on southbound bike lane is common.

One-way vehicular traffic circulation reduces access to new and growing businesses. North Street intersection is a hot spot for safety concerns. Lack of streetscape amenities.



### Facility 3: Pearl Street Intersection

Includes: Pearl Street Intersection and cross-section north of the intersection.

Issues: Intersection is a High Crash Location (HCL), public comment hot spot, and critical for evaluation of the two-way scenarios. There is a vibrant business block on the northeast corner that would benefit from better multimodal accessibility, an expanded pedestrian realm, and streetscape enhancements.

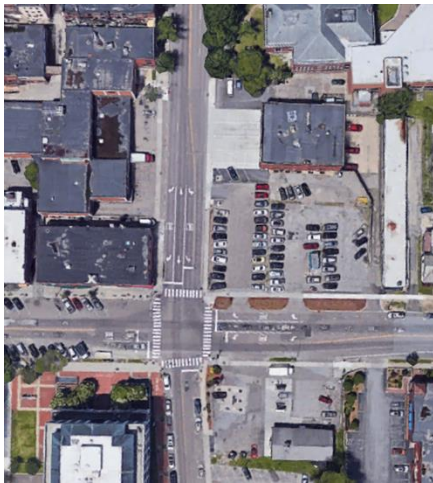


#### **Facility 4: Pearl Street to Main Street**

Includes: Pearl Street to Main Street (City Market, Marketplace Garage, Bank Street, Howard Center, and driveways).

Issues: Higher traffic speeds, safety concerns throughout, difficult parking garage exit, undefined curb cuts at gas stations, turning vehicles blocking through lanes, high potential for conflicts between cars and other modes, congestion and safety concerns at City Market.

The function of the street is both a throughway or service facility and a street serving local interests and destinations. With the reconnection of St. Paul Street and Pine Street through City Place, the through-movement function may become less important.



#### **Facility 5: Main Street Intersection**

Includes: Main Street intersection and approaches.

Issues: Safety for all modes of travel is the greatest concern. This intersection has the highest traffic volumes of any along the corridor.

Lane shifts, limited multimodal facilities, and high demand throughout the day.

This highly visible gateway has poor urban design and streetscape qualities; expansive curb cuts from Free Press Media and Fire Department; addressed in Great Streets BTV design concepts.



#### **Facility 6: Main Street to Maple Street**

Includes: South of Main Street through the intersection of Maple Street.

Issues: King to Maple is along part of a High Crash Location (HCL) segment (which extends south to Spruce).

The cross-section changes several times in this segment and traffic circulation changes from one-way south of Maple to two-way north of Maple.

There is a significant gap in the City's bikeway network north of Maple Street.



Nicole noted that the Archibald intersection was part of a 2011 Scoping Study and the short-term recommendations for new pedestrian signals and phasing is complete.

There was discussion of the “gap” in the selected facilities between North and Pearl Streets. There was concern that this section would not be consistent with the overall corridor vision. Jonathan believes that we can keep a cohesive vision for the entire corridor without a detailed analysis of the segment. There is limited time and budget for detailed study. There was additional concern that the new development and businesses from Decatur to Riverside and further to North Street will not be addressed if this segment isn’t studied in detail (loading and pickup zones, pulling people from downtown to this area).

Councilor Jane Knodell asked if pedestrian issues identified by the public had been addressed. Jonathan responded that concerns about pedestrian amenities, safety, general pedestrian improvements, bus facilities, and bike parking will all be included. Jonathan discussed that based on the comments received, the 6 facilities proposed should encompass the majority of locations with concerns. There is also a concern about jaywalking. The Archibald and Howard Street intersections have been previously identified as key ‘hot spots’ for pedestrian issues and have both been studied in separate scoping studies.

## **5) Discussion of Corridor Vision & Objectives**

Jonathan introduced the draft Corridor Vision along with a framework for evaluating objectives. The committee was asked to provide feedback to Jonathan ([Jonathan.Slason@rsginc.com](mailto:Jonathan.Slason@rsginc.com)).

### **DRAFT Corridor Vision**

- Traveling along and across Winooski Avenue will be safe, inviting, and convenient for people of all ages and abilities using any mode of transportation.
- Walking and bicycling will be viable and enjoyable ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.
- Businesses along and near Winooski Avenue will flourish with an activated streetscape and convenient access.
- The mobility and parking needs of property owners, residents and businesses will be balanced with the mobility and parking needs of the greater transportation system.
- The street can adapt to changes to the transportation system and land use.

The objectives for the corridor were briefly discussed. Additional refinement may occur and the project team is very interested to hear from the PAC as to their input. The objectives will help identify what are priorities for the corridor and how will the project and the City evaluate what success looks like over time on Winooski Avenue. Some specific objectives will be used in the evaluation process of specific alternatives, while some others are relevant to the entire corridor.

## 6) Next Steps

Jonathan described the next steps:

January 2019 (early)	PAC Meeting #4
February (later)	Public Meeting #2
April	PAC Meeting #5
May (mid)	Public Meeting #3
June	Public Meeting #4
August	Final Report & Implementation Plan

## 7) PAC Feedback

The group discussed including the northern segment between Union and Riverside, including the Archibald intersection. The land uses are changing and the needs along that segment are changing. This segment was contrasted to the southern facility being proposed between Main and Maple. If a two-way roadway is considered from Main to Maple Streets, and this segment is not studied in detail, we'll be missing things like stormwater, streetscape, and curbs. There will be additional discussion regarding this issue. The challenge is creating a corridor level investigation, with some specific locations having detailed drawings versus others being more schematic. Overall, regardless of the level of detail, the concept has to be consistent and align with the corridor philosophy.

The group discussed the “hierarchy” of needs for roadways – especially between vehicles and pedestrians and how it relates to making decisions about signal timing and amenities. Pedestrians are the fundamental mode and improvements should focus on ensuring adequate facilities first. Then other modes are added in and then trade-offs (if needed) are made.

The formal meeting was adjourned at 6:45PM. Committee members stayed longer to discuss ideas on detailed maps.

## Attendance

### Project Advisory Committee (PAC) Members

Erik	Brown-Brotz	Walk Bike Council
Jonathan	Chapple-Sokol	Resident of East District
Alissa	Faber	Resident of Central District
Jacob	Flanagan	Alt: Resident of Central District
Colin	Hillyard	Burlington Business Assn.
Rachel	Kennedy	Green Mountain Transit
Jane	Knodell	City Council
Sean	Melinn	ONE Arts & Bus. Network
Kirsten	Merriman Shapiro	CEDO
Karen	Paul	City Council

**Others:** Councilor Max Tracy

### Stakeholder Group/Consultants

Eleni	Churchill	CCRPC
Bryan	Davis	CCRPC
Lucy	Gibson	Dubois & King
Nicole	Losch	DPW
Corey	Mack	RSG
Diane	Meyerhoff	Third Sector Associates
Jonathan	Slason	RSG

### Study contacts:

Jonathan Slason, RSG, [jonathan.slason@rsginc.com](mailto:jonathan.slason@rsginc.com) (802-861-0508)

Bryan Davis, CCRPC, [bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org) (802-861-0129)

Nicole Losch, DPW, [nlosch@burlingtonvt.gov](mailto:nlosch@burlingtonvt.gov) (802-865-5833)



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## **Project Advisory Committee Meeting #4 Meeting Notes**

**Tuesday, January 29, 2019, 5:00 PM – 7:00 PM**

**First United Methodist Church, Reid-Booth Room, 21 Buell Street**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 5:10 PM by Jonathan Slason of RSG. The purpose of the Winooski Avenue Transportation Study is to create “a comprehensive transportation study of the entire Winooski Avenue corridor, developing multimodal improvement strategies that address safety, capacity, and connectivity.” The final deliverable will be an actionable implementation plan with near-term and longer-term recommendations. Jonathan reviewed the schedule and the agenda.

Nicole Losch of the Department of Public Works (DPW) asked the committee to review the alternatives that will be presented tonight with the lens of how best to refine them for presentation at the next PAC meeting and ultimately to the public.

### **2) Public Comment Period**

The owners of Dolan’s Automotive are concerned about parking in the northern end of the corridor. It’s a very congested area with truck deliveries regularly blocking lanes and new residential development with limited off-street parking. Paul Schnabel, a resident of N. Winooski Avenue, is also concerned about parking. Although he supports bike facilities, he’s concerned about “robbing parking for bike lanes.”

### **3) Presentation of Initial Concepts**

Jonathan provided an overview of design alternatives. The major changes, included in each of the alternatives, are consistent with the overall project goals that include: 1) no new right-of-way required; 2) minimizing curb cuts/impacts; and 3) north-south bike facilities throughout the corridor. Major changes include: 1) eliminate parking (if no curb is moved) from Riverside to Pearl; 2) two vehicle lanes with center turn lane (two-way-left-turn-lane) from Pearl to Main; and 3) eliminate parking and northbound vehicle travel between Main and Maple.

The project team will refine and develop fewer alternatives that attempt to address the committee’s suggestions and concerns. At the next PAC meeting, the team will present some initial evaluation of the alternatives (high-level costs, parking impacts, trees, utilities, etc.) prior to introducing them to the public.

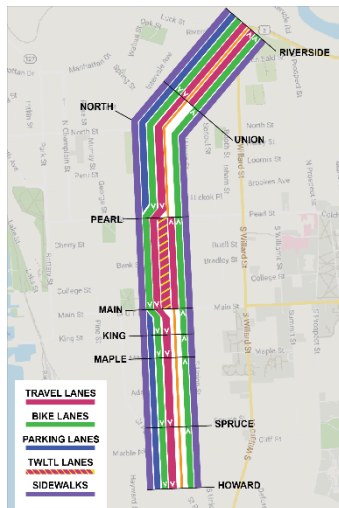


## Description of Alternatives



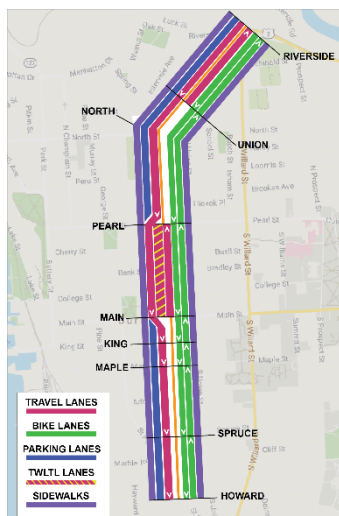
### Alternative A1

- Add two-way-left-turn lanes from Main to Pearl, one vehicle lane in each direction
- Bike lanes in both directions entire route
- Eliminate on-street parking on east side from Union to Pearl and Main to King, possibly west side from King to Maple



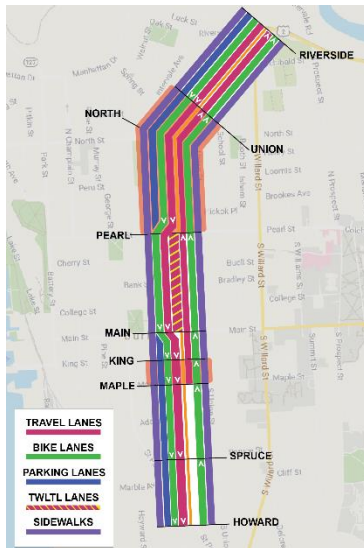
### Alternative A2

- Add two-way-left-turn lanes from Main to Pearl, one vehicle lane in each direction
- One-way (southbound) vehicle traffic between Maple and King
- Bike lanes in both directions entire route
- Eliminate on-street parking on east side from Union to Pearl and Main to King



### Alternative A3

- Add two-way-left-turn lanes from Main to Pearl, one vehicle lane in each direction
- Bike lanes on east side in both directions entire route
- Eliminate on-street parking on east side from Union to Pearl and Main to King



#### Alternative A4

- Two-way vehicle traffic between Pearl and Union

#### Pros:

- Less circulation, more direct
- Union would see minor decrease in northbound vehicles
- Potential for more transit

#### Cons:

- Increased congestion at Pearl/Winooski
- Limited delay/operational benefit

There was discussion of the trade-offs that are inherent in evaluating these alternatives. To create a bike lane and retain on-street parking, curbs, sidewalks, and utilities must be moved – substantially adding cost and complexity to the project. The PAC asked the consultant team to provide the approximate cost of accommodating both parking and a bike lane. Jonathan will provide an order of magnitude estimate at the next meeting.

It was suggested to consider Willard Street for the North-South bike lane since it has fewer businesses than Winooski Avenue. Nicole noted that Winooski Avenue is the preferred corridor for bicyclists because it is a key roadway to access downtown and other routes. Sharrows (a shared-lane marking painted in the travel lane to indicate where people should preferably cycle) were discussed as a way to use less vehicle lane space. The group also pointed out the need to consider delivery trucks and SSTA vehicles that currently park on Winooski Avenue and how that impacts vehicles and bicyclists.

The group discussed a shared sidewalk/bike lane like the existing path on Riverside Avenue. Lucy Gibson of Dubois & King has looked at this option. Her biggest concern is safety for cyclists due to the parked cars and numerous driveways. It's difficult for drivers to see cyclists.

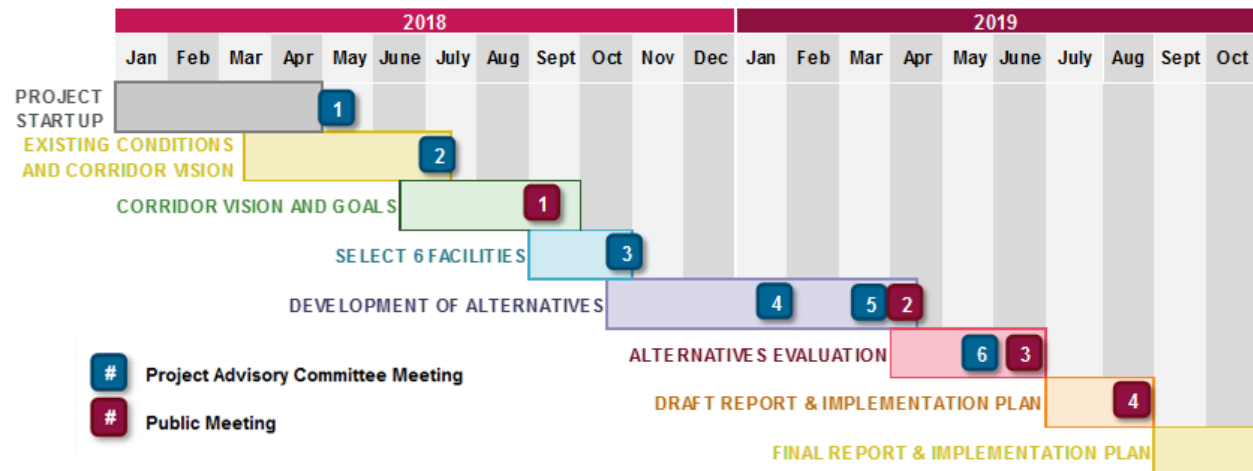
Nicole suggested describing the possible ways that we can maintain on-street parking. We have the option to shift the configuration to retain parking in the northern section. However, there are tradeoffs to any changes.

#### 4) Corridor Issues

- Parking
- Trees & Utilities
- Loading/Unloading/Operational Issues
- Land Use Access
- Safety (Pearl to Main is the least safe segment for all users)
- Transit (More transit to serve a diverse population)

## 5) Next Steps

Jonathan reviewed the project schedule.



## 6) Small Group Work

- Keep the different contexts of the street in mind when thinking about alternatives. In the business district, short-term parking is important; in the residential district short-term parking is less important.
- Parking garage egress to Winooski Avenue is a safety concern for all users.
- From Main to Maple, greenspace is more valuable than vehicle space.
- Riverside to Union needs parking. Are there off-street parking opportunities?
- We need indicators like number of street trees removed, number of utilities to be relocated, etc. to make educated decisions.
- Need to discuss how bicyclists utilize mini-roundabouts.
- The challenge is to provide a 2-way bike lane along the length of the corridor when vehicle demand is very high. It's a complicated balancing act. What vision do we want to achieve?
- A mini-roundabout is reasonable for the Riverside intersection.
- Are roundabouts worth the impact (may need more right-of-way) or are traffic signals OK?
- The 3-lane assignment (one travel lane in each direction with middle lane two-way-left-turn lane) looks good. We need to acknowledge the adjacent access issues such as long queues on Main Street, access to/from the Market Street garage, and City Market affect the efficiency of the Winooski Ave. corridor.
- At Main Street, there was skepticism that a roundabout is worth the right-of-way costs and impacts for the benefit.
- Mixed opinions on whether to retain northbound traffic to Main Street from the south. We will bring this to the public for input.
- Keep the 2-way vehicle traffic option open between Pearl and Riverside. It might allow for more bike options (like sharrows).

## 7) Public Meeting – Likely early April 2019

Public outreach opportunities are being discussed. This may be an open house with many visuals. The team is also thinking about a longer duration event(s) perhaps with tabling. Another thought is staffed time at Contois with project boards mounted on the walls. The team will also explore taping a brief presentation at Channel 17 that could be put on the project website.

The meeting was adjourned at 6:55 PM.

## Attendance

### Project Advisory Committee (PAC) Members

Erik	Brown-Brotz	Walk Bike Council
Jonathan	Chapple-Sokol	Resident of East District
Alissa	Faber	Resident of Central District
Jacob	Flanagan	Alt: Resident of Central District
Jane	Knodell	City Council
Charles	Simpson	Resident of South District

**Others:** Howard Dolan, Nancy Dolan, Shawn Dolan, Paul Schnabel, Allegra Williams, Karen Yacos

### Stakeholder Group/Consultants

Eleni	Churchill	CCRPC
Bryan	Davis	CCRPC
Lucy	Gibson	Dubois & King
Nicole	Losch	DPW
Corey	Mack	RSG
Diane	Meyerhoff	Third Sector Associates
Jonathan	Slason	RSG

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Bryan Davis, CCRPC, [bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org) (802-861-0129)

Nicole Losch, DPW, [nlosch@burlingtonvt.gov](mailto:nlosch@burlingtonvt.gov) (802-865-5833)





*A Study by the City of Burlington Department of Public Works in conjunction with the  
Chittenden County Regional Planning Commission*

## **Project Advisory Committee Meeting #5 Meeting Notes**

**Tuesday, March 26, 2019, 5:00 PM – 7:00 PM**

**Old North End (ONE) Community Center, 20 Allen Street, Burlington, Vermont**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 5:05 PM by Corey Mack of RSG. He reviewed the agenda and introductions were made. Tonight's meeting features a review of draft public engagement concepts, a discussion of ways for PAC members to participate in outreach, and a presentation and discussion of ways to evaluate the road design alternatives.

### **2) Public Comment Period**

- Matthew Vaughan, a resident of Walnut Street, also served on the [PlanBTV Walk Bike](#) Committee. The final plan was approved by the City Council. The committee heard from the public that they wanted dense, low-stress, bike networks in Burlington, including fully-protected bike lanes. The entire Winooski Avenue corridor should have protected lanes. Matthew appreciates the difficulty of the decisions ahead.
- Tony Redington, a resident of N. Winooski Avenue, does not have a car and depends on the bus, walking, and biking. He emphasized the importance of improving safety, especially for pedestrians. He endorsed Matthew's comments. Tony was an AARP representative on the PlanBTV Walk Bike Committee. Tony advocates roundabouts in the corridor to improve safety.
- Leah Daws of Barrio Bakery is concerned about reducing parking for the morning commuters that her business depends upon. If there isn't parking, people will bypass her business and go downtown.
- The owners of Dolan's Automotive are concerned about parking in the northern end of the corridor for both commercial businesses and tenants. The best alternative is 1D, which is the current configuration. Losing parking will cripple businesses. Most people drive, especially in winter. Bicyclists do not follow rules of the road and that is why it isn't safe for them. Roundabouts don't work.

### **3) Plan for Public Meeting & Public Engagement**

Bryan Davis of the Chittenden County Regional Planning Commission (CCRPC) reviewed a series of ideas for the upcoming public engagement effort: NPA "Road Show" in April, short video about the project (PAC volunteers can be stars in the video!), Open House event (week of May 6<sup>th</sup>), and outreach events with ONE Businesses, BBA/Church Street Marketplace, BCA Art Fair in May, and the Dewey Park Farmers' Market.

#### **4) Feedback to Date**

Corey summarized the PAC and public feedback to date:

- Continuous, dedicated bike lanes are critical, and protected lanes are preferred.
- Why aren't we looking at one-way roadway pairs? (Southbound-only from Pearl to Maple).
- Street trees and green strips are crucial for an inviting corridor.
- Main to Pearl is aggressive/stressful/dangerous/unattractive for all users.
- Parking is full. There is a high demand for parking on North Winooski.

#### **5) Updated Project Alternatives**

Corey reviewed the existing conditions and discussed four areas of focus. In terms of design, the goals are to use the existing right-of-way, minimize widening (for both cost and streetscape impacts), and provide a continuous north-south bike facility. Existing features of the corridor to focus attention include:

- Shared bike lanes between Riverside and Union
- One-way southbound vehicle and bicycle section between Union and Pearl
- Four-lane section between Pearl and Main
- Bicycle lane gap between Main and Maple

The Alternatives were presented (detail in the presentation at [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)):

##### **Alternative 1: Conventional Bike Lanes**

Option A: Conventional Bike Lanes, maximizing parking north of Union

Option B: Conventional Bike Lanes, maximizing parking south of Main

Option C: Conventional Bike Lanes, two-way vehicle flow north of Pearl

Option D: Partial Conv. Bike Lanes, two-way vehicle flow with shared lanes north of Pearl

##### **Alternative 2: Protected bike Lanes with limited widening and limited parking**

Option A: Protected bike lane and retain some parking

##### **Alternative 3: Two-way protected bike lanes within existing curbs**

Alex Bunten of the BBA expressed support for maintaining Marketplace Garage access. Erik Brown-Brotz of the Walk Bike Council asked the team to consider a bike lane on the east side instead of west side in Alternative 1 (does this maximize parking?). There was a discussion of bikes moving in an opposite direction to traffic/parking. The group also asked that accessible parking spaces be noted and any removal of them be considered carefully.

Corey presented a summary matrix of each alternative (attached to this document). Corey noted that intersections wouldn't be discussed in detail until we have clarity on the chosen alternative.

#### ***PAC Discussion on Alternatives***

Kirsten Merriman Shapiro of CEDO asked that the number of existing parking spaces be noted in the presentation to allow for comparison. Alex Bunten asked if there are other parking options available for Marketplace visitors. Jacob Flanagan of the Central District asked that off-street parking alternatives be explored in the northern section – possibly metered parking and resident-only parking. Erik Brotz asked if there could be parking on the east side between Pearl and Union, and noted that the risk of “dooring” bicyclists is much less of a problem in this direction. Alissa Faber of the Central District asked if there would be bollards separating the bike lanes from traffic. Lucy Gibson from the project team replied that in the short term, yes; but in the long term, the best practice would be to raise the bike lane to the same level as the sidewalk. As for intersections, Nicole Losch of Public Works noted that the alternatives will be

refined after the public outreach effort and she expects intersection detail at the next PAC meeting. Alissa asked that a map of current conditions be provided alongside the alternatives. Charles Simpson of the South District asked if a 2-street bicycle lane – northbound on Union Street and southbound on Winooski – was considered. For public distribution, Jane Knodell of the City Council would like to see the matrix printed on larger paper. She summarized the alternatives as follows: Alternative 1D is the only alternative that preserves all parking, but it is the lowest performing for biking. There is no alternative that minimizes parking loss and is also acceptable to bicycles (without road widening). Kirsten emphasized that equity is an important metric to understand. Alex suggested that the public presentation include detail as to who and when comments were made suggesting bike facilities. Erik would like to see detail about the actual costs rather than just dollar signs. Alissa would like to add streetscape impacts to the alternatives. Charles noted that Green Mountain Transit's (GMT) plans emphasize two-way bus traffic for major arteries; that is not possible on Winooski Ave with the one-way section. This is an equity issue.

## **6) Public Comments on Alternatives**

- Tony Redington noted that Matthew Vaughan emphasized the PlanBTV Walk Bike plan that was approved by the City Council. The plan supports protected bike lanes in each direction on Winooski Avenue. Alternative 1 does not accomplish this. The modern roundabout on Shelburne Street will be much safer than a signalized intersection.
- Kortnee Bush of Butch & Babe's feels that the businesses are on the defensive. She spoke to Outright VT and the Children's Space and neither had heard of this study. She has customers who need accessible parking, especially in the winter. Parking on one side of the street does not accommodate access for all. Fewer on-street parking options will lead to more people parking illegally off-street, requiring property owners to monitor lots more regularly and enforce towing.
- Sean from Dolan's Automotive doesn't believe roundabouts are any different than regular intersections for bicyclists. He supports widening (2-3 feet) Winooski Avenue between Riverside and Decatur to improve Alternative 1A. It can be done for no cost when the city replaces water/sewer lines. From Decatur to Pearl, the road is already wide enough for one-way traffic with bike lanes on both sides and parking on both sides. Bike lanes could also be in the middle of the road. He also noted that it should be considered that bicycling is common for about 5 months per year.
- Allegra Williams of Local Motion would like to see demonstration projects to help the public visualize and understand the alternatives.
- Jane Knodell noted that when the City Council voted on the PlanBTV Walk Bike plan, they were assured that the city was not committing to build every feature as described in the plan. At that time, the full impacts of the recommended routes were unknown.
- Steve is excited about this project. The loss of parking is a negative in the short-term, but we need to think long-term. We have only 11½ years to cut our carbon emissions. We must disincentivize auto travel and removing parking is one way to do that.
- Sean noted that many people drive from rural Vermont to work in Burlington. These changes are permanent to accommodate a select few people; there is a personal financial impact for others.
- Alissa asked that we note accessible space changes.
- Corey will also add short-term parking information.

## **7) Initial Evaluation Criteria**

Corey provided an initial list of evaluation criteria for the alternatives:

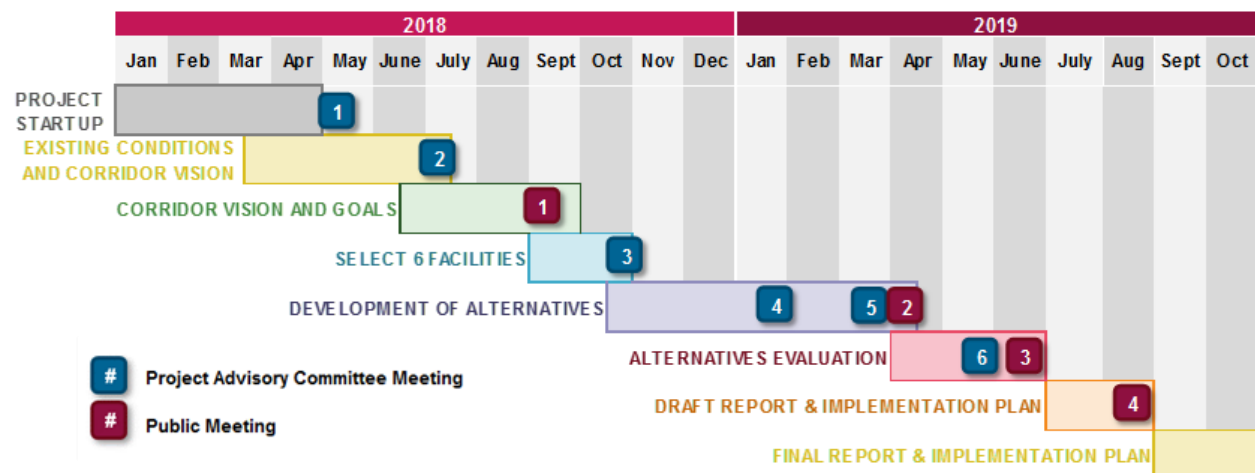
Bicycle Level of Stress  
 Pedestrian Quality of Service  
 Transit Quality of Service  
 Vehicle Congestion  
 Safety for all Users  
 Change in Parking Spaces  
 Utility Poles Impacted

Street Trees Impacted  
 Change in Green Strip Width  
 Curb Changes  
 Cost Equity  
 Loading Zones  
 Neighborhood Access  
 Stormwater Opportunities

It was suggested to change “vehicle congestion” to something more positive (like the other items), “vehicle quality of service.” It was also suggested that parking changes should focus on the total parking remaining rather than the parking that is removed. Alissa asked to add bus stops and how they function with the bike lane configurations. Kortnee asked if the team researched bike facilities in communities of similar size to Burlington. Nicole responded affirmatively for the work of PlanBTV Walk Bike. A representative from Dolan’s Automotive suggested scrapping the whole plan as too expensive and wondered where the money was coming from for construction. Allegra suggested considering a change from four to two lanes between Main and Pearl to more safely accommodate pedestrians and bicyclists. Tony noted that protected bike lanes are fairly new – only 10 years old and the cost for a mini roundabout on Winooski Ave could be done quickly and inexpensively (\$45,000).

## 8) Next Steps

Corey reviewed the project schedule.



The meeting was adjourned at 7:00 PM.



## Attendance

### Project Advisory Committee (PAC) Members

Erik	Brown-Brotz	Walk Bike Council
Alex	Bunten	BBA
Alissa	Faber	Resident of Central District
Jacob	Flanigan	Alt. Central District
Jane	Knodell	City Council
Devin	Mason	GMT
Sean	Melinn	ONE Arts & Bus. Network
Kirsten	Merriman Shapiro	CEDO
Charles	Simpson	Resident of South District

**Others:** Howard Dolan, Nancy Dolan, Shawn Dolan, Tony Redington, Paul Schnabel, Allegra Williams, Leah Daws, Kortnee Bush, Matthew Vaughan, Steve

### Stakeholder Group/Consultants/Staff

Bryan	Davis	CCRPC
Lucy	Gibson	Dubois & King
Elizabeth	Gohringer	Burlington DPW
Kate	Longfield	Burlington DPW
Nicole	Losch	Burlington DPW
Corey	Mack	RSG
Diane	Meyerhoff	Third Sector Associates


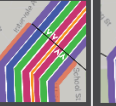
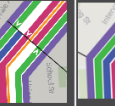
### Study contacts:

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Bryan Davis, CCRPC, [bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org) (802-861-0129)

Nicole Losch, DPW, [nlosch@burlingtonvt.gov](mailto:nlosch@burlingtonvt.gov) (802-865-5833)

### Attachments: Alternative Summary from Presentation

Alternative Summary								
		Conventional Lanes					Protected Lanes	
		1	1a	1b	1c	1d	2	2a
								3
								
Continuous <b>Conventional</b> Bike Lanes		X	X	X	X			
Continuous <b>Protected</b> Bike Lanes							X	X
<b>Shared Lanes</b> (north of Pearl)						X		
Two-Way Vehicles: Union to Pearl					X	X		
Two-Way Vehicles: Main to Maple		X	X		X	X		
Maintain Existing Curb		X		X		X		X
P Impacts	Riverside to North	-58	-25	-58	-58	0	-118	-73
	North to Pearl	-43	-43	-43	-43	0	-64	-64
	Main to Maple	-22	-22	-12	-22	-22	-22	-22
	Maple to Howard	0	0	0	0	0	-77	-26
	<b>Total Parking Change</b>	<b>-123</b>	<b>-90</b>	<b>-113</b>	<b>-123</b>	<b>-22</b>	<b>-281</b>	<b>-185</b>
Green Strip Impacts (SF)		0	10,000-16,000	0	9,200	0	6,400	9,200
Reconstructed Curb (FT)		0	1,600-3,200	0	2,300	0	1,600	2,300
Relative Magnitude of Construction Costs		\$	\$\$-\$\$\$\$	\$	\$\$-\$\$\$\$	\$-\$\$	\$\$	\$\$\$



*A Study by the City of Burlington Department of Public Works in conjunction with the  
Chittenden County Regional Planning Commission*

## **Project Advisory Committee Meeting #6 Meeting Notes**

**Tuesday, October 22, 2019, 7:00-9:00 PM**

**Burlington City Arts @The BA Center, 135 Church Street, Burlington, Vermont**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 7:05 PM by Jonathan Slason of RSG. He reviewed the agenda and introductions were made.

### **2) Study Purpose & Goals**

The Winooski Avenue Study is a comprehensive transportation study of the entire Winooski Avenue corridor, developing multimodal improvement strategies that address safety, capacity, and connectivity. The goal for tonight's meeting is for the PAC to decide if the concept corridor is ready to present to the public in November.

### **3) Public Comment Period**

- Jane Knodell of Ward 2 suggested that the public comment period should be held after the design options are presented. She asked for clarity about the PAC's decision-making process. There are new members of the PAC and she noted that earlier business owners have come before the committee to express their concern about the loss of many, many parking spaces. People aren't always available to attend all the meetings. Chris and Jane have been in touch with many of them - just because they are not here, it doesn't mean their concerns should be lost or discounted.
- Chris Adams of Dolan's Auto would like photocopies of the new proposal (*it will be available on the website*). He has been in touch with several of the business owners and he informed them of the proposed options. The Food Shelf is particularly concerned about the Thanksgiving season because they have very limited parking and people are picking up large amounts of food. A new grocery store is opening next door to them and they will no longer be able to use that parking lot.
- Matthew Vaughan strongly supports fully-protected bike lanes throughout the corridor. He served on the [PlanBTV Walk Bike](#) Committee and Winooski Avenue is the backbone of the bike network. For all users to have a safe and enjoyable experience, protected bike lanes are required. He appreciates that not everyone can attend this meeting; others have supported protected bike lanes throughout this process.

All agreed with Nicole Losch's suggestion that the committee have an additional public comment after the presentation is finished.

#### 4) Public Meeting Summary

Jonathan reviewed the three primary design alternatives:

- Alternative 1: Conventional Bike Lanes
- Alternative 2: Protected bike Lanes with limited widening and limited parking
- Alternative 3: Two-way protected bike lanes along east side of the road

Bryan Davis of the CCRPC summarized the input he received from the NPAs, city committees, business owners, residents and stakeholders during an outreach effort in the spring.

- Continuous, dedicated bike lanes are critical, and protected lanes are preferred.
- Street trees and green strips are crucial for an inviting corridor.
- Main to Pearl is aggressive/stressful/dangerous/unattractive.
- There is a high demand for parking on North Winooski.

#### 5) Alternatives Evaluation

The project team rated all 13 variations in an evaluation matrix, using the following criteria: Bicycle Level of Stress & Safety, Pedestrian Quality of Service, Change in Parking Spaces, Street Trees Impacted, Change in Green Strip Width, Cost, Transit Quality of Service, Neighborhood Access, and Vehicle Operations & Safety.

Applying the Corridor Vision for the Shorter-Term Options

- Improves safety and convenience for all users
  - Re-allocates road space between Main Street and Pearl Street
  - Shortens intersection crossings and calms traffic at intersections
- Creates connected, contiguous north-south bike facilities
- Retains existing parking along west side of the corridor
- Improves business/resident access for all modes by making it two-way north of North Street

The evaluation matrix gives equal weight to all criteria, resulting in a balanced option.

Intersections were also evaluated using a set of criteria. However, in the corridor there were some overriding factors affecting the choice that is included in the shorter-term option. Namely, the goal to not affect right-of-way and retain some degree of flexibility to accommodate other planning efforts guided the selection. The second key criterion was operational confidence. This additional filters to the evaluation criteria guided the suggestions for intersection controls in the shorter-term option.

#### 6) The Concept Corridor by Segment

##### Riverside Avenue to North Street

**Highlights:** Retains west side parking (76 spaces)  
Removes east side parking (64 spaces)  
Stormwater opportunities  
Pedestrian improvements at intersections

**Connectivity:** 2-way vehicle lanes, northbound and southbound bike lanes

*A parking management plan will be conducted to identify strategies to manage Winooski Avenue parking*

##### North Street to Pearl Street

**Highlights:** Retains west side parking (46 spaces)

- Removes east side parking (45 spaces)
- Retains southbound vehicle lane
- Creates northbound and southbound bike lanes
- Stormwater opportunities
- Pedestrian improvements at intersections

*A parking management plan will be conducted to identify strategies to manage Winooski Avenue parking*

### **Pearl Street to Main Street**

**Highlights:** Improves utilization and safety of existing road capacity, enhances quality of service for pedestrians, and reduce stress for bicyclists

**Connectivity:** 2-way vehicle lanes, 2-way left-turn-lanes, northbound and southbound bike lanes

### **Main Street to King Street**

**Highlights:**

- Retains west side parking (13 spaces)
- Eliminates east side parking (12 spaces)
- Maintains two-way vehicle traffic
- Creates new northbound and southbound bike lanes

### **King Street to Howard Street**

**Highlights:**

- Maintains existing layout south of Maple Street
- Retains west side parking (87 spaces)
- One-lane southbound vehicle lanes
- Northbound and southbound bike lanes

In addition to these shorter-term options, there are longer-term option that allow a response to changes in land use, parking demand, management strategies, and other significant projects, such as Great Streets. The option to widen the road to increase vehicle parking supply, provide space for protected bike lanes, and/or improve pedestrian amenities remains open. From North Street to Pearl, the roadway can be widened for continuity of two-way vehicle lanes from Main to Riverside, northbound and southbound bike lanes, and west side parking. From Main Street to King Street, the roadway could be widened for protected bicycle facilities.

## **7) Next Steps**

The project team would like PAC input on whether this concept is ready to be brought to the public.

Alyssa Faber: What is considered “shorter-term”? In addition to retaining the greenbelt and trees, we should also look to add trees and green space. Perhaps bumpouts would help. Nicole responded that some components of the shorter-term option could be within the next year or so. The downtown segment needs more time because traffic coordination and reassigning travel lanes is complicated. Long-term improvements depend on funding availability and the scale of work. Reconstruction of a whole block is many years away.

Greg Hostetler: This looks like a good plan, especially the low-stress bike facilities. Long and short-term we should reduce vehicle speeds and improve pedestrian crossing between Main and Pearl. The traffic signals are encouraging fast traffic, perhaps four-way stop signs instead? I live on N. Winooski at the corner of North St. and there is a lot of parking demand there because the parking is free. I support a parking management plan. I’m also glad that we’re keeping the street trees. The number is important, but so is quality. The ginkos are lovely but



others aren't doing well. There is a problem with vehicle parking in bike lanes, whether the lanes are protected or not. If we have an ordinance, it's not enforced. We need engineering strategies or better enforcement. We also need drop-off and delivery parking spaces.

Sean Melinn: I'm a cyclist, but I'm representing the ONE Arts & Business Network. The feedback that I received is that the loss of parking is severe. Lots of customers are from outside the city and parking is currently insufficient. The loss of parking isn't going to go over well, but I agree that there are those who are uncomfortable traveling by bike. My other concern is there are delivery issues, like access for large trucks to the restaurants.

Max Tracy: It's great to see this coming together. I was involved in [PlanBTV Walk Bike](#). I'm encouraged to see north and southbound bike lanes; this is critical in the Walk Bike Plan to creating a real bike network. We need to reduce our VMT and meet our net zero goals. Constituents have been injured in this corridor so safety is a concern. The driveways are an issue for bikes – is there a way to enhance protections for bikes? Perhaps flex-posts if it cannot be a continuous physical barrier. How do roundabouts work for pedestrians? I like the idea of having lanes go in both directions. The 4-3 lane conversion makes sense to reduce crashes and injuries. Parking is a concern and I'd like to hear more about parking management strategies. How does residential parking work with businesses?

Allegra Williams: I appreciate all the work that's been done. Between Main and Pearl, a 4 to 2 lane conversion would be more of a buffer, especially without physical bike separation. Are there shared parking opportunities north of North Street? If so, we should offer those ideas to the public. We are excited about a demo project for next season to try out ideas and receive feedback. Perhaps we can come to the public with more than one option? Is there a way to remove parking from Pearl to North Street and not have a residential impact? Maybe two-way traffic?

Karen Paul: This is a balanced plan with room for more bike amenities in the future. I see this as a plan that is gradual in order to create two-way bike lanes; the road is only so wide. I'm glad the accommodation is being made. Regarding parking management and the concerns of businesses, perhaps 15-30-60-minute parking options would help increase vehicle turnover. I would like to see electric charging stations throughout the corridor. Near City Market, I hope that becomes three lanes and that City Market will be encouraged to change their traffic pattern - perhaps enter or exit only to N. Winooski.

Gillian Nanton: The 120-space parking loss is great. I would caution you to have a fallback or alternative when you go out to the public. Be prepared for the pushback. We don't want businesses to be hurt due to parking spaces being lost. Is there a facility nearby that people could use?

Jonathan offered responses to PAC members' questions:

- **Vehicle speeds:** We are reducing the lane width which will slow vehicles down. And, having no more than one lane in each direction will help keep speeds low. Traffic signal timing will be revisited for better flow for all.
- **City Market:** The project team engaged with them on this plan as well as understand their own efforts to revise their parking and access.
- **Roundabouts:** Pedestrian access is a mixed bag, especially with visibility limitations. For the mini-roundabouts, we would like to trial them first. They won't be used in the downtown segment due to the volume of pedestrian traffic, proximity to other major driveways, and potential interference with adjacent signals. The Riverside intersection could be a

roundabout in the long-term, but land would be required; especially affected would be the the corner where the vacant wood furniture shop would need to be used.

- **Parking management plan:** The parking plan needs to be done and this current study won't be able to study this sufficiently. A management plan will be done in advance of any parking being removed. Engagement with the business community in the northern part of the corridor will be undertaken to better identify a process to allow the study to move forward. This may include developing clear interim measures which would maintain the parking in the north, while pursuing parts of the project with less impact.

In sum, the PAC is generally comfortable with the material Jonathan presented and is supportive of bringing it to the public. Sean remains concerned about parking for the businesses from Pearl to Riverside.

## **8) Public Comments**

**Howard Dolan:** Burlington is becoming a big city and bikes need to ride with traffic. We're going to need to learn to ride with traffic. Any of these plans are going to destroy me and Butch & Babe's. Just like the hole in town. I'd incinerate all these plans.

**Chris Adams:** I understand the need to make it safer for bikes; I agree with the trial like you did on Champlain Street last summer. I know the Mayor wants a zero-carbon footprint. People come from far outside of Burlington to work in the city. Let's do a trial during inclement weather (like now), take some of the parking out, set up the bike lanes, and count how many people use those lanes, especially during the week. This is a year-round impact that now will benefit 10 people compared to the many people who will be negatively impacted. Let's look at the bigger picture – how many people will be hurt versus how many will benefit and how long will both sides be impacted?

**Jane Knodell:** I'm disappointed that we are removing a large number of parking spaces. You need to listen to those who have come to you throughout this process and need free parking. The parking study must be done to know that there is a way to manage the elimination of these parking spaces and not force businesses out. Those businesses will not survive with only ONE residents – then need outside customers too. Let's listen to them when they tell us that their customers are from further away and come via car. We can't take away the parking without understanding the impacts and we can't bring the businesses back if they are sent away due to parking losses. Convince the community that you will have a solution before this moves forward. This must be a credible and sincere attempt. Many people believe that you are you going to do this regardless of what you learn from the parking study.

**Matthew Vaughan:** A good balance has been found for short-term recommendations. By removing parking, I'd feel much safer on a bike. I do not want to negatively impact businesses – but I also do not want anyone to be injured on this road. We're gaining a safe space in our public right-of-way.

**Howard Dolan:** I have nothing against bicyclists. Me and my grandson ride all the time. You don't have to destroy Winooski Avenue to bike – there are many other routes.

**Josh Katz:** I support this and it should go further. We need lofty goals and bold action. Make the street safe for bikers and other modes of transportation.

The formal meeting concluded at 8:37PM. The project team encouraged participants to markup maps and ask questions of the team.

## Attendance

### Project Advisory Committee (PAC) Members

Alissa	Faber	Resident of Central District
Greg	Hostetler	Walk Bike Council
Devin	Mason	GMT
Sean	Melinn	ONE Arts & Bus. Network
Gillian	Nanton	CEDO
Karen	Paul	City Council
Max	Tracy	City Council

**Others:** Christopher Adams, Aiden Dolan, Howard Dolan, Nancy Dolan, Shawn Dolan, Zack Flaherty, Jess Hyman, Brianna Jasset, Josh Katz, Jane Knodell, Kirsten Merriman Shapiro, Matthew Vaughan, Allegra Williams

### Stakeholder Group/Consultants/Staff

Bryan	Davis	CCRPC
Nicole	Losch	Burlington DPW
Diane	Meyerhoff	Third Sector Associates
Jonathan	Slason	RSG
Chapin	Spencer	Burlington DPW
Julia	Ursaki	D&K

### Study contacts:

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*A Study by the City of Burlington Department of Public Works in conjunction with the  
Chittenden County Regional Planning Commission*

## **Project Advisory Committee Meeting #7 Meeting Notes**

**Tuesday, January 28, 2020, 7:00-9:00 PM**

**Burlington City Arts @The BA Center, 135 Church Street, Burlington, Vermont**

The presentation is available online at: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

### **1) Welcome, Introductions, Changes to the Agenda**

The meeting was called to order at 7:05 PM by Jonathan Slason of RSG. He reviewed the agenda and introductions were made.

### **2) Study Purpose, Goals & Schedule**

The Winooski Avenue Study is a comprehensive transportation study of the entire Winooski Avenue corridor, developing multimodal improvement strategies that address safety, capacity, and connectivity. The goal for tonight's meeting is for the PAC to approve a preferred alternative for consideration by the City's Transportation, Energy, and Utilities Committee (TEUC) on February 4 and ultimately by the City Council.

### **3) Public Meeting Summary**

Jonathan summarized themes from the November 13 public meeting which have been considered in development of the preferred alternative and draft implementation plan being presented tonight:

- Loss of Parking. Critical as it will affect businesses and residents.
- Parking Management Plan will be prioritized and should guide the next steps in the Northern Segment
- Bike lanes are needed – preferably protected
- Vehicle parking should be maintained over two-way vehicle travel
- Downtown Segment has general agreement that changes are necessary

### **4) Public Comment Period**

- Jane Knodell – there have been lots of changes on North Winooski over the years, and now it is thriving. The project team listened to public comments, but the plan should say that the parking management plan will be complete, and any language about removing parking should be removed to ensure no adverse harm is done to the neighborhood.
- Jason Van Driesche – I would like to share a concept for the downtown section developed with partners such as Local Motion, Burlington Walk Bike Council and others. This concept maximizes the benefits of the current downtown alternative, and we are bringing this to the PAC as a suggestion. Our group continues to seek support from city leaders and others.
- Laura Jacoby – Old Spokes Home is a retail shop and non-profit serving 1,500 clients.

There is concern in the downtown area to access services and civic spaces. There are a lot of crashes so please consider protected bike lanes downtown, as well as the proposal brought forward by Jason and others.

- Matthew Vaughan – I want to express my support of protected continuous bike lanes, which is a recommendation in plan BTV Walk Bike. My concern is that the recommendation to wait to remove parking until after the parking management plan is complete is a safety issue and by removing parking now could immediately create a bike facility.
- Rabbi Salzman – I'm from the synagogue on Archibald Street. Don't remove parking between Archibald and Decatur, we have trouble finding parking for events. Why not make one bike lane that goes both directions so no parking is lost. On-street parking is one of the few resources of free parking in the neighborhood. It would be disaster to lose parking.
- Allegra Williams – Local Motion is supportive of bike infrastructure throughout the corridor. I would like to reiterate comments about the new proposal for the downtown section which enhances what's already being proposed, makes better use of the center lane, and is possible to do in near term as a quick build.
- Jack Hansen, City Councilor for East District – I want to emphasize continuous bike lanes throughout corridor, it's critical to shift our transportation system and address the climate crisis, and I support the new plan for downtown with safer infrastructure.
- Lee Anderson – representing his businesses (Radio Bean, *Duino!* (*Duende*), Lamp Shop) as well as the East West Café and Shalimar; removing parking would be detrimental, parking is already hard, residents don't have places to park, losing the loading zone would be extremely detrimental, it's a nearly 24 hour need since we have so many musicians performing. I love bikes and ride bikes.
- Jason Stuffle – representative for the Burlington Walk Bike Council, I was part of the effort that removed parking and added bike lanes on Colchester Avenue, use has increased, it made it a little more difficult for resident parking but created a safer road for everyone. Make Winooski Avenue equitable for everyone.
- Kirsten Merriman Shapiro – there's been a lot of investment from Champlain Housing Trust along the corridor that houses businesses and affordable housing, we're concerned with loss of parking north of Pearl Street, we're supportive of downtown changes and agree with Jane's comment about doing the parking management plan first and waiting to remove parking. Concern for residents and businesses, concerned for the future and support biking.
- Drew Pollak-Bruce – this corridor has been studied four times starting in 1990s, I have a 7-year-old and use Winooski Avenue to commute every day, if we wait to make changes we won't live here anymore. I think the parking management plan will find those places to park, there is lack of resident permit parking in Old North End, there is an opportunity to manage parking as a district like other cities do, we can have the loading zones and other parking that we need, you might have to walk 1-2 blocks further but that's an inconvenience that we've stated for years, let's not study this forever and never stop.

## 5) PAC Actions:

- a) PAC Role in the Project
- b) Review the Recommended Project Alternative
- c) Select a Preferred Alternative



Jonathan reiterated that tonight the team is presenting the preferred alternative which is implementable and actionable and includes interim (year 2020), short term (2020-2021), and long term (beyond 2021) recommendations, and the PAC is being asked to approve the preferred alternative for advancement to the TEUC, noting that no changes to parking will be made until the Parking Management Plan (PMP) is complete.

Summary of interim actions:

1. A comprehensive Parking Management Plan (PMP) is recommended to identify strategies for managing parking in the Pearl Street to Riverside Avenue study area. No changes to on-street parking will be made until agreement on the outcomes of the PMP.
2. Improve bicycle wayfinding between the southbound Winooski Avenue bike lane and the northbound Union Street bike lane.
3. Advance pilot projects or demonstrations to test mini-roundabouts on North Winooski Avenue.
4. Address commercial loading and driveway queueing on Winooski Avenue in the downtown.
5. Evaluate public safety impacts, traffic operations, driveway access, Marketplace garage circulation, roadway dimensions, and Vermont Agency of Transportation approvals for a potential median in the downtown.

Alissa noted that since we don't know how complicated the PMP will be, could there be a chain reaction of events that delays other aspects of the current project? Jonathan responded that we need more data in the Old North End, which the PMP will provide, and we'll go from there. In the shorter term, without incurring significant cost, we can change roadway striping, but that has a big impact on parking, so the PMP comes first. The downtown and southern section of the corridor could be changed prior to completing the PMP.

A citizen asked if the project team looked at stormwater, permeable pavement, etc.? In the short term we wouldn't be changing the roadway surface but in long-term there could be other changes considered and made.

There are two mini-roundabouts proposed to be piloted in summer 2020 at the North Street and Union Street intersections.

Following is a general summary of the preferred alternative, more details are included in the [PAC presentation](#) and [draft implementation plan](#).

*Northern segment alternative – Riverside to Union:*

In the interim term, complete the PMP.

In the short term, keep parking on west side, remove east side parking (39 spaces), provide bike lanes on both sides, improve transit stops.

Citizen asked about why east side rather than west side for parking removal, Jonathan responded that there are fewer spaces on the east side.

Jacob commented that it seems like some elements could be pursued without PMP? Yes, the transit improvements and bike detection opportunities could be pursued.

In the long term, widen the roadway for protected bike lanes and/or parking, and/or other amenities.

*Northern segment alternative – North St to Union St:*

The project team changed this recommendation based on comments and now reflects keeping parking on both sides and providing two buffered bike lanes without any curb changes.

Citizen question about combining bike lanes into a two-way bike lane instead, but Jonathan noted there are intersection issues with using different bike facility types in adjacent sections. Another citizen suggested bike signals as a solution, but the project team noted that there are sight distance challenges with a two-way bike facility due to parking and curb cuts. This section could potentially move forward without the PMP.

Citizen asked if the study considered what to do with snow – in Montreal they use pickup truck plows on their two-way bike lanes. Jonathan noted that in this schematic there is no bike lane protection so City plowing would be same as usual.

*Northern segment alternative, short term – North St to Pearl St:*

Keep one-way southbound traffic, keep west side parking, remove east side parking (45 spaces), include bike lanes on both sides.

*Northern segment alternative, long term – Union St to Pearl St:*

Widen the roadway to create space for two-way vehicle traffic, bike lanes in each direction, opportunities for new transit service, remove east side parking (26 spaces) between North St and Union St.

*Downtown segment – Pearl St to Main St.*

A community group provided a revised downtown segment which is similar to the previous option 2C, which ranked well in the evaluation process and had desirable features but there were some issues, which is why it didn't advance. There are some elements in the community proposal that warrant further analysis. The fire department provided comments on the community proposal and noted some access and movement issues, Bank Street restriction issues, and shifting travel on alternative routes, so the project team didn't believe this was the right option to advance to PAC tonight.

Citizen comment that the parking garage machine broke tonight and people had to go find other parking.

Max commented that PAC heard concerns about community proposal, but what advantages did the project team see in proposed alternative? Jonathan noted it's a safer facility for some users because of the protection, and there are mobility improvements, but there are some new operational and safety concerns created by those same elements.

A citizen asked if there is a way to make changes downtown with paint rather than using barriers to align with fire department comments. Jonathan responded yes, but there are other issues to address such as suggested changes to driveways and access, and turning radii. Note that the team's recommendation could quickly and easily be changed after further analysis of the community proposal since it's really just paint. Nicole noted that just roadway paint may not deter drivers. The team will need more time to analyze and test before making this a recommendation.

Karen said that reading the fire department memo, if barriers are used they should be low profile and mountable, what does that mean? Jonathan said those would be 3 inches or less, with no vertical elements like bollards, something similar to a speed hump. Nicole pointed out that those features would still be a short-term cost.

Jacob pointed out that the fire department noted some things they liked, are those included in the preferred alternative from the project team? Jonathan said yes such as including bike boxes.

Alex asked how the community's design would handle traffic volumes. Jonathan commented that in this design there would have to be some changes for turns onto College and Main streets. The preferred alternative has three travel lanes between College and Main with a shifting yellow center line to create dedicated left turn lanes at each intersection. Alex asked if adding more enhancements would change the roadway capacity? The design could limit access to Bank Street but those vehicles would go somewhere else. The community design shows a two-way center turn lane in front of City Market, which could operate better if there were no left turns onto Bank Street, but there are other issues. Driveway access suggestions would be an issue with landowners, as well as the types of vehicles allowed access.

Jason Van Driesche clarified that the community option being presented is one possible way to implement changes downtown and to use the center turn lane to add safety to bike lanes. The community group would like the PAC to find opportunities to implement the elements presented. Jonathan noted that if the project team's preferred recommendation moves forward, then those elements could be considered and incorporated during the preliminary design stage; the preferred alternative doesn't preclude elements of the community option.

Alex noted that it's hard to evaluate the new option at this point given that the current option is so complex, as is the community proposal. Jonathan reiterated that there is an opportunity to enhance the preferred alternative with elements of the community proposal.

Max wanted to recognize that these are some of the most dangerous intersections in the city and state, and the PAC needs to refine the preferred concept to improve safety in advance of VTrans's Winooski Avenue repaving project in 2022. If we just put in bike lanes, we won't get more people to ride, we need to look for ways to add protection to get more riders.

Jacob asked to clarify the travel lane configuration between College and Main and that there are left turn lanes at College and Main intersections.

*Downtown Segment alternative, Main to Pearl:*

Short term option is to restripe to create two travel lanes with center turn lane and bike lanes on both side, with transit and streetscape improvements, and to evaluate the operations and safety of a median and other amenities in the right of way.

*Southern Segment alternative, Main to King:*

In the short term keep west side parking, remove east side parking (12 spaces), keep two way traffic, incorporate bike lanes in both directions.

In the long term restrict travel to southbound only and add bike lane protection.

Jacob – with bike lane protection in this block, did the team get fire department feedback? No, the team didn't bring long term options to them for comment.

*Southern Segment alternative, King to Maple:*

In the short term – keep west side parking, restrict travel to southbound only travel, incorporate bike lanes in both directions.

In the long term the city could explore widening to add parking.

The implementation timeline includes recommendations for the interim (year 2020), short term (2020-2021), and long term (beyond 2021) timeframes.

Alex asked if there was consideration of reconnecting Pine and St Paul streets downtown? Yes but it really only impacts the downtown area.

Summary of short-term implementation costs:

**Northern Segment (Riverside Avenue to Pearl Street)**

- Union Street mini-roundabout: \$115,000
- North Street mini-roundabout: \$150,000
- Striping Only (remove & restripe): \$45,000

**Downtown Segment (Pearl Street to Main Street)**

- Striping Only (remove & restripe): \$53,000
- (not including costs associated with signal retiming and detection)

**Southern Segment (Main Street to Maple Street)**

- Striping Only (remove & restripe): \$10,500

Note that these costs don't include enhancements like benches, street trees, etc. but there are opportunities to include those in preliminary design.

Kelly asked that if bike lane protection is on the ground when VTrans repaves Winooski Avenue, would they (VTrans) replace those as part of the project? That would have to be a discussion as part of developing the paving project.

Jacob asked where in the preliminary design process could things like protection, raised bike lanes, stamped medians, etc. be part of the process? Note that something like raised bike lanes downtown would add to the project cost, but please let us know of ideas and changes to help inform the timeline and cost.

Alex wanted to go on the record to say that if it's not a big leap from the preferred recommendation to add other improvements in incremental change, then stay that course.

Jonathan noted that if he heard Alex correctly, then the shorter term option is preferred to continue through process, and to consider other elements in further design process.

Members of the PAC agreed to approve the preferred alternative and to consider other elements in the design process as discussed tonight.

The PAC was asked if there are other comments or adjustments to the recommended implementation process outlined tonight:

Northern segment – Erik commented that the recommendation is good, but he doesn't like the "widening roadway in long term," so is there a way to soften that language? Nicole said there is interest in protected lanes so widening would allow that, but team hears his comment and can adjust that language.

Jacob said it feels like there is a lot of paint striping, and it seems like there are more permanent things we want, like protection, so he would like the design team to consider those elements. Jonathan noted that there will be improvements at intersections, which will be designed using the latest standards.

Alissa commented that at every meeting we've heard from businesses about parking, does it always have to be retained on the same side of the street? Could it change block to block, or at least looked into as an option? The PMP can inform that as part of the process so we'll capture that request as part of the PMP scope.

What does "successful" mean for the mini-roundabout pilots? Success means improvements to safety, congestions, mobility, etc.

Nicole noted the earlier reference to east side parking, and we can change draft language to be less specific since the PMP can address that issue. We can also modify the "widening" language to something such as "find funding to modify roadway" rather than say "widening."

Erik suggested that we also add streetscaping like trees and benches, and art as Kelly pointed out.

Include transit stop improvements in the recommendations, as well as benches, street trees, etc.

Karen suggests clarifying more detail in cost estimates for presentation to City Council.

Kelly asked if we can put a deadline and specific dates for the PMP. Team will add "by 2021" for PMP work completed. Karen reminded the group of the short window to get construction done.

## **6) Public Comment Period**

The floor was opened again for comments from the public:

- Greg Hostetler – I appreciate the fire department's comments on the new downtown proposal, but we need to ask our public responders to broaden perspective of safety.
- Jason Van Driesche – I'd like to thank the PAC for incorporating our new ideas on the fly and echo what Greg said, it's troubling that because of the fire chief's comments the planters are removed from the concept, there are other places where these types of features are included so it can be done. Something raised does make a difference for safety so please don't remove preemptively.
- Stu McGowan – this isn't a biker vs driver vs walker issue, this is a climate change issue. It's perfectly fine to care about climate change, there needs to be a compromise and we need to work together, we're all Burlingtonians.
- Drew Pollak-Bruce – I want to follow up on Jason's comment about things in the median, these projects beautify our city, so how can we help these projects have many benefits like safety, stormwater, art and more, medians have a benefit for everyone.
- Kimberly Anderson, Community Health Centers of Burlington – I love bikes, love the environment, I've said this before and I really urge more thought about the patients who come to the health center, they're the same folks who go to LM and OSH, safety is also about accessibility, sick people need to get to health center, they need to park, some bring families, so there a lot of factors to consider, it's not just about curbs but about keeping access for those who need it. I think of this as separate sections, and doing something is not always better than doing nothing.
- Karen Yacos, Local Motion – it's great that the conversation is happening this way, I appreciate Stu's comment, I want to encourage using language that uses "people," rather than cars and bikes. There are people in cars, people walking, people biking, so let's use people. It's not a car, it's modes of transportation, and balance is important. Parking management plan can help with that.
- Jason Stuffle – I wore this "Safe Colchester Ave for All" shirt because we're all for people, consider how much it costs to build a lane, the return on investment, keeping people safe allows them to be productive in our community. It's not about dollars and cents but helping people.
- Jonathan Weber – I agree with balancing needs. As population grows, they're not making more land for parking, so how do we make the most of it, protected bike lanes



are the way to go.

- North Winooski resident – I’ve had three parking spaces taken by the City, and have a crosswalk from my driveway to Sangha, it’s unsafe. I like this concept but I’m concerned about the liability. Some people don’t understand the green lanes, they go through dangerous intersections, I appreciate what you’re doing but I’m concerned about my liability as a driver if I hit someone walking or biking.
- Public comment – this isn’t about people getting parking taken away and making it easier for people to bike, but it’s an opportunity to transform transportation sector which contributes to greenhouse gas emissions. Big change is hard but can happen, parking issues won’t go away as more people move to Burlington, so put in bike infrastructure so people who move here don’t need a car. We won’t remember parking that was taken away but will appreciate how great our city is.
- Public comment – climate change was barely mentioned which is disheartening since it’s a major city issue. Getting people out of cars is extremely important.
- Caitlin Pascucci, Sangha Studio – I want to echo Jackie from Butch and Babe’s who previously brought up the safety issue for people walking at night, I would like more lights and other safety improvements if parking is changed and is further away.
- Public comment – I agree with the climate comment.

## **7) Next Steps**

Jonathan summarized the process and reiterated the preferred alternative, to which the PAC agreed:

Present to City Council the recommended alternative and implementation timeline from tonight’s presentation with the following revisions: reword “widening,” add more detail about other improvements for pedestrians and amenities, add “in 2021” to the first bullet of Northern Segment timeline, prioritize completion of Southern Segment in 2020, and for the Downtown Segment prioritize protection for pedestrians and bicyclists, implement or pilot as much as possible in 2020, and evaluate other elements in 2020 to install by 2021.

The project team will refine the draft implementation plan based on feedback from tonight and will present the updated draft implementation plan to the City’s Transportation, Energy, and Utilities Committee (TEUC) on February 4, and then present to the City Council later in February or as their schedule allows. Max Tracy, who chairs the TEUC, said that committee’s meeting is another opportunity for the public to comment, and there are no time limits on the public comment period. Jonathan said that tonight’s meeting materials are posted on the project webpage: [www.tiny.cc/WinooskiAveStudy](http://www.tiny.cc/WinooskiAveStudy)

The meeting concluded at 9:15PM.

## Attendance

### Project Advisory Committee (PAC) Members

Alissa	Faber	Resident of Central District
Erik	Brown-Brotz	Walk Bike Council
Chris	Damiani	GMT
Sean	Melinn	ONE Arts & Bus. Network
Kelly	Stoddard-Poor	AARP VT
Karen	Paul	City Council
Kara	Alnasrawi	Church Street Mkt Place
Alex	Bunten	Burlington Business Assoc.
Max	Tracy	City Council

### Alternates

Jacob	Flanigan	Resident of Central District
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### Project Team

Bryan	Davis	CCRPC
Nicole	Losch	Burlington DPW
Jonathan	Slason	RSG
Norm	Baldwin	Burlington DPW
Eleni	Churchill	CCRPC

### Study contacts:

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## APPENDIX B. PUBLIC COMMENTS

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## **Public Meeting #1: Summary of Sept 30 Public Meeting, Tabling at City Market, and WikiMap**



### Better Bicycle Infrastructure

5	<b>No safe transition from bike path to street</b> Bicycles are often travelling in both directions even though it's one way Sharrows are not suitable for this segment; need real bike lanes Need a bike box for bicycles turning onto Decatur from Winooski Ave
2	<b>Weight sensors do not work for cicylists at light @ Riverside</b> Riverside Ave intersection - difficult for bikers and walkers to cross Riverside Ave intersection - better markings for bicycles and cars Almost hit by a door in the bike lane Add two-way separated bike lane to terminus of Winooski Ave
2	<b>Don't drop the bike lane at Pearl Street</b> Like the bike box at Winooski/North St
2	<b>Door zone bike lane is scary to bike in</b> <b>Bike lanes borth ways through this section</b> North St intersection - bike lane markings/car markings are not clear North St intersection - serious danger for right-hooks
2	<b>Remove parking on N Winooski Ave and add bike lanes</b> Leave car traffic one-way, remove parking and add bike lanes Pearl St intersection - add bike signal or bike box Pearl St intersection - confusing for bikes and drivers Make a place for bicycles that is not the sidewalk (or the street in traffic) Extend the one way traffic and prioritize bus flow At Pearl/Winooski - markings for bicycles turning onto Pearl from Winooski Ave More bike racks everywhere Bike crossing at Bank/Winooski Add a protected bike lane
	Good section but needs protected bike lane Need bike lanes around Edmunds and Champlain College
	Signage for bikes turning against traffic Like the two way bike lanes (contra flow) Bicylce lanes should be protected Main St intersection - add bike box or bike signal
	King St intersection - hard for bicycles because of grade, but a common route Abrupt ending to NB bike lane at Maple St - only way to go is up Maple St (very steep) Continue bike lanes from Maple to Main Cars often stop in the bike lanes and block them Cyclists shouldn't have to stop at stop signs through this section Difficult to bike up Howard St and take a left onto bike lane on S Winooski
	Maintaining bike lanes - potholes are dangerous Adopt new bike lanes from the ONE All bicyclists should be on the street, not sidewalks, if over the age of 12 Bike path to bike lane connection Enforce 4 ft passing law Create a good module for bike safety and education Make bicycle and car safety compulsory in schools Make a nearby road a bicycle thoroughfare (bikes only) Connect the bike lanes in the north end and south end Remove parking and add more bicycle facilities Want to see more changes like the ones on Pearl St at Willard
6	<b>Add protected bike lanes along the entire corridor</b>

### Pedestrian & Streetscape Improvements

2	<b>N Winooski/Archibald intersection - takes forever to cross as a pedestrian</b> Like the public art near North St Improve the park at Riverside Ave Sight distance turning right from Hyde St to Riverside Ave - many near misses with pedestrians Archibald St intersection is too big, improve with rain gardens or bump outs
2	<b>Underutilized parking lot @ North End Studios - use as parking for businesses?</b>
4	<b>Make "diagonal" crossings at N Winooski/Pearl St or grid entire intersection</b> Old North End Variety Store has underutilized parking lot - add parklet? Utility poles on both sides of street - unattractive Pearl St intersection - pedestrian light doesn't work (E/W walk signal shows red during ped phase)
	"Soul-killing parking lot, derelict motel, please do better!" at S Winooski/Main St Only pedestrian crossing light is at Bank St Parking garage intersection is dangerous
	Good sidewalks Ped signals would help at S Winooski/Howard intersection Pedestrian crossing is not good at Spruce St intersection - steep angle and slippery Exclusive pedestrian phase at S Winooski/Howard intersection Improve lighting from S Winooski from King St to Adams St (trees block out light) King St intersection - add rain gardens or bump outs Howard St intersection - too big, needs bump outs Howard St intersection - No pedestrian route crossing Winooski Ave Howard St intersection - long wait times, confusing to know when bikes and peds should cross
	Clearer signage Too many distractions More trees More crossings Improve lighting, especially on bike lanes
	More space for people, less space for parked vehicles Less tobacco use at N Winooski and Pearl Ticket jay walkers

### Better Transit

	Extend the one way traffic and prioritize bus flow Bus stop on Winooski Ave near Buell St is in a bad spot Pearl St intersection - relocate bus stop on NW side of intersection
5	<b>Light rail/street cars or elevated line N-S and E-W</b>

### Improve the Traffic Circulation

	Need a simple way out of the old north end (from N Winooski)
2	<b>North St/Winooski Ave intersection has poor visibility + confusing traffic pattern</b> Pearl St & Winooski intersection is very important route for cars getting from center of town to ONE Grant St to Pearl St should be two way
3	<b>Consider two way traffic for all forms of transportation</b> Pearl St intersection - consider a roundabout
	Many conflics along this segment
9	<b>City Market: priority, access, safety, flow issues</b> Extend the one way traffic and prioritize bus flow Make this segment 3 lanes: 2 SB lanes (one transit only) and 1 NB lane Set cross turn rules to not allow favoring peak traffic times - eg no left turns 7-9AM
6	<b>Rethink traffic circulation in this section (road diet?)</b> No left turn in or out from City Market
2	<b>Parking garage intersection is dangerous</b> Enter & exit City Market from Union St Only College St intersection - left green arrow from Winooski Ave onto College St Delivery trucks block the road near College St intersection Crossing area near the co-op turn in
	Main St intersection - roundabout Stop signs are annoying for all users - what about mini roundabouts? Main St/Winooski Ave intersection - cars run this red light often Almost impossible to turn left onto Winooski Ave from Main St eastbound Main St intersection - congested and dangerous for everybody Why is there two-way traffic Maple to Main?
	Eliminate one way streets Corridor should be continuous

### Traffic Calming

2	<b>N Winooski/Unionr intersection: Union to Winooski acts as a yield instead of stop</b>
2	<b>Need to slow down traffic from Pearl to Main - this is downtown</b> Observe lots of speeding
	Adams St to Spruce St is a speedway for cars
	Slow traffic down Make the speed limit 15 mph Red light and speed cameras Speed humps

This list aggregates comments from out City Market outreach, the public meeting, and the Wikimap.  
**Bolded comments were mentioned multiple times**

**Public Meeting #1: Burlington Wards 2-3  
Meeting, Sept. 13, 2018**



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

Has nice shops ~~and~~ like Asian  
Central Market and McClure  
Community Center.

What is your biggest issue with Winooski Avenue?

Not enough shade on sidewalk  
(I walk all the way downtown  
from Hyde St.)

What are 3 things you would change on Winooski Avenue?

- ① Plant more trees
  - ② More street lights
  - ③ Make sure recycle ~~does not~~ bins are  
put and taken in back inside in a tidy  
fashion
- Other comments:

Please save the trees on  
the street



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

quaint neighborhood  
good way to go north-south

What is your biggest issue with Winooski Avenue?

all the 4 way stops

What are 3 things you would change on Winooski Avenue?

Other comments:



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

I can follow it from one side of town to the other.

What is your biggest issue with Winooski Avenue?

Safety when riding a bicycle through the central section.

What are 3 things you would change on Winooski Avenue?

<sup>MORE</sup>

• Bike Lanes ... ?

• more order, less danger between Pearl & Main.

•

Other comments:



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

Some bike lanes are OK

What is your biggest issue with Winooski Avenue?

Incomplete bike lanes  
or none at all downtown  
which feels very unsafe

What are 3 things you would change on Winooski Avenue?

- ① 2 way protected bike lanes for the whole corridor
- ② make bike rack in road by Radio Bean
- ③ left turn lane to city more accessible market

Other comments:



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)  
Bryan Davis, CCRPC  
[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)  
802-861-0129

What do you like about Winooski Avenue, and why?

Bike lane, Safety  
radio bear, humans

What is your biggest issue with Winooski Avenue?

RIDE AID should be a legit general store  
or something, NOT corporate junk store

NO ONE ever uses that lovely, prime Ronald mcdonald  
place

What are 3 things you would change on Winooski Avenue?

- LIGHT RAIL / TROLLEY, bring it back
- NO gas cars
- MORE TREES

Other comments:

I know my comments aren't super at all  
applicable to your process, but sorry



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)  
Bryan Davis, CCRPC  
[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)  
802-861-0129

What do you like about Winooski Avenue, and why?

Biking it - even with the quality of bike paths as it is,  
it's the fastest way to bike through the city.  
~~At the~~ The mixed residential / Businesses

What is your biggest issue with Winooski Avenue?

~~It's super~~ The most challenging area to bike,  
walk & drive thru Winooski Ave is from  
Pearl St. to Main St. It is very difficult  
to turn left (from the North) into City Mkt.  
And it's dangerous to turn left out of the  
parking lot.

What are 3 things you would change on Winooski Avenue?

- ~~No gas cars~~ Change the exit out of  
the parking garage
- Bike lanes
- ~~No~~ Turn into City Mkt.

Other comments:





[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

I appreciate that it's now a bike lane  
on No. Winooski Ave

What is your biggest issue with Winooski Avenue?

⊗ No bike lane south of Pearl St !!

No 2-way bike lane on Winooski Ave  
at all, so it is difficult to navigate around town.

What are 3 things you would change on Winooski Avenue?

- 2 lanes throughout Winooski Ave so you can go both North/South all throughout the street
- Turning lane in front of City Market
- Bike lane on So. Winooski Ave!

Other comments:

- I don't feel safe biking on So. Winooski Ave
- It's very inconvenient for No. Winooski Ave to be a 1 way bike lane



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

NO bike lanes.

What is your biggest issue with Winooski Avenue?

What are 3 things you would change on Winooski Avenue?

- 3 Lane road.
- 2 Bike lanes
- 

Other comments:



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

The Roxy, the block w/ the Rales  
Bean + Indian Restaurant  
Pho Hong

What is your biggest issue with Winooski Avenue?

Crossing times at Bank +  
Winooski College + Winooski  
much too short. Cars get to  
turn when pedestrians still in  
crosswalk.

What are 3 things you would change on Winooski Avenue?

Fix the above mentioned  
intersections.

When pattern changes from one way to  
two way going south, have to cut into the  
bike lane to go straight or turn right.

Other comments: Hard to see oncoming

traffic when turning left out  
of Pho Dong or McBlure

Multigen when cars are  
parked along the curb.

College → Main a wasteland.



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

I like the bike lane north of Pearl Street  
The one-way sections are much quieter

What is your biggest issue with Winooski Avenue?

Pearl to Main Street is very  
unsafe for cyclists. It's hard to  
get to City Market on bike. When  
driving, making a left out of the city  
Market parking lot is difficult/scary.

What are 3 things you would change on Winooski Avenue?

- 2 way bike lanes from Main to Riverside
- Traffic light at City Market?  
(or all way stop?)
- Speed bumps! cars treat it like a highway

Other comments:

Thank you!! ☺



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

Nothing, really. Its generic  
and old fashioned.

What is your biggest issue with Winooski Avenue?

Unsafe for bikes.

What are 3 things you would change on Winooski Avenue?

Safe for bikes, - give them a  
protected lane.  
Make it prettier.  
Make library intersection super-safe  
for kids.

Other comments:

Please invite a Ward 3  
representative onto  
the study committee.



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

Very diverse -  
Apts are relatively  
affordable - night life - restaurants

What is your biggest issue with Winooski Avenue?

Many absentee landlords  
Lot of buildings are very  
beat up - Definitely needs  
help w/ trash + recycling

What are 3 things you would change on Winooski Avenue?

It is a proven  
fact that 2 way sts  
are better for economic  
growth

Other comments:

If you could use 802  
any input 540  
pls feel free to 0717  
call Andrew Champagne



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

*Bike lane heading South*

What is your biggest issue with Winooski Avenue?

*Bike lane disappears beyond Pearl Street. If there was a lane at least to Rte 112 then bikes could turn on to Cherry & that would solve*

What are 3 things you would change on Winooski Avenue?

*The East/ West problem*

Other comments:

*Winooski Ave needs a round about at either City Wharf or Main St. or both.*



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

- Bike lane North of Pearl Street.*
- traffic patterns*

What is your biggest issue with Winooski Avenue?

*Bike lane between Pearl & Main St*

What are 3 things you would change on Winooski Avenue?

*Bike lane*

Other comments:





[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

The one way part & like the larger sidewalks up north.

What is your biggest issue with Winooski Avenue?

The blocks downtown are not safe for bikers and the entrance to the co-op parking lot is a problem - also not safe.

What are 3 things you would change on Winooski Avenue?

Better bike/walking access ~~in~~ in downtown.

Add planters.

Other comments:



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

the sections with bike lanes - safer for biking and less traffic noise

What is your biggest issue with Winooski Avenue?

Section with 4 lanes is too fast & doesn't feel safe

What are 3 things you would change on Winooski Avenue?

1. Make it safer
2. Make it more inclusive
3. Make it quieter

Other comments:

Consider safety, comfort, & connectivity for all modes of travel  
Measure road noise before and after changes





[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

The two lanes are awesome for cars and bikes!

What is your biggest issue with Winooski Avenue?

Not many issues, but it would be pretty cool if it could remain a two way street north of Pearl.

What are 3 things you would change on Winooski Avenue?

- Are bike lanes feasible?

- What about a rotary at the Howard Street rotary?

- N/A.

Other comments:

→ the rotary could take pressure off of the Furler Willard/Rt.

**Public Meeting #1: Public  
Comments from Open Streets BTV  
September 30, 2018**



# What do you LIKE about Winooski Ave?

That on the North part of <sup>North</sup> Winooski there is a marked bike lane.  
That our school is on this street!

## The shops & community engagement!

The won ton food

SANGHA

PHO HONG

Pho hang

Still a sense of neighborhood/community - not too gentrified (yet :))

PHO HONG

Sustainable Community!!

stop signs + traffic lights → slows traffic down

Barrio

our grandchildren live here!!

community advocacy hub & good food!

Love the trees

Add "Children & Play" signs (for kids walking home from school)

central market!

# How would you CHANGE Winooski Ave?

For downtown section, make 4 lanes into 2 lanes and add bike lanes + me too!

PROTECTED BIKE LANES!

more Roundabouts ☺  
↳ w/ training

Gotta preserve parking. This is dense residential!  
↳ protect bikes w/ parked cars!

bike lane (parking on only one side of parking lot & etc.)

only affordable housing developments - really affordable, not luxury, more housing + neighborhood stores - more trees + gardens

PROTECTED Bike lanes / keep cars separate

# \*How would you change Winooski Ave?\*

✓ Peel through main - 3 lanes with center lane for left turns. Two bike lanes

• On parts of the street where a bike lane is not possible due to parked cars. Create a green way indicating to cars that bikes can take the full width. example: Riverside to Decatur

• extend the North Union bike line past the food shelter drive way to meet S. ~~Winooski~~ Winooski.  
★ Make it easier to enter into S. Winooski and turn left.

• Maintenance of bike lanes... (S. Winooski is priority)  
• Consider: 1-way (Southbound) on Winooski from Decatur to Howard  
1-way (Northbound) on Union from Howard to Decatur/H. Wash.



Draw + write on me! What do you like, dislike? How would you change Winooski Ave?

## Winooski Avenue Corridor

2x  
ALL Bikes  
ALL THE TIME!

Two-way bike lanes

Can bikes use more of Winooski Ave?





# **Public Meeting #1: Stakeholder Interviews Summary, Aug-Oct 2018**

## Stakeholder Interviews Summary

The project benefits from having a diversity of interests represented on the Project Advisory Committee, as well as from numerous public engagement opportunities, but to ensure the project team is hearing from as many interests as possible, we identified other stakeholders from whom we wanted to better understand Winooski Avenue through their particular lens. As part of the Existing Conditions process, conversational interviews were conducted with people from the following entities:

- University of Vermont
- Howard Center
- Champlain College
- Chittenden Area Transportation Management Association (CATMA)
- City Market
- Burlington Fire Department
- Burlington School District Transportation
- Parents at Integrated Arts Academy
- Green Mountain Transit
- Association of Africans Living in Vermont (AALV)
- North End Studios
- Vermont Department of Health
- Radio Bean/ ¡Duino! (*Duende*)
- Old Spokes Home
- Local Motion
- African Market
- Shinjuku Station
- East West Cafe

Several themes emerged from these conversations. We heard that Winooski Avenue is viewed as a central corridor that provides access to and from the City, but the four-lane section between Main and Pearl streets is challenging for all users (walkers, bikers, transit, autos). It sends the message that you're getting to someplace else and serves as access to other places, rather than being a "place" or destination of its own. People like the vibrancy and sense of place of the Old North End and its diversity of people and businesses. The businesses on North Winooski are "in the spirit" of the Old North End, and there's a desire to build community and culture around them and their unique aesthetic. There wasn't a lot of strong sentiments expressed about the residential neighborhood south of Maple Street. People like that it feels "calm, peaceful, quieter" than the four-lane section between Main and Pearl, and that it has two-way bike facilities, although the contraflow lane (heading northbound) might cause confusion to people driving. One person, however, noted that the section between Main and King streets "feels weird" like you're not supposed to go into that southern neighborhood. That section of Winooski Avenue has parking on both sides of roadway, then transitions to one-way southbound with two-way bike traffic.

Discussion of specific themes and issues are summarized as follows:

### Vehicle parking

People expressed diverging interests in either the need to keep on-street parking or remove it to provide additional roadway space for other uses like bike infrastructure. As one person put it, "This study will come down to a trade-off between on-street parking and on-road use like bike lanes." Several business people noted that keeping and adding more short-term parking spaces for customers and deliveries would be helpful. One person noted there is some ambiguity about where parking is legal or illegal. Fire Department staff noted that snow accumulation can impact roadway width, especially when there's parking on both sides of street – cars tend to creep away from the curb and into the

roadway. They've noticed less of an impact with parking only on one side. It was suggested to make the Howard Center parking lot public (operated by the City) and shared with others like The YMCA. Other shared parking agreements could be useful. If parking is removed from Riverside to Archibald (to add bike infrastructure), consider how to add parking to other nearby streets.

### **Bike facilities and bike parking**

People generally like that there is bike infrastructure in the south and north ends of Winooski Avenue, but any bike-related changes need to be consistent throughout the corridor, such as bike lanes on both sides of the roadway, or a protected two-way bike lane on one side. Most people noted the lack of any bike infrastructure between Main and Pearl streets. We also heard that there needs to be a change in attitude so that people on bikes know that the laws apply to them. Specific challenges for people biking were noted at the Riverside/Winooski Ave intersection and downtown between Main and Pearl streets. There is interest to return the on-street bike rack in front of The Light Club Lamp Shop back to a loading zone, with the suggestion to add bike parking on the other side of street at the chained off driveway to Act One, or to put bike hitches on parking meters.

### **Pedestrian amenities**

While there is a connected sidewalk network throughout the corridor, people pointed out that there isn't much green space downtown even though the sidewalks are wide, as well as the lack of benches. People like the landscaping in front of Howard Center, City Market, and the Ronald McDonald House, as well as the public art and murals, quirky character and aesthetics of downtown. Lighting downtown seems pretty good, but the sidewalks are next to the busy roadway which isn't enjoyable. More street trees or other things would help make the downtown section feel "denser and tighter" to reduce speeding. Flowering trees in warmer months and decorative lights in trees would add to the downtown aesthetics. People thought the pedestrian crossing times at signals may not be long enough for people with disabilities and suggested that other signs/flashing lights might make some intersections, like at Grant Street and Decatur Street, safer for people walking. People don't know that the Pearl/Winooski intersection is all-way pedestrian crossing so consider pavement markings or signal changes to let people know. Similarly, the Archibald/Winooski intersection is challenging because it's so large and intimidating; consider making it an all-way pedestrian crossing.

### **One-way versus two-way traffic pattern**

The current traffic pattern along Winooski Avenue varies, with southbound one-way sections on North Winooski between Pearl and Decatur, and on South Winooski between Maple and Howard. The downtown section between Main and Pearl is two-way, with two lanes in each direction (four lanes total). People noted that this inconsistent configuration can be confusing for tourists and limit access to neighborhoods.

People discussed the idea of turning North Winooski from Pearl to Union into a two-way street. Some people think it would open up access to Old North End and businesses, help the northern section feel "less desolate," and would help address wrong-way bike riding. One business owner said that the traffic pattern in the one-way section between North Union and Pearl feels "slower" and feels more bike/ped friendly and if it was turned into two-way it would become the "traffic dump" to access the City of Winooski. Some people pointed out that some on-street parking might need to be removed to

accommodate two-way car and bike traffic. This might also help the Fire Department access the Old North End.

### **Transit**

Existing Green Mountain Transit (GMT) service only uses a portion of Winooski Avenue, and GMT staff noted that they would prefer to utilize Winooski Ave more as a north/south route. One-way streets such as parts of North and South Winooski aren't insurmountable for transit service but they're not ideal for passenger pick up/drop off. Lane width can be tight for transit between Cherry and Main streets, and stopped vehicles on narrow Union Street delays transit service.

### **Main Street to Pearl Street**

There was significant discussion about the four-lane section between Main Street and Pearl Street. Some of the issues brought up include: left turning vehicles on Winooski Avenue block the inside travel lanes; other drivers weave to get around those vehicles; SSTA vehicles block the lane in front of Howard Center; there is no bike infrastructure downtown; it doesn't feel welcoming to people walking; gas stations feel out of place; it feels like an alley for other businesses; the curb cuts are large and wide; the parking garage and City Market add to challenges; left turns out of City Market and Howard Center are challenging; vehicle conflicts entering/exiting the alley between Howard Center and Roxy Cinemas; people don't cross at signalized intersections near City Market; truck deliveries block lane near corner of College Street; buses have to change lanes between College and Main.

People expressed concerns about adding new bike lanes on South Winooski, especially on the City Market side given the existing challenges (turning traffic, delivery trucks, proximity of signals, jaywalking, SSTA blocking a lane, etc.).

People offered potential solutions including:

- Make City Market entrance from Winooski Avenue one-way, make parking lot spaces angled, exit onto Union Street, then make Buell Street two way to get back to Winooski Avenue
- Consider opening up the entrance to Orchard Terrace from City Market parking lot
- Connect City Market parking lot to UPS lot and make four-way signalized intersection at Bank Street
- Incorporate roundabouts throughout the Winooski Avenue corridor
- There was a desire for artistic structure or something else at the corner of Winooski and Main Street to convey it as a gateway intersection to the central business district.

Other general suggestions are the need to consider traffic flows with future developments like CityPlace Burlington, UVM's multipurpose center and the new YMCA. There is a desire to use pop-up projects to get real -world experience and feedback on project recommendations. These need to be in place long enough to gauge their functionality and to maintain public and stakeholder interest between the planning study and actual construction.

One question asked of stakeholders was, "What is the first word (or 3) that comes to mind when you think about Winooski Avenue?" Here are the responses:

- Traffic; neighborhood; disconnected. Non-continuous.

- It's interesting that the corridor goes through different zones, commercial and residential.
- I think of Winooski Ave as lots of different corridors rather than one long one.
- Connection to downtown, pretty easy connection to downtown because signals work pretty well, and sometimes when coming out of downtown take Union to Winooski to Riverside because it's more bearable than Colchester Ave; it's a growing area with more restaurants and housing, it's a positive changing environment; and mentally Winooski Ave ends at Main St; and diverse with colorful houses, new developments/apartments, food.
- It's the gateway to our part of the city (ONE), going in and out.
- Traffic flow is convoluted. It's the way people get in and out – but they can't.
- We lived here right before it became one way about 20 years ago or so.
- Since the change to one-way it's been clear that unless you know your way around, it's confusing. Not intuitive.
- Emerging, in terms of development patterns. It's not getting the full benefit of being a corridor.
- Diverse in terms of land use patterns, parking, bike lanes.
- Centralized, sectional, emerging.
- How different it is along corridor
- nerve-wracking downtown on a bicycle
- from Pearl to Main is hairy and scary.
- Confusing, dangerous, ugly. Desire/potential for continuity.
- Start/stop, dangerous
- Growing. Artsy. Community, neighborhood-y
- Connection. Access. Connecting Winooski, Burlington, South Burl. Inconsistent, patchy. Very, very patchy.

### **Open Streets BTV Summary**

The project team also had a public information table at Burlington's Open Streets event (<https://www.openstreetsbtv.com/>) on September 30, 2018. We were on North Winooski Avenue at the intersection with North Union Street and Decatur Street in the heart of the Old North End. We talked about the project with people as they enjoyed Open Streets activities in the public space, asked them what they liked about Winooski Avenue and what they would change about it, and asked them to write comments and draw on maps and paper. Comments are available on the project website ([tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)).

People commented that they liked the sense of community in the Old North End, being close to neighborhood schools, the proximity and diversity of businesses and restaurants, the newly created Old North End Greenway and planters, street trees, and the bike lane on North Winooski. They noted that Winooski Avenue between Main and Pearl streets is difficult for people walking and biking.

People we talked to would like to see a protected bike lane the length of the corridor and safe intersections for bikers, consideration of roundabouts, the need to keep parking available for residents and for more Community Health Center parking at Riverside, as well as the need for more affordable housing. People also offered suggestions to slow down traffic through the neighborhood and the desire for more trees and grass.



## **Public Meeting #2: Public Comments Received March-June 2019**

-----  
**From:** J. G. [REDACTED]  
**Sent:** Thursday, June 27, 2019 10:35 PM  
**To:** Bryan Davis <[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)>  
**Subject:** Re: no winooski ave

Please remember the Motorcyclists killed in New Hampshire when developing a city plan. At NONE of the meetings were motorcyclist safety addressed. Our people are just as important as bicyclists..and we are ALL required to carry insurance and obey laws that the police WILL enforce.

The infrastructure put in place last year to supposedly keep bike riders safer endangered motorcyclists!

gone are the days of treating motorcyclists as second class citizens. we are Vets, first responders and parents....

please remember this!

jeff

-----  
**From:** J. G. [REDACTED]  
**Sent:** Thursday, June 6, 2019 9:29 PM  
**To:** Bryan Davis <[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)>  
**Subject:** no winooski ave

Hi Mr Davis. I go to all the meetings I can and we have met,  
.

i have lived on No. Winooski ave for 38 years, and prior to that this home was owned by my grandparents. I have 50+ years of experience on this State highway rte 's 2 and 7.

it is not just a street, it is a State highway. is the state involved in this planning?

My home at 132/134 shares a common driveway with 136. we have 5 apartments and 3 parking places off street. There is no room for more, so I must have my tenants park on the street.

If the city plans on removing parking, i would need permits for street parking reserved for my property as the city will be responsible for loss of income if i have to lower rents due to no parking.

feel free to "google-earth" this property. This was built in 1842...they weren't worried about cars or Bicyclist "stresses" back then.....

Also, the Burlington fire dept frequently uses this street to get to the old north end by going north on the one-way section..a very narrow 36ft wide section,. putting bike barriers will affect them.

one last issue, the posts and hedge-hog things put on the street to protect bicyclists ENDANGERS MOTORCYCLISTS!--ARE OUR LIVES LESS IMPORTANT THAN A BIKE RIDERS?..8.5 MILLION MOTORCYCLES ARE REGISTERED IN THE us..WE VOTE, WE COUNT, WE NEED PROTECTION TOO

THANKS

jEFF gILBERT  
134 N. WINOOSKI AVE

-----  
**From:** Jason Van Driesche [REDACTED]  
**Sent:** Saturday, June 22, 2019 9:09 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Cc:** Allegra Williams <allegra@localmotion.org>; Erik Brown Brotz <[REDACTED]>;  
Chapin Spencer <cspencer@burlingtonvt.gov>  
**Subject:** Winooski Ave designs

Bryan,

I just filled out the Winooski Ave survey. There wasn't anywhere to add my name, but I'm sure you'll be able to tell which one was mine. I voted for alternative #3 all up and down the corridor, with some modifications.

I'm writing to you because I'm concerned about how -- at least in the project materials -- there was no mention of the fact that there is a very large practical difference between those alternatives that involves widening the road and those that do not. You know as well as I do that widening Winooski Ave would be both extremely expensive and hugely contentious. As a result, it would take many years to implement such a design -- if it happened at all.

But most people don't know this. Many folks may have been drawn to the "have your cake and eat it too" option of widening the road so we get protected bike lanes and lots of parking to boot. It seems a bit deceptive to let people choose such an option, though, given that what they indicated they want would be unlikely to happen in the next decade (if ever).

As you review feedback, I urge you to find a final design that marries the intent of respondents with practicality of implementation. I'm guessing that lots of folks will want two-way protected bike lanes. They may not have said "do it within the existing width," but if you asked them, "Do you want this to happen in the next few years at a price we can afford?" I guarantee you that the answer would be a resounding "YES!"

My comments were all focused on how to make this marriage of safety and practicality possible. I hope they are helpful.

Best,  
Jason

-----

**From:** Eric Coker [REDACTED]  
**Sent:** Thursday, June 20, 2019 8:55 AM  
**To:** Bryan Davis <[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)>  
**Subject:** Re: Winooski Avenue Transportation Study - thank you, and survey still live!

Hi Bryan,

I just took the survey, but wanted to reach out to give more details to my response.

I bike through Burlington a lot. It is my main form of transportation despite living in Shelburne because it is basically faster to do everything when you include time to park... and it is way more fun.

Parking needs to be slowly removed from the streets. It is ugly and makes the city feel like a place for cars, not people. It is a big change for some, which is why it needs to be done a little bit at a time. Start now! Create parklets, add bike share hubs, remove spaces near corners to improve visibility, etc... taking away a couple spots at a time now will make it easier when the big conversion is done.

I am of course in favor of a protected bike line, but I would like to point to Dorset street in South Burlington as the exact way of NOT doing it. I bike all the time on that section of "path" and am used to the crossing traffic and am careful about going slow and checking for people going in and out of all the driveways.... because I know that about half the time the drivers are completely oblivious about the fact there could be a biker in the bike lane. So if you combine a not so careful biker with the oblivious driver in this scenario, it's deadly.

I hope you have thought about how to handle this (sorry I missed the meeting! I really wanted to be there). My suggestion is that the bike lane be elevated so that it acts like a giant speed bump for crossing traffic. This needs to be done for traffic going both ways and include the street intersections, not just the driveways. This works on Dorset street. Cars that turn into a business from the road slow way down because they have to go up. But at street intersections and for cars leaving businesses they do not.

One other thing : Some of the alternatives showed a "protected" bike lane using parked cars. Again, crossing traffic is a huge concern with this concept. This actually works great in Montreal... it is very safe. They do 2 things : One, the bike lane goes against the parked cars so you are in a door zone, but it is the passenger side, and you are looking right at your potential assailant. The other, more important point, is that there are no driveways where they use this layout.

Thanks for your time and consideration. Good luck! I know you are likely getting all sorts of opinions and that this can be a tough job. But it is really important. Projects like this are going to make Burlington a world class city.

Regards,  
Eric Coker

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**From:** Ben Traverse [REDACTED]  
**Sent:** Monday, June 3, 2019 10:19 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Reminder: Winooski Avenue Transportation Study Open House, June 4

Bryan - this study has gone through an awesome process and should serve as a model for public input in the future. Thanks for continuing to keep us so well-informed.

Ben

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**From:** Marjorie Stinchcombe [REDACTED]  
**Sent:** Monday, June 3, 2019 3:34 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Transportation study

Hello-

I am not able to attend the meeting tonight—but I wanted to voice my concern about any plans that would eliminate on-street parking in front of 264 (Vermont Legal Aid) and 274 (Legal Services Vermont) North Winooski. From the map, it looks like Alternative 2 eliminates the parking on both sides of the street—and several options remove the parking on at least one side of the street. Our clients rely on those spaces when they are coming to meet with their lawyer and losing those spaces would make the office less accessible. Our employee lots are often full—and most clients do not bike to appointments.

Thank you!

Marjorie Stinchcombe  
Marjorie Stinchcombe, Staff Attorney  
Office of the Health Care Advocate  
Vermont Legal Aid  
264 North Winooski Ave.  
Burlington, VT 05401

[REDACTED]  
[vtlawhelp.org/health](http://vtlawhelp.org/health)

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**From:** Greg Hostetler [REDACTED]  
**Sent:** Friday, May 31, 2019 12:26 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Reminder: Winooski Avenue Transportation Study Open House, June 4

Hello Bryan,  
Thank you for the reminder. I am out of town and unfortunately cannot make it to the meeting. I had the chance to review the alternatives a couple of weeks ago. I am in favor of alternatives 2, 2a, and 2c. I live on N Winooski Ave between North and Pearl Streets. I am in favor of eliminating parking on one side of our street, but I would rather not lose any trees. I would love to have protected bike lanes the entire length of Winooski Ave.



Best regards,  
Greg Hostetler

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**From:** Alissa Faber [REDACTED]  
**Sent:** Wednesday, May 29, 2019 12:59 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Winooski Avenue Transportation Study -- Public Open House, June 4

Bryan,  
Sadly I will be missing this meeting do to another meeting that was scheduled first.

I was talking with some of my neighbors about Winooski Ave about the different parking options listed on the alternatives. Someone brought up the idea of seasonal bike lanes on North Winooski Ave between Union/Decatur and Riverside Ave. The idea was that the parking lane could be there during the winter when less people bike and parking is harder to find and in the warmer, biking months, the parking lane could be painted for a bike lane and parking would not be allowed. Residents would know that from x date to x date the lane is used for parking or biking. I'm not sure if that falls within the walk/bike plan for the city but I was intrigued by the idea and thought I would pass it along.

Thanks  
Alissa

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**From:** Phil Hammerslough [REDACTED] >  
**Sent:** Tuesday, May 28, 2019 11:38 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Winooski Avenue Transportation Study -- Public Open House, June 4

Hi Brian, Here's a way to feed many birds with two scone: Keep N. Winooski one way , keep the bike path plan, narrow the street and add MORE SIDEWALK on the east side. This will make the businesses happier because they can expand their outdoor space in summer, give more space to pedestrians, (were it counts most), maybe even provide space for bike parking to increase business.

If parking stays on the east side of the street between Brant & Pearl they create a barrier for pedestrians on the sidewalk. Alternatively, the cars could be parked further out and give protection to the bike lane & the sidewalk.

Best,  
Phil

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**From:** TONY Redington [REDACTED]  
**Sent:** Monday, May 27, 2019 11:39 AM  
**Cc:** Burlington Walk/Bike Council <burlingtonwalkbike@googlegroups.com>  
**Subject:** Sidewalk Cycle Track Discussion

Good Day Winooski Corridor Group:

Some thoughts after the Walk Bike Council discussion with DPW engineer Nicole Losch last Thursday. We have made a great deal of progress in a vision for our "Greatest Street in BTV." There seems to be growing consensus to provide cycle track (protected bicycles lanes) along the corridor. There is the recognition that the loss of some parking is both necessary though not necessarily wholly agreed on at this point. There seems to be no positive response to the idea of a two-way bikeway along this corridor and no examples given of where this works well--the North Champlain two-way takes advantage of a bike lane in place and an extra vehicle lane than needed besides (what a luxury of available right-of-way!).

Now the question of sidewalk level versus vehicle lane level cycle track. Few of us have observed much less biked on sidewalk level cycle track--though anyone of us can today (well tomorrow when GMT operates!) trip to Dorset Street to travel the only sidewalk level cycle track in VT! Nicole Losch and other engineers have expressed concern about sidewalk level cycle track and need for longer sightlines and driveway conflicts from vehicles exiting adjacent residences and establishments. The conflicts with driveways is not new and many bike/vehicle crashes today occur at driveway/bike lane interfaces (the "J-hook" crash) and I have observed first hand two within a block of where I live on Pearl Street and N. Winooski.

The lesson from observing cycle track and mixed bike pedestrian traffic on the major streets of Osaka, Kyoto and Osaka recently is the walk and bike modes co-exist, mingle easily and flawlessly at intersections and across crosswalks, and bicyclists operate at "neighborhood" speeds of 3-8 mph and at no time interfere with pedestrian travel or vice versa. If anything the cyclist is in better position, more observable position, at sidewalk level on cycle track than at same level on vehicle space with vehicles entering and exiting driveways. Any of us--I did it today and anyone can do it any time--travel at a sensible speed along sidewalks here where the primary danger is vehicles at existing driveways--and am super cautious, ready to stop, where sight distance to the building side is reduced to about 0 feet. Since in such cases installation of cycle track will be towards the roadway, away from such conflicts, the cyclist safety is enhanced from both the building side and the roadway side.

Perhaps too much of our cycling culture vision comes from seeing lots West European designs, particularly the exception to the rule, the cycle dominance over all modes in eternally flat Amsterdam and environs. Tokyo, Kyoto and Osaka cycle track sidewalk level are flat too but so are cycle speeds human and unhurried speeds (even the little league about 10-year old baseballer with his bat vertical in his backpack focused on a Saturday morning trip).

In sum our design efforts on the dense mixed-use neighborhood ONE/S. Winooski from Pearl to Main moves ahead. There needs to be more dialogue over the nature and function of the cycle track--does it serve primarily the needs of the high speed male commuter mostly seen today or the wide range of new cyclists who will arise naturally from a neighborhood friendly bicycle network featuring all-modes safe roundabouts and appropriate cycle track designs? Better we design our streets for the use of both the eight and eighty year olds to be sure to be democratic and safe for all modes!! Let's make our Winooskis the "Greatest (and safest) BTV Street."

Attached photo is a dad on E-bike taking child likely to daycare early morning in Kyoto. "Barnes dance" all way stop signal--Japan just getting into roundabouts--about 10% of Japan bicycles used by adults are E-bikes.

Tony Redington

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**From:** Lauren-Glenn Davitian [REDACTED]  
**Sent:** Thursday, May 23, 2019 10:12 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Winooski Avenue Transportation Study Public Input

Thanks for this. Please direct this to the person who is capturing input. I will come to the Open House.

I am not so sure if I am reading the maps right but it is really important that we have two sides of parking from Riverside to North Street. The business development in our area has dramatically increased traffic to the neighborhood and parking capacity needs have doubled in our half block area alone. Plus we have no green belt to spare. The pedestrian scape is vital to preserve. It can't be more narrow. There would be no more sidewalk in front of our building (as an example). Plus there is already sufficient room for biking on both sides in this section (Riverside to North). Thank you. Lauren-Glenn Davitian

[REDACTED]

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**From:** Liam Griffin [REDACTED]  
**Sent:** Thursday, May 23, 2019 2:39 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: thanks

Hey, nice work last night at North District NPA...

I thought things went fairly well, no real curve balls.

One thing I forgot to mention is that with the recent changes at Old Spokes / Good News Garage, there are about 14 new spots in that lot that were essentially gifted to the neighborhood businesses during the transaction. There were 10 in the fenced in area, and another 7 out back... which GNG no longer owns. OSH did stripe out a new loading zone in front of the shop, which I think took about 3 spots? They've all been absorbed for the most part by local customers/residents since almost everybody who works at OSH rides bikes to work.



On a side note, was there ever an option drawn up that didn't have a dedicated NB bike lane from Pearl to Union (which would have bike traffic diverted to Union?) I'm not sure if that would still meet project goals, or how others would feel about it. In current conditions I have to take that route pretty often, but taking the lane on Pearl eastbound to make the left onto Union definitely isn't an "all ages & abilities" sort of move.

After listening to the presentation last night, it does seem to make things challenging that the City doesn't designate any project budget range up front. Seems like the default cheap option (like with North Ave) would be all paint & plastic within existing curb to curb. That won't be particularly safe, or attractive for many new users, but would be mostly fine or an improvement for people who are already riding bikes. There is such a huge delta between that & full blown rebuild with legit protected bike lanes on both sides, plus preservation of parking. If I recall correctly from North Ave, the paint/plastic option was about \$150k and the full blown deluxe option was in the ballpark of \$11M.

Do you know when you'll have an event page set up for the June 4th?

LG

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**From:** Lynn Eisenbrey [REDACTED]  
**Sent:** Monday, May 20, 2019 9:24 AM  
**To:** Bryan Davis <[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)>  
**Subject:** Walk/Bike options

Brian,

I looked over the options for biking and walking which are being discussed. I'd like to say that, currently, I believe that option 2B would best suit visitors and residents.

Most people are used to going up one side of a street and returning down the other. Having bike lanes only on one side of the roads would irritate and confuse most people.

The other point is that 2B allows for parking on both sides as well. We can handle an expanded road with less greenspace as long as the cars have more locations to park.

I'd rather have more parking garages with rainwater collection capabilities located throughout the city.

I'd also like property owners with parking lots that only provide small numbers of parking spaces to be worked with for building such structures.

We need better water catchment surfaces and methods to trap unwanted cigarette butts and other trash so as to be separated from what goes down our sewers. These should be implemented whenever construction occurs.

Sincerely,  
Lynn Eisenbrey

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**From:** Liam Griffin [REDACTED]  
**Sent:** Thursday, April 25, 2019 10:56 AM  
**To:** Bryan Davis <[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)>  
**Subject:** Re: thanks

Yo! All good... I've looked through the drafts & have some initial ideas & opinions, and got to chat with Nicole a bit at the end.

Based on my initial read, either option 1 or option 3 seem to work within existing curb lines & without removing crazy amounts of parking. Looking back at North Ave, none of the options presented that involved moving curbs were "real" options because of costs/space and I sort of assumed that would be

the case with Winooski as well. Easy on paper to throw out options that involve moving curbs and taking more ROW, but in reality not sure how feasible any of those options are. Nicole did mention that there are currently some sections with no curb, so there is some potential to maybe adjust road surface width in a few areas. It wasn't clear if there would be actual budget for that though?

The two way protected lane does seem like the shortest path to get to what is in PlanBTV Walk/Bike, but I'd really need to take a look at individual intersection designs, bike boxes, etc for the contraflow direction. Obviously it works fine for Northbound bike traffic if the TWPBL is on the east side, but how do southbound turns work? Would we need bike specific signal phases? Trying to think about turning west onto College St while going South on Winooski and I can't really picture a simple solution. Ditto for an even bigger intersection like Main/Winooski. I've been looking at streets like Rue Rachel E in Montreal which are similar, but without quite as many driveways, but they just seem to let people figure it out (no signals or bike boxes for turns?)

The traditional lanes / road diet (Option 1) I think works fine for people like me who already ride, but if North Ave is any indication I don't think we'd see too much increased use by more casual riders because it is still fairly high stress with only paint as protection in most segments (especially the busiest one from Pearl to Main).

Happy to chat more at some point, and definitely keep me posted on future meetings.

LG

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**Comments from Winooski Ave Ward 4/7 NPA meeting  
May 22, 2019**

Is there a way to use the Howard Center parking lot as City Market access? This would give extra distance between Bank St and CM if there is a center turn lane.

Two way protected bike lane would be unsafe since cars would be turning across it.

Section between Bank St and CM is terrible. Traffic already backs up. How would a center turn lane even function with left turns onto Bank and left turns into CM?

People won't come into Burlington if more parking is removed. There are already people who won't or have stopped coming to town because it's too hard to find parking.

More signage would help people understand where parking is, what the bike routes are, etc.

Need to talk to the Health Center at Riverside since they have so many employees that park on the street.

There needs to be citywide consistency with travel lanes and bike lanes, there needs to be rules on how these things work. It's confusing to have so many different variations of things.



Example of right in/right out is at Smitty's Pub in the NNE. This could be example if that's considered at CM.

Roundabouts should be considered as intersection treatments.

There are safety issues for bikers in Alternative 1 since it's only a striped, conventional bike lane with no separation from parked cars.

There are also pedestrian safety issues which should be considered.

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**Public comment from CEDO event on April 18, 2019**



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

4-18-19

What do you like about Winooski Avenue, and why?

What is your biggest issue with Winooski Avenue?

Winooski -  
Lower Hillbrook  
Cdr

What are 3 things you would change on Winooski Avenue?

wayfinding signs in diff language

riding bus but don't know when going

Other comments: need to work w/ GDOT

translate signs into Nepali - or create Nepali map

safer & more intuitive to get around

(like the map)

## **Winooski Ave public comments, Ward 2/3 meeting, April 11, 2019**

### **Compiled by Alissa Faber**

I was handed a pile of maps with notes on them after the meeting. I wanted to type up comments so you had them during this month of public input. I will bring the maps (there are some drawings) to the next advisory meeting.

Sorry if some of these comments don't make the most sense I tried my best to decipher handwriting and stay true to comments.

What do you like about Winooski Ave and why?

- its paved
- direct central travel up the center of downtown
- It has a lot of great businesses and connects downtown to the ONE. I live on the street. I work on the street.
- It's a main artery to access points in the city. It feels like a neighborhood street with interesting architecture in places and changes as it travels through the city.

What is your biggest issue with Winooski Ave?

- no protected bike lanes
- no protected bike lanes
- Too much public space is dedicated to the automobile. We need protected bike lanes.
- The speed of automobile traffic and unwelcoming feel to pedestrians and bicyclists.

What are 3 things you would change on Winooski Ave?

- protected bikes lanes
- protected bikes lanes
- Take from 4 lanes to 3 and middle turning lane from Maine to Pearl.
- Put a green arrow for a hard turning from Winooski traveling South to turn on to Main street north.
- Less parking
- protected bikes lanes
- wider sidewalks
- spread of traffic and flow of traffic
- entrance/exits near downtown core at parking garages and service stations
- better/more responsive pedestrian cross lights

We have been talking about bike lanes on N. Winooski for 17 years!!!!

Street trees would be nice too.

Density- people live on Winooski and need cars to get to 2nd/3rd shifts with cars.

Street trees? Are adding trees and not just saving existing trees part of the plan?

Have you researched bike lane use in winter? How do other cities our size and climate deal with bike lanes in winter?

"Sharrow" term is not used in the bike community anymore. false safety

Winooski is a truck route

Put the bike lanes on streets that are not bus routes and delivery routes for businesses, like Union, Intervale and Elmwood so our kids can ride the BUS safely and not have to get off in the middle of the street.

Reduce speed on Winooski to 10MPH

Like open street. Parked cars in bike lane and bike lane in parked car lane.

People turning left into City Market vs people turning left onto Bank street. How can they share a lane when it already backs up?

Switch the 2 way protected bike lane in alternative 3 to be on the west side of the street.

Add parking downtown between Pearl and Main where street is wider to help with all the parking loss on North Winooski.

Rep. Curt McCormack

"I am voting for alt #2 because it offers the best continuity as one side of bicycle throughout the whole street. Bike lanes are not as perfected or protected as in many places but many have relative protection all the way. If roundabouts and lights both scored high at the intersections the inherent advantages of the roundabouts would be them maybe they are preferable. Trees! more than anything else, make a street pleasant, beautiful and cooler. Please as many trees as possible. No T-bone collisions, calm traffic reduce greatly engine idling."

Curt also asked me if there was a way he could vote on an alternative. I thought that was a good way to get more public input instead of just the people willing to take time to make comments. He was also confused as to how to submit his comment because there is no formal voting or comment area on the map packet.

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Alissa Faber, [www.alissafaber.com](http://www.alissafaber.com), [alluvialforms.etsy.com](http://alluvialforms.etsy.com), [REDACTED]

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**From:** TONY Redington [REDACTED]

**Sent:** Wednesday, March 27, 2019 6:50 AM

**To:** Corey Mack <Corey.Mack@rsginc.com>; Jonathan Slason <jonathan.slason@rsginc.com>

**Subject:** Roundabouts, Roundabouts/Bicyclists

Good Day Winooski Corridor Project Advisory Committee:

This message addresses some of the questions raised at the Project Advisory Committee (PAC) meeting last evening at ONECC.

Thank you for your efforts making my street safe and thereby truly walkable and bikable by following landmark North Avenue Corridor Plan (2014) elements featuring the highest level of safety for all modes, cycle track (protected bike lanes) end to end, and at key intersections installing the "intersection safety belt," the modern roundabout.

(Please consider these comments and the attachments as part of the Winooski study record.)

Roundabouts are pretty much routine now with 14 in Vermont, a five-corridor roundabout commercial corridor under design on Putney Rd. in Brattleboro, Depot Street in Manchester Center being re-designed with a combination of roundabouts and full cycle track, and every Montpelier Main Street intersection from Keck Circle to an including Memorial/Northfield/River already found roundabout feasible in separate studies.

Please recall my insistence of "safety first" as per our City transportation plan which calls safety "critical" in transportation investment decisions. Regarding bicycling two-thirds of cyclists are male, mostly young adult and white. Cycle track, protected bike lane, is the sidewalk for cyclists, providing safety like the sidewalks do for pedestrians (sidewalks cut ped injury rates by 88%). Agree that for Riverside to North Street--and even from Pearl to at least College--cycle track be located at sidewalk level (similar to Dorset St. in S. Burlington). Having observed similar designs in Japan last fall bikes and pets do generally respect the space of the other but when reasonable to wander or utilize the space of the other mode. "Flexible" cycle track might be one way to term it.

The need for cycle track end to end of this corridor as called for in the Walk Bike Plan clearly is not just a knee jerk simple adherence to a plan, but the recognition that the Winooski Corridor is the only direct north-south corridor from ONE through the heart of the City and its key destinations ranging from City

Market, the library, churches and of course the public gathering and shopping mecca Marketplace. If no cycle track from Riverside to Howard Street then where?

With about 10% or 15 of the 150 highway injuries each year in our city on the Winooskis, one about every six weeks on our street, safety must come first in bringing our street up to a quality level. Every week in Burlington a pedestrian or bicyclist is injured as well as two occupants. Most of Winooski injuries are at a half dozen intersections and the Alternatives prepared by RSG consultants properly show roundabouts at those key intersections. Why? Roundabouts cut serious and fatal injuries by about 90%. We have a half century—52 years—of six downtown VT roundabouts (Manchester, Middlebury and Montpelier) without a single bicyclist injury, one non-serious (treated and released at emergency) pedestrian injury and four minor car occupant injuries—one injury a decade. We have 17 intersections in Burlington averaging one injury a year! Those “dirty 17” include Winooski intersections of North, Pearl, Cherry, Bank, College and Main.

So what would we expect for injury reductions with roundabouts at key intersections along the corridor as well as cycle track? Very possibly 2-3 injuries, likely not severe, a year—this would drop our percentage of injuries citywide from about 10% to about 1-2% yearly.

As important, a safe corridor with cycle track would be an “equality corridor” treating each mode with the highest level of safety—those who walk, bike and walk. We demand no less!

Note roundabouts reduce delay at intersections for all modes, especially for pedestrians. And at the busy intersections with reduced idle time the reductions in gas use at Pearl and Main are likely upwards of 10,000 gallons a year—all busy roundabout intersection reduce climate change emissions by about 30%.

#### “Ramp-off Ramp-on” New Graphic of Shelburne Street Roundabout

Thanks apparently to AOT's Michael Lacroix, the Shelburne Street roundabout project manager (next year construction begins and in 2021 the roundabout is installed) we have a new graphic of the design which precisely shows the ramp-off choice for cyclists on approaching narrowed and curved roundabout entry and the ramp-on back to the street beyond the intersection. The design is attached here. (See overall information at <https://www.burlingtonvt.gov/DPW/ShelburneStreetRoundabout>)

The roundabout is single lane—as would be the case for intersections along the Winooskis—and each of the approaches and exits have a similar “choice” for cyclists. Right now none of the streets—Shelburne, Locust, S. Willard and St. Paul—have bike lanes so all cyclists share the road. As at all roundabout the vehicle travelway narrows and diverts from a straight line to a curve, the design practice today provides a choice to the cyclist, continue through the roundabout as vehicle or take the ramp off, negotiate on a shared basis with pedestrians one or more crossing and then ramp back on to the street beyond. That same approach will be used on Winooski roundabouts—the less skilled, risk-averse, younger/older (like myself!) will ramp off and ramp on from one cycle track end point to the beginning beyond the intersection. The bicyclist “choice” is very similar to what a cyclist faces southbound on North Winooski as the bike lane ends about 100 feet before the stop line at Pearl.

A full—though admittedly wonky description of how a bicyclist approaches a one lane roundabout like Shelburne Street and a 2-lane as considered at Colchester/Riverside/Barrett (COLBARI) is attached. Note I generally favor roundabouts at each of the problem intersections—particularly Riverside, N. Union/Decatur, North, and the four Marketplace border intersections (Pearl, Cherry, Bank, College and Main). In addition, I support a roundabout at City Market to narrow the need for more than two lane access, reduce injury collisions and become part of an overall interface with Winooski and Union (add a roundabout there).

One additional point—mini-roundabouts are a natural for any four-way stop intersection so King and Maple could also be considered candidates if there is a perceived or actual safety problem at one or both intersections.

#### Two-way Bikeway and Roundabouts

Generally, I would reject two-way bikeways anywhere along the corridor with the possible exception of Main or below to Howard. I diverge here for a moment. How would one meld a roundabout and a two-way bikeway? Well, we in ONE have that very situation with the planned two-way bikeway between Pearl and Manhattan Drive. The primary cross street is North and it is signalized. To start we will likely live with a signal control. But after installation a serious look needs to be given to a shared space intersection where all modes intermingle. As bicycle volumes increase a raised crossing may be an attractive choice benefitting all modes, including safety.

#### Cost and Roundabout Expertise

Roundabouts are not always expensive. And the half million spent on the traffic signal in front of DPW though unusual (signal systems tend to be in the \$150,000 to \$200,000 range), signals require constant attention, electric bills, and maintenance—about \$5,000 a year.

Roundabouts designed for the Winooski would include those like Shelburne Street Roundabout with a central island (Main Street for sure would have this design making it a “gateway” to downtown), and some mountable centers called mini-roundabouts (likely Decatur/N Union, College, etc.). Min-roundabouts can be very cheap, take a few weeks to design and install. Cost can be \$40-\$50,000 each. Minis often use existing curb lines and can retain current crosswalks. My preference is to set crosswalks the regular 25 feet from the circulating travelway—as is the case in the one Vermont mini-roundabout, part of our first roundabout corridor in Vermont in Manchester Center.

Because Vermont was once a leader in the east United States, the top practitioners and designers from the world developing roundabouts in North America have been involved in one or more roundabout developments here.

Finally, please keep in mind the continued collapse of safety in America as, for example, pedestrian deaths increased by 50% since 2010 and are the highest since 1990. In the year 1990 we were tops in the world and have fallen like a stone to 20<sup>th</sup> with 22,000 excess deaths compared to the top four nations fatality rates per mile of travel (UK, Switzerland, Sweden and Finland). Roundabouts work to reduce both the occurrence of pedestrian injuries but also their severity—Sweden now has more roundabouts than signals and are in process of converting 40% of the remaining signals to roundabouts.

Thank you for your consideration of these comments.

Tony Redington  
20 North Winooski Ave #2  
Burlington, VT 05401

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**From:** Matthew Vaughan [REDACTED]  
**Sent:** Friday, February 15, 2019 1:28 PM  
**Subject:** Winooski Ave Corridor planning

Dear Winooski Ave Transportation Study Committee members and other partners,

I recently reviewed the design alternatives for the Winooski Ave corridor presented on January 29. I am surprised and saddened to see that 3 of the 4 alternatives do not include protected bike facilities.

**Fully protected bike lanes are requirements for the entire Winooski Ave corridor design (St. Paul St to Riverside Ave) according to [PlanBTV Walk-Bike](#) adopted by Burlington City Council in April 2017.**



This is true for the 5-year and long-term plans ([see the plan here, pages 110-111](#)). This decision was made following nearly three years of public process and review from all city stakeholders for PlanBTV Walk-Bike ([see pages 44-52](#)); it is no longer up for debate. Fully protected facilities can likely be achieved as part of any of the four alternatives, but sharrows and unprotected bike lanes are absolutely not acceptable for any part of this corridor.

The Winooski Ave corridor is a central part of the low-stress bicycle network laid out in PlanBTV Walk-Bike that was adopted by City Council. Some City Councilors that unfortunately passed on opportunities to provide protected bike facilities on Bank and Cherry St re-designs expressed that they wanted to adhere strictly to the adopted PlanBTV Walk-Bike (May 2018). This is an excellent opportunity to follow the plan as they have requested.

I have several specific comments on the design alternatives that I am happy to share, but I want this message to be clear and singular: Fully protected bike lanes are requirements for the entire Winooski Ave Corridor, and no design alternatives should include unprotected bike lanes or sharrows. Other design accommodations must be made after this required criterion is met.

I look forward to working with you all to create excellent designs for our streets that include low-stress, physically protected bike infrastructure. I especially cannot wait to someday be able to bike safely with my young children on the streets of our city.

Sincerely,  
Matthew Vaughan, PhD  
PlantBTV Walk-Bike Implementation Committee member  
36 Walnut St  
[REDACTED]

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**From:** Damon Lane [REDACTED]  
**Sent:** Thursday, March 7, 2019 11:07 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** TMD comments on Winooski Ave

Hi Bryan, thanks for collecting feedback at Town Meeting Day! That's a great idea. I started to make comments after voting and before starting my shift as a poll worker, but they needed me right away. Later, the materials had been picked up before I dropped mine in. So can you please enter these comments, which unfortunately have now lost their anonymity, but have gained legibility?

Thanks!

Damon

Ward 3 TMD:

What do you like:

- It's in the middle of downtown activity (well those 4 blocks are)
- It runs straight through town

Biggest issue:

- The four lane section is a piece of arterial highway that is out of place downtown

3 things:

- Maybe a 4 to 3 lane conversion
- Sidewalk amenities that separate pedestrians from cars like bike racks, planters, etc. (this would be less important and maybe not necessarily with a 4 to 3 conversion)
- Complete Streets/Great Streets treatment

Other comments:

- The downtown blocks could feel very different than they do today. They could match the ends of the street better and feel "downtown" instead of arterial

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## **Public Meeting #2: Comments Received from Town Meeting Outreach**



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

DIVERSITY OF BUSINESSES ON  
N. WINOOSKI IN THE OLD NORTH END.

What is your biggest issue with Winooski Avenue?

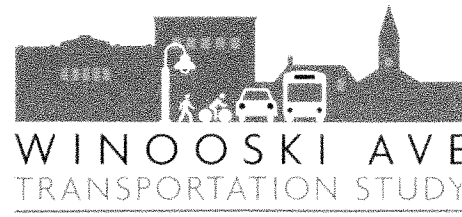
THE STRETCH BTWN PEARL & MAIN.  
NOT SAFE TO BIKE, POOR USE OF  
CRITICAL SPACE TAKEN UP BY GAS  
STATIONS & PARKING LOTS.

What are 3 things you would change on Winooski Avenue?

- ① REMOVE THE GAS STATIONS
- ② MAKE IT MORE BIKEABLE
- ③ IMPROVE GREEN INFRASTRUCTURE, ADD TREES

Other comments:

WINOOSKI SHOULD BE MORE PART  
OF A COHESIVE DOWNTOWN RATHER  
THAN SIMPLY A VEHICLE CORRIDOR



[tiny.cc/WinooskiAveStudy](http://tiny.cc/WinooskiAveStudy)

Bryan Davis, CCRPC

[bdavis@ccrpcvt.org](mailto:bdavis@ccrpcvt.org)

802-861-0129

What do you like about Winooski Avenue, and why?

Lots of small, independent businesses,  
especially on the northern section

What is your biggest issue with Winooski Avenue?

Way too car-centric, especially south  
of Pearl St. Not pleasant for walking /  
biking, and few retail and other business  
spaces

What are 3 things you would change on Winooski Avenue?

- ① Separated bike lanes (which would  
probably require changing traffic patterns)
- ② Reclaim old buildings / parking lots - esp.  
Bike Aid and old Free Press warehouse (across from  
fire station)
- ③ Eliminate one lane of traffic b/w Pearl St. &  
College St.

Other comments:



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What do you like about Winooski Avenue, and why?

great wide street, lots of parking,  
great businesses  
well-kept, great bike lanes!  
great for skating, too.

What is your biggest issue with Winooski Avenue?

It's called Winooski Avenue,  
but you can't get to Winooski on it  
at least by car!

What are 3 things you would change on Winooski Avenue?

Left turn lane at Pearl is a mess

Other comments:

What do you like about Winooski Avenue, and why?

It's a major connector from ONE to  
downtown + south. Love the mixed-use  
feel and function

What is your biggest issue with Winooski Avenue?

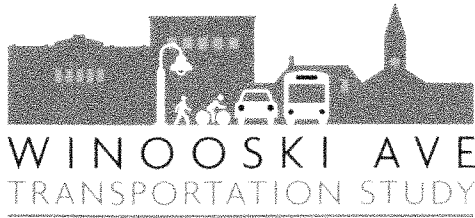
Cars move too fast. one-way section  
Creates a highway + hurts business to  
the north of Pearl St.

What are 3 things you would change on Winooski Avenue?

Slow down the cars from N. Union  
St. south.

Other comments:





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What do you like about Winooski Avenue, and why?

~~It's~~ Really busy but on street parking is a mistake or don't allow it to be such a main through way.

What is your biggest issue with Winooski Avenue?

Way too much speeding and not enough protection for bikers

What are 3 things you would change on Winooski Avenue?

lots of ~~slow~~ steep and very well pronounced speed bumps and a flashing cross walk light at each intersection

Other comments:

Again, please stop supporting cars!

STEVEN KAPLOWITZ

[schmuel7476@yahoo.com](mailto:schmuel7476@yahoo.com)

What do you like about Winooski Avenue, and why?

Access to business

What is your biggest issue with Winooski Avenue?

it feels scary when biking - especially between radio bean & main st.

What are 3 things you would change on Winooski Avenue?

protected bike lane

Other comments:

please add more protected bike lanes



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What do you like about Winooski Avenue, and why?

It's a major north-south artery. Keep traffic flowing - do not reduce lanes - otherwise cars will go onto parallel ~~neighbor~~ residential streets.

What is your biggest issue with Winooski Avenue?

making a left turn onto Main Street, when driving southbound - it always looks like the cars coming towards you (from South) are parked, or moving, or can't tell....

What are 3 things you would change on Winooski Avenue?

Other comments:

What do you like about Winooski Avenue, and why?

Great community shops, resources - City Market → North End Studios

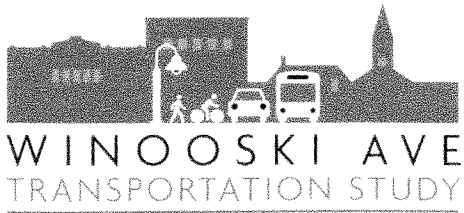
What is your biggest issue with Winooski Avenue?

Cars drive too ~~fast~~ fast  
lower speed limit

What are 3 things you would change on Winooski Avenue?

Make N. Winooski <sup>car</sup> free  
only bikes + pedestrians

Other comments:



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What do you like about Winooski Avenue, and why?

Directness from ONE into  
Downtown

What is your biggest issue with Winooski Avenue?

Scary lanes from Pearl to Main

What are 3 things you would change on Winooski Avenue?

Less lanes, Calming measures

Other comments:

The Intersection at the  
community Health Center is also  
very scary + confusing for people  
biking from Riverside into Winooski

What do you like about Winooski Avenue, and why?

What is your biggest issue with Winooski Avenue?

What are 3 things you would change on Winooski Avenue?

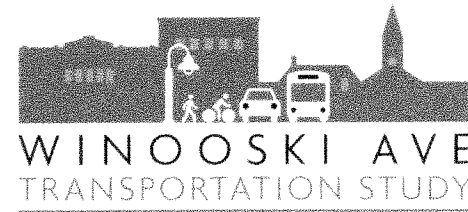
- Improved Green Belt - More trees please
- one-way Traffic from Union-DeCATur to  
Saint Paul
- Designated bike lanes

Other comments:

Thanks!



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What do you like about Winooski Avenue, and why?

*the name*

What is your biggest issue with Winooski Avenue?

*potholes, ~~rough~~ pitted sidewalks  
strange traffic pattern - though it works  
1-way north of Pearl  
2-way south of Pearl  
+ north of Union St intersection*

What are 3 things you would change on Winooski Avenue?

*re-pave, please  
re-surface sidewalks*

Other comments:

What do you like about Winooski Avenue, and why?

*Roundabouts at  
Major intersections!*

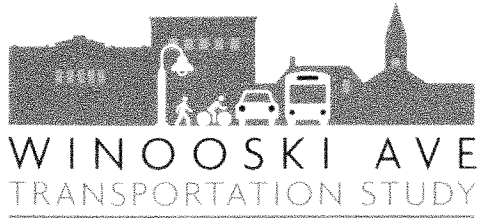
What is your biggest issue with Winooski Avenue?

*traffic feels crowded,  
it's scary to bike on.*

What are 3 things you would change on Winooski Avenue?

*★ more bike lanes  
★ more roundabouts*

Other comments:



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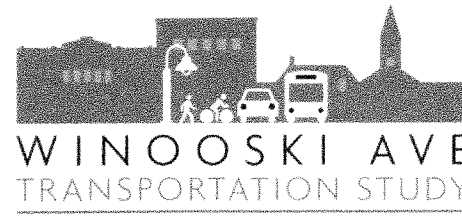
What do you like about Winooski Avenue, and why?

What is your biggest issue with Winooski Avenue?

pedestrians, cars navigating  
entrance/exit @ City Market

What are 3 things you would change on Winooski Avenue?

Other comments:



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What do you like about Winooski Avenue, and why?

It's very representative of  
the neighborhood

What is your biggest issue with Winooski Avenue?

there is no safe way  
to bike along this street

What are 3 things you would change on Winooski Avenue?

bike lane  
sidewalks are in poor condition  
(along with ALL  
sidewalks in the CNE)

Other comments:





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802-861-0129

What do you like about Winooski Avenue, and why?

not a fan!

What do you like about Winooski Avenue, and why?

~~Protected bike lanes~~

What is your biggest issue with Winooski Avenue?

The intersections at Riverside, Decatur, and Pearl Street are disasters.

What is your biggest issue with Winooski Avenue?

Too much traffic - 2 lanes  
fast

What are 3 things you would change on Winooski Avenue?

2-direction bike lane, PROTECTED. There  
needs to be a connection to the bike path  
on Riverside, currently there's no safe way  
to cross.

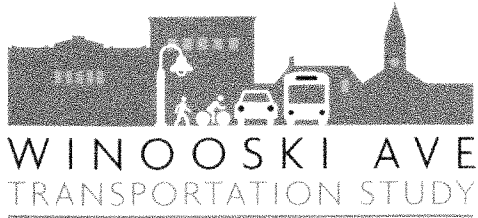
Other comments:

rapid bus lane would be great too.  
we do not need parking.

What are 3 things you would change on Winooski Avenue?

1. Protected bike lanes
2. 15 mph speed limit
3. ?

Other comments:

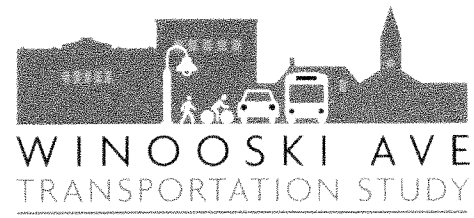


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What do you like about Winooski Avenue, and why?

Lots of restaurants + businesses  
Good bike lane until you hit North St

What do you like about Winooski Avenue, and why?

Part of it is 1 way which I  
like

What is your biggest issue with Winooski Avenue?

Keep North End Studios!  
~~to stay~~

What is your biggest issue with Winooski Avenue?

The entire street needs  
upgrade i.e. property needs to be  
cleaned up, painted

What are 3 things you would change on Winooski Avenue?

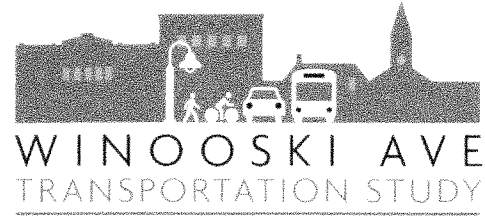
Extend bike lane

What are 3 things you would change on Winooski Avenue?

Parking is always an issue

Other comments:

Other comments:



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What do you like about Winooski Avenue, and why?

the bike lane on the section  
from Deception to Pearl works OK.

What is your biggest issue with Winooski Avenue?

Turning into and out of city Market!

What are 3 things you would change on Winooski Avenue?

Continues bike lane down the whole  
Street.

Other comments:

## **Public Meeting #2: LocalMotion Winooski Avenue Comments (May 2019)**

## **Comments on Winooski Ave Corridor Scoping Study Alternatives**

It is critical to create a Winooski Avenue that is safe, comfortable and convenient for anyone walking or biking. We will support a design that equally accommodates both types of users, which honors the character of the street and is reflective of its surrounding context, and which takes into account impacts on the broader transportation network.

We envision a continuous bike network with facilities on both sides of the street throughout the corridor, as well as abundant sidewalk space with an adequate buffer for those walking. Narrowing travel lanes to 10 feet, repurposing on-street parking on one side of the street, road dieting from 4 to 2 travel lanes within the downtown core (Main – Pearl) with turning functionality, limiting road widening and sidewalk/greenbelt disturbances, and experimenting with a variety of different options via pilot projects (eg ones that convert the street back to two-way between N. Union and Pearl, and test out a parking protected bike lane) would achieve this vision and are all priorities for us.

### **Our Assumptions / Guiding Principles**

#### **Plan with the Full Network in Mind**

- As the primary north – south route through the city, any changes made will significantly impact the entire street network, and proposed alternatives should be considered in this light (e.g. how can changes help restore the traditional street grid)
- It's been mentioned at several meetings that decisions about how to design intersections (especially whether or not to include roundabouts) have to happen after decisions are made about how to design biking infrastructure for the corridor. We encourage the planning team to, instead, think about what is ultimately desired for the corridor and surrounding network as a whole, and to open up those conversations so decisions are made simultaneously with this context in mind. Don't save conversations about roundabouts for some future date.

#### **Slower Speeds and Intuitive Designs Create Safer Street Networks**

- Winooski Ave has a high rate of crashes because it is designed in a way that is confusing for all users, and with segments that encourage reckless behavior.
- The one-way section between Pearl and N. Union encourages cars to speed and to swerve in and out of the existing bike lane, forces those biking to travel up and down both sides of the street, and frustrates vehicles that have to watch out for bicyclists traveling in both directions only to be redirected onto networks of other one-way streets.
- Imagine how much wider a 35 ft road will feel if you remove parking on one side, and add a bike lane and contraflow bike lane on either side of the travel lane. By making the travel lane appear wider, this design encourages vehicles to speed, which makes the street less safe. Adding a contraflow lane to a one-



- way street in this location doesn't address the multiple challenges posed by having people biking in the opposite direction on this corridor.
- Two-way traffic, by contrast, helps to slow speeds by creating a visual barrier to oncoming traffic. Furthermore, given the city's disrupted grid system, opportunities to reconnect the network, reduce redundancy and travel distances, create alternative routes to diffuse traffic and alleviate bottlenecks, and minimize confusion for all road users should be capitalized on. In the context of this corridor, two-way vs. one-way street networks are safer for those walking, biking and driving and should be explored.

### **On-Street Parking is Not Always the Enemy**

- Streets are public spaces and should be designed to accommodate all types of users, but removing on-street parking and replacing it with a bike lane is not always the best solution, and won't necessarily make a street safer. On-street parking can serve other important purposes, particularly within an urban, mixed-use context. A North Winooski Ave without any on-street parking could mean there would be no buffer from cars for those walking, and would do little to slow traffic speeds.
- Imagine how it feels to walk along the side of North Street that is without any on-street parking or real buffer from traffic/greenbelt. As advocates for both bike and pedestrian amenities, there's a balance that needs to be struck to make streets more accommodating for all users. Although we support parking removal on one side of Winooski Ave, we are hesitant to have parking removed from both sides as we feel it may have detrimental impacts on the pedestrian experience and the experience of the streetscape as a whole.
- All this being said, there is an abundance of privately owned off-street parking available along N. Winooski Ave (particularly behind Butch & Babes, Vermont Legal Aid, North End Studios, Old Spokes Home, and across from the African Market). These spaces could be repurposed or shared for public use at different times of day and night, making it easier to make the case that some existing on-street parking could be repurposed for bike lanes.

### **Embrace Experimentation**

- In general, testing out a design for feedback before installing it permanently makes good financial and political sense.
- This corridor is complicated. There are no easy answers. It's difficult to know what the right approach is unless we test out different options. We can't stress enough the value of trying things out, and allowing enough time to learn from the results. Trying out two or three designs for one location can help everyone learn what works and what doesn't before making final determinations. It may seem unnecessary, or cumbersome, but in the long run it will be worth the investment of time and other resources.
- Church Street began as a day-long street fair....

## **Our Preferred Design**

**Riverside/N Winooski:** Have intersection function more as shared space with slower speeds and easier bike/pedestrian/vehicle interactions, ideally with mini roundabout incorporated. Opens up possibility of taking Willard lane as a cyclist, if that bike lane can eventually be extended north, and provides opportunity for more welcoming gateway to ONE.

**Riverside to North Street (40 ft):** 2a with adjustments to stay within existing ROW of 40 ft. Remove parking on east side. Maintain 1 foot buffer between bike lane and parking/bike lane and travel lane. We are open to piloting the parking protected bike lane between Riverside and Pearl, but have some concerns about how it will function in practice (sight lines, driveway navigation, issues with irregular parking and confusion over where to park, year-round maintenance, etc) and prefer this configuration: 8-5-1-10-10-1-5. Return to two-way vehicle traffic between North and N. Union. We are supportive of a design for shared space at N. Winooski/N Union/Decatur. Could include mini roundabout or speed table design to slow speeds. Taco Gordo needs to make changes to improve sight lines for those coming out of N. Union onto N. Winooski (bushes/sign in the way). The new bank property/Asian Market needs to eliminate one driveway and reinstate greenbelt as this set of curb cuts creates for an unsafe bike and pedestrian experience.

**North to Pearl (35 ft):** This is possibly the most challenging section, and perhaps one of the more expensive if some road widening is required over the longer term. Given these challenges, it is important that the city take time to assess different options before committing prematurely to a permanent change. We'd like to see the return to two-way vehicle traffic with bike facilities in each direction explored as one option (1c with adjustments to stay almost within existing ROW, though SB bike lane with NB sharrows may be required to try out a pilot in this stretch given limited roadway width).

We are also open to trying out a parking protected lane. If a parking protected lane does not seem functional after piloting for reasons noted above, in the shorter term, we would recommend the following for this segment: 7-6-11-11 (with NB super-backed sharrows). Parking removal on both sides may be needed in the short segment by Radio Bean/other businesses to maintain existing sidewalks/greenbelt and accommodate a bike lane and NB travel lane. If a parking protected lane were installed permanently, 1.5 ft could be removed from each side of roadway or 2 ft off one side and 1 ft off the other, for 6-7-10-10-5.

**Pearl to Main (40-43 ft):** This is the section to tackle first, as it is the most dangerous section of the corridor. The changes could be instituted as a quick-build until funding for the curbed median becomes available. 2c with adjustments (2 travel lanes, each 10.5 ft with a series of 7 foot wide medians with spacing between that allow for turns at key locations, and 5 foot bike lanes in each direction with 1 ft buffer: 5-1-10.5-7-10.5-1-5. Bike lane buffer disappears at intersections to allow for two 10 foot travel lanes and one 10 foot turning lane. See examples below of how a pedestrian refuge/median with mid-block turning capacity might function.

**Main to King (40 ft):** Maintain parking on west side of street, and remove parking on east side to allow for bike lanes in each direction: 8-5-1-10-10-1-5.

**King to Maple (30 ft):** Prefer to maintain as 2-way vehicle traffic. Add southbound bike lane and northbound bike lane through parking removal: 5-10-10-5. Would be nice to add street trees/plantings in existing greenbelt on east side of street.

**Maple to Saint Paul:** Maintain existing conditions.

Examples of Pedestrian Medians (potential models for Main – Pearl St)



<https://www.fhwa.dot.gov/publications/publicroads/12marapr/04.cfm> (left)

## **Key Issues to Highlight**

### **Road diet**

Biking and walking along a road with two lanes in each direction feels very different than biking and walking along a road with 3 or 4 lanes. Do we really want any 4 or 3 lane roads (intended for more suburban or rural contexts) in the heart of Burlington's downtown? If we want to encourage land-uses along the core of Winooski Ave that are pedestrian and bike-friendly, do we want a 3-lane road between Main and Pearl?

Road dieting the most dangerous section of Winooski Ave from 4 to 2 lanes (as opposed to 4 to 3) allows for more space to buffer or protect bike lanes on both sides of the street without encroaching into sidewalk/greenbelt, creates a shorter pedestrian crossing, helps address storm water concerns by adding rain gardens/green infrastructure, and **may reduce the need for Alternative 3 (2 way protected bike facility), which is not an appropriate design for this context. In addition to challenges posed by multiple driveways, those biking in the two-way facility would need to make turns across multiple vehicle travel lanes, which is unnecessarily unsafe.**

We'd like to see the proposed alternative of 2 travel lanes with a 7 foot median (vs. 2 travel lanes and a full center turn lane between Main and Pearl) be more

prominently displayed as a preferred option in the alternative scenarios. It would also be helpful to show the median in outreach materials with spaces that would allow for mid-block crossings as well as turns onto cross streets.

### **Two Way Protected Bike Lanes**

NACTO recommends constructing this type of facility along corridors with few driveways or cross streets, along streets with high vehicle speeds (upwards of 25), on streets with multiple vehicular travel lanes (a higher stress environment for biking), and on streets where most destinations are on one side (thus reducing the need to cross the street). Winooski Ave does not meet any of these criteria, and so the design does not make sense in this context. Even with phased signalization, when someone biking either north or south wants to turn out of the protected cycle track, they will have a challenging time doing so safely. On blocks with many driveways (which was the experience during the Union St pop-up), it will be a challenge to even place any bollards, as most will hinder turning movements for vehicles, thereby leaving the protected lane unprotected. People often reference the success of Montreal as a bike-friendly city, and look to their designs as solutions to our challenges. Burlington is not Montreal. Montreal has long stretches of city block after city block without any (or very few) driveways/curb cuts, which are more ideal for this type of design. Just because it is a city nearby that many are familiar with, does not mean the design of its streets always ought to be replicated in Burlington.

### **Road Widening**

Avoid road widening to the greatest extent possible to preserve the existing sidewalk/streetscape, and resort to a different design if road widening will negatively impact tree canopy along the corridor. In one key location, widening could make a significant difference, namely, in the two blocks between North and Pearl Streets. There is little curb to remove here, and there is enough of a greenbelt that street trees may not be impacted by minimal road widening in this location.

### **Bike Parking**

As identified through this study and a recent BBA survey, there is a shortage of bike parking downtown and along the corridor. To encourage people to bike to businesses, make sure bike parking is installed in appropriate locations to accommodate the increased demand. The new parklet program might provide an opportunity to add additional storage outside of the ONE and downtown businesses in such a way that is incorporated into the design of the parklet itself.

### **Misc Improvements**

There are numerous other ways to make the streetscape more appealing to those walking and biking.

- Opening up the private park/playground at the corner of Pearl and Winooski for public use (removing the fence) would increase access to much needed green space in this part of the city.
- A mural on the brick wall across the street (southwest side of Winooski/Pearl intersection) would bring color and dynamism to this intersection.

- The corner of College and Winooski at the library could also benefit from some type of public art.
- Rite Aid could use, and has room for, a greenbelt/street trees along the west side of Winooski Ave.
- Discouraging surface parking and encouraging more mixed-use development along the core of the corridor through a land tax could be a beneficial way to change perceptions about streets as public space.

## **Public Meeting #2: Burlington Walk/Bike Council Comments (February 2019)**



# Comments on Winooski Ave Transportation Study Initial Draft Concepts

Erik Brotz, Burlington Walk-Bike Council

February 23, 2019

Note: these comments take into account discussions about this project at Burlington Walk-Bike Council meetings, plus additional discussions with members of the walking and biking community. However, they are primarily based on my own opinions and research and do not represent an official position of the Burlington Walk-Bike Council.

These comments refer to the initial draft concepts as presented to the Project Advisory Committee on January 29, 2019.

Please let me know if you have questions about any of these comments.

## Summary of main points

- Concerns over on-street parking removal concerns should not be allowed to prevent installation of safe bike facilities in both directions; there are many opportunities for off-street parking in the northern section.
- Do not widen the roadway or remove green space, except perhaps for limited, targeted locations
- Every effort should be made to include separated and protected bike lanes since only that will fully meet the goals of this project.
- Alternative 3 should be given strong consideration as the only proposal that would provide protected bike lanes on the entire corridor; using raised pavement would help mitigate the concerns with crossing traffic.
- For alternatives 1 and 2, move on-street parking to the east side to reduce dooring risks and allow for a southbound protected bike lane between Decatur and Pearl. Alternative 2 is preferable to Alternative 1.
- The current Alternative 4 should be rejected; the proposed option of 2-way traffic with northbound sharrows between Pearl and Union is less preferable than A1, A2, or A3.
- Roundabout designs should reasonably and safely accommodate bicycle traffic, and should not force bicyclists to either ride in traffic or dismount to join pedestrian traffic.
- If mini-roundabouts downtown can include bike crossings separate from pedestrians then the central turning lane could possibly be eliminated, allowing for protected bike lanes in each direction
- Signalized intersections should include dedicated bicycle and pedestrian signals and disallow right turns on red.
- Traffic into the City Market entrance should be limited or eliminated to reduce conflicts and backups for pedestrians, bikes, and motorized traffic

## **On-Street parking**

Removal of on-street parking on at least one side of the street is necessary to make room for bike lanes on many sections of Winooski Ave. I understand that some people will be upset by the removal of on-street parking near their home or business, and am somewhat sympathetic. I therefore think that the project team should work hard to identify alternative parking options. It is my understanding that there are a number of underutilized off-street parking lots in the portions north of North St. In addition, some people may be parking on the street out of convenience rather than necessity. Finally, it is my understanding that removal of parking and improved biking facilities have often been very good for local businesses.

In any case, I strongly believe that it does not make sense to devote a large portion of a major road to on-street parking. I think shared parking is a good thing, and am not opposed to on-street parking on small residential streets. But for this major route through and to the heart of the city, I think transportation needs are a higher priority than the needs for on-street vehicle storage. Parking removal, at least on one side, is necessary to make this street friendlier and safer for bicycling.

Indeed, a truly transformative plan for this street would involve removing all the on-street parking on both sides (although that still wouldn't resolve the issues downtown). That would allow ample room for separated and protected bike lanes in both directions. I would call that a long-term goal, though; I am not personally suggesting that at this time (although I would certainly support it).

## **Road-widening and green space removal**

I strongly oppose widening the road and removing green space in any portion of Winooski Ave. It would significantly reduce the pedestrian-friendliness of the street, possibly encourage faster driving, increase storm water runoff problems, and be extremely expensive. The only exception I would consider is for limited, targeted areas (for example, to accommodate a bus stop pullout).

## **Protected Bike Lanes**

The first two components of the vision for this project are the following:

- Traveling along and across Winooski Avenue will be safe, inviting, and convenient for people of all ages and abilities using any mode of transportation.
- Walking and bicycling will be viable and enjoyable ways to travel this corridor. Improvements will encourage active travel and alternatives to personal vehicle use.

For a large portion of the population, especially kids and older adults, biking on the road, even in a designated bike lane, does not feel “safe, inviting, and convenient.” Only separated bicycle facilities would truly transform this corridor into a place where biking will truly be a “viable and enjoyable” way to travel for people “of all ages and abilities.” This is consistent also with the goals and recommendations of PlanBTV Walk-Bike plan, in which the 5-Year Action Plan shows protected bike lanes the entire length of Winooski Ave.

I recognize that plans such as PlanBTV Walk-Bike do not necessarily take into account all the engineering considerations that go into designing actual facilities. To actually be installed, a design must both fit within the space that is available and be safe. Fitting separate, protected bike facilities within this constrained corridor may be challenging. But I think it is very important that every

consideration be given to finding a way to accommodate separated, protected bike lanes on all portions of Winooski Ave., especially downtown.

That said, I also want to make clear that even standard bike lanes will make a huge difference on Winooski Ave. If it turns out not to be possible to install protected bike lanes in all segments, we should still ensure that continuous bike lanes of some kind are installed.

### **Alternative 3**

At the January Project Advisory Committee meeting, some questions were raised (including by myself) about whether A3, with a 2-way Protected Bike Lane the length of the corridor, would work because of the many driveways and cross streets. There was some suggestion that this alternative might be dropped from consideration for that reason.

I strongly believe that this alternative should remain in consideration, because it is the only alternative currently being considered that provides separated, protected bike lanes. While there are legitimate concerns about whether it can be done safely, considering the limited space and many crossings, I think it is worth some effort to find ways to mitigate and overcome these concerns in order to achieve a true protected lane. This alternative would also eliminate all door zone bike lanes, with a bike lane adjacent to parked cars, as exist in the other alternatives.

First, I want to point out that the sections that would include counter-flow bike lanes under the other alternatives (south of Main, and between Pearl and Decatur) would have similar issues with crossing driveways and intersections to the 2-way PBL. For the most part these are more residential and less busy areas, and I think that they can accommodate counter-flow and 2-way bike lanes with appropriate design and educational outreach to residents. The main sections for which there would be a more significant concern with crossing traffic would be downtown and north of Union St.

One way to make a 2-way PBL safer in these sections is to raise the surface of the two-way bike lane to the level of the curb, with a mountable angled curb between the bikeway and the motor vehicle lanes. Driveways and commercial entrances would have a slightly shallower angle. This would allow motor vehicles to cross the bike lanes at driveways but would cause them to reduce their speed and take notice of the transition. It may make sense to use flexible bollards on either side of major entrances to make them more distinguishable, but in general this approach would significantly reduce the need for bollards or other barriers, reducing maintenance concerns while allowing access to emergency vehicles. It may also be possible to raise the crossing at intersections as well, serving to slow crossing traffic there as well.

While this option may be expensive, it has the potential to truly make this corridor safe, inviting, and convenient for cyclists of all ages and abilities. And I'd say that is worth an investment.

I would recommend raised pavement for as much of the corridor as possible, and at least for the sections between Main and Pearl, and between Union and Archibald. But all sections of the 2-way bike lane should be separated and protected from motorized traffic in some way. The current design drawings do not show protection of any kind (just a buffer) in the northern and southern sections. If a raised path is not feasible in the short term in any particular area, use of flexible bollards in the buffer is the absolute minimum requirement. Planters or other more solid types of barriers are strongly preferred due to the added protection, aesthetic advantages, and reduced maintenance.

In addition, with a 2-way PBL I think it would make sense to disallow southbound left turns in the downtown section, except at the College St. and Bank St. intersections. This would include the

Congregational Church entrance, Buell St., the City Market entrance, the entrance to the Howard Center and the alley next to the Howard Center. At a minimum, left turns into the City Market entrance should be disallowed. See below for more discussion of the City Market entrance and exit, which I think needs to be addressed under any scenario.

Another option to consider would be to switch the 2-way PBL to the west side of the street, moving any on-street parking that remains to the east side. This would eliminate conflicts between the bike lane and the City Market entrance. It would also avoid the fire station and the intersection with Union St. I would also recommend eliminating northbound left turns under this scenario, except at intersections. However, doing this would put the bike lane in front of the vision-restricted parking garage exit, and would also create conflicts with several southbound bus stops (of which I believe there are more than there are northbound). It is not clear to me whether or not this approach has enough benefits to outweigh the disadvantages, but I think it is worth considering.

Loading and unloading activity should be banned from the 2-way bike lane, since there is no practical way for users of the lane to avoid the blockage.

## **Alternatives 1 and 2**

I suggest combining Alternatives 1 and 2 to simplify presentation, since they are identical other than the treatment of the section between Main and Maple. I would also eliminate from consideration the option of widening the road between King and Maple, currently presented as a sub-alternative of A1. In my view the green space here is more valuable than either 2-way car traffic or the on-street parking.

The main options for enabling bike lanes in the section between Main and Maple are making it one way for motor vehicles (A2), or removing the on-street parking between King and Maple (A1). Both involve parking removal on one side between King and Main. Each of these options has its advantages, but on balance I believe that A2 (making this section one way for motorized traffic) is preferable to A1.

The main advantage of removing on-street parking would be the removal of the door zone on the uphill between King and Maple. It would also mean the southbound traffic would need to shift less to the left as it proceeds through the intersection with King St. (if parking is on the west side). However, making this section one way instead would allow for a protected bike lane between King and Main on the side opposite the parking, and a buffer for the lane adjacent to the parking. Having this section be one way would also significantly simplify the Main St. intersection, especially if it is signalized.

For both Alternatives 1 and 2, I suggest that on-street parking be removed on the west side of the road rather than on the east side, for the entire corridor. For the one-way segments of the road, this would place the northbound counter-flow bike lane adjacent to the on-street parking, rather than the southbound lane. This in turn would reduce dooring risks, both because fewer people exit vehicles on the passenger side, and because oncoming bicyclists will be more visible to the people opening doors. In addition, this will increase the safety of people existing the vehicle on the driver's side.

In the segment between North St. and Archibald, it seems to me that there are more businesses on the east side and thus that having on-street parking on that side would reduce the number of pedestrians attempting to cross the street to their destination.

In the section between Decatur/Union and Pearl there is room for a protected bike lane on the side opposite to the on-street parking. Having parking on the east side would allow for a southbound

protected bike lane to complement the northbound PBL on Union St. This makes more sense than to have another northbound protected lane.

Between Main St. and King St., there is also room for a protected bike lane on the side opposite to the on-street parking under A2. For consistency with the other recommendations it would make sense to have on-street parking on the east side, and a southbound protected bike lane on the west side.

In the section between Maple St. and Howard St., moving on-street parking to the east side has the additional advantage of moving the northbound bike lane away from some sections between Howard St. and Spruce St. where ice from hill runoff accumulates during the winter.

## **Alternative 4**

I do not support Alternative 4 as currently planned because it relies on widening the road and removing a significant amount of greenspace. I believe this alternative should be rejected as undesirable and too expensive. At the meeting, another option was suggested of restoring 2-way motor vehicle traffic with a southbound bike lane and sharrows on the northbound traffic lane. I do not support this option either.

The main advantage for allowing 2-way motor vehicle traffic in the section between Pearl and Union, from my perspective, is to allow the bus to use Winooski Ave. instead of Union St., and perhaps to reduce other traffic on Union St. as well. Two-way traffic might slow southbound vehicles somewhat also. But I do not see much advantage to general motorized traffic flow in enabling two-way traffic here; it is not difficult for motor vehicles to use Union St. as they have for years. And making it easier for motorized traffic to get around town is not a goal I support in and of itself.

On the other hand, requiring bicyclists to either ride in traffic or to detour onto Union St. would perpetuate a strong disincentive to bicycle use in this area. One result of this would be that many cyclists would continue to ride the wrong way in the southbound bike lane, which is not safe. It is also counter to the goals of this project and of PlanBTV Walk-Bike.

In addition, with removal of parking on one side and maintaining a single southbound motorized traffic lane, there would be room for a protected bike lane here on the side opposite to the on-street parking. This is of course a critical component of Alternative 3.

On balance, I believe that having bike lanes in both directions here (with a protected lane in at least one direction) is more important than having two-way motorized traffic.

## **Roundabouts**

I mostly support roundabouts in theory, but in general good roundabout design requires space that is in short supply here. In addition to the normal concerns of ensuring pedestrian safety and traffic flow, any consideration of roundabouts needs to look at how bikes can be safely accommodated on a street that gets a lot of bike traffic and is expected to get more when other improvements are made.

Any roundabout being considered for this corridor should have splitter islands, both to slow and direct traffic, and also to provide a mid-crossing landing place for pedestrians and cyclists.

On any street that includes bike lanes, and that has significant traffic, there must be an option for bikes to avoid riding in the motor vehicle lane when coming to the roundabout. My non-expert understanding of roundabout design for bikes is that in general the most workable options for streets with bike lanes are these:

- A) bikes are given the choice of riding with traffic or joining the pedestrian traffic, which in theory means dismounting.
- B) same as A except that the bikes have their own space and crossing adjacent to the pedestrians; in this case dismounting should not be expected when crossing the roadway.
- C) same as B except bikes are not allowed in the roundabout itself, usually with more separation of bikes and peds.

Based on my limited research, I believe that designs in which there is a separate bike lane in the roundabout itself are not safe and should be avoided. All of the roundabout designs that I've seen that appear to handle bikes well (options B or C) seem to have a lot more room than we have at any of these intersections.

In general, I would support installation of roundabouts at any intersections that have enough room for bikes and pedestrians to coexist without requiring cyclists to dismount (options B or C), as long as they also meet requirements for improving pedestrian safety and can handle the traffic flow. I am willing to consider option A above only if it is limited to a very small number of intersections and only if it seems likely to have a significant advantage for managing traffic and improving pedestrian safety. Too many of those would disrupt biking flow too much (for people who don't want to ride in traffic) and discourage biking by all except confident riders.

It does not look to me as though the proposed super-mini roundabouts at Cherry, Bank, and College can accommodate anything other than option A above. Using such a design for several intersections in a row would discourage biking by anyone unwilling to ride in traffic. This would pretty much negate the value of adding bike lanes, and I do not support it. On the other hand, if they can accommodate a separate crossing for bikes (option B or C above), and also have splitter islands to shorten crossing distances, I would be strongly supportive of mini roundabouts for these intersections. See below for more discussion of this.

I also am not sure that roundabouts will work with Alternative 3 on this street. A 2-way protected bike lane can only work with roundabouts using option C above, so it will only work for intersections for which there is enough room for that. Although if there is room, that seems like a good option.

I have some concerns about whether a roundabout at Main St. would be able to accommodate the volume of pedestrian crossings during peak times, as well as the traffic backups on Main St. itself. But I assume that is something the engineers will be looking at anyway.

Any roundabout design following options A or B above must have an easily visible and intuitive ramp near the intersection to allow bikes to leave the roadway if they do not want to ride in traffic through the intersection.

To the extent that roundabouts are being proposed for this project, I highly recommend you present some strongly convincing supporting materials that demonstrate their advantages for both pedestrian safety and traffic flow. In particular, it would help with acceptance if you can provide evidence showing 1) that even kids can navigate roundabouts safely, and 2) that it is not hard to actually use a roundabout as a driver. Many people are most familiar with bad examples of roundabouts and therefore have bad impressions of them that need to be overcome.



## Signalized Intersections

All signalized intersections should have an exclusive bike and pedestrian crossing signal phase, allowing bikes and pedestrians to cross while motorized vehicle traffic is stopped in all directions.

For major intersections, a separate bike signal light should be used to indicate when bikes may cross. When the motor vehicle traffic has a green light, the bike signal should convert to a blinking yellow light, indicating that bike traffic may continue with caution.

For smaller intersections, it may be sufficient to simply have a sign indicating that bikes may cross on the pedestrian signal.

An exclusive bike signal phase is most critical with A3 but is important in the other alternatives as well.

Right turns on red should be disallowed at all signalized intersections, either at all times or during the bike/ped crossing phase (using signs that light up, such as the ones currently at College and Main). At any intersection that does not have a lighted sign, there should be a permanent No Right Turn on Red sign. All such signs (lighted or not) should be in a prominent location clearly visible to all users. This applies to both directions of traffic, even under A3, to protect pedestrian crossings.

## Commercial Driveways and Intersections

All streets and commercial entrances and exits that cross a bikeway under any of the alternatives should be clearly marked with green paint and warning signs, and with tightened turning radii to reduce turning speeds. Every effort should be made also to reduce the length of curb cuts, thereby reducing the distance over which pedestrians and cyclists are in danger of crossing traffic.

The most dangerous commercial entrance/exit on this corridor is the City Market entrance, due to the high volume of traffic in both directions, the wideness of the entrance, and the traffic backups that can happen both entering and exiting. I believe that traffic into and out of this driveway needs to be restricted under any scenario. This would be true even if we were not making any other changes to Winooski Ave., and will be especially true when we add bike lanes.

Here are a few options that I think should be considered:

- Eliminate southbound left turns into the entrance. This is essential under A3 and would help quite a bit under other scenarios. This would eliminate conflicts with northbound traffic wishing to turn left onto Bank St., and reduce conflicts with both pedestrians and bicycles on the east side. Although this would be inconvenient for traffic coming from the north, they would have the option of either turning onto College and entering via Union St., or finding a way to approach from the south. Adding an entrance via Orchard Terrace would help alleviate this inconvenience.
- Eliminate both southbound left entering turns and left exiting turns. In addition to the advantages above, this would allow narrowing the entrance and would simplify/reduce traffic crossing the sidewalk and bike lanes even more. This would add inconvenience for shoppers wishing to travel south, which is not easily addressed by the addition of an Orchard St. entrance/exit.
- Make the driveway exit only, forcing entrance from Union St. or from a newly opened entrance accessed via Orchard Terrace. It would probably also make sense to disallow exiting via those other entrances so that flow through the parking lot would be one way. This would allow

narrowing the Winooski Ave.driveway exit and would significantly simplify movement there and throughout the parking lot. On the other hand, it would force a lot more traffic onto Union St, including truck deliveries. It's possible that an early-morning exception could be made for truck deliveries entering from Winooski Ave.

The parking garage exit between Cherry and Bank St. is another significant safety concern for pedestrians and bicyclists due to poor visibility. I do not have any great ideas here other than removing the wall that blocks the view of southbound traffic. Please consider that possibility and also try to identify any other ways to improve the safety of this exit.

## **Riverside to Decatur/Union**

I strongly feel that it is very important to get bike lanes in both directions in this section, and that we should not consider any additional alternatives for this section that do not include them. This road is too busy for sharrows. Also, the amount of traffic encourages people to ride too close to the parked cars, putting them in the door zone. See my discussion above of the importance of finding alternatives to on-street parking.

## **Downtown (Pearl to Main)**

This is the most critical section of Winooski Ave. for improvement. Adding bike lanes and improving pedestrian safety and quality of experience here are essential to making our city more pedestrian- and bicycle-friendly. Making the bike lanes protected and separated from the motorized traffic here should be a priority.

If there is enough room for roundabouts at every intersection downtown, with bike crossings separated from pedestrian traffic (options B or C above), then I would recommend simplifying the design of the road between Main and Pearl to eliminate the middle turning lane and disallow all mid-block left turns. Traffic that wishes to access mid-block entrances and cross-streets would have to make a full 180° turn at the next roundabout and then take a right turn into their destination from the other side of the road. This would allow space for protected bike lanes on both sides of the road (or the 2-way PBL).

With a single central turning lane, there would be a significant conflict between southbound traffic wishing to turn left into City Market, and northbound traffic wishing to turn left onto Bank St. I do not think that the option identified in the plans for "20' long left turn lane into Bank Street and City Market" will work because of the large numbers of motor vehicles attempting to make turns here. Unless a roundabout can be used at Bank St I believe that one of those two left turns must be eliminated. See above for comments on the City Market entrance. I would also support the elimination of northbound left turns onto Bank St. Drivers wishing to access the parking garage from the south could use College and Center Streets to get to the Bank St. entrance, or enter from Cherry St.

## **Other considerations**

Please ensure that any plans include additional improvements to the streetscape, including pedestrian amenities (benches, etc.), trees and other greenscaping, art, pedestrian buffers, and stormwater treatment.

**Public Meeting #3: Winooski Avenue  
Transportation Study Public Comments as  
part of Alternatives Evaluation Fall 2019**

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**From:** Glenn Eames  
**Sent:** Wednesday, December 4, 2019 10:21 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Winooski Ave Walk/Bike Proposal

Dear Bryan

I am writing to voice my support for the draft proposal outlined in the Winooski Ave. Transportation Study. In particular I endorse the portion of the proposal that creates continuous bike lanes for the entire length of Winooski Ave. This has been a goal of the City and of the cycling community for at least 20 years. Numerous studies and surveys conducted by the city of Burlington have endorsed this . With completion of this plan we will finally have a genuine north to south continuous cycling route through the city.

I would urge that the proposal not be reworked for the section north of Pearl Street. A Parking Management Plan should have an opportunity to mitigate parking impacts.

Let's move forward as soon as possible with bike lanes between Main Street and Pearl Street.

A controversy around parking removal should not again sabotage or delay a comprehensive plan to improve cycling and pedestrian safety.

Thank you for taking my comments.

Regards,  
Glenn Eames

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**From:** Ian Stokes  
**Sent:** Thursday, December 5, 2019 2:37 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan Slason <Jonathan.Slason@rsginc.com>  
**Subject:** Bike lanes and parking spaces on Winooski Avenue

Hello Bryan, Nicole, and Jonathan,

I hope I'm not too late to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team.

I'd like to address specifically the question of parking spaces on Winooski Avenue: If the infrastructure improvements result in more people traveling by bicycle on Winooski Avenue then fewer people will be driving and wanting to park their cars (parked bikes take up much less space!)

Personally I'm an example - every week I travel to Old Spokes Home at the north end of the Avenue - by bicycle, or in winter by mixed-mode (I put my bicycle on the Link Bus). If I didn't use my bike I'd be using a parking space. Winooski Avenue is a key component of my bike route from the ONE to the Bus Depot, City Market and other downtown destinations.

The more people travel safely by bicycle the fewer parking spots will be required, along with many other benefits. The infrastructure improvements under consideration will be an important contribution to encouraging more bicycle use and making it safer.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,

Ian Stokes  
Richmond, VT

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**From:** Kiki Ryan

**Sent:** Wednesday, December 4, 2019 8:46 AM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Subject:** North Winooski Redsign | Supporting the Businesses

Hi Brian, Nicole and Jonathan!

I am following up to express my concerns with the redesign of North Winooski Ave. I've looked over the planning and ideas in your report and it does seem like a tough plan to make everyone happy, but I believe it can be done without removing so much parking. As a community member living on that street, the lack of parking spaces seems detrimental to the residents, and especially the businesses that have popped up in the last few years.

I've been in Burlington for 5 years now, and just recently was fortunate enough to plant my roots in this town by purchasing a home in the part of town I love the most. As I watch it continue to thrive, it's important we can invite others to our part of town, both other residents and people just visiting. The Old North End has a charm and characteristic that is so much different than the tourist part of Church Street, and I believe in the next few years it will only get better, as long as we continue to support the local businesses around us.

If we lost parking spaces, it's not possible to expect everyone to walk to these locations, especially in our harsh winters. It is also not possible for the local neighborhood alone to fund and support the residential local businesses. With customers having no where to park, I fear these establishments will suffer. They will struggle without parking since we do not have the luxury of downtown parking garages, or even parking lots for these businesses.

As a resident who sees what goes on day to day, parking is taken up on the street almost at all times, with people struggling to find parking on busy nights. With this redesign, is there a plan for where the

overflow vehicles will go? I read the solution of parking spots with time limits, but does that mean residents need to move their cars to avoid tickets? Will bike lanes only take over parking during certain times of day/year?

Removing 120 parking spaces, let alone even 20, effects more people than the ones who are biking. With that change, we are adjusting for the minority of people in the city, who can only bike and walk a few months out of the year. As a biker myself, I do agree that past Pearl Street towards Main there needs to be a bike lane or other safety measures in place, but the residential areas and businesses around them should not have to suffer to accommodate downtown rush hours. During the busy times, North Union has a one way bike lane that leads to the Old North End that I and other bikers use. Is it possible to just continue the one way on North Winooski down to Main?

I hope there can be a solution that does create safety and convenience for the people who chose to bike as their main (or only) form of transportation. However, I hope that your team takes into account how much the residents and local businesses would be losing if a substantial amount of parking is taken away.

Thank you for your time and for the work you do to make the city better!

-Kiki

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From: Michael Long

Sent: Tuesday, December 3, 2019 5:35 PM

To: Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

Subject: Winooski Avenue Corridor

Hi Bryan, Nicole, and Jonathan,

I write in support of the proposed re-design of the Winooski Avenue corridor to improve the safety and utility of this major north-south conduit. Such a re-design is long overdue and will represent perhaps the most comprehensive, competent, and confident step yet in upgrading our transportation infrastructure for the century already two decades underway. I commuted often by bicycle to Colchester High School from Burlington for forty years and was hit twice by vehicles and car-doored once in the process. There were no provisions to accommodate bicycles over this period until the Riverside Avenue redesign which would have prevented my being t-boned on Colchester Avenue had it come along sooner. I don't doubt it has prevented many vehicle-bicycle collisions since its completion.

I understand the outcry over parking; there is always an outcry over parking. However, there should have long since been an outcry over our fragmented, catch-as-catch-can bicycle "network." We have paid mere lip service to bicycling for far too long when it could in fact be — within Burlington and between Burlington and nearby towns — a transportation mode that is not only viable but often far superior to the motor vehicle.

Private vehicle storage is a poor use of public streets, and while its arguable that residents on short local streets have some claim on the parking there, on major arteries like Winooski Avenue general public claims take precedence.



Housing and commercial space developed in the 19th century did not consider 21st century traffic and parking, but recent development had every responsibility for doing so and has no legitimate claim to on-street parking.

To compromise bicycle lanes to cater to vehicle storage in public thoroughfares would erect a roadblock between Burlington and the future. Please see this through.

Sincerely,  
Michael Long

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**From:** Curt McCormack  
**Sent:** Tuesday, December 3, 2019 12:19 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; Erik Brown Brotz  
**Subject:** One More Winooski Ave. Comment

Hi Brian,  
Having already given "comments" at the several meetings, I would like to offer a broad view or a view of a broad underlying premiss: A person riding a bicycle and a person walking has a right to relative safety. A person driving a car has the same right. But do they have a RIGHT to a parking place on public land? A free parking place?

We may WANT to provide convenient on-street parking on both sides of every street but this does not rate as high as safety. It (convenience) does not rate as high as encouraging non-polluting transportation.

While we always want to have consensus on particular projects, when we do not have it, this is no reason to not act. I believe if a popular vote were taken of the Winooski Ave. Corridor study recommendation, a majority would support it. But even if it only had minority support, I think of the great, but often misunderstood, U.S. constitutional right to 1. equal treatment under the law and 2. minority rights. I don't know of any legal challenge of a roadway treatment. Sovereign Immunity may protect towns/states from a challenge. I offer this as something to help guide us.

Thank you for all of your work on this,  
Rep. Curt McCormack

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**From:** Erik Brotz  
**Sent:** Tuesday, December 3, 2019 7:52 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan Slason <Jonathan.Slason@rsginc.com>  
**Cc:** [10 recipients]  
**Subject:** Comments on Winooski Ave.

To the Winooski Ave. Transportation Study project team:

I am writing to express my strong support for the current proposal for changes on Winooski Ave. While I have several suggestions for improvements below, I think overall it strikes a reasonable balance between the various needs for this important transportation corridor.

I particularly want to encourage the project team not to withdraw the current proposed plan for the northern section and rework it prematurely to address concerns about parking removal. While I understand that many people are concerned about this issue, I think the proposed Parking Management Plan is a very reasonable first step to work towards a solution. It may not be possible to make everybody happy, but I do believe that there are many opportunities to reduce the impact of removing on-street parking, and that no changes to the plans should be made before these have been thoroughly explored.

I also suggest that the plan be proposed in a way that does not allow the controversy regarding the northern section to sabotage or delay the critical changes being proposed for the downtown and southern sections of Winooski Ave. It is most important to move forward as quickly as possible to implement changes in the downtown section between Main St. and Pearl St. to improve safety and comfort for cyclists and pedestrians, and also to improve safety and traffic flow for motorized vehicles. This has been talked about for well over a decade with no action, and the time has come to actually do it.

Here are my more specific comments on the proposed plan.

It is very important to have continuous bike lanes though the entire corridor to improve safety and to increase the number of people who are biking. It would be much better to have protected and/or separated facilities for bikes, and I believe that the plan should acknowledge that this is still the long-term goal, as described in PlanBTV Walk-Bike. But the current proposal is the minimum viable plan for continuous bike facilities on this critical transportation corridor.

The most important section for improvement is the portion between Main St. and Pearl St., and the current proposal will represent a huge improvement. To make it even better, I support the proposal made by Local Motion to install a median strip with turn pockets for the few places where left turns are necessary. This will further slow traffic and make it more pleasant and safer for pedestrians and cyclists. I also think that it will be necessary to eliminate left turns at either the entrance to City Market or Bank St. I do not think there is room for the volume of left-turning traffic for each of these two destinations in the same lane. While there is probably more value from a safety perspective in eliminating left turns into and out of City Market, it is probably easier to eliminate left turns onto Bank St. The impact can be mitigated by wayfinding signs directing people to the parking garage via College and Center Street, and via Cherry St.

For the portion south of Main St., I think the current short-term plan is reasonable and easily achievable in 2020, and I encourage you to move that forward as soon as possible.

For the northern section, I think it is very important to have continuous bike lanes, and the current plan is a good way to achieve that goal in the short term. I think, however, that the plan could be improved in the portion between North St. and Pearl St. by retaining parking on the east side instead of the west side. This would put the northbound counterflow bike lane next to the parked cars, so that passengers opening doors could see cyclists coming, reducing the risk of dooring. It would also allow the southbound lane to be a protected lane, to complement the northbound protected bike lane on Union St. This same design could also be used in the section between North St. and Union/Decatur.

There is no way to provide continuous bike lanes in the northern section without either reducing on-street parking or narrowing/removing the greenstrip. Reducing on-street parking is the most reasonable way to do this; I think that a parking management plan will go a long way toward mitigating the impact of this change. I do not support narrowing the greenstrip (and removing trees) in order to widen the roadway, now or in the future. This would make the streetscape much less pleasant and usable for everyone, especially pedestrians.

I also do not think there is much value to re-opening Winooski Ave. to two-way motorized traffic, except for the potential transit improvements. Motorized traffic can easily use Union St. or other parallel streets to go the Old North End as they do currently. I do think there is potential value to improving transit connections, but that would come at a cost of widening the streets and/or reducing bike connections.

I think it is reasonable to pursue demonstration projects for roundabouts at North St. and Union/Decatur, although I am not convinced that this is the best approach for these intersections. I also think that more emphasis should be placed on pursuing long-term plans for roundabouts at Main St. and Riverside Ave. Although both may have right-of-way challenges, I think these can be addressed with sufficient planning and will to move towards acquiring the necessary right-of way.

Any roundabout that is included in this corridor, or on any street with a bike lane, must provide a way for cyclists to go through the intersection without merging with traffic. Forcing cyclists to merge with traffic at intersections considerably degrades the value of having bike lanes in the first place. At the very least the design should include ramps that allow cyclists to access the pedestrian crossing, but it would be much better to have a separate crossing specifically for cyclists.

Finally, please ensure that the plan for this street includes streetscaping and amenities to make it more enjoyable for pedestrians (and all users), especially in the downtown portions. These include more trees, benches, parklets, public art, and reduced/narrowed curb cuts.

Overall I think it is very important to make these changes towards a more bike-friendly and pedestrian-friendly community. In addition to the safety improvements mentioned above, one of the most critical reasons to do this is to help move us away from dependency on cars and fossil fuels. But it is also important to make our city, and this street in particular, more people-oriented and thus enliven our community connections.

Thank you for your attention to these matters, and for all your work on this project.

Erik Brotz  
Burlington Walk-Bike Council

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From: Drew Pollak-Bruce [REDACTED]  
Sent: Wednesday, December 4, 2019 11:30 AM  
To: Bryan Davis <bdavis@ccrprcv.org>; NLosch@burlingtonvt.gov; Jonathan Slason <Jonathan.Slason@rsginc.com>  
Cc: Erik Brotz <[REDACTED]>  
Subject: RE: Comments on Winooski Ave.

Hi Bryan, Nicole, and Jonathan,

I would like to follow up on Erik's note to let you know I agree 100% with each of Erik's points. It is critical to have continuous bike lanes though the entire Winooski Ave corridor. This is a major thoroughfare that 100's of bikers use every day. I use it in my daily commute (East End=>Riverside=>Winooski=>College/Church to get to work and then College=>Union=>Colchester Ave to get home). The City has studied improvements here ad nauseum. Every study has recommended installing bike lanes. Please consider the decades of input that has been collected and do not withdraw the current proposal for the northern section. It has taken a lot of process to get here and it was a solid process. It cannot be hijacked at the end because some people oppose any loss of parking. We heard the vision loud and clear: everyone wants safe travel for all modes on this corridor. Its up to you to find the best way to do that (even if it means losing a few parking spots!).

One other nuance I'd like to add to this is the need for the City to revise our residential parking permit structures so they are based on zones and not the specific street you live on (folks who live on major thoroughfares like Winooski and Colchester Ave generally cannot get residential permits for the side streets near their house, only the for the street they live on). I think this would ease the development of a parking management plan here on Winooski Ave and in the rest of the City.

Thanks for all your amazing work on this project! ~Drew

Drew Pollak-Bruce, CPRP  
Associate Planner

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**From:** stuffle

**Sent:** Wednesday, December 4, 2019 10:10 PM

**To:** Bryan Davis <bDavis@ccrpcvt.org>; Erik Brotz; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan Slason <Jonathan.Slason@rsginc.com>

**Cc:** [10 recipients]

**Subject:** RE: Comments on Winooski Ave.

I would like second Erik's comments as a Ward 1 neighborhood liason to the Burlington Walk Bike Council. I would stress the need for a fully connected bike lane for the entire corridor. As a longtime advocate for Colchester Ave we are close here to having just a minimal continual bike lane of just paint but sharrow zones still remain in areas with parking. If we are to reach our goal of protected dedicated bike infrastructure anytime soon we must at least achieve a continuous network first. This first step needs to be a continuous dedicated bike lane.

Jason Stuffle  
Old East End Neighbors Bicycle Chair  
Ward 1 Neighborhood Liason Burlington Walk Bike Council  
20 year Burlington bicycle commuter

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**From:** Saunders, Aidan

**Sent:** Monday, December 2, 2019 3:16 PM

To: Bryan Davis <bdavis@ccrpcvt.org>  
Subject: Please Include Continuous Bike Lanes On Winooski Ave

Good afternoon,

I live on North Winooski Ave between Pearl and North streets and am very much in favor of continuous bike lanes for all of Winooski Ave. Without bike lanes in both directions I am forced to ride my bike against traffic when coming home which makes for a considerably unsafe commute. Not only will continuous bike lanes make my life better but they will also make commuting across Burlington on a bicycle much easier for all riders. Please allow the Parking Management Plan to identify ways to mitigate the parking impacts before writing a new proposal for the section north of Pearl St., but please move forward as soon as possible with the road diet and bike lanes on the section between Main St. and Pearl St., the most trafficked part of Winooski Ave. Thank you and have a nice day.

Aidan Saunders,  
North Winooski Ave. Resident

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**From:** Matthew Vaughan  
**Sent:** Monday, December 2, 2019 8:32 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Feedback on Winooski Ave design proposal

Hi Bryan,

I am writing to express my support for the removal of on-street parking spaces to support dedicated bike lanes for Winooski Ave, as presented at the Oct 22 meeting I attended. If anything, this plan does not go far enough to remove on-street parking and create safe, protected spaces for people to travel safely on bikes.

Please do not allow the speculative and unsupported concerns of a few private business owners impact your proposal to City Council. You have presented a reasonable proposal that compromises well on multiple issues, and can be implemented quickly and inexpensively. This public street should be used for moving people safely, not storing unused private property.

Thank you,  
Matthew Vaughan

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**From:** Janine Fleri  
**Sent:** Friday, November 29, 2019 11:25 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Winooski Avenue Corridor Project Parking Considerations

Dear Bryan,

As someone who works at the top of North Winooski Avenue, I wanted to share some points of concern that I hope the planning committee will seriously consider. First and foremost, as this project gets more attention and I see more reactions like "Good, more people can just walk/bike/take public transit!" the clearer it becomes that the issue of ableism needs to be introduced to the conversation. As someone with an invisible disability, it is a constant frustration to have others assume the abilities or wellness of total strangers under the guise of improving the community.

As someone who spent ten years navigating public transportation with a chronic bowel disease, the opportunity to become a car owner, while a privilege, has been a huge boon to the management of my health and attendance at work. It takes an entirely different level of wellness to hop in your car and walk a short distance to your job or home once parked than it takes to stand outside in Vermont weather waiting for a bus or shuttle that might never come. Since gaining the autonomy to drive myself, I no longer keep underwear in my purse or spare pants in my desk which is a small victory unto itself.

When I was looking for work four years ago, parking was a big consideration in my search. I discounted potential positions at UVMCC and Champlain College because of their lousy parking situations. Even in a carpool scenario, the loss of freedom to come-and-go as needed would have a negative impact. Just two weeks ago I was hit with a stomach flu, which is double trouble when you don't have a colon - I went from throwing up in the bathroom at my office to my car and in under twenty minutes I was vomiting in the comfort and privacy of my own home. That would have looked very different under alternative circumstances. (I think we can agree, Burlington has enough street puke to clean up without my adding to it.)

I can only speak for myself here, but I know that I am not the only chronically ill employee in this area concerned by the potential parking changes. Hopefully they will chose to reach out to you as well. Folks with chronic illness already have a lot of agency taken from them by their own bodies - we don't need well intended but misguided community members minimizing our autonomy as well.

While I appreciate the importance of improving safety for all who use the roads, there are other safety concerns that arise with the proposed loss of parking spaces. I personally already have three less parking options because of creepy residents that have made me uncomfortable when parked on certain side streets that are not as populated or well lit as North Winooski Ave. When I think of the number of folks frequenting this area who are popular targets for harassment (women, immigrants, people of color, lgbtq+), the idea of losing safe parking options is very concerning.

I understand that there can be an argument made regarding the classism of favoring cars over more affordable modes of transportation like bikes. I certainly don't disagree, but would like to point out that it is equally classist to remove a free resource of any kind from a neighborhood largely populated by low-income housing as well as nonprofit and small, independently owned businesses.

Please know I am in no way defending the way many motorists conduct themselves - but that is one more reason this project concerns me. Adding more construction to the city will only make drivers angrier. Additionally, I have seen how some bus and shuttle drivers perform and frankly, no one should have to put their lives in those hands if they don't have to.

Unfortunately, the biggest problem as I see it is not the layout of the roads or number of bike lanes, but people and how they choose to behave. With existing bike lanes on North Winooski and North Union, I would encourage a focus on improving safety and conduct with the existing infrastructure to prove it



can even happen. There are many responsible cyclists, and I greatly appreciate them and want them to be able to travel safely; however, there are also many casual bikers that don't utilize the existing bike lanes properly, so will adding more really improve that? And if drivers aren't being held accountable for their reckless moments, are they really going to change just because the roads do?

I wish I could say I have a proposed solution here, but we both know if there were a simple answer it would have presented itself by now. I know others have requested pausing the changes to North Winooski Ave. and moving forward with a focus on the biggest problem spots south of North Street. I think that is sound advice with the hope that this project can find a way to improve conditions and expand options for people who would like to *choose* to walk or bike or utilize public transportation more often. However, it should not come at the expense of other commuters and community members losing their own freedom of choice.

Thank you for taking the time to read this and for the ongoing efforts to cultivate feedback.

With best wishes,  
Janine Fleri

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**From:** John Leddy  
**Sent:** Friday, November 22, 2019 12:35 PM  
**To:** Bryan Davis <bDavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Subject:**

Hello Bryan, Nicole, and Jonathan,  
I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team. I am a resident of the Old North End and use Winooski Avenue multiple times a week by foot, bicycle, and car. I am concerned with the safety of all users on this street and look forward to improvements to this stretch of roadway. Once implemented, the proposed changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have **continuous** bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,  
John Leddy

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**From:** Dan Cunningham

**Sent:** Sunday, November 17, 2019 1:52 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Cc:** Karen Paul <kpaul@burlingtonvt.gov>; jshannon@burlingtonvt.gov; allegra@localmotion.org

**Subject:** Winooski Ave bike lanes

Hello Bryan, Jonathan, and Nicole,

I strongly support physically protected bike lanes on Winooski Ave. My firm is hiring a lot of people into Vermont, mainly millennials, and biking / walking is one of the highest items of priority for them. In general they do not want to live in the suburbs and sit in traffic, they want to live in Burlington and own somewhere between zero and one cars.

The fact that Harley-Davidson is investing major sums into electric bicycles should tell us all something.

Protected bike lanes will create tremendous usage. The demand is out there and once we get a real protected lane in Burlington, it will be clear to see. Arguably we have one on the waterfront bike path, and the traffic on that path is high.

Dan Cunningham  
Burlington, VT

p.s. Hopefully some type of east-west bike corridor is somewhere in the plans in the near future, especially at or south of College Street.

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**From:** Eliza Spalding

**Sent:** Friday, November 15, 2019 1:21 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; nlosch@burlingtonvt.gov; jonathan.slason@rsginc.com

**Subject:** Winooski ave bike lanes

To whom it may concern,

I am writing to express my wholehearted support for the addition of bike lanes and improved pedestrian walkways and crossings on N. Winooski Ave between Pearl and Main St. (As well as other areas studied that are lacking safe bike and pedestrian options throughout the city).

As a bike commuter and someone who formerly worked on N. Winooski Ave. I have witnessed countless cyclists and pedestrians get hurt or have close calls on a daily basis because of the lack of safe pedestrian and bicycle infrastructure on that stretch, myself included. With the Howard Center right there and many bus stops nearby, many of our communities most vulnerable people rely on access to that area. Though the changes may inconvenience a handful of drivers, being able to access that part of town by foot or bicycle in a safer way will vastly improve the safety and well being of a great many members of our community.

While accessibility means something different to everyone, I believe that many community members who are against the installation of bike lanes at the cost of parking downtown, are mistaking

convenience as accessibility, and fear big changes that will ultimately lead us towards safer and more environmentally sustainable and equitable future. Parking and vehicles are so often a luxury, and those with access to those things tend to only chose an alternative out of necessity. Our community members who do not have access to the luxury of a vehicle, do not get to choose, but deserve the same level of safety navigating the community as those who do.

A few specifics about the project:

- While protected bike lanes are great in theory, they pose a challenge and safety risk for people who rely on a bike to get around in the winter because they can not be easily plowed.
- I picked up the packet of information on the project at the library, and of the project variations shown, Alternative 2 looks the best to me as a cyclist.
- Bike lanes between the sidewalk and street parking feel safer as a cyclist than bike lanes between parking spaces and a lane of moving traffic.

Thank you for your time and dedication to making Burlington a safer place. Feel free to contact me in you have any questions.

Sincerely,  
Eliza Spalding

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**From:** Greg Hostetler

**Sent:** Friday, November 15, 2019 7:28 AM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <nlosch@burlingtonvt.gov>; jonathan.slason@rsginc.com

**Cc:** Allegra Williams <allegra@localmotion.org>; Erik Brown Brotz <[REDACTED]>

**Subject:** Comments on the Winooski Ave Corridor Study

Dear Bryan, Nicole, and Jonathan,

I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team. While I would like to see more low-stress bike infrastructure in the long term, the near term option does an excellent job of balancing multiple uses with limited public right-of-way. Once implemented, the proposed changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

I live and work on North Winooski Ave and I know from personal experience that better bicycle infrastructure is desperately needed. I realize that there is also high demand for parking on my block, but that is not surprising because it is currently free and unrestricted. This right-of-way is valuable public space and it is not fair to dedicate so much of it to the storage of people's personal property. I realize that some people need cars, but it would be completely reasonable to ask people to pay \$20 per month

for a residential parking permit. It is a small fraction of the overall cost of car ownership, and much less than the \$50-75 per month that people pay for off-street parking in the neighborhood.

We have challenges with affordability in Burlington, and affordable transportation (walking, biking, and public transportation) needs to be prioritized throughout the city.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,

Greg Hostetler

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11/6/19

Bryan Davis from the project team handed out fliers along the corridor for the 11/6 business stakeholder meeting and for the 11/13 public meeting, and informally met with Rob Meehan, Director of Feeding Chittenden. Rob gave a tour of the facility and described some of their transportation challenges, some of which are the result of the building location on a corner and having been added on to several times, resulting in a unique building footprint that didn't plan for parking needs. There is limited onsite parking, and ADA spots fill quickly during busy events like the Thanksgiving drop-offs/pick-ups. Large delivery trucks accessing the site for unloading disrupts normal parking maneuvers. As the largest direct service emergency food provider in Vermont, Feeding Chittenden serves over 11,000 people each year and it's critical that people are able to access their location.

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**From:** Peggy O'Neill

**Sent:** Wednesday, November 13, 2019 5:50 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan.Slason@rsginc.com

**Subject:** Winooski Ave corridor

Hello Bryan, Nicole and Jonathan,

I had hoped to attend the Winooski Avenue Corridor meeting this evening. Unfortunately, I'm not going to make it, and this will sit in your inbox until later this evening. I hope the crowds were civil!

I am writing to let you know that the current plan for Winooski Avenue proposed by the Transportation Study Team should be implemented. I understand that you will get some push back about anything that touches parking, however, this plan is a reallocation of the public right of way that serves more people in more equitable ways. Our streets are for moving people and goods safely and effectively through our city, not for exclusive use of automobiles.

As Jeff Speck mentioned in his talk at the Davis Center last month, we have planned, now it's time to implement. PlanBTV Walk Bike calls for protected bike lanes along the entire length of Winooski in its 5-year action plan. This will go a long way toward improving accessibility, safety and connectivity within

Burlington. I also want to underscore the importance to addressing the dangerous stretch of Winooski Ave, between Main and Pearl Streets, through the proposed road diet an installation of dedicated bike lanes.

Thank you for your efforts to improve safety for all users through our city.

Best,  
Peggy O'Neill

[REDACTED]  
Burlington, VT  
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**From:** Jack Hanson

**Sent:** Wednesday, November 13, 2019 3:25 PM

**To:** Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan.Slason@rsginc.com; Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Winooski Ave Comments

Hi Nicole, Jonathan, and Bryan,

I strongly support protected bike lanes the length of Winooski Ave. We've been talking about this intersection for 20 years --- now we are finally changing it, so let's do it right and make it meaningful. Protected lanes is what gets folks who are not comfortable riding to get out there. I don't believe the current proposal goes far enough since the lanes are mostly unprotected. This proposal is of course, better than the current configuration of Winooski Ave, and I certainly support it over the status quo, but again, I believe we should go further.

Thanks and see you tonight!  
Jack  
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**From:** Benjamin Bloom

**Sent:** Wednesday, November 13, 2019 8:31 AM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan.Slason@rsginc.com

**Subject:** Support for Winooski Ave. changes

Hello Nicole, Bryan, and Jonathan,

I am writing to express my strong support for the current plan proposed by the Winooski Avenue Transportation Study Team. Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

As a city resident who primarily gets around the city by bike, I have yet to find a path to City Market that would make my wife comfortable. Making these changes would go a long way towards improving safe access.

As the North Avenue project demonstrated, road diets benefit everyone from people driving in a now straight line, to people on bikes with a designated space to ride, to people on foot trying to cross the road to get on or off busses or to access local businesses. A 4 lane road has no place in a downtown area.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,

-Ben

Benjamin D. Bloom



[www.benjamindbloom.com](http://www.benjamindbloom.com)

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**From:** Linda Li

**Sent:** Wednesday, November 13, 2019 8:44 AM

**To:** Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Winooski Ave parking issues

Hi,

I'm a staff member at CHCB. I can't make it to the meeting today but I want to voice my concern with parking shortage.

I noticed there are a lot of empty parking lot on this block. e.g. the old old spoke and the one transportation garage next door. If you want to cut down street parking, please open up those parking space.

We're not getting less cars, if you decrease parking space, it'll just push everything down, and there are not that much street parking on the block of north end studio.

Thank you for your consideration

Linda Li, LICSW

Clinical Social Worker

Community Health Centers of Burlington

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**From:** Brianna Jasset

**Sent:** Wednesday, November 13, 2019 12:37 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Subject:** GOAL: A Safer Winooski Ave

Hello Bryan, Nicole, and Jonathan,



I am emailing to express my support for protected bike lanes to be installed on Winooski Ave. Below I have pasted the comments I plan to deliver tonight:

Hello, my name is Brianna Jasset. I live in the old North end. and am an intern for the Center for Research on Vermont. Biking is my primary form of transportation. I don't have a car and don't have the means to buy one. Currently, I do not feel safe on most roads in Burlington while Biking. This makes what should be the simple task of getting from place to place, very stressful.

Simply trying to get to work or the grocery store should not be something that causes great stress but it can feel like that for bikers like for myself. I often resort to biking on the sidewalk. Biking on the sidewalk is illegal and I have to navigate pedestrians and driveways but it is still better than risking my life by sharing a lane with cars. There needs to be a separate protected lane on the road where bikers like myself can travel with the same ease as busses or cars or pedestrians. I know I am not the only resident in Burlington that does not own a car and I'm sure they feel the same as I do. My team and I surveyed 60 people on Winooski ave and out of those 53% of the people claimed biking as their primary mode of transportation. And out of those 60 people, 38% claimed that they have had an unsafe encounter on the corridor. quotes from these interviews included:

"I'm Too scared to bike on Winooski"

"I feel like I'm in the way"

And

"I try not to use Winooski Ave, I will avoid it on my way to work"

In many cases, biking is not a choice. The lowest-earning quartile of Americans make up almost 40% of the bike commuting population. Biking should not be seen as a recreation or leisure activity it is a form of transportation like a bus or a car. The installation of bike lanes would allow those who do not feel safe enough to bike, whether it is a choice or not, to finally have an appropriate place on the road. Everyone deserves to be able to get around in Burlington safely regardless of if they have enough money to buy a car or not.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,  
Brianna Jasset

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**From:** TONY Redington

**Sent:** Tuesday, November 12, 2019 7:03 PM

**To:** Nicole Losch <NLosch@burlingtonvt.gov>; Bryan Davis <bdavis@ccrpcvt.org>

**Cc:** Jonathan Slason <jonathan.slason@rsginc.com>

**Subject:** Thank You!

Good Day Nicole and Bryan:

Thank you so much for your commitment of time this morning to provide some detail on the various categories of analysis for the corridor and intersection assessment tools on the Winooski corridor study.

As clearly stated at the end of the well over an hour dialogue, if the community can agree on a full set of bike lanes on each side of the street along the corridor I can support the design as it is a quantum leap from the current barrier for establishing an eventual safe and separate set north and south bike lanes--cycle track. As also stated, the primary problem for me as a "customer" is the lack of safety at intersections and, again, that can be addressed as long term scooping takes place. Again, in the context of 8/80 street design (a design safe for 8 years old and 80 year olds) as an 80 year old am restricted to sidewalks except on "local streets" unless there is cycle track--before it went down last year a now it is up again on North Union regularly use it--in between times sidewalks only! Painted lanes on the Winooskis are not "8/80" safe.

There are weaknesses to the current approach which I will comment on separately--these include how well businesses in ONE are served, an insistence on wide nature strips which should not receive the priority given, and questions about individual intersection performance roundabout versus signal (crucial in my view in regard to pedestrian safety and Vision Zero).


Finally, it is fair to say that not only do we have a climate emergency which this corridor plan does not either recognize or address, but we have an all modes safety emergency propelled by three decades of malign neglect at all levels of transportation administration--FHWA, VTrans, CCRPC and City (recall safety is "critical" in BTV Transportation Plan [2011] but hardly gets lip service evidence there being no safe-for-all-modes roundabouts anywhere on a busy public street in the City or CCRPC). We did not get to 18th in the world in roadway safety form number 1 in 1990 without systemic safety program failure with now 23,000 excess deaths nationwide, a 45% increase in ped deaths since 2010, and no significant safety investments anywhere in our current CCRPC TIP. The challenge here in Burlington with a fatal every three years--a majority ped/bike and almost all at signalized intersections should give us pause. Ditto the annual 150 injuries (1/3 ped and bike) and over 600 property damage only crashes (PDOs) with about 10% Citywide on the Winooskis.

This generation will be judged by how we respond to the climate emergency and in transportation how our street designs and investments respond to the roadway "fatality emergency." BTV set the standard for how to respond in 2014 with the North Avenue Corridor Plan, a corridor blessed by an extra wide ROW and little parking demand. PlanBTV Walk Bike and CCRPC "Active Transportation Plan" (both adopted in 2017) did their part. We can and must move in terms of predicted safety performance as close to the North Avenue standard as possible (Cambrian Rise intersections excepted!).

Again, thank you for your time--consider this as some comments on the draft corridor material which will be supplemented later. And, yes, plan to make at least one of two public meetings this week--missed the PAC session last month as I was observing the Montreal evolved designs and e-bikes/scooters. Attached is a happy scooter user sans helmet on De Maisonneuve adjacent the Forum.

Yours truly,

Tony Redington  
Safe Streets Burlington

  
Burlington, VT 05401

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**From:** Michelle Downes  
**Sent:** Tuesday, November 12, 2019 10:07 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Cc:** bhogan@burlingtonvt.gov  
**Subject:** Support of Winooski Ave Bike Lanes

Hello Nicole, Jonathan, and Bryan,

I am writing to express my support of the current plan to install bike lanes on Winooski Avenue. As a mom to two small children who frequently commute by cargo bike in and around Burlington I feel it is important to make local biking safe and accessible to all.

These changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor, including myself and my family, and will better connect the existing bike network within the city. I urge you to ensure continuous bike lanes throughout the corridor, especially between the busiest (safety challenged) area between Main and Pearl Steets.

Thank you for your consideration and all you do to make Burlington safe and welcoming to not only motor vehicles but also pedestrians and cyclists as well.

Regards,  
Michelle Downes

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**From:** Lauren-Glenn Davitian  
**Sent:** Tuesday, November 12, 2019 5:47 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; Eleni Churchill <EChurchill@ccmpo.org>  
**Subject:** North Winooski Avenue Corridor Opinion

Thanks Bryan for all of the work that you have been doing to encourage public input on the Winooski Avenue Corridor. I am not sure if I can attend Wednesday but wanted to share a note that I posted on FPF this evening. This sums up my thoughts on the current heuristic plan on your diligent efforts.

Dear Jack Hanson, Thanks so much for your update on upcoming important community planning meetings. As a North Winooski Avenue business operator, I am concerned about the removal of parking spaces from our corridor. This discourages the development of small business that we have worked over the past 30 years to cultivate. It undoes three decades of public policy. That policy is to promote local business so people don't drive to the suburbs. This is a positive environmental policy. I would advise against the loss of 109 parking places. There are at least 20 organizations in a one block radius that generate the need for public parking for workers, clients, customers, and vendors. This capacity is often fully used, particularly when local organizations come to the neighborhood for en masse in-service events. Some thoughts to chew on. Thanks for your public service!. Lauren-Glenn

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**From:** Cameron Savage

**Sent:** Tuesday, November 12, 2019 10:05 AM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Subject:** I support for the current plan proposed for Winooski Avenue

Hello Bryan, Nicole, and Jonathan,

I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team. Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

I work on King St. and S. Winooski Ave. In the summer months I commute via bike to do my best to keep a car off the road (and it's often faster to commute via bike with all the traffic). My bike commute through Burlington is often very streamlined and safe, but the section along Winooski Ave in particular can be harrowing and very dangerous. The way the street is designed encourages drivers to drive fast and make constant lane changes. The lanes are confusing and narrow, and I can see why drivers get frustrated.

Bikers and Pedestrians in this section of the street are often a second thought for drivers and it's dangerous. Specifically the section in a block radius of the Main St. intersection. As I've biked through this intersection on my commute and walk through it almost daily, I see countless instances of car and pedestrian/biker interactions that could end with an accident. On my bike going northbound through the Main St intersection, I've had cars pass me in the single lane there. They've gone inches from me as I'm already inches from the curb. The other thing I see constantly as a pedestrian, is drivers not seeing people walking during the walk-sign, or just thinking they have the right of way anyways. I've seen people nearly get hit more times than should ever happen.

Change needs to happen to make it clearer to drivers how to navigate Winooski Ave. We need to re-organize the lanes to help bikers and pedestrians, but also reduce stress on the drivers, so they don't feel the need to drive erratically. Adding bike lanes from my experience both provides a safer route for bikers, but also subconsciously makes drivers slow to a safer/more efficient speed.

Lastly, working in this area for the past year, I've noticed that many school children walk through the intersections along Winooski Ave (particularly in the downtown area). We need to make this area safer, if only for them.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,  
Cameron Savage

██████████  
████████████████████

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**From:** JASON STUFFLE

**Sent:** Tuesday, November 12, 2019 4:00 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Subject:** Full Continuous Bike Lanes for Winooski Ave

Hello Bryan, Nicole, and Jonathan,

I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team.

It is CRITICAL to provide equitable access to the PUBLIC RIGHT OF WAY. With Winooski Ave being a major corridor this needs to be a top priority since it will benefit so many PEOPLE!

Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,  
Jason Stuffle

████████████████████  
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**From:** Kimberly Anderson

**Sent:** Tuesday, November 12, 2019 1:44 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Public Comments

Hi Bryan,

I'm having staff members question where to make their public comments if they can't attend the meeting tomorrow. I gave one employee your personal email because I couldn't find anything on the website... but then I thought I should check in with you before you get peppered by my staff. 😊 Let me know what's best.

Here's a comment that was sent to me from someone who used to live in Sweden:

I saw the news story last night and it sounds like the Winooski Avenue Corridor project would make parking even more difficult - with the result of more people parking on the private streets, which will annoy the local residents.

It seems to me there would be enough room to widen the sidewalk and make the area closest to the street the lane for bicycles. This seems much safer to me. In Sweden, where there is not a road that does not have a bike path on it, it's set up sidewalk, bike path, street. Generally the curb is between the bike path and street. This is safer for all. If a pedestrian wanders into the bike lane, they have angry cyclists telling them to watch out on their left, alerting them that they have moved into out-of-bounds territory. Bike paths have their own mini traffic lights - AND if a biker goes through a red light (which many here seem to think they're entitled to do), they can get a ticket. If they're not old enough to have their driver's license, enough of these offenses result in a postponement of their being allowed to get their driver's license.

Thanks,  
Kim

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**From:** Marcus Keely  
**Sent:** Monday, November 11, 2019 12:21 PM  
**To:** Jonathan.Slason@rsginc.com; NLosch@burlingtonvt.gov; Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** A Safer Winooski Avenue

Good Afternoon Bryan, Nicole, and Jonathan.

I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team. Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave!

Sincerely,  
Marcus Keely

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**From:** Alicia Cunningham  
**Sent:** Sunday, November 10, 2019 10:00 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Subject:** Bike lanes along Winooski Ave

Hi Bryan, Nicole, and Jonathan,



I'd like to add my support to that of Local Motion for the installation of a safer biking and walking corridor along Winooski Ave. Ultimately I would like to see physical barriers erected between bike and vehicular traffic. I know that is incorporated into one of the proposals.

As a city we should prioritize biking and walking as a mode of transportation. Not only is it an important step in reducing our carbon footprint, but it also creates a more cohesive community and improves public health. If we want to see more people choosing biking and walking over driving, we need to make these options safer.

Thank you,  
Alicia Cunningham  
45 Overlake Park  
Burlington

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**From:** William Kruesi  
**Sent:** Saturday, November 9, 2019 8:23 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Subject:** Bicycle traffic to new YMCA

To: Winooski Avenue Transportation Study Team

Winooski Avenue is the primary North-South route for pedestrians and cyclists to reach the Greater Burlington YMCA. Every morning there are 8 - 10 bicycles on the bike racks beside the current YMCA building at the corner of S. Union Street and College Avenue. A dedicated bike lane helps ensure safety from car and truck traffic, and to automobile drivers from bike riders wandering out of their line of travel. Thank you very much for supporting this upgrade to the city's streets and traffic patterns.

William K Kruesi  
[REDACTED]  
Burlington, VT 05408

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**From:** David Cawley  
**Sent:** Saturday, November 9, 2019 6:57 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Cc:** 'Allegra Williams' <allegra@localmotion.org>  
**Subject:** Support for Current Plan for Winooski Ave

Hello Bryan, Nicole, and Jonathan,

I have reviewed and support for the current plan proposed by the Winooski Avenue Transportation Study Team. Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets

(the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,

David Cawley  
[REDACTED]

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**From:** Andrew Pollak-Bruce

**Sent:** Friday, November 8, 2019 2:45 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com

**Cc:** allegra@localmotion.org; [REDACTED]

**Subject:** Winooski Ave Transportation Study Comments

Hi Nicole, Bryan, and Jonathan,

Just a quick note to you let you know I support the current plan proposed by the Winooski Avenue Transportation Study Team. It is crucial that we have continuous bike lanes throughout the corridor. I use this coordinator to commute to work by bike every day--winter and summer. While I do enjoy biking, my partner is a student at UVM and our family simply cannot afford a second vehicle. I am also a parent to two amazing kids who need their father to get home safely each day. Please make sure this coordinator is finally safe for all of us who use it!!! We've had enough planning studies to confirm it is what the community wants. We've come the same result multiple times--we need continuous bike lanes on Winooski Ave, particularly in the area between Main and Peal.

Thanks! ~Drew

Drew Pollak-Bruce  
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**From:** Phil Hammerslough

**Sent:** Friday, November 8, 2019 12:10 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>; DPW <NLosch@burlingtonvt.gov>; Slason@rsginc.com

**Cc:** Allegra Williams <allegra@localmotion.org>

**Subject:** Winooski Ave. Project

I strongly support these recommendations for the corridor and thank you all for your work on this project. Having said this and recognizing how hard you've worked on this endeavor, (and the flack you've taken), there is still a strong predilection towards supporting a car centric perspective.

I realize a paradigm shift in thinking doesn't come easy. It's hard work and old thought processes are sneaky and can take over in the wink of an eye. For example in a recent piece from DPW regarding Winooski Ave. \*I think that's what it was), there was the mention of,"preserving parking

wherever possible.” No, no no! It should have been ELIMINATING UNNECESSARY parking wherever possible.

Considering the crisis of our environment and Vermonts’ increase in CO2 emissions it is PARAMOUNT that we design our roads and transportation to encourage Active Transportation; walking, biking and public transportation! . This means considering the comfort zone of all people, 8-80 and making our walking and biking inviting and pleasurable.

Cars, although warm, comfortable and ubiquitous are not effective in urban and suburban areas and do nothing to decrease climate change. They are a seductive mode of transport which must be matched by how we invest and create an environment of Active Transportation that rivals the convenience of the car.

Best regards.  
Phil Hammerslough  
(an optimist to the end)

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**From:** Jonathon Weber  
**Sent:** Friday, November 8, 2019 11:59 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>; NLosch@burlingtonvt.gov; Jonathan.Slason@rsginc.com  
**Subject:** Winooski Avenue Transportation Study

Hello Bryan, Nicole, and Jonathan,

**I would like to see more progressive bike infrastructure, especially parking-protected lanes, through this corridor.**

However, I am writing to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team. Once implemented, these changes will go a long way towards improving safety and accessibility for those walking and biking along the corridor and will help to better connect the existing bike network within the city.

In particular, I want to express how critical it is to have continuous bike lanes throughout the corridor. I would also stress the importance of addressing the safety challenges between Main and Pearl Streets (the most dangerous stretch) as soon as possible through the proposed road diet and installation of dedicated bike lanes.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,

Jonathon

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**From:** J. G.  
**Sent:** Thursday, November 7, 2019 8:29 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Re: Winooski Avenue Transportation Study: Nov 13 Public Meeting

national traffic safety just released a recommendation for all states to require bicycle helmet use..and most importantly.. "VEHICLES AND BICYCLES SHOULD NOT BE IN THE SAME TRAVEL LANES.,,THEY MUST BE SEPARATED"..... THIS STUDY IS ALREADY OBSOLETE...

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### **Champlain Housing Trusts' Concerns re: Winooski Avenue Corridor Study**

Since the early 1990's, CHT has made significant community investments in the Greater Archibald Intervale Neighborhood, which includes North Winooski Avenue. The Foodshelf (now Feeding Chittenden), Legal Aid, the Multi- Gen Center (now Children's Space and Outright), Thelma Maple Coop, the Bright Street Coop, the Bus Barns, George Little Park, Pathways, and numerous other rental and homeownership properties on Winooski Ave were all initiated by CHT as community investments. We are likely the largest single land and property owner on the street.

Over time, others have followed and the street is now transformed with restaurants, retail and neighborhood and regional services, a pretty eclectic mix that serves the neighborhood as well as people who travel a distance.

There is no public parking available other than on street parking. Only two or three properties have spaces available for visitors. The reduction of on street parking without significant off street public parking options will have a negative impact on non-profits and business along this part of the corridor. The table below expresses the walking distances between locations and public parking opportunities existing in the downtown as no large public parking opportunities exist in the old north end outside of the downtown garages.

Complete Streets requires the balancing the right of way for all modes of transportation. The plans for the section of Winooski Avenue north of North Street espoused in the near term improvements in the Winooski Avenue Corridor Study does not do that. The current off-street public parking presents challenges for folks with mobility impairments, children and everyone in the winter.

Origination Location	Off-street Public Parking Locations	Walking times
Community Health Center at Riverside and Winooski Avenues	Church Street Marketplace Garage	~19 minutes
Community Health Center at Riverside and Winooski Avenues	Lakeview Garage	~22 minutes
Drifter's Café and Bar at Winooski Avenue and North Street	Church Street Marketplace Garage	~9 minutes
Drifter's Café and Bar at Winooski Avenue and North Street	Lakeview Garage	~14 minutes

An article by the DC Policy Center "The demographics of walking and biking to work tell yet another story of gentrification" found that "Policies that promote walking, biking, and living near public transit do not offer relief from these trends, as the most economically vulnerable residents of the city live too far from their places of work to walk or bike." And "that transit-oriented development programs can create social inequities and increase the pace of gentrification....." <https://www.dcpolicycenter.org/publications/the-demographics-of-walking-and-biking-to-work/>. This is one of numerous other articles about race and gentrification that should give planners pause before pursuing this concept.

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Stu McGowan

Stu@ [REDACTED]

I've been living in the ONE for nearly 35 years, and have seen immense change happen. When I moved in, there were almost no cars, 45% of residents didn't have a landline, no one had internet until the smartphone revolution happened.

For the first 20 years, most people got around by walking, taking the bus, or a taxi to get groceries. Hardly anyone except kids and the DUI convicted rode bikes.

Things have changed in the last 15 years.

Now more people ride bikes, New Americans and generational poor are buying cars, and the pressures of all these different modes of transportation have recently come to a head.

But one thing has persisted. Burlington for the months of Oct-May are very inhospitable for walking or biking. Snow and frigid cold will do that. You only do those two modes of transportation if you have no other recourse, or you're not going far. Or if you have a lot of money to afford the right bike, the right clothes, and the right attitude for our harsh winters. In other words, a very select, very privileged few.

Another massive change was the amount of businesses that now call the ONE home. Back in the first half of the last century, there were so many businesses scattered all over the ONE, with the central focus being North Street. 6 story wood structure buildings would offer every type of shoe, clothes, repair, or any other type of business you could imagine. Every side-street had storefronts on the first floor, offering kosher meats, funeral parlors, appliance repairing, etc, with apartments on the next 2 or 3 floors.

From about the 1960s-1990s, most of these businesses burned down, were abandoned, or became irrelevant as suburban malls and such made it untenable for small business to succeed.

Then at the start of the 2000s, a few businesses started coming back to the ONE. The majority were food service, offering everything from Nepalese dumplings to Moroccan fare, to bakeries. Some didn't survive very long, others managed to hang on and are now key parts of our community.

Many of us worked really hard, and took great financial risks to accommodate these aspiring businesses. In the last 5 years, the neighborhood has blown up with food, clothes, and other goods from across the world, and from right here in VT.

The bike lane plan for N. Winooski Ave will in one fell swoop, cancel all this progress. Without the precious parking that fuels all these businesses, the majority will fail.

We don't have parking garages, we don't have extra parking spaces, we don't even have parking meters. What we have is a very limited parking situation, that we've all managed to work with, as a neighborhood. Until now.



By eliminating all the parking on the East side of N. Winooski, patrons of both the businesses and the non-profits that line N. Winooski, will be forced to either not come to the neighborhood, or park on side streets where tenants need to park.

There is no easy solution to this problem. As they say, they're not building anymore beachfront. There's no way to create additional parking out of nothing.

I understand the argument that global climate change is more important than business. I've been fighting global climate change in many ways for the last 30 years. But you can't just throw out the baby with the bath water - to continue to provide opportunities for everyone, and also help combat GCC, a more intelligent process needs to happen.

There are other ways to provide a situation where everyone's needs are met, or close to met. By eliminating all those parking spaces, we eliminate all but a select, privileged few. That's not the ONE, Burlington, Vermont I decided to dedicate my life to nearly 40 yrs ago.

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**From:** Kate Lasko  
**Sent:** Tuesday, September 24, 2019 10:44 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Winooski Avenue Transportation Study Update

Thank you so much for the update on this project. As a bike commuter, this work is very important to me. Winooski Avenue from Pearl to Main is perhaps one of the most dangerous stretches of road in Burlington for bicyclists. Yet, it is hard to avoid, especially when traveling southbound because of many 1-way streets heading north. I just wanted to voice my opinion that sharing the lane with car traffic is not a good option. That is a very busy road and drivers are impatient. It seems like bike lanes come at the cost of parking spaces, and I see that that is a difficult juggling act, but it's unrealistic to try to plan a safe way for cars and bikes to share a single lane on a busy road. The options with designated bike lanes seem far safer. It is really the only way people can bike across town, especially with school-age children.

With gratitude for your work on this,  
k8 Lasko

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**From:** David Lines  
**Sent:** Monday, September 23, 2019 5:07 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Winooski Avenue Transportation Study Update

Hi Bryan,

Thanks for all your good work on this. From my read, Alt's 1&2 look like good options. 3 with stacked bike lanes, less so. Assuming that a driving lane will be lost between Pearl and College/Main? That should be smooth sailing! Will certainly help spend some political capital to make it happen when the time comes...

Cheers,  
DavidLines

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**From:** Jason Van Driesche  
**Sent:** Saturday, September 21, 2019 9:11 AM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Re: Winooski Avenue Transportation Study Update

Hi Brian. A question. Have the alternatives under consideration been narrowed down to only those with protected bike lanes? If not, why not? As several people have noted throughout the process, anything other than protected bike lanes is inconsistent with what is called for in PlanBTV Walk Bike.

Thanks,  
Jason

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## **Public Meeting #3: What Do You Think Comment Forms (November 2019)**

# What do you think about the Winooski Avenue concepts?



I like...

as a 19yr old college student the 7' in bike lanes sounds great as I don't have the smaries to buy a car.



I wish...



Questions / Concerns

- could more of the bike lanes be protected
- (I'm a fan of Delfspeck's protected bike lanes with parked cars in between the car lane and bike lane)



Ideas

# What do you think about the Winooski Avenue concepts?



I like...

- ADDITION OF BIKE LANES
- EFFORTS TO IMPROVE SAFETY



I wish...

- TO STAY IN CONTACT W/ THE TEAM - HOWARD CENTER NEEDS GREAT COMMUNICATION TO CONTINUE TO SERVE CLIENTS SAFELY @ 102 SO. WINOOSKI - UNANNOUNCED ROADWORK IS DETRIMENTAL TO OUR OPERATIONS; ESP. WHEN ACCESS TO OUR BLDG IS IMPACTED



Questions / Concerns

- CONCERNED ABOUT LOADING + UNLOADING @ 102 SO. WINOOSKI



Ideas

- ENSURE WHEELCHAIR ACCESS IS ENHANCED IN DESIGN OF DOWNTOWN
- PRIORITIZE ABILITY TO SAFELY LOAD/ UNLOAD IN FRONT OF 102 SO. WINOOSKI - ACCESS FROM A SIDE STREET IS NOT FEASIBLE FOR THE POPULATION WE SERVE.



# What do you think about the Winooski Avenue concepts?



I like...

Bike Lanes / Safety



I wish...

Ideas.

- Form land owner agreements to remove fences & unify parking ~~between~~ behind buildings, reducing curb cuts and making more off street parking.
- Raise the lot so it can hold more storm water underneath.



Questions / Concerns

Making N. Win. Ave 2 way for cars



Ideas

- Comitt to full one way on N. & S. Win. Ave.
- Instead of widening N. Win between Pearl and Union, widen Union between Main & ~~Pearl~~.

Ryan Doyle

likes.to.hike711@gmail.com





# What do you think about the Winooski Avenue concepts?



I like...

THE BIKE LANES,



I wish...

THAT MAIN TO PEARL BE FIRST  
PRIORITY.



Questions / Concerns

I'M RESERVING FULL JUDGEMENT  
ABOUT PEARL TO RIVERSIDE UNTIL  
PARKING MANAGEMENT PLAN SHOWS  
PARKING DEMAND.



Ideas

BUYING THE TRANSMISSION SHOP  
TO BUILD A PARKING LOT/GARAGE, JUST  
LIKE DOWNTOWN.

FORMALIZED LOADING ZONES FOR BUSINESSES  
ON SIDE STREETS WOULD MITIGATE BIKE LANE  
PARKING VIOLATIONS.



# What do you think about the Winooski Avenue concepts?



I like...

Biking  
Walking



I wish... our streets  
were quieter & safer



Questions / Concerns

The near term option looks great! You did a good job of balancing all of the different uses in a narrow space.



Ideas

I live on N. Winooski Ave and I really hope that we can add bike lanes. I don't mind losing parking on one side of the street.



# What do you think about the Winooski Avenue concepts?



I like...

Keeping my tenants happy by providing off and on street parking



I wish...

- Education on use of bike lane
- Enforcement of traffic laws for all users of the road, not just cars
- Insurance requirements & licensing for bicycles. My vehicle was hit by a ~~car~~ bicyclist who took off.



Questions / Concerns

Resident only parking?

~~as a~~ (North - Pearl?)

I will suffer economic loss when parking disappears. Tenants are currently able to park on the street, but will not ~~once~~ parking disappears



Ideas

Force college rentals/~~cars~~ to limit the # of cars their tenants can only operate in the city. ~~For~~ On street parking is easy when college isn't in session.

Why not make 1 side of the sidewalk into a bike lane & have people walk only on 1 side



# What do you think about the Winooski Avenue concepts?



I like...

Proceed on Pearl to Howard  
portions ... don't see any  
major impediments there



I wish...

"Have cake and eat it too" was  
so appropriate. Taking parking spaces  
is such a red button issue. I wish  
there were a way to have both. Think about  
one way southbound from North to Pearl  
so there is room for bike lanes and  
breathing room for businesses near Pearl & North Winooski



Questions / Concerns

More enforcement of bicyclists'  
(some) disregard of traffic regulations  
I bike & live downtown and  
the behavior of a few brings negativity  
to the rest of us. I feel as if enforcement  
in this city is lackadaisical (pardon  
my spelling)  
and the behavior of a few stresses many drivers



Ideas



# What do you think about the Winooski Avenue concepts?



I like...

- Bike lanes between row of parked cars & curb-- safer for all
- Bike lanes for both sides of downtown section w/ 2 lanes of traffic + chr. turn lane



I wish...

Same consideration to developing more off-street public parking to rear of commercial properties in north sector.

→ (we have ample inventory of such facilities downtown, but few lots in growing N. Winooski Ave. N. of North corridor) - ~~encourage~~ # open up those that already exist for after-hours public use



Questions / Concerns

Section on your website that documents evolution of preferred options & how they have evolved in response to feedback received



Idea

Add special signalization for bike lanes @ busiest intersections - like they have along on-street bike routes in Montreal



# What do you think about the Winooski Avenue concepts?



I like...

CONTINUOUS BIKE LANES THRU  
CORRIDOR.

ROAD DIET DOWNTOWN



I wish...

BIKE LANES COULD BE PROTECTED  
BY CURBS



Questions / Concerns



Ideas

PAINT OUT THE "EASIER" IMPLEMENTATION  
AS SOON AS POSSIBLE





# What do you think about the Winooski Avenue concepts?



I like... opening W Winooski  
TO TWO WAY - CREATING FULL  
N → S ROUTE FOR CYCLISTS.



I wish... Elmwood Ave could be  
RE-CONFIGURED TO 2 WAY FROM  
PEARL TO GRANT.



## Questions / Concerns

Winooski  
From Pearl To GRANT - incorporate  
The ability for existing cafes to  
remain intact (Radio Bean, Lamp  
shop, Duino's, other place, etc.)  
when changing 1 way to two way



## Ideas



# What do you think about the Winooski Avenue concepts?



I like...

- Separating plans.



I wish...

- Don't change Reastst. North ;  
wait until you can find  
long term with all parties  
happy. \$ Near-term =  
no term. other  
than downtown.



Questions / Concerns

- Don't forget that the  
Community Health centers  
have sick patients and  
need parking.



Ideas



# What do you think about the Winooski Avenue concepts?



I like...

- CLEARLY IDENTIFIED BIKE LANES
  - TWO WAY BIKE LANES
  - IMPROVED PEDESTRIAN WALKWAYS
  - CITY IMPROVEMENTS ARE BEING MADE!
- THANK YOU.



I wish...

SOLUTION ORIENTED

- Parking
- POSSIBLE FOR RESIDENTS TO GET A LOW-COST PASS FOR BTU PARKING GARAGE FOR GUESTS/VISITORS
  - POSSIBLE TO HAVE ALL OF RESIDENTIAL PARKING, RESIDENTIAL ONLY?
  - OUT OF TOWNERS - AIRBNB w/ CARs TAKING RESIDENT SPOTS



Questions / Concerns

- DRIVER VISIBILITY TO SEE BIKERS ~~when~~ WHEN ENTERING BIKE LANES TO JOIN CAR LANE TRAFFIC
- CAR DOOR/BIKE COLLISION ACCIDENTS ARE A CONCERN REGARDLESS



Ideas

- PREFER PROTECTED BIKE LANES WITH PARKING ADJACENT TO DRIVING LANES
- HAVE TWO-WAY BIKE LANES NEXT TO ONE ANOTHER PROTECTED BY PARKING LANE



# What do you think about the Winooski Avenue concepts?



I like...

bike lanes that mirror car lanes and are protected



I wish...

We had bike traffic light working in conjunction w/ car traffic lights.



Questions / Concerns

Why can't cars park on grass in Burlington?



Ideas

Remove "permit parking only" locations



# What do you think about the Winooski Avenue concepts?



I like...

That this project may finally come to fruition w/ bike lanes being given weight



I wish...

- o that we could move beyond the present (CMA dependent) thinking & be the bridge to a more sensible Climate conscious future
- o that we would reconsider the idea of protected bike lanes



Questions / Concerns

I would like more details about intersections - they are some of the most dangerous points for bicycles & pedestrians  
Spec. Union / deCarter / Winooski;  
Intervale / Winooski



Ideas



# What do you think about the Winooski Avenue concepts?



I like...

- Bike lanes on N. Winooski
- I'm glad we have parking kept on one side on one side of N. Winooski



I wish...

\* Do the Downtown changes in 2020

because if we kept it 1 way we maybe could have bike lanes.



Questions / Concerns

Can we have bike lanes with ~~two~~ one ~~lane~~ way traffic on N. Winooski from Union to Pearl?



I don't understand why we have to have  
Idea 2 way on N. Winooski Pearl → Union.

I am highly skeptical of the 2 way traffic on N. Winooski between Union & Pearl





# What do you think about the Winooski Avenue concepts?



I like...

continuous bike lane  
full length  
better markings, slower traffic  
safer for everyone



I wish...

we could find ~~another~~  
a shared parking  
solution  
there could be protected  
and/or separated bike  
lanes the whole length



Questions / Concerns

Biking in the northern section  
Union  $\rightarrow$  Riverside is  
NOT ok currently  
it is not safe.

I don't see much benefit to  
2-way traffic Pearl  $\rightarrow$  Union  
except for transit

I do not think we should widen  
the road except maybe in  
limited targeted areas



Ideas

2 lanes of traffic  
w/ full separation  
& turn pockets downtown

# What do you think about the Winooski Avenue concepts?



I like...



I wish...

That you would shelve any  
Proposal that does away with any  
Kind of Significant Parking. You are going  
to hurt Residents, Seniors, Business and  
ultimately this Plan is going to create traffic  
gridlock that will hurt the environment. Any  
Plan that remotely resembles this will be a disaster  
in many ways.



Questions / Concerns



Ideas



# What do you think about the Winooski Avenue concepts?



I like...

- Bike Lanes
- Mitigating climate change
- Promoting bike infrastructure
- Discouraging cars



I wish...

Bike Lanes & Safety



Questions / Concerns



Ideas

- As an intern STVT I canvassed along the corridor asking people about bike lanes, all were in favor, most wanted protected



# What do you think about the Winooski Avenue concepts?



I like...

- Protected bike lanes
- a designated spot for bikers on the road
- SAFETY FOR ALL!!!
- Reducing carbon emissions
- Fighting climate change
- A Bikeable Burlington!
- 



I wish...

All people respected the need to have a designated spot on the road for PROTECTED BIKE LANES ALONG THE ENTIRETY OF THE CORRIDOR



Questions / Concerns

please make this corridor safe for me. I can't afford a car and I need to bike. please help make this city welcoming to all modes of transit. More people will bike if there is a place for them on the road!.



Ideas

Lets paint lines ~~Now!!!~~ hehe

Thank you for everything you have done for this and all the time you have put into this! Im sorry about all the mean people



# What do you think about the Winooski Avenue concepts?



I like...

- Protected bike lanes ! ! ! !  
↳ car is my main form of transportation but I'm definitely for bike lanes. There needs to be a place on the road for everyone to travel safely especially bikes. Increasing opportunities for bikers is beneficial for the environment ~~and~~



I wish...

you guys would just do it without asking anyone ;



Questions / Concerns



Ideas

- We should definitely be focusing more on needs + concerns from younger people because this is their future



# What do you think about the Winooski Avenue concepts?



I like...

We are including bike  
riders in this. This is very  
much a public safety issue



I wish...

This doesn't drag on for years.  
Meaningful changes are enacted  
in the next year or two



Questions / Concerns



Ideas



# What do you think about the Winooski Avenue concepts?



I like...



I wish...

there were NO loss  
of parking



Questions / Concerns

You should NOT bring a plan to remove 109 spaces (Riverside → Pearl) without knowing that that loss of parking can be managed. It is highly doubtful that it can be -- you have given no reasons to believe it can be.



Ideas

Therefore, people will see the parking management plan as a strategy to appease opposed residents & eventually do what you are seemingly intent on doing





# What do you think about the Winooski Avenue concepts?



I like...



I wish...

less cars



Questions / Concerns



Ideas

- Keep Parking
- Less Bike Lanes

# What do you think about the Winooski Avenue concepts?



I like...

- All variations that include consistent/connected bike lanes
- Removing as much parking as possible
- 



I wish...

Accessible transit stop locations included in the plan  
↳ crossing bike/parking lanes safely



Questions / Concerns

How can transit + additional modes be incorporated into the study?



Ideas

# What do you think about the Winooski Avenue concepts?



I like...

- Trees
- Bike lanes protected
- open parking (not by neighborhood streets)
- planning to attract more youth to live here
- planning to keep downtown vibrant



I wish...

We could hold bikers accountable!



Questions / Concerns

• Can UVM + Champlain do something to manage student cars? Why does Burlington have to provide [nearly] free parking?



Ideas

- Be sure to consult Liveable/Walkable City Resources
- Seniors only meeting to address our needs

Thanks for the work!



# What do you think about the Winooski Avenue concepts?



I like...



I wish...



Questions / Concerns

*Parking is critical!!!*



Ideas

# What do you think about the Winooski Avenue concepts?



I like...

KEEP THE VISION OF CONTINUOUS  
BIKE LANES FOR ALL SECTIONS  
- DON'T PHASE IN IF NOT NECESSARY



I wish...

UNDERTAKE PARKING MANAGEMENT PLAN  
IMMEDIATELY!



Questions / Concerns



Ideas

PUSH the tests to get  
A SENSE



# What do you think about the Winooski Avenue concepts?



I like...

Road diet from Pearl to Main!  
Door zone buffer from Riverside  
to Pearl  
Two-way north of Pearl is a good idea  
if it will improve GMT service.



I wish...

That this was flipped to create parking  
protected bike lane.



Questions / Concerns



Ideas

Wish we could implement the longer-term  
visions right away.

# What do you think about the Winooski Avenue concepts?



I like...



I wish...



Questions / Concerns



Ideas

Whose ever possible  
used parked cars to  
protect bike lane. Especially in  
the north section of North Wm.





# What do you think about the Winooski Avenue concepts?



I like...

The removal of parking  
we need to de-centrify  
owning a car!  
E.V or combustion  
both ~~will~~ create emissions  
our environment cannot  
handle (e.v with making them)



I wish...

People came to the  
meetings open minded  
rather than with a  
concrete opinion and  
clogged cars.



Questions / Concerns

~~Is de-centrifying~~  
~~cars~~

~~Is de-centrifying~~  
cars important  
to the city.



Ideas

- Educate on all the good  
that comes with bike lanes
- increased health of the community
  - increased economic activity
  - safer streets



# What do you think about the Winooski Avenue concepts?



I like...

the car acting as a buffer  
between cyclists/drivers



OK BOOMER

I wish...

The city would ~~also~~ prioritize  
the safety of bicyclists,  
because it is more threatened  
than drivers.

more bicycle infrastructure & safer  
conditions makes people follow the rules of the road!



Questions / Concerns

If people don't feel safe  
biking, they won't bike

build it right the first  
time and protect the lanes



Ideas

everyone in Copenhagen/  
Amsterdam follow bike laws  
b/c the infrastructure supports  
them and that is the norm.  
We need to develop our bike norm.



# What do you think about the Winooski Avenue concepts?



I like...

The continuways  
2-way bike facilities.  
This is a great  
short-term solution!!



I wish...

That we could move  
towards curb-protected  
or elevated bike fac.  
where possible.



Questions / Concerns

Bike lanes are still  
in the door zone.



Ideas



# What do you think about the Winooski Avenue concepts?

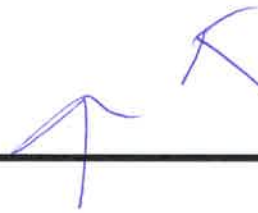


I like...

1. As a compromise give up parking on WEST SIDE!  
BETTER TRAFFIC FLOW!
2. KEEP N. Winooski as one way - It's safer



I wish...



Questions / Concerns

~~parking lots before~~  
~~bike lanes~~



Ideas

Rid RESTRICTED Parking  
To open up more fairness.  
(Mansfield Ave) etc... Allen St etc  
all of it.

# What do you think about the Winooski Avenue concepts?



I like...

- Pearl → Main
- ① dedicated bike lanes
  - ② center turning lane



I wish... I felt like DPW was going to listen to comments of those most affected. Think of North Ave bike lanes, ... the Moran

③ allow tenants to park on home given spaces



Questions / Concerns

Union → Pearl  
NOT necessarily to create 2-way traffic!  
Leave as is.



Ideas

Taking away all that parking? If that's gonna happen -

- ① take away "resident only" parking streets
- ② Require rentals to provide more parking



# What do you think about the Winooski Avenue concepts?



I like...

Everything! The near-term option is fair, practical and solid.



I wish...

It would get implemented in 2020.



Questions / Concerns

None. Do it.



Ideas

Reduce resident-only parking on side streets to make more parking available.





# What do you think about the Winooski Avenue concepts?



I like...

TRYING TO BALANCE BIKE +  
AUTO TRANSPORTATION, FAIRLY.

\* 2 WAY BIKE LANE THE WHOLE  
ROUTE --- THIS IS THE ROADWAY  
WHERE THAT CAN HAPPEN. ~~IF~~ IF NOT NOW... ~~THEY~~ PROBABLY NEVER



I wish...

THIS GETS BUILT SOON, SO  
~~WE~~ WE CAN EXPERIENCE WHAT  
MANY PEOPLE WORKED HARD  
TO DESIGN.



Questions / Concerns



Ideas

WHILE WAITING FOR BUILD TO  
HAPPEN --- DO QUICK BUILDS  
WHERE CAN TO GIVE PEOPLE  
TIME TO LEARN + ADJUST TO  
NEW PATTERNS.





# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

### 1. How did you hear about the Meeting? (Check all that apply)

a) Email from Friend/Colleague	i) VT Digger Calendar
b) Email from Sponsors	j) Social Media (Facebook, etc.)
c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	News
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation						
Quality of the Overall Discussion						
Physical facilities for this event						
Amount of time allowed for input						
Overall value of this event to you						

Comments:

I think all bikes should be taxed to pay for this. They use the road, they can damn well pay for it!

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

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**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

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c) Email from Other		k) Website(s)	
d) Flyer/Poster		l) Local Motion	
e) CEDO Buzz		m) Other (please describe)	
f) Front Porch Forum	X		
g) Burlington Free Press			
h) Seven Days Calendar			

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation		//				
Quality of the Overall Discussion		//				
Physical facilities for this event		//				
Amount of time allowed for input		//				
Overall value of this event to you		//				

Comments: I am very much in favor of the bike  
lanes and believe that once constructed they  
will be extremely successful.

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

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**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

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a) Email from Friend/Colleague	i) VT Digger Calendar
b) Email from Sponsors	j) Social Media (Facebook, etc.) <span style="float: right;">X</span>
c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe) <span style="font-size: 1.2em; color: blue;">Through Internship</span>
f) Front Porch Forum	
g) Burlington Free Press	<span style="float: right;">X</span>
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation			X			
Quality of the Overall Discussion				X		
Physical facilities for this event				X		
Amount of time allowed for input				X		
Overall value of this event to you		X				

Comments: I believe that having a bike lane between  
a car lane and a parking section could be  
dangerous. Cars pulling in or out of parking spots,

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

are likely to not see a biker coming down the  
road, and may cause an accident. I think the  
two bike lanes should be side by side on  
the side of the road opposite parking spaces.

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

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c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	<i>DPW Commission Mtg.</i>
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation						
Quality of the Overall Discussion				X		
Physical facilities for this event			X			
Amount of time allowed for input					X	
Overall value of this event to you				X		

Comments: Standing room only, very hot, hard to hear questions

Considering magnitude of this proposal, a bigger Facility would have been better such as the St. Joseph's main auditorium.

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

There are strong opinions on each side. How about sponsoring a debate to give voice to the opposing views?

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

### 1. How did you hear about the Meeting? (Check all that apply)

a) Email from Friend/Colleague	i) VT Digger Calendar
b) Email from Sponsors	j) Social Media (Facebook, etc.) <span style="float: right;">✓</span>
c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation			✓			
Quality of the Overall Discussion		✓				
Physical facilities for this event		✓				
Amount of time allowed for input			✓			
Overall value of this event to you		✓				

Comments: As someone without a car, I want to see biking  
highly prioritized! If we are serious about transforming our transportation  
sector, these changes are critical. Less cars, more active transit

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

Elevating bike lanes could be a long-term option to make  
biking safer.

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)



# Winooski Avenue Transportation Study

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c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation						
Quality of the Overall Discussion						
Physical facilities for this event						
Amount of time allowed for input						
Overall value of this event to you						

Comments:

Please implement Pearl Main and South End parts of the plan ASAP

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

We need bike lanes on N. Winooski Ave. preferably protected

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

### 1. How did you hear about the Meeting? (Check all that apply)

a) Email from Friend/Colleague		i) VT Digger Calendar	
b) Email from Sponsors		j) Social Media (Facebook, etc.)	
c) Email from Other	✓	k) Website(s)	
d) Flyer/Poster		l) Local Motion	
e) CEDO Buzz		m) Other (please describe)	✓
f) Front Porch Forum		Student intern for center for research on VT	
g) Burlington Free Press			
h) Seven Days Calendar			

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation	✓					
Quality of the Overall Discussion	✓					
Physical facilities for this event	✓			✓		
Amount of time allowed for input	✓					
Overall value of this event to you	✓					

Comments: I live in the old north end and biking is my primary mode of transportation. there NEEDS to be a place on the road for bikers. ~~corner~~

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

~~Not~~ I have attached a statement I planned to say today but did not get the chance.  
Thank YOU for All the Hard work!

**Please leave this form at the registration table.**  
Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)



# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

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c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation			X			
Quality of the Overall Discussion					X	
Physical facilities for this event			X			
Amount of time allowed for input						X
Overall value of this event to you	X		X			

Comments: I feel that this forum was just a formality  
and the decision has already been made

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

Shame on the city for not informing  
affected property owners about this  
study and meetings. I only found out  
about this by accident!

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

## Meeting Evaluation & Comment Form Public Meeting #1, November 13, 2019

### 1. How did you hear about the Meeting? (Check all that apply)

a) Email from Friend/Colleague	i) VT Digger Calendar
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c) Email from Other	k) Website(s)
d) Flyer/Poster	l) Local Motion
e) CEDO Buzz	m) Other (please describe)
f) Front Porch Forum	
g) Burlington Free Press	
h) Seven Days Calendar	

### 2. Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation		✓				
Quality of the Overall Discussion			✓			
Physical facilities for this event		✓				
Amount of time allowed for input				✗	✓	
Overall value of this event to you		✓				

Comments: I'd like to see strong, immediate  
action to make Winooski Ave a  
safer place to bike.

### 3. Anything else you'd like to share with us? (Feel free to use the back side)

The car-centrism of Winooski Ave  
does not adequately serve the current  
Burlington population.

**Please leave this form at the registration table.**

Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

# Winooski Avenue Transportation Study

Registration Evaluation & Comment Form Public Meeting #1, November 13, 2013

How did you hear about the Meeting? (Check all that apply)

a) Email from Friend/Colleague	
b) Email from Sponsors	
c) Email from Other	
d) Flyer/Poster	
e) CEDO Buzz	
f) Front Porch Forum	
g) Burlington Free Press	
h) Seven Days Calendar	

i) VT Digger Calendar	
j) Social Media (Facebook, etc.)	
k) Website(s)	
l) Local Motion	
m) Other (please describe)	TV News

Please rate the following aspects of the evening meeting at City Hall:

Aspect	Fantastic	Very Good	Good	OK	Poor	Terrible
Welcome & Presentation						
Quality of the Overall Discussion						
Physical facilities for this event						
Amount of time allowed for input						
Overall value of this event to you						

Comments: bike route on S. Winooski = STUPID

buses, fire trucks, tractor trailers parked in right lane now Union St are block up already has bike lane all the way to Winooski.

3. Anything else you'd like to share with us? (Feel free to use the back side)

too much with the bike, bike  
bike too many side flower pots  
less parking  
bad stupid!

Please leave this form at the registration table.  
Or, return to: Diane Meyerhoff, Third Sector Associates, [diane@thirdsectorassociates.com](mailto:diane@thirdsectorassociates.com)

**Public Email Comments from  
Dec. 5, 2019 to Feb. 12, 2020**



From: Ian Stokes

Sent: Thursday, December 5, 2019 2:37 PM

To: Bryan Davis <bdavis@ccrpcvt.org>; Nicole Losch <NLosch@burlingtonvt.gov>; Jonathan Slason <Jonathan.Slason@rsginc.com>

Subject: Bike lanes and parking spaces on Winooski Avenue

Hello Bryan, Nicole, and Jonathan,

I hope I'm not too late to express my support for the current plan proposed by the Winooski Avenue Transportation Study Team.

I'd like to address specifically the question of parking spaces on Winooski Avenue: If the infrastructure improvements result in more people traveling by bicycle on Winooski Avenue then fewer people will be driving and wanting to park their cars (parked bikes take up much less space!)

Personally I'm an example - every week I travel to Old Spokes Home at the north end of the Avenue - by bicycle, or in winter by mixed-mode (I put my bicycle on the Link Bus). If I didn't use my bike I'd be using a parking space. Winooski Avenue is a key component of my bike route from the ONE to the Bus Depot, City Market and other downtown destinations.

The more people travel safely by bicycle the fewer parking spots will be required, along with many other benefits. The infrastructure improvements under consideration will be an important contribution to encouraging more bicycle use and making it safer.

Thank you for your consideration and for your efforts to improve safety for all modes along Winooski Ave.

Sincerely,  
Ian Stokes  
Richmond, VT

-----

**From:** J. G.

**Sent:** Saturday, January 18, 2020 2:59 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Re: no winooski ave

Sir, I am still very concerned about losing the parking places for our tenets. There has never been, in the apartments' history have these had off-street parking. Tenants have always need the street. It is imperative to our financial stability to retain them. Is there a way for us to petition to have the remaining parking be "residential only" ? i NEED to get in front of this and the city representatives will not visit the site or address my concerns.

Jeff Gilbert

[REDACTED]

---

**From:** Matthew Vaughan

**Sent:** Friday, January 24, 2020 11:58 PM

**To:** Nicole Losch <nlosch@burlingtonvt.gov>; Bryan Davis <bdavis@ccrpcvt.org>; Maxwell Tracy <mtracy@burlingtonvt.gov>; bpine@burlingtonvt.gov; Perri Freeman <pfreeman@burlingtonvt.gov>; miro@burlingtonvt.gov; kpaul@burlingtonvt.gov; Erik Brown Brotz <[REDACTED]>

**Subject:** Support for bike lanes on Winooski Ave

Dear Winooski Ave study partners and city representatives,

I am writing to express my **support for the plan to remove on-street parking to create dedicated bike lanes on Winooski Ave**, as presented at the October 22, 2019 meeting I attended. If anything, this plan does not go far enough to remove on-street parking and form the backbone of a safe, low-stress, protected bike lane network as planned in [PlanBTV Walk-Bike](#) (adopted by City Council in 2017). I also support the [proposed changes](#) to the downtown section suggested by LocalMotion.

My strong support for bike infrastructure stems from a **concern for the safety of my neighbors and my family**. The Winooski Ave study team has developed a reasonable proposal that compromises well on multiple issues. The proposal can be implemented quickly and inexpensively to remedy a currently unsafe traffic pattern. I hope you will agree that this public street should be used for moving people safely, not storing unused private property.

Sincerely,  
Matthew Vaughan

[REDACTED]

---

**From:** Greg EplerWood

**Sent:** Saturday, January 25, 2020 4:45 PM

**To:** Bryan Davis <bdavis@ccrpcvt.org>

**Subject:** Suggestion submission & 3D map problem

Dear Bryan Davis,

I have spent some time looking at the PDF plan for South Winooski between Pearl and King, and have annotated the Bank and Main Streets intersections on the attached.

I'll try to make the Tuesday meeting; however, would these be too late in the process to be considered? I've not been able to participate in the previous meetings, and I feel strongly about my two observations, which I'd like to be heard and discussed.

Also, I find the 3D app not very useful, as the cross streets are not labeled, as far as I can see. If they do have labels, what do I have to select to see them?

Best,  
Greg

--

Greg EplerWood

[REDACTED]

Burlington, VT 05401

[PROJECT FILE NOTE: GREG'S COMMENTS ARE FOR THE PLAN SUBMITTED BY A CITIZEN GROUP:]



# A QUICK-BUILD PROPOSAL FOR SAFER WALKING & BIKING ALONG WINOOSKI AVENUE IN DOWNTOWN BURLINGTON

January 2020

The goal of this document is to propose enhancements to the planned 2020 improvements on Winooski Avenue between Pearl Street and Main Street that offer significant additional safety benefits for people walking and biking. This proposal builds on and is consistent with the preferred alternative selected by the Winooski Avenue Corridor Study process. It does not materially change traffic patterns or capacity of the street relative to the preferred alternative. It relies exclusively on quick-build techniques, and can therefore be implemented quickly and at relatively low cost.

## KEY TO SAFETY FEATURES

DESCRIPTION	PURPOSE
	Shortens pedestrian crossing distance
	Calms traffic and provides a refuge for mid-block crossings
	Highlights presence of bicyclists in conflict areas
	Guides bicyclists across intersections and alerts motorists to presence of bikes
	Helps bicyclists position safely for turns
	Creates separation between bicyclists and cars <small>(NOTE: Buffers are not always 4'-6' to allow cars to pull into bike lane for emergency vehicles)</small>

**NOTE:** Reducing the southbound lanes from 3 to 2 will create a backup in the combo right-turn/straight lane at the Main Street intersection.

The sidewalk on the East side is already much too narrow, and this is the time to "bump out" the street to the East to both restore the current (straight) lane, add the bike lane and widen the sidewalk.

To do this of course would require removing 11 parking spaces from the corner City parking lot and narrow the street back to the southern end of the Median, where the Fire Station property ends and the parking lot begins.

If the parking lot is not actually City property, then this would require a land purchase or, if necessary, eminent domain action.

This is a vital/major intersection that the City must maintain the best possible vehicle flow. My suggestion would not only do that, but also improve pedestrian safety at the NW and NE corners.

PEARL ST.

**ADD BIKE TURNING BOXES**  
At this and other locations, bike boxes make left and right turns by people on bikes safer and more predictable.

**ADD STAMPED ASPHALT MEDIANS AND PLANTERS**  
At this and other locations where a center turn lane is not needed, a narrowed median with planters calms traffic while providing a refuge for people crossing the street. At 8' wide, the median also frees up space to add protection to the bike lanes.

**ADD WAYFINDING TO GARAGE**  
For southbound traffic, add/enhance signage encouraging motorists to use the Cherry Street entrance to the garage.

CHERRY ST.

PARKING GARAGE EXIT

HANDY'S SERVICE STATION

**ADD WAYFINDING TO PARKING GARAGE**  
Indicate both here and at Cherry (NB) that motorists can enter garage from Cherry Street.

BANK ST.

**PROHIBIT LEFT TURNS ONTO BANK**  
This opens up more space for a turn lane into City Market, as well as allows for a mid-crossing pedestrian refuge.

**ADD TWO BUMP-OUTS**  
Follow quick-build design from PlanTV Walk Bikes.

**ELIMINATE CURB CUT**  
Purpose is to improve safety at bus stop. (In addition, Handy's recently removed their pumps and appear to only be doing repairs, so they may prefer more space for storing cars in place of the curb cut.)

CITY MARKET DRIVEWAY

A screenshot from Google Street View of the intersection of Bank & Winooski that clearly demonstrates the need for bike and pedestrian safety improvements at this location.

**ADD INTERSECTION CROSSING MARKINGS**  
At this and other locations, intersection crossing markings guide bicyclists across intersections, improving safety and making bike movements more predictable.

COLLEGE ST.

**ADD WAYFINDING TO PARKING GARAGE**  
Signage should clearly indicate that motorists should follow College and Center to enter the garage.

**EXTEND STAMPED MEDIAN IN FRONT OF FIRE STATION**  
A stamped median with no planters will help keep the area in front of the station clear for fire engine egress.

FIRE STATION

See my NOTE at left that suggests major change here

BUELL ST.

**ADD CURB BUMP-OUTS AT MAIN ST**  
Use bump-outs to shorten crossing distances and bring pedestrians out to edge of lane before entering traffic.

MAIN ST.

**ADD BUFFER BETWEEN BIKE LANE AND PARKED CARS**  
Instead of 4' wide bike lanes, make bike lanes 5' wide and use freed-up space for a buffer.

-----  
**From:** Aaron Collette <[ACollette@burlingtonvt.gov](mailto:ACollette@burlingtonvt.gov)>  
**Sent:** Monday, January 27, 2020 3:57 PM  
**To:** Nicole Losch <[NLosch@burlingtonvt.gov](mailto:NLosch@burlingtonvt.gov)>  
**Cc:** Barry Simays <[BSimays@burlingtonvt.gov](mailto:BSimays@burlingtonvt.gov)>  
**Subject:** Winooski Avenue Enhanced Proposal - Fire Comments

Nicole,

Thank you again for reaching out. Here are our comments for the redesign that you send us late last week. We only saw changes for the section of South Winooski Avenue, were there any changes to the proposal for North Winooski Avenue? If so, please be sure to include us in that conversation.

Let me know if you need anything else.

*Aaron J. Collette, EFO*

Deputy Chief of Operations  
Burlington Fire Department  
Burlington, Vermont 05401



## Burlington Fire Department

136 South Winooski Avenue  
Burlington, Vermont 05401-8378  
(802) 864-4554 • (802) 658-2700 (TTY)  
Business Fax (802) 864-5945 • Central Station Fax (802) 865-5387



### MEMORANDUM

To: Nicole Losch, PTP, Senior Planner  
From: Aaron Collette, Deputy Chief of Operations, BFD  
Date: January 27, 2020  
Re: Winooski Avenue Study – Alternative Proposal Considerations

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Thank you for allowing the fire department to actively participate in the evaluation of the alternative proposal for the Winooski Avenue corridor project. The leadership team here at Fire had the opportunity to review the alternative proposal (forwarded from your office via e-mail on Thursday, January 23, 2020). As you know, this corridor is a busy area for us. As a historical point of reference, the Burlington Fire Department sees approximately eight thousand emergency response unit movements by apparatus housed at Fire Station One, 136 South Winooski Avenue, each year.

We have several concerns with the new proposal and wish to share them with your office. We note the updated proposal did not include any design elements for North Winooski Avenue (north of Pearl Street). In order to provide a methodical response, our concerns will be addressed from the intersection of Pearl Street at South Winooski Avenue, working southerly toward Main Street. We will highlight each concern on the map (attached) with a number to correspond to our comments.

#### Comments:

1. We support the addition of the bike turning boxes at South Winooski Avenue and Pearl Street. This helps push the stop line back a bit, affording our apparatus with the ability to negotiate the intersection without cars parked into the intersection or crosswalk.
2. The inclusion of physical barriers on the proposed median will adversely impact the navigation of emergency vehicles - this middle lane area is the primary means for apparatus operators to navigate the vehicles who are complying with 23 V.S.A 1050.
3. The stamped median may pose limited issues for fire - however the addition of the planters will severely impact the ability for emergency vehicles to navigate South Winooski Avenue northbound. Most of the time - this center line of the road is the way the fire department is able to navigate the traffic on this street.
4. The inclusion of physical barriers to create the protected bike lane prohibits traffic from pulling to the right to allow emergency vehicles to proceed. In this proposal,

there are numerous locations where physical barriers are present both in the median and in the curb (protected bike lane). If any barriers are to be used, they should be low profile and mountable by civilian and emergency vehicles.

5. In order for fire apparatus to turn right onto Buell Street while traveling northbound on South Winooski Avenue, our apparatus must utilize the oncoming (southbound) lane of South Winooski Avenue to navigate the tight corner created by the parking spaces which line Buell Street. The addition of these physical barriers will prohibit fire apparatus from accessing this high risk residential neighborhood.
6. These bump outs (on Bank Street) will prohibit fire apparatus from turning right onto South Winooski Avenue without entering the northbound lane of traffic. Furthermore, the addition of physical barriers, such as planters will physically prohibit apparatus from making this turn, as we cannot navigate into the northbound lane if the planters are blocking us.
7. Some consideration should be made to make this a right turn only exit from City Market - This is a high source of congestion for the Fire Department during responses as traffic backs up while waiting for vehicles to try to turn left while exiting the City Market parking lot. Maybe there is a way to move the Bank Street traffic light more southerly to include the exit from the City Market lot?
8. This area is currently used several times a day by GMTA as a drop off and pick up location for Howard Center Clients with disabilities who are accessing 102 South Winooski Avenue. The addition of planters would prohibit vehicles from being able to navigate around these stopped transportation vehicles. We would support any modification that would allow GMTA or other transport services to move out of the travel lane to load/unload clients.
9. The inclusion of physical barriers to create the protected bike lane prohibits traffic from pulling to the right to allow emergency vehicles to proceed. We see significant problems with the inclusion of the protected bike lane on the curb side of the street and the inclusion of planters in the median – especially here in front of Fire Station One. The proposal does not appear to take into consideration the high volume of traffic that is often stopped in front of the fire station, especially during the afternoon rush hour. If any barriers are to be used, they should be low profile and mountable by civilian and emergency vehicles.
10. These bump outs will inhibit the ladder truck housed at Fire Station One from turning right down Main Street off South Winooski or right onto South Winooski from Main Street. Planters at this corner (South Winooski and Main) further obstruct our apparatus from turning this often tight and congested corner.



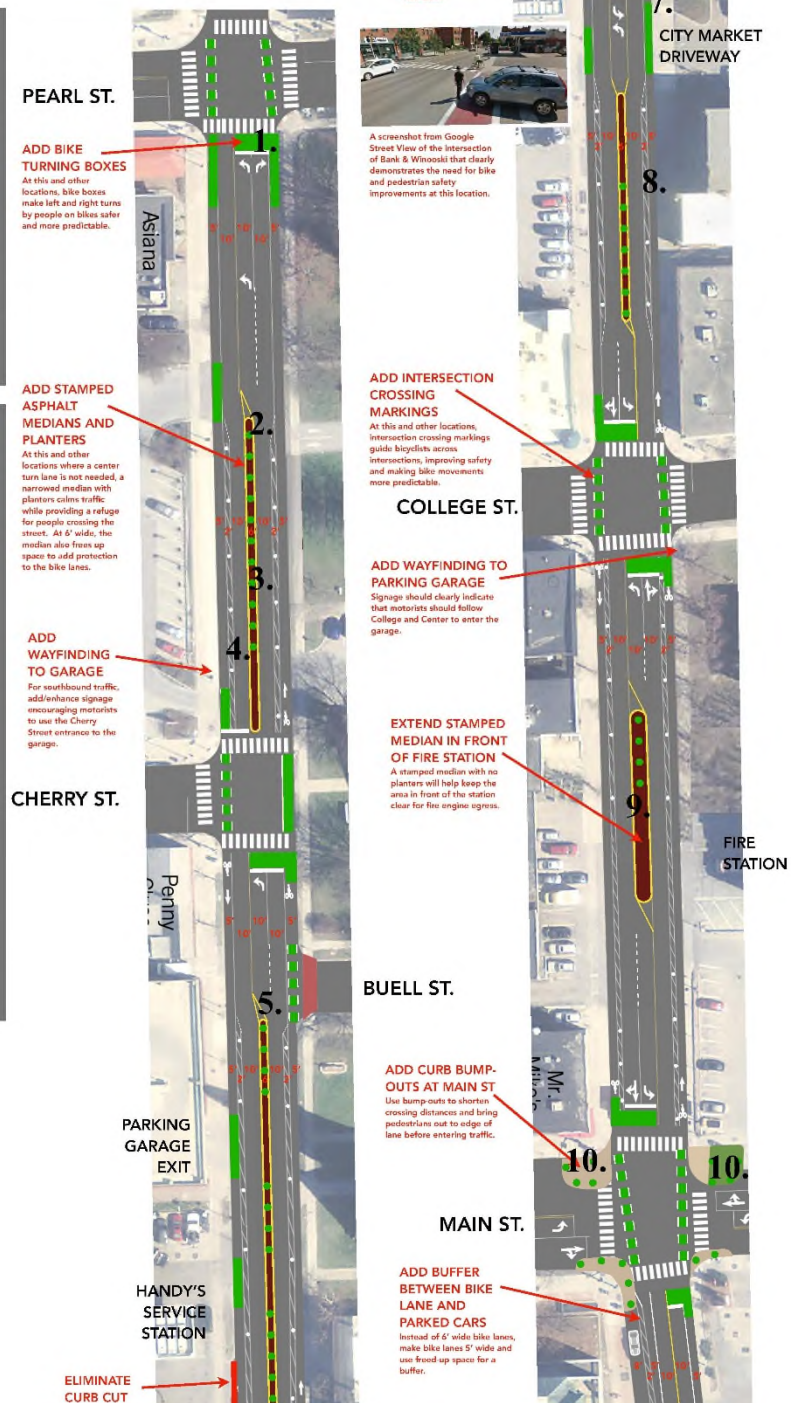
# A QUICK-BUILD PROPOSAL FOR SAFER WALKING & BIKING ALONG WINOOSKI AVENUE IN DOWNTOWN BURLINGTON

January 2020

The goal of this document is to propose enhancements to the planned 2020 improvements on Winooski Avenue between Pearl Street and Main Street that offer significant additional safety benefits for people walking and biking. This proposal builds on and is consistent with the preferred alternative selected by the Winooski Avenue Corridor Study process. It does not materially change traffic patterns or capacity of the street relative to the preferred alternative. It relies exclusively on quick-build techniques, and can therefore be implemented quickly and at relatively low cost.

## KEY TO SAFETY FEATURES

DESCRIPTION	PURPOSE
	Shortens pedestrian crossing distance
	Calms traffic and provides a refuge for mid-block crossings
	Highlights presence of bicyclists in conflict areas
	Guides bicyclists across intersections and alerts motorists to presence of bikes
	Helps bicyclists position safely for turns
	Creates separation between bicyclists and cars (NOTE: bollards spaced every 4'-0" to allow cars to pull into bike lane for emergency vehicles)



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**From:** Kirsten Merriman Shapiro <kmerrimanshapiro@getahome.org>  
**Sent:** Monday, January 27, 2020 6:45 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Subject:** Winooski Avenue Corridor Study

Hi, Bryan

Thanks for speaking with me earlier today regarding the Purpose and Need Statement for the project and forwarding the links - Section 1 of the [FINAL Existing Conditions Report \(August 6, 2019\) »](#) includes the corridor vision, as does each public and PAC presentation, including the [Meeting Presentation »](#) from the November public meeting (see slides 5-7). I do not see any explicit reference to undergrounding of utilities, which will likely pose a problem for any of the long-term undergrounding referenced in the implementation plan to be cost shared by federal funding.

Please include the following as Champlain Housing Trusts' concerns about the removal of on-street parking particularly in the segment between Pearl Street and Riverside Avenue along the corridor to the email comments received. The comments were submitted at the November 13, 2019 meeting but show up in meeting notes not in any of the links under public comments from that evening.

It appears that in the short term that the implementation plan will remove about ½ of the on street parking between Pearl Street and Riverside Avenue along the corridor. This is of great concern not only for the businesses along this portion of the corridor that have struggled for many years to become stable and successful, but also for residents.

### **Champlain Housing Trusts' Concerns re: Winooski Avenue Corridor Study**

Since the early 1990's, CHT has made significant community investments in the Greater Archibald Intervale Neighborhood, which includes North Winooski Avenue. The Foodshelf (now Feeding Chittenden), Legal Aid, the Multi- Gen Center (now Children's Space and Outright), Thelma Maple Coop, the Bright Street Coop, the Bus Barns, George Little Park, Pathways, and numerous other rental and homeownership properties on Winooski Ave were all initiated by CHT as community investments. We are likely the largest single land and property owner on the street.

Over time, others have followed and the street is now transformed with restaurants, retail and neighborhood and regional services, a pretty eclectic mix that serves the neighborhood as well as people who travel a distance.

There is no public parking available other than on street parking. Only two or three properties have spaces available for visitors. The reduction of on street parking without significant off street public parking options will have a negative impact on non-profits

and business along this part of the corridor. The table below expresses the walking distances between locations and public parking opportunities existing in the downtown as no large public parking opportunities exist in the old north end outside of the downtown garages.

Complete Streets requires the balancing the right of way for all modes of transportation. The plans for the section of Winooski Avenue north of North Street espoused in the near term improvements in the Winooski Avenue Corridor Study does not do that. The current off –street public parking presents challenges for folks with mobility impairments, children and everyone in the winter.

Origination Location	Off-street Public Parking Locations	Walking times
Community Health Center at Riverside and Winooski Avenues	Church Street Marketplace Garage	~19 minutes
Community Health Center at Riverside and Winooski Avenues	Lakeview Garage	~22 minutes
Drifter’s Café and Bar at Winooski Avenue and North Street	Church Street Marketplace Garage	~9 minutes
Drifter’s Café and Bar at Winooski Avenue and North Street	Lakeview Garage	~14 minutes

An article by the DC Policy Center “The demographics of walking and biking to work tell yet another story of gentrification” found that “Policies that promote walking, biking, and living near public transit do not offer relief from these trends, as the most economically vulnerable residents of the city live too far from their places of work to walk or bike.” And “that transit-oriented development programs can create social inequities and increase the pace of gentrification.....”

<https://www.dcpolicycenter.org/publications/the-demographics-of-walking-and-biking-to-work/>

. This is one of numerous other articles about class, race and gentrification that should give planners pause before pursuing this concept.

Also can you please tell me why the parking management plan was not completed as part of this study?

Also is there any off-street public parking adjacent to the north end of the corridor that could be used for public parking or construction of public parking ?

Please confirm final numbers for parking to be retained and parking to be removed in the segment between Pearl Street and Riverside Avenue.



Thanks -kms

**Kirsten Merriman Shapiro**

Project Development Specialist  
Champlain Housing Trust  
(802) 861-7308 direct  
(802) 862-6244 main  
88 King Street  
Burlington, Vermont 05401

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**From:** Erik Hoekstra <[REDACTED]>

**Sent:** Tuesday, February 4, 2020 12:36 PM

**To:** Jack Hanson <[jhanson@burlingtonvt.gov](mailto:jhanson@burlingtonvt.gov)>; Maxwell Tracy <[mtracy@burlingtonvt.gov](mailto:mtracy@burlingtonvt.gov)>; Franklin Paulino <[fpaulino@burlingtonvt.gov](mailto:fpaulino@burlingtonvt.gov)>

**Cc:** Nicole Losch <[NLosch@burlingtonvt.gov](mailto:NLosch@burlingtonvt.gov)>; Joan Shannon <[jshannon@burlingtonvt.gov](mailto:jshannon@burlingtonvt.gov)>; Perri Freeman <[pfreeman@burlingtonvt.gov](mailto:pfreeman@burlingtonvt.gov)>; Adam Roof <[ARoof@burlingtonvt.gov](mailto:ARoof@burlingtonvt.gov)>; Ali Dieng <[adieng@burlingtonvt.gov](mailto:adieng@burlingtonvt.gov)>; Karen Paul <[kpaul@burlingtonvt.gov](mailto:kpaul@burlingtonvt.gov)>; Chip Mason <[cmason@burlingtonvt.gov](mailto:cmason@burlingtonvt.gov)>; Kurt Wright <[kwright@burlingtonvt.gov](mailto:kwright@burlingtonvt.gov)>; Brian Pine <[bpine@burlingtonvt.gov](mailto:bpine@burlingtonvt.gov)>; Sharon Bushor <[sbushor@burlingtonvt.gov](mailto:sbushor@burlingtonvt.gov)>; Phillip Peterson <[ppeterson@burlingtonvt.gov](mailto:ppeterson@burlingtonvt.gov)>

**Subject:** TEUC - Winooski Avenue Resolution

**Importance:** High

[WARNING]: External Message

TEUC Members and others-

I will be unable to attend the TEUC meeting this evening due to family obligations. I write today to respectfully request that the language of the proposed resolution for the potential changes to the Winooski Avenue corridor be modified. The resolution is drafted in a way that calls for a Parking Management Plan to be completed in 2020, but presupposes that the results of the Parking Management Plan will support removal of nearly half of the existing on-street parking on the entire stretch of North Winooski Avenue from Riverside to Pearl Street in 2021. Constituents in this part of the city are incredibly concerned about the potential loss of on-street parking, a resource that residents, businesses, non-profit organizations and visitors have come to rely on. While the Parking Management Plan may be adequate to address the significant concerns of constituents in the North Winooski Avenue corridor, assuming that it will be sufficient at this stage is premature. **My suggestion is that language is added to the resolution calling for the Parking Management Plan to be evaluated and vetted with additional public participation prior to any removal of on-street parking in the corridor.**

Thank you for your consideration. -Erik

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**Erik J. Hoekstra | Managing Partner | Redstone**

Mailing Address | P.O. Box 790 | Burlington, VT 05402

Physical Address | 100 Bank Street | Suite 200 | Burlington, VT

P. 802.658.7400 | F. 802.860.3594 | M. 802.363.5165

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**From:** Alex Bunten <alexb@bbavt.org>  
**Sent:** Tuesday, January 28, 2020 12:48 PM  
**To:** Bryan Davis <bdavis@ccrpcvt.org>  
**Cc:** Jeff Nick <[REDACTED]>  
**Subject:** New design ideas –

Hi Bryan,

Below are some comments from the Chair of the Church Street Marketplace, Jeff Nick, about the new design ideas related to Main to Pearl. Please enter them into the public input process. Feel free to reach out to Jeff directly if you have any comment about his concerns (CC'd).

See you this evening.

Alex

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A few months ago the Marketplace commission voted to oppose the proposed changes to South Winooski Ave.. The link below brings you to a more detailed plan of the proposed changes between Main St. and Pearl St.

Given the current traffic counts on South Winooski Ave. and Main St. I can assure you that this plan is completely unworkable and would be a disaster for Church St., surrounding businesses, visitors, shoppers and residents alike.

Briefly here are my initial concerns:

- Currently South Winooski Ave. supports two (2) lanes of traffic in both directions and already has traffic backup at peak times. I have seen traffic backup all the way between Bank St. and the Fire Station
- Narrowing and eliminating traffic lanes will naturally cause traffic to back up more often and to a greater degree.
- Restricting left hand turns onto Bank St. will disrupt shoppers from accessing parking garages especially when the Marketplace garage is full.
- With access to Bank St. eliminated, north bound traffic turning left onto Cherry will increase. However this plan only allows for 70 feet for left hand turning traffic onto Cherry St. which will cause instant gridlock especially when narrow lanes, snowy weather, trucks and buses are taken into account.

- Bus stops will either have to be moved off South Winooski Ave. or traffic will back up significantly without the ability to travelling around the stopped bus.
- Restricting access to City Market will cause significant traffic backups.
- Currently the SST vans double park in front of the Howard Center south of City Market. This practice will need to stop or cause severe traffic backups.
- The “bump-outs” will restrict truck turning movements again causing traffic to back up.
- Eliminating the right hand turn lane on Main St. will cause traffic to backup Main St..
- And finally, the city does not have the capacity to maintain 40 planters.

Jeff Nick  
Church Street Marketplace Commission, Chair  
29 Church Street  
Burlington, VT 05401  
802-876-6923  
[REDACTED]

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**From:** Matt Walker  
**Sent:** Friday, January 31, 2020 10:56 AM  
**To:** Bryan Davis <bDavis@ccrpcvt.org>  
**Subject:** Burlington parking plans

Hi Bryan,

I am sure you have gotten hundreds of emails like this one but as an employee at the Community Health Center I just wanted to echo the concerns with the parking proposal. If we were to lose free parking spots in the vicinity by our building that would have a negative effect on both our staff and patients. Thank you for listening.

Matt Walker

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**From:** Jason Van Driesche  
**Sent:** Sunday, February 9, 2020 10:31 AM  
**To:** Miro Weinberger <miro@burlingtonvt.gov>; Chapin Spencer <cspencer@burlingtonvt.gov>; Max Tracy <mtracy@burlingtonvt.gov>  
**Cc:** Jack Hanson <jhanson@burlingtonvt.gov>; Franklin Paulino <fpaulino@burlingtonvt.gov>; Jordan Redell <jredell@burlingtonvt.gov>; Steven Locke <slocke@burlingtonvt.gov>; Erik Brown Brotz <[REDACTED]>; Allegra Williams <[REDACTED]>; Laura Jacoby <[REDACTED]>; Liam Griffin <[REDACTED]>; Bryan Davis <bDavis@ccrpcvt.org>;

Jonathan Slason <Jonathan.Slason@rsginc.com>

**Subject:** update re conversation with Fire Chief about Winooski Ave

Miro, Chapin, and Max,

I'm writing you with an update on my conversation with Chief Locke (along with the deputy chief and the fire marshal) about the proposal for an "enhanced" 5-lane configuration for Winooski Avenue through downtown. It was a very productive conversation, and I think we have a way forward that significantly improves bike safety over the current version of the preferred alternative while allowing for emergency vehicle access.

The key thing I learned in the meeting was that, while the fire department is strongly opposed to anything vertical in the median, they have no problem with vertical protection for the bike lanes (i.e., bollards). In this context, I then proposed and Chief Locke said he had no issue with the following:

- The exact same "enhanced" design that what we submitted, but...
- No planters in the 6' median, wherever it occurs -- just red-painted asphalt (stamped with a brick pattern, if that is possible).

While this offers reduced protection for people crossing mid-block on foot, it still is better than the 10'-10'-10' three lane configuration (in that the 6' median is space between travel lanes, not a travel lane).

(And when the street is repaved in 2 years, the stamped asphalt median could be replaced with a raised concrete median, so long as it was mountable. The chief said he would be fine with that. And at that point, the bike lanes could be raised as well, with a similar mountable design.)

We are pleased and excited to have found a way to preserve much of the value of the proposal that we submitted, while honoring the need for emergency access on this key downtown street. We hope that this is useful for you as you move forward on refining the design.

Best,  
Jason

---

**From:** Aaron Collette <ACollette@burlingtonvt.gov>

**Sent:** Tuesday, February 11, 2020 9:07 AM

**To:** jvandriesche@gmail.com

**Cc:** Miro Weinberger <miro@burlingtonvt.gov>; Chapin Spencer <cspencer@burlingtonvt.gov>; Maxwell Tracy <mtracy@burlingtonvt.gov>; Jack Hanson <jhanson@burlingtonvt.gov>; Franklin Paulino <fpaulino@burlingtonvt.gov>; Jordan Redell <jredell@burlingtonvt.gov>; Steven Locke <slocke@burlingtonvt.gov>; [REDACTED]; [REDACTED]; [REDACTED]; [REDACTED]; Bryan Davis <bdavis@ccrpcvt.org>; johnathan.Slason@rsginc.com; Barry Simays <BSimays@burlingtonvt.gov>

**Subject:** Clarity on Burlington Fire Department input for Winooski Avenue

Jason,

Good morning.

Chief Locke, Fire Marshal Simays, and I reviewed the e-mail which you sent on Sunday, February 9, 2020 to the above group. We wanted to provide a level of clarity from our perspective of Friday's meeting. You may find our response in the attached letter.

Thank you.

Sincerely,

*Aaron J. Collette, EFO*

Deputy Chief of Operations  
Burlington Fire Department  
Burlington, Vermont 05401



## Burlington Fire Department

136 South Winooski Avenue  
Burlington, Vermont 05401-8378  
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February 11, 2020

Mr. Jason Van Driesche  
Burlington, Vermont 05401

Dear Mr. Van Driesche:

Thank you for meeting with Chief Locke, Fire Marshal Simays, and myself last Friday to discuss the proposed Winooski Avenue configuration. We appreciate the time that you and Connor gave to us to allow us to explain some of the challenges with ensuring emergency vehicle access across our City.

Chief Locke forwarded my office a copy of an e-mail that you drafted on Sunday regarding our meeting and asked that I review it. While there are items that are accurate, such as the Fire Department strongly opposing anything vertical in the median, there are inaccuracies that should be addressed.

Our first point of clarity, is the Fire Department does not support the “exact” same “enhanced” design that was submitted. If you remember correctly we have serious concerns about the center turning lane configuration along South Winooski Avenue. We are concerned that without the inclusion of traffic preemption (signal controls) and modification of the lengths of the center turning lane configuration, traffic flow will impact fire department access. We expressed our concern with the proposed bollard spacing on the protected bike lanes in the “enhanced” design, that traffic sitting in que will not have an area to pull to the right to allow emergency vehicles to pass on the left. The “enhanced” design appears to have bollard spacing around fifteen feet apart. This will not accommodate the large amount of commercial vehicle traffic (delivery trucks) that frequent the street. I believe that you said the bollard spacing was supposed to be thirty feet, which is not reflected in the “enhanced” design.

Additionally, the Fire Department does not support any median divider that would not be mountable by emergency vehicles. As we shared in our discussion on Friday, the Fire Department utilizes the center of the roadway as our primary travel lane while responding to emergencies. This allows traffic to pull to the right of their lane to allow us to pass.

We would further like to clarify, that we are not in favor of vertical bollards as the preferred method of providing protection to the dedicated bike lane. I felt we were more supportive of



your suggestion (as referenced in your email) that the bike lane be a raised lane toward the greenbelt that featured a mountable curb that deters drivers from driving on that lane. We cited the potential damage that vertical bollards cause to vehicles that come in contact with them and the public hesitation to pull to the right to allow emergency vehicles to pass, given the tight spacing between the bollards.

Finally, we want to share that, while we may not have specifically addressed intersection bump outs in our meeting on Friday, we have opposition to the current configuration of bump out design that were included in the "enhanced" design. These concerns relate to the ability for our larger fire apparatus to navigate the corners.

We remain committed to public, pedestrian, and bicycle safety and look forward to working with the City design team as the project moves forward, ensuring that our concerns are accurately represented from our perspective.

Sincerely,

A handwritten signature in dark ink, appearing to read 'A. Collette', with a stylized flourish at the end.

Aaron J. Collette  
Deputy Chief of Operations  
Burlington Fire Department

**From:** [Erik Brotz](#)  
**To:** [Nicole Losch](#); [Jonathan Slason](#); [Bryan Davis](#)  
**Cc:** [Jason Van Driesche](#); [allegra@localmotion.org](mailto:allegra@localmotion.org); [karen@localmotion.org](mailto:karen@localmotion.org); [Laura Jacoby](#); [Chapin Spencer](#); [Corey Mack](#); [Julia Ursaki](#); [mike@streetplans.org](mailto:mike@streetplans.org)  
**Subject:** Enhanced Proposal for Winooski Ave downtown  
**Date:** Wednesday, January 22, 2020 8:47:47 AM  
**Attachments:** [Median\\_example.png](#)  
[Winooski Ave -- design enhancements for safer walking and biking.pdf](#)

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Hello Nicole, Bryan, and Jonathan,

Allegra, Jason, Laura, and I wanted to bring to your attention a proposal for Winooski Avenue through downtown that we strongly feel should be incorporated into the final proposal for the corridor study, and into this year's workplan.

The proposal significantly increases the environmental, economic, and safety benefits of what is already being proposed between Main and Pearl, while maintaining the same level of service for those driving. It was developed by (and has strong support from) representatives of the Burlington Walk Bike Council, Local Motion, the Old Spokes Home, and other local organizations, building on comments that have already been submitted in previous rounds of review.

We've also been building support for this proposal among city councilors and members of the Winooski Ave Advisory Committee. The response has been very positive to date. I have attached a copy of the proposal, along with an image of an example of a median strip that represents the long-term vision for this section of Winooski Ave.

This design enhancement has many advantages:

1.

**It is consistent with and builds upon the preferred alternative that is currently moving through the process.** It offers the same traffic capacity, it prioritizes safe walking and biking, and it safely accommodates emergency vehicles. It is therefore an enhancement of the current path forward -- not a different path.

2.

**It is built around one simple core principle: more flexible use of the center lane.** Instead of putting a 10' wide turn lane all the way through downtown, it includes a turn lane only where one is really needed. In other locations, it uses that portion of the street for things that improve safety, including protected bike lanes and a median strip.

3.

**It relies entirely on "quick-build" tools and design principles that are already in use in Burlington.** It requires no excavation, no moving of curbs -- nothing prohibitively expensive -- and therefore can be completed this season.

**We would like to see you bring this concept or something similar to the Advisory Committee at the meeting on Jan 28th for review, with the goal of bringing this enhanced design to the TEUC**

**and City Council for a vote in February/March and implementing it this calendar year.** We are organizing supporters of the proposal to be at the meeting on the 28th to speak in favor of this enhancement, and are confident, based on our recent conversations with a number of City Councilors, that there will be the votes needed to move this project to the next step.

We look forward to hearing your thoughts, and to working together to transform Winooski Avenue through downtown this year.

Erik, Allegra, Jason, and Laura

**From:** [Jason Van Driesche](#)  
**To:** [Aaron Collette](#)  
**Cc:** [Miro Weinberger](#); [Chapin Spencer](#); [Maxwell Tracy](#); [Jack Hanson](#); [Franklin Paulino](#); [Jordan Redell](#); [Steven Locke](#); [Davis](#); [johnathan.slason@rsginc.com](#); [Barry Simays](#); [Bryan](#)  
**Subject:** Re: Clarity on Burlington Fire Department input for Winooski Avenue  
**Date:** Wednesday, February 12, 2020 9:55:04 PM

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Deputy Chief Collette,

Many thanks to you and to Chief Locke and Fire Marshal Simays for taking the time to respond with clarifications regarding your perspective on our discussion. I appreciate your willingness to engage with us on this issue. I'd like to offer several clarifications in response, as follows.

Regarding the center lane turning configuration: I'm a little confused as to why this is an issue. With planters or other vertical obstructions out of the picture, there is no functional difference that I can see between the proposed enhanced design and the "preferred alternative" (5'-10'-10'-10'-5') -- which, if I remember correctly, you indicated the fire department preferred over the current four-lane configuration. Can you clarify what the issue is with the median if there is no vertical obstruction?

Regarding traffic pre-emption: Having learned a bit more about how this works during our conversation, I can certainly see what a big difference it would make for emergency access. However, it strikes me as not relevant to any evaluation of our "enhanced" proposal, as neither our proposal nor the preferred alternative calls for it, and I assume that the substantial cost of upgrading signals is not in the near-term city budget. This seems like something that would be really good to advocate for with VTrans as a part of the street reconstruction in a couple of years.

Regarding spacing of bollards: You are absolutely right that bollards need to be spaced far enough apart that motorists can easily pull into the bike lane to get out of the way of emergency vehicles. The drawing that we prepared is conceptual in nature, and is not intended to guide the specific placement of individual bollards. Spacing would need to be determined in the field as part of installation, under the guidance of a traffic engineer. I have no doubt that DPW will space the bollards so as to allow for vehicles to pull over between them.

Regarding the median divider: My understanding coming out of our meeting -- which I attempted to express in my follow-up email -- was that our group was no longer going to advocate for any vertical barriers in the center median. We will advocate for only stamped, painted asphalt (using the brick pattern that is commonly used around the city) wherever the 6' center median is included, with no barriers. In this context, the question of "mountable" is not relevant, as there is nothing to mount. I'm sorry if this wasn't clear.

Regarding bike lane bollards: I agree that bollards are not an ideal long-term solution for protected bike lanes. However, as we discussed, they are the best short-term solution available to us for protecting bike riders from heavy vehicle traffic. As a city, we cannot allow fear of minor damage to vehicles (or driver hesitation to pull over between bollards) to get in the way of providing bicyclists with the best life safety protection that we have to offer in the near term.

Regarding long-term protected bike lane design: I and many others would welcome fire department support for the long-term protected bike lane design that we discussed, in which the bike lane is raised to the level of the curb and separated from vehicle traffic by a mountable curb. However, that design cannot be implemented this year, as it will require significant engineering and capital investment. In our discussion, we talked about this design as something to work towards, with bollards used in the near term.

Regarding intersection bump-outs: As with bollard spacing, the bump-outs included in our proposal are conceptual in nature, and would need to be designed by an engineer. Bump-outs can be designed to accommodate large vehicles, and have been successfully installed in thousands of communities across the country. As indicated in PlanBTV Walk Bike, there are many opportunities to increase public safety by adding bump-outs to intersections around the city. I expect that, given its public safety mission, the fire department will be a willing partner in the design and installation of bump-outs.

Thank you.

Jason Van Driesche

On Tue, Feb 11, 2020 at 9:06 AM Aaron Collette <[ACollette@burlingtonvt.gov](mailto:ACollette@burlingtonvt.gov)> wrote:

Jason,

Good morning.

Chief Locke, Fire Marshal Simays, and I reviewed the e-mail which you sent on Sunday, February 9, 2020 to the above group. We wanted to provide a level of clarity from our perspective of Friday's meeting. You may find our response in the attached letter.

Thank you.

Sincerely,

*Aaron J. Collette, EFO*

Deputy Chief of Operations

Burlington Fire Department

Burlington, Vermont 05401

Please note that this communication and any response to it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.

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## APPENDIX C. ALTERNATIVES EVALUATION

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# MEMO

**TO:** Winooski Avenue Project Team

**FROM:** Jonathan Slason

**DATE:** October 14, 2019

**SUBJECT:** Evaluation Assumptions

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This memo summarizes the assumptions and decisions made through the evaluation process of the 13 alternatives considered in the Winooski Avenue corridor study.

## Evaluation Criteria

A spreadsheet tool with each alternative and its “score” based on these criteria helped the project team quantify the pros and cons of each project alternative. Each criterion was weighted evenly. The criteria are shown in the following table:

Criteria
Bicycle Level of Traffic Stress (LTS) and Driveway Density
Ped quality of service
Parking change total
Street trees impacted total
Change in curb and green strip width
Cost (rounded to nearest \$100,000)
Vehicle access (2-way vehicle lanes, turning potential, etc.)
Transit Feasibility
Vehicle Operations and Safety

**Bicycle Level of Traffic Stress (LTS)**<sup>1</sup> is one method used to “rate” bicycle facilities based on roadway context. The following are descriptions of each of the four traffic stress levels:

- **LTS 1:** Presenting little traffic stress and demanding little attention from cyclists, and attractive enough for a relaxing bicycle ride. Suitable for almost all cyclists, including children trained to safely cross intersections. Strong separation from all except low-speed, low-volume traffic. Simple crossings.
- **LTS 2:** Presenting little traffic stress and therefore suitable to most adult cyclists but demanding more attention than might be expected from children. Except in low-speed/low-volume traffic situations, cyclists have their own place to ride that keeps them from having to interact with traffic except at formal crossings. Physical

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<sup>1</sup> Mineta Transportation Institute. 2012. “Low-Stress Bicycling and Network Connectivity,” <http://transweb.sjsu.edu/sites/default/files/1005-low-stress-bicycling-network-connectivity.pdf>.

separation from higher-speed and multilane traffic. Crossings that are easy for an adult to negotiate.

- **LTS 3:** More traffic stress than LTS 2, yet markedly less than the stress of integrating with multilane traffic, and therefore welcome to many people currently riding bikes in American cities. Crossings may be longer or across higher-speed roads than allowed by LTS 2 but are still considered acceptably safe to most adult pedestrians.
- **LTS 4:** A level of stress beyond LTS 3. Involves interaction with higher-speed traffic or close proximity to high-speed traffic. (Note: not applicable to Winooski Avenue.)

The LTS system has a series of tables that can be used to determine the appropriate LTS for a given roadway segment. These evaluation criteria consider the number of travel lanes, bicycle lane width (or sum of bicycle lane width and parking lane width if next to a parking lane), prevailing speed, and amount of bicycle lane blockage (such as high parking turnover).

Using these criteria tables alone, the LTS for segments along Winooski Avenue ranges from LTS 1 to LTS 3. This finding does not intuitively match the LTS descriptions above. This mismatch may stem from several factors:

- Winooski Avenue meets the system's low-speed threshold with a speed limit of 25 mph (which vehicles largely conform to). However, relative to the rest of the City, 25 mph is typical and may still feel fast to some bicyclists, especially considering other factors such as traffic volume and number of driveways.
- The LTS tables use number of lanes rather than vehicle volume to make the ratings accessible without volume data. This can oversimplify the ratings.
- Separate tables are used to define LTS at intersections. As a result, a segment with higher-stress intersections throughout would *not* have a higher LTS to reflect that. Winooski Avenue has several high-stress intersections.

**To better match the intention of the LTS ratings in a way that fits in the context of Burlington, the City has developed a draft set of criteria for rating level of stress:**

- **LTS 1:** Bicycle paths, protected bicycle lanes, and greenways.
- **LTS 2:** Bicycle lanes and buffered bicycle lanes on lower-volume streets.\*
- **LTS 3:** Bicycle lanes and buffered bicycle lanes on higher-volume streets\* or shared-lane markings.
- **LTS 4:** No designated bicycle facilities or markings on higher-volume streets.\*

*\*An annual average daily traffic (AADT) of 5,000 vehicles per day may be an appropriate threshold between lower-volume streets and higher-volume streets.*

A pedestrian quality-of-service rating study was created to reflect criteria important to the City of Burlington. The quality of service is a function of the physical elements rather



than the number of pedestrians (e.g., density of users) given the scarcity of pedestrian count data.

Metrics used in the proposed pedestrian quality-of-service system include the following:

- Ratio of buffer width (including green belt, bicycle lanes, and parking lanes) and number of travel lanes.
- Buffer type (e.g., green belt, concrete).
- Street tree density.
- Percentage of block immediately adjacent to large parking lot.
- Sidewalk width lacking (generalizes that the entire segment between Main and Pearl Streets should be five feet wider).
- Longest curb cut.

## Criteria Assumptions

<b>Bicycle LTS and Driveway Density</b>	A lower score is desired. Driveways are noted as significant concern in LTS literature. Avg. density along corridor is 54 driveways per mile. This was used to inflate the LTS for segments with a density higher than this. $LTS \times Driveway\ Density\ Adjustment = New\ LTS$
<b>Ped quality of service</b>	A higher score is desired. Calculated using the PED LOS description above.
<b>Parking change total</b>	A higher number is more impactful on the corridor. Calculated number of parking spaces affected by the option
<b># Loading Spaces change total</b>	A higher number is more impactful on the corridor. Calculated number of loading spaces affected by the option
<b>Utility poles impacted total</b>	A higher number is more impactful on the corridor. Calculated number of utility poles affected by the option
<b>Street trees impacted total</b>	A higher number is more impactful on the corridor. Calculated number of street trees affected by the option
<b>Change in curb and green strip total (LF)</b>	A higher number is more impactful on the corridor. Linear width of curb movement associated with widening
<b>Curb Changes total (LF)</b>	A higher number is more impactful on the corridor, especially in terms of cost. Length of curb that is being moved (widened).
<b>Cost (rounded to nearest \$100,000)</b>	Initial high level planning cost estimates for roadway improvements. Including striping, curbs, utility relocation, widening, etc.
<b>Access (2-way vehicle circulation &amp; main / pearl &amp; main/maple)</b>	Greater access is considered beneficial to the corridor. Example considerations: Opt 1C: Pearl to Union/Decatur. Corridor access improved due to additional northbound travel lane Opt 2C: Main to Pearl. Corridor access reduced due to turning prohibitions from center median Main to Maple: most variations reduce vehicle lanes northbound
<b>Transit</b>	Greater transit accommodations is considered beneficial to the corridor. Transit score for Opts 3,3A,3B for all segments north of Main Street for northbound buses (on east side of street). Space is limited and would require a median loading platform. Opts 2,2A,2B,2C: Transit Score has been reduced slightly for the protected options. No discount when parking protection (assume parking would just be reduced)
<b>Vehicle Operations</b>	Improving vehicle operations is considered beneficial to the corridor. Opts 3,3A,3B slight decrease due to additional time and capacity required for advanced or separate bicycle signal phase.

## Vehicle Safety

Improving vehicle operations is considered beneficial to the corridor.  
Opt 1C reduces safety due to the additional travel lane and the additional conflicts relative to single lane one direction.

Opt 2C: improved safety between Main and Pearl due to reduction in turning traffic.

## Summary Results

Each alternative was scored for each of the seven study area segments. Across each of the segments, the project team averaged the scores for all the alternatives. Then, for each alternative, the project team divided the evaluation score for each segment by the average score for the overall corridor.

A summary of the highest-ranked scores and the next-highest-scoring alternative(s) by segment is shown. When multiple options (since they have the same configuration) are ranked equally, they are shown. These are the results of the raw scoring process:

Segment by Segment		
	Highest Ranked	2 <sup>nd</sup> Highest Ranked
Riverside to Decatur	1,1B,1C	2,2C
Decatur to North	3A	1A
North to Pearl	1C	2,2A,2C
Pearl to Main	1,1A,1B,1C,1D,1E	2C
Main to King	2,2A,2B,2C	3,3A
King to Maple	2,2A,2B,2C	3,3A,3B
Maple to Howard	1,1A,1B,1C,1D,1E	2,2C

To provide a point of comparison, each segment was aggregated and then again normalized to the corridor average. The total cumulative score across for each alternative is shown below. Alternative 1 and 1B were the top total scores based on a complete corridor perspective.

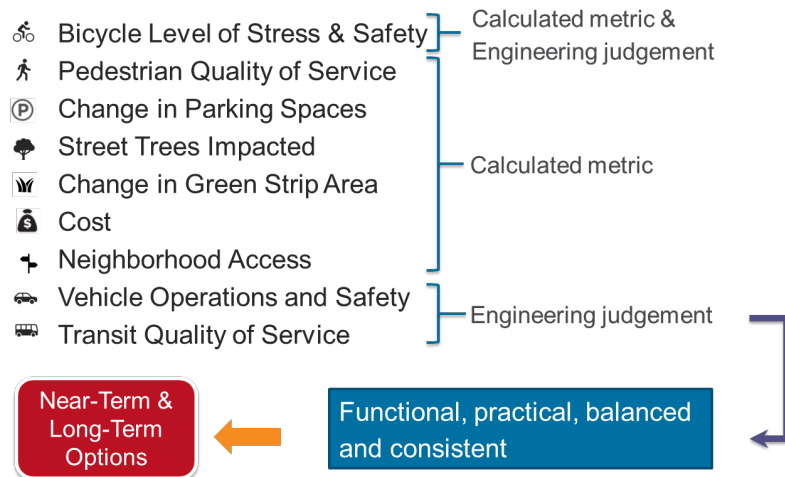
Alternative	Corridor Wide Score	Rank
<b>1</b>	<b>0.5</b>	<b>1</b>
1A	-3.5	8
<b>1B</b>	<b>0.4</b>	<b>2</b>
1C	-1.0	5
1D	-0.9	4
1E	-0.3	3
2	-3.5	7
2A	-5.7	11
2B	-8.2	13
2C	-2.5	6
3	-3.8	9
3A	-4.3	10
3B	-6.0	12

The corridor-wide perspective is shown below in the chart using the colors for how specific criteria varied in each of the alternatives. Generally, dark/light green indicates a positive impact, yellow is neutral, and orange/red notes a negative impact.



	Bike LTS with Driveway Density Factor	Ped quality of service	Parking change	Street trees impacted	Change in green strip width	Cost	Neighborhood Access	Vehicle Operations & Safety	Transit	Evaluation Ranking
Avg Value per Segment	1.91	1.17	-8.34	2.82	-0.51	\$ 157,203	0.93	0.99	-0.06	
1										1
1A										8
1B										2
1C										5
1D										4
1E										3
2										7
2A										11
2B										13
2C										6
3										9
3A										10
3B										12

To supplement this empirical approach to evaluating the alternatives, the project team worked through a thorough vetting of the alternatives using engineering judgment, assessing the functionality, practicality, and consistency within the overall corridor. The flow chart is shown below.



The result was the recommended alternative that was taken to the PAC meeting #6, which includes adjustments made to maintain consistency, practical implementation, and balance the impacts that any alternative will have on the system.

Segment by Segment		
	Recommended Alternative to PAC #6 (Shorter Term)	Recommended Alternative to PAC #6 (Longer Term)
Riverside to Decatur	Alt 1	-
Decatur to North	Alt 1C	-
North to Pearl	Alt 1	Alt 1C
Pearl to Main	Alt 1	-
Main to King	Alt 1	Alt 2
King to Maple	Alt 1B	-
Maple to Howard	Alt 1	-



## Intersection Evaluation

Intersections were evaluated over several criteria, similar to the roadway cross-sections. Again, the filters of functional, practical, balanced, and consistent are applied at the end as to how they relate to the overall corridor. Some criteria such as right-of-way are fundamental challenges that do determine the course of action.

### Intersection Criteria

CRITERIA	DESCRIPTION
Right of Way	Increases in right-of-way are most impactful to the corridor. Right-of-way impacts were evaluated for various configurations.
Vehicle operations (vols & capacity)	Improvements to operational performance (delay) and how it affects capacity (volume)
Vehicle Safety	How vehicle safety is affected
Non-vehicle ops (vols & capacity)	Do improvements change operational performance (delay) and how it affects capacity (volume)
Non-vehicle safety	How safety is affected for non-auto users
Reduces intersection complexity	Do improvements reduce the number of lanes and/or conflict points?
Reduces ped/bike exposure	Do improvements shorten crossing distance and/or reduces conflicts through intersection?
Bike infrastructure	Do improvements maintain bike infrastructure through intersections?
Vehicle speed reduction	Do improvements encourage lower vehicle speeds?
Parking impact	Do improvements affect vehicle parking?
Transit and Freight access/mobility	Do improvements affect transit and freight access/mobility?
Utility impact	Do improvements affect utilities (overhead or underground)?



Criteria	Main Street		College/Bank/Cherry		Pearl Street	
	Signal	Roundabout	Signal	Mini-Roundabout	Signal	Single Lane Roundabout
Overall						
Right of Way Impact						
Vehicle operations (delay & capacity)						
Vehicle safety						
Non-vehicular operations (delay & capacity)						
Non-vehicular safety						
Reduces intersection complexity (number of lanes, conflict points)						
Reduces ped/bike exposure (shortens crossing distance, fewer conflicts through intersection)						
Bike infrastructure (maintained through intersection / drops at intersection)						
Vehicle speed reduction						
Parking impact						
Transit and Freight access						
Utility impact (overhead, underground)						

The table shows a color scale that indicates the magnitude of **positive** or **beneficial** attributes or **negative** attributes.

	North Street		Union/Decatur		Archibald		Riverside	
Criteria	Signal	Mini-Roundabout	All-Way Stop	Mini-Roundabout	Signal	Mini-Roundabout	Signal	Single Lane Roundabout
<b>Overall</b>								
Right of Way Impact								
Vehicle operations (delay & capacity)								
Vehicle safety								
Non-vehicular operations (delay & capacity)								
Non-vehicular safety								
Reduces intersection complexity (number of lanes, conflict points)								
Reduces ped/bike exposure (shortens crossing distance, fewer conflicts through intersection)								
Bike infrastructure (maintained through intersection / drops at intersection)								
Vehicle speed reduction								
Parking impact								
Transit and Freight access								
Utility impact (overhead, underground)								

The table shows a color scale that indicates the magnitude of **positive** or **beneficial** attributes or **negative** attributes.



## Intersection Selections for the Study

- Main Street: signal maintained in this study due to large right-of-way impacts.
- College/Bank/Cherry: concern for bike continuity but also unproven operations for that level of vehicle and pedestrian demand.
- Pearl Street: right-of-way impacts drove the decision to maintain the signal.
- North Street: mini-roundabout fits and provides several benefits over the signal.
- Union/Decatur: mini-roundabout fits and provides several benefits.
- Archibald: configuration limits options without restricting some turning movements.
- Riverside: configuration limits options beyond a signal without significant right-of-way.

## Background Info

### *Driveway Density*

Lower driveway density is rated better than higher driveway density.

The unsignalized conflicts account for the impact of any unsignalized intersections or driveways in the segment. All driveways (residential/commercial/industrial) should be accounted for as each creates potential conflict locations regardless of driveway volume.

“The context of the corridor should be considered on whether separated bikeway is the appropriate treatment. Not all roadways are suitable for separated bikeways. Separated bikeways have the greatest benefit on roadways with no or limited driveways and wider spaced intersections to maximize bicycle flow and minimize potential conflicts. Every intersection and driveway is a point of conflict and can introduce safety and operational issues especially when paired with adjacent parking. Parking between the travel lane and the separated bikeway can create sight distance issues. If sight distance is not maintained sufficiently (by prohibiting parking close to the intersection/driveway) then this may encourage vehicles to creep out and block the bikeway while waiting to turn. Higher volume and/or many driveways can substantially impede operations of bikes and increase the risk of collisions. The parking can also create visibility issues for drivers to see oncoming bicyclists (could be in both directions for a two-way bikeway) as they turn into a driveway and across the bikeway. If access management solutions to consolidate/minimize driveways are not possible, then a buffered bike lane may be more appropriate in a parking and /or driveway dense location.”<sup>2</sup>

“The methodology does not cover roadways that have a substantial number of driveways and/or higher volume driveways as most of the research was based in central business

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<sup>2</sup> Oregon Department of Transportation. 2018. “Analysis Procedure Manual Version,” pp. 14-60, [https://www.oregon.gov/ODOT/Planning/Documents/APMv2\\_Ch14.pdf](https://www.oregon.gov/ODOT/Planning/Documents/APMv2_Ch14.pdf).

districts or residential areas where high numbers of driveways or high-volume driveways or were uncommon.”<sup>3</sup>

Buffered bike lanes may also be a good compromise in areas with a substantial number of driveways that would make operations of a separated bikeway difficult or create a number of safety issue locations because of visibility/sight distance.<sup>4</sup>

### ***Bike LTS does not account for driveway density: Madison Area Transportation Planning Board<sup>5</sup>***

#### **Factors Not Included**

It should be noted that the LTS methodology excludes from consideration a number of factors that can affect bicyclist comfort. These would need to be considered at a project level rather than the network level that the LTS methodology is designed for. These include:

- Left turn lanes
- Topography (steep hills)
- Pavement condition
- High driveway density (e.g., Monona Drive)
- High traffic volumes, particularly truck traffic, on streets with bike lanes
- Rough or skewed railroad crossings
- Neighborhood crime and safety concerns

### ***LTS Pictures: Alta<sup>6</sup>***



LTS 1

comfortable for all  
ages and abilities



LTS 2

comfortable for most  
adults



LTS 3

comfortable for  
confident bicyclists



LTS 4

uncomfortable for  
most

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<sup>3</sup> *Ibid.*

<sup>4</sup> Oregon Department of Transportation. 2018. “Analysis Procedure Manual Version,” pp. 14-65, [https://www.oregon.gov/ODOT/Planning/Documents/APMv2\\_Ch14.pdf](https://www.oregon.gov/ODOT/Planning/Documents/APMv2_Ch14.pdf).

<sup>5</sup> Madison Area Transportation Planning Board. 2018. “Defining the Madison Area Low-Stress Bicycle Network and Using it to Build a Better Regional Network,” [www.ampo.org/wp-content/uploads/2019/05/Low-Stress-Bicycle-Network.pdf](http://www.ampo.org/wp-content/uploads/2019/05/Low-Stress-Bicycle-Network.pdf).

<sup>6</sup> Alta Planning + Design. 2017. “Level of Traffic Stress — What it Means for Building Better Bike Networks,” <https://blog.altaplanning.com/level-of-traffic-stress-what-it-means-for-building-better-bike-networks-c4af9800b4ee>.

## APPENDIX D. TRAFFIC ANALYSIS

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# MEMO

**TO:** Project File

**DATE:** February 12, 2020

**SUBJECT:** Winooski Avenue Transportation Study: Traffic Operations Analysis

In support of the Winooski Avenue Transportation Study, RSG performed several traffic analyses to evaluate traffic operations and congestion under multiple alternatives. This memorandum summarizes the procedures and results of the traffic analyses.

RSG performed two phases of traffic analyses: network modeling over a wide area for a city-scale picture of traffic patterns and a corridor-focused analysis of traffic capacity and demands along the corridor.

## Phase 1 Network Modeling

In Phase 1 of the Winooski Avenue Transportation Study,<sup>1</sup> RSG used the TransModeler™ software program to evaluate a subarea focus area from the CCRPC regional travel demand model. The regional model is a trip-based evaluation tool; it can adjust traffic volumes throughout the network in response to changes in roadway capacity.

The Winooski Avenue traffic microsimulation model includes detailed information on roadway classifications, speeds, geometrics, intersection controls, signal timings, and traffic volumes. Phase 1 of the Winooski Avenue Transportation Study included an assessment of existing conditions and several possible future configurations. RSG evaluated the existing roadway network and then modeled various changes to the road network to evaluate performance based on the adjusted traffic volumes and changes in roadway capacity.

**FIGURE 1: EXTENT OF THE SUBAREA FOCUS AREA FROM THE REGIONAL TRAVEL DEMAND MODEL**



<sup>1</sup> RSG. 2017. "Winooski Avenue Circulation Study – Final Report," <https://www.ccrpcvt.org/wp-content/uploads/2017/06/Winooski-Corridor-Circulation-Study-Phase-1-Final-Report.pdf>.

The scenarios under consideration in Phase 1 included the following:

1. Complete Street on Winooski Avenue, Winooski as primary bicycle corridor.
2. Two-Way Flow on North Winooski Avenue.
3. Two-Way Flow on all of Winooski Avenue, Union as primary bicycle corridor.
4. One-Way Pair: Counter-Clockwise Flow.
5. One-Way Pair: Clockwise Flow.

The existing condition is also examined with the microsimulation model and serves as a baseline for comparison of the five alternatives.

The **Existing Conditions** scenario assumed that all current road conditions are in place. No changes are required for this scenario. Existing intersection configurations, intersection controls (stop or signal), and lane geometries are represented. For signalized intersections, the existing signal timings are implemented in the model.

Scenario 1, **Complete Street**, altered lane configurations to allow bike lanes on both sides of Winooski Avenue from Union Street south through St. Paul Street. This scenario required no changes to the directionality of existing one-way streets, so it maintains the existing vehicular traffic patterns.

Scenario 2, **Two-Way Flow on North Winooski Avenue**, replaced the existing one-way southbound traffic flow section of North Winooski Avenue from North Union Street to Pearl Street with two-way traffic flow. Similar to the previous scenario, this alternative also included a reduction from four lanes to three lanes on Winooski Avenue from Pearl Street south through Main Street.

Scenario 3, **Two-Way Flow on all of Winooski Avenue, Union Street as primary bicycle corridor**, opened all of Winooski Avenue to two-way traffic flow. The existing southbound traffic sections from North Union Street to Pearl Street and from Maple Street to St. Paul Street would be replaced with two-way traffic flow. This change is expected to draw northbound traffic away from Union Street and to Winooski Avenue, resulting in greater vehicular access on Winooski Avenue and reduced traffic on Union Street.

Scenario 4, **One-Way Pair: Counter-Clockwise Flow**, examined a counter-clockwise one-way pair flow (southbound on Winooski Avenue and northbound on Union Street), removing the two-way vehicle flow section between Main Street and Pearl Street.

Scenario 5, **One-Way Pair: Clockwise Flow**, examined a clockwise one-way pair flow (northbound on Winooski Avenue and southbound on Union Street), removing the two-way vehicle flow section between Main Street and Pearl Street.

AM and PM peak hour performance measure results from the Phase 1 analysis are excerpted from the original study in Figure 2 and Figure 3, respectively. Please refer to the complete Phase 1 study for detailed interpretation of the results.



**FIGURE 2: WEEKDAY AM PEAK HOUR PERFORMANCE RESULTS, EXCERPT FROM THE PHASE 1 STUDY; GREEN ENCLOSED SECTIONS WERE CARRIED FORWARD TO CURRENT PHASE OF THE WINOOSKI AVENUE TRANSPORTATION STUDY**

	No Build			Complete Street on Winooski			Two-Way North Winooski			Two-Way All Winooski			One-Way Pair: Counter-Clockwise			One-Way Pair: Clockwise		
	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue
<b>Winooski Ave &amp; Pearl St</b>																		
Overall	27	C	-	29	C	-	34	C	-	35	C	-	25	C	-	18	B	-
EB	26	C	5	28	C	6	34	C	7	35	D	7	23	C	6	21	C	6
WB	27	C	9	29	C	10	38	D	10	38	D	10	24	C	13	21	C	6
NB	19	B	3	22	C	3	28	C	4	29	C	5	n/a			15	B	6
SB	31	C	7	31	C	7	32	C	8	34	C	9	28	C	7	n/a		
<b>Winooski Ave &amp; College St</b>																		
Overall	12	B	-	13	B	-	14	B	-	15	B	-	13	B	-	50	D	-
EB	28	C	5	28	C	5	28	C	5	30	C	5	23	C	5	507	F	33
WB	28	C	7	28	C	7	28	C	8	27	C	9	30	C	8	30	C	13
NB	7	A	3	8	A	3	7	A	3	11	B	4	n/a			11	B	6
SB	6	A	4	6	A	4	6	A	4	7	A	4	5	A	4	n/a		
<b>Winooski Ave &amp; Main St</b>																		
Overall	14	B	-	16	B	-	14	B	-	17	B	-	14	B	-	12	B	-
EB	8	A	3	9	A	3	8	A	4	9	A	4	7	A	3	7	A	3
WB	13	B	6	14	B	6	13	B	6	15	B	6	12	B	5	8	A	3
NB	27	C	5	25	C	4	25	C	3	29	C	7	n/a			24	C	5
SB	19	B	5	22	C	7	22	C	7	23	C	8	21	C	8	n/a		
<b>Union St &amp; Pearl St</b>																		
Overall	11	B	-	12	B	-	11	B	-	10	A	-	24	C	-	22	C	-
EB	5	A	4	5	A	3	4	A	3	4	A	3	8	A	4	11	B	8
WB	9	A	6	9	A	6	9	A	5	8	A	6	14	B	9	28	C	15
NB	28	C	4	30	C	5	27	C	4	31	C	5	37	D	12	n/a		
SB	n/a			n/a			n/a			n/a			n/a			37	D	11
<b>Union St &amp; College St</b>																		
Overall	12	B	-	12	B	-	12	B	-	11	B	-	14	B	-	39	E	-
EB	9	A	2	9	A	2	9	A	2	9	A	2	12	B	4	12	B	4
WB	13	B	5	13	B	5	13	B	5	12	B	5	15	B	5	38	E	12
NB	12	B	4	12	B	5	13	B	5	10	B	3	16	C	6	44	E	9
SB	n/a			n/a			n/a			n/a			n/a					
<b>Union St &amp; Main St</b>																		
Overall	8	A	-	10	A	-	9	A	-	7	A	-	10	B	-	13	B	-
EB	5	A	3	8	A	4	5	A	3	4	A	3	6	A	4	5	A	3
WB	3	A	6	5	A	8	3	A	7	3	A	6	3	A	5	9	A	12
NB	25	C	4	26	C	4	26	C	5	31	C	6	27	C	5	n/a		
SB	n/a			n/a			n/a			n/a			n/a			28	C	6
<b>Willard St &amp; Pearl St</b>																		
Overall	20	B	-	20	C	-	21	C	-	21	C	-	21	C	-	23	C	-
EB	13	B	7	13	B	7	13	B	7	15	B	8	13	B	7	21	C	12
WB	11	B	6	11	B	5	11	B	6	11	B	6	11	B	6	14	B	9
NB	43	D	12	42	D	12	45	D	12	43	D	12	48	D	13	20	B	4
SB	25	C	6	26	C	6	26	C	6	26	C	6	24	C	6	33	C	9
<b>Willard St &amp; College St</b>																		
Overall	13	B	-	13	B	-	13	B	-	13	B	-	12	B	-	15	B	-
EB	20	C	4	20	B	3	20	B	3	20	C	3	15	B	4	18	B	3
WB	21	C	8	22	C	8	22	C	8	22	C	8	21	C	8	21	C	8
NB	3	A	3	3	A	3	3	A	3	3	A	3	4	A	5	6	A	5
SB	12	B	5	11	B	4	12	B	5	12	B	5	12	B	4	14	B	7
<b>Willard St &amp; Main St</b>																		
Overall	19	B	-	20	B	-	21	C	-	20	C	-	18	B	-	23	C	-
EB	10	A	5	11	B	5	12	B	6	10	B	5	11	B	6	12	B	4
WB	11	B	7	12	B	7	12	B	7	12	B	7	12	B	7	13	B	7
NB	29	C	10	29	C	10	30	C	10	27	C	9	26	C	9	29	C	9
SB	40	D	10	38	D	10	40	D	11	43	D	12	33	C	8	45	D	14

**FIGURE 3: WEEKDAY PM PEAK HOUR PERFORMANCE RESULTS, EXCERPT FROM THE PHASE 1 STUDY; GREEN ENCLOSED SECTIONS WERE CARRIED FORWARD TO CURRENT PHASE OF THE WINOOSKI AVENUE TRANSPORTATION STUDY**

		No Build			Complete Street on Winooski			Two-Way North Winooski			Two-Way All Winooski			One-Way Pair: Counter-Clockwise			One-Way Pair: Clockwise		
		Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue	Delay	LOS	Queue
Winooski Ave & Pearl St																			
	Overall	31	C	-	32	C	-	40	D	-	43	D	-	34	C	-	40	D	-
	EB	36	D	9	36	D	9	41	D	9	43	D	9	33	C	10	55	E	13
	WB	30	C	10	31	C	10	43	D	10	46	D	10	33	C	15	44	D	9
	NB	24	C	8	24	C	7	36	D	10	40	D	11	n/a			33	C	11
	SB	36	D	6	38	D	6	38	D	8	42	D	9	43	D	7	n/a		
Winooski Ave & College St																			
	Overall	17	B	-	20	B	-	18	B	-	21	C	-	52	D	-	47	D	-
	EB	36	D	10	37	D	11	37	D	10	37	D	11	127	F	38	184	F	37
	WB	28	C	7	30	C	8	28	C	8	31	C	9	43	D	9	25	C	13
	NB	12	B	5	12	B	5	11	B	5	15	B	7	n/a			20	B	8
	SB	10	A	6	14	B	6	11	B	5	14	B	5	37	D	10	n/a		
Winooski Ave & Main St																			
	Overall	24	C	-	30	C	-	29	C	-	37	D	-	84	F	-	22	C	-
	EB	27	C	13	35	D	15	37	D	19	50	D	25	212	F	28	25	C	16
	WB	17	B	7	24	C	8	20	C	8	28	C	8	33	C	7	12	B	6
	NB	26	C	6	24	C	6	26	C	5	32	C	10	n/a			33	C	9
	SB	29	C	8	31	C	10	32	C	10	34	C	10	38	D	12	n/a		
Union St & Pearl St																			
	Overall	21	C	-	23	C	-	21	C	-	20	B	-	41	D	-	25	C	-
	EB	14	B	10	14	B	9	10	A	6	9	A	6	18	B	7	17	B	12
	WB	14	B	8	16	B	9	16	B	9	15	B	8	39	D	22	29	C	15
	NB	39	D	8	40	D	9	39	D	7	44	D	12	56	E	20	n/a		
	SB	n/a			n/a			n/a			n/a			n/a			47	D	11
Union St & College St																			
	Overall	20	C	-	26	D	-	21	C	-	17	C	-	102	F	-	53	F	-
	EB	17	C	6	20	C	7	18	C	5	16	C	6	133	F	20	19	C	6
	WB	18	C	7	20	C	7	18	C	7	17	C	6	52	F	16	75	F	20
	NB	23	C	8	33	D	11	24	C	9	18	C	7	111	F	16	n/a		
	SB	n/a			n/a			n/a			n/a			n/a			46	E	9
Union St & Main St																			
	Overall	14	B	-	18	B	-	19	B	-	19	B	-	53	D	-	33	C	-
	EB	6	A	6	9	A	8	10	A	8	7	A	5	58	E	16	12	B	8
	WB	14	B	14	18	B	18	19	B	19	20	B	18	25	C	18	58	E	31
	NB	30	C	7	32	C	8	32	C	8	40	D	13	88	F	15	n/a		
	SB	n/a			n/a			n/a			n/a			n/a			30	C	9
Willard St & Pearl St																			
	Overall	26	C	-	24	C	-	26	C	-	26	C	-	45	D	-	77	E	-
	EB	20	C	13	21	C	12	20	B	12	21	C	13	25	C	15	56	E	25
	WB	15	B	9	17	B	11	21	C	14	19	B	13	33	C	20	103	F	38
	NB	56	E	18	42	D	16	45	D	16	45	D	16	89	F	36	121	F	31
	SB	29	C	6	27	C	6	29	C	6	28	C	6	29	C	9	52	D	12
Willard St & College St																			
	Overall	17	B	-	17	B	-	21	C	-	19	B	-	44	D	-	44	D	-
	EB	23	C	9	23	C	9	23	C	9	23	C	9	57	E	18	28	C	10
	WB	31	C	12	31	C	11	35	D	13	34	C	11	70	E	23	48	D	17
	NB	4	A	5	4	A	5	5	A	7	5	A	7	20	B	16	22	C	15
	SB	15	B	7	16	B	8	23	C	12	20	C	11	68	E	23	64	E	27
Willard St & Main St																			
	Overall	23	C	-	24	C	-	29	C	-	23	C	-	61	E	-	41	D	-
	EB	12	B	7	14	B	8	12	B	7	10	A	6	66	E	30	18	B	10
	WB	18	B	9	19	B	9	20	B	9	17	B	8	40	D	27	44	D	18
	NB	39	D	16	40	D	17	57	E	21	31	C	12	63	E	27	46	D	20
	SB	37	D	12	40	D	14	47	D	15	48	D	15	86	F	17	68	E	17





Generally, the results of the Phase 1 study indicated the following:

- The complete street alternative (removing one lane of travel along Winooski Avenue between Main Street and Pearl Street, adding a center two-way left-turn lane and bicycle lanes) resulted in a minor increase in delay during the PM peak hours:
  - +1 second at Pearl Street.
  - +3 seconds at College Street.
  - +6 seconds at Main Street.
- The two-way Winooski alternative, north of Pearl Street, increased delay more considerably at the Pearl Street intersection.
- One-way pairs would operate poorly without additional infrastructure construction at the intersections, such as installation of additional turn lanes.

## Winooski Avenue Microsimulation Corridor Analysis

In the current phase of the Winooski Avenue Corridor Study, RSG employed SimTraffic microsimulation software to more discretely analyze corridor traffic performance under the Complete Streets alternative between Main Street and Pearl Street. Microsimulation, as opposed to analysis tools documented in the Highway Capacity Manual (HCM), was used to model the interaction of vehicle queues and closely spaced intersections.

The results of the SimTraffic microsimulation for both existing conditions and Complete Streets scenario are presented in Table 1. Yellow highlighted values represent reduced operational performance; a 15-second increase in delay, or a 100-foot increase in the queue length. However, due to signal optimization, some performance measures improve; green highlighted cells represent a 15-second decrease in delay, or a 100-foot decrease in the queue length. Further signal optimization would likely yield improved operational performance on the corridor.

As shown in Table 1, the most significant change in performance after implementing the Complete Streets alternative occurs at the southbound Winooski Avenue approach to Pearl Street. At this location, the existing three traffic lanes (dedicated left, through, and through/right lanes) reduces to one lane in the proposed condition. However, overall intersection delay increases by only 4.1 seconds, indicating that other approaches are operating acceptably. For example, the westbound left movement improves by over 15 seconds. For most other movements, delay per vehicle remains fairly consistent and queues are not expected to form between intersections.

The 2010 Highway Capacity Manual defines six qualitative letter grades to describe the level of service (LOS) at an intersection. LOS is based on the *average control delay* per vehicle. HCM's calculated *control delay* is independent of the adjacent road network. SimTraffic's simulated *total delay* models adjacent intersections to account for potential interactions. The two delay calculations are similar but will not be identical between the two analysis methods.

**TABLE 1: PM PEAK HOUR MICROSIMULATION ANALYSIS RESULTS**

	Existing Conditions		Complete Streets	
	Delay / Vehicle (s)	Max Queue (ft)	Delay / Vehicle (s)	Max Queue (ft)
<b>Winooski Avenue / Pearl Street</b>				
Overall	25.5	-	29.6	-
EB Through	38.7	363	37.9	369
EB Right	12.9	125	27.8	-
WB Left	40.9	145	24.6	144
WB Through	30.2	373	16.9	278
NB Left	17.5	163	20.2	138
NB Right	7.7	162	9	208
SB Left	22	64	57.7	-
SB Through	25.8	231	57.4	445
SB Right	14.3	125	55.5	-
<b>Winooski Avenue / Cherry Street</b>				
Overall	8.7	-	10.5	-
EB Left	45.4	218	44.7	221
EB Right	21.6	-	22.9	-
NB Left	8	117	11	90
NB Through	4	118	4.1	150
SB Through	5	99	7.3	243
SB Right	2.8	89	5.7	-
<b>Winooski Avenue / Bank Street</b>				
Overall	6.9	-	8.4	-
EB Left	49.1	138	44.7	173
EB Right	7.8	115	22.9	-
NB Left	8.2	89	11	59
NB Through	2.9	161	4.1	252
SB Through	4.1	161	7.3	162
SB Right	1.8	127	5.7	-
<b>Winooski Avenue / College Street</b>				
Overall	15.9	-	17.6	-
EB Left	40.9	-	46.8	-
EB Through	41	267	44	269
EB Right	30	-	30.3	-
WB Left	41.7	-	41.3	-
WB Through	38.6	228	42.2	234
WB Right	22.5	-	25	-
NB Left	11	118	19.8	108
NB Through	5.3	84	8.8	194
NB Right	0.9	-	5.7	-
SB Left	10.6	206	12.8	100
SB Through	8.8	98	7.5	199
SB Right	1.9	-	5.3	-
<b>Winooski Avenue / Main Street</b>				
Overall	24.7	-	21.8	-
EB Left	45.9	596	62.3	144
EB Through	33.4	85	19.3	489
EB Right	30.9	-	22.5	-
WB Left	48.7	124	40.9	125
WB Through	24.2	514	20.7	350
WB Right	11.7	-	16.6	-
NB Left	33.9	-	22.8	-
NB Through	22.7	169	13.1	130
NB Right	13.5	-	10.9	-
SB Left	20.1	115	25.4	125
SB Through	15.2	355	20.3	346
SB Right	4.9	77	17	-



## Limitations of the Models

The models used to evaluate traffic performance do not account for two components of travel along the corridor:

- Pedestrian activity is known to be high along Winooski Avenue, particularly at the Pearl Street intersection and the Bank Street – City Market driveway intersections. The signalized pedestrian phase at intersections and crossings across the City Market driveway may increase vehicle delay beyond what has been modeled.
- The Bank Street entrance to the Marketplace Garage regularly queues to Winooski Avenue; this downstream effect was not included in the analysis.

The effects of these components may be mitigated through signal optimization, effective roadside communication to drivers, and engineering design.

## Review of Transportation Modeling Results

Both the network modeling and microsimulation analysis indicated that the Complete Streets alternative would operate efficiently along Winooski Avenue between Main Street and Pearl Street. Even with the limitations of the models noted, the analysis results are consistent with transportation engineering principles and observed operational behavior.

- The highest average annual daily traffic along Winooski Ave is 15,700 vehicles per day (VPD)<sup>2</sup> between Bank St and College St. This compares to the Complete Street on Colchester Ave with 15,000 VPD from Prospect St to Fletcher Pl.
- FHWA's Generalized Service Volume Tables<sup>3</sup> indicates that a two-lane signalized highway with speed limit of 35 MPH should accommodate 16,500 VPD at a LOS B or better.
- Common engineering “rule of thumb” indicates a two-lane road with left turn lanes can accommodate over 18,000 VPD at LOS D/E.
- Observations of existing driver behavior indicate that many drivers currently use the outer (right) lane for through movements, and the inner (left) lane for turning left; many drivers are using the existing lanes as intended in the Complete Street alternative.

## Attachments

SimTraffic Worksheets: Existing Conditions and Complete Streets PM Peak Hour Scenarios

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<sup>2</sup> “2018 (Route Log) AADTs State Highways” VTrans, 2019

<https://vtrans.vermont.gov/sites/aot/files/planning/documents/trafficresearch/Final%20Web.pdf>

<sup>3</sup> Table 15, “Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System”, FHWA 2017,

[https://www.fhwa.dot.gov/policyinformation/pubs/pl18003/hpms\\_cap.pdf](https://www.fhwa.dot.gov/policyinformation/pubs/pl18003/hpms_cap.pdf)



# SimTraffic Performance Report

## Baseline

02/11/2020

### 6: Winooski & Bank Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.3	4.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	49.1	7.8	8.2	2.9	4.1	1.8	6.9

### 8: Winooski & Cherry Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	45.4	21.6	8.0	4.0	5.0	2.8	8.7

### 11: Winooski & Main Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	1.3	3.2	3.2	2.7	0.9	2.8	0.2	0.2	0.2	0.0	0.1	0.0
Total Del/Veh (s)	45.9	33.4	30.9	48.7	24.2	11.7	33.9	22.7	13.5	20.1	15.2	4.9

### 11: Winooski & Main Performance by movement

Movement	All
Denied Del/Veh (s)	1.5
Total Del/Veh (s)	24.7

### 12: Winooski & College Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	40.9	41.0	30.0	41.7	38.6	22.5	11.0	5.3	0.9	10.6	8.8	1.9

### 12: Winooski & College Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	15.9

### 13: Winooski & Pearl Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.5	3.3	3.4	0.6	0.0	0.0	3.6	1.5	3.7	1.1
Total Del/Veh (s)	38.7	12.9	40.9	30.2	17.5	7.7	22.0	25.8	14.3	25.5

### 16: Winooski & Gas Station/City Market Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.1	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.5	4.3	16.0	8.9	8.3	4.5	1.8	0.7	4.4	1.5	0.5	2.7

# SimTraffic Performance Report

## Baseline

02/11/2020

### 20: Winooski & Garage Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	9.9	4.2	0.8	0.8	1.3

### Total Network Performance

Denied Del/Veh (s)	1.5
Total Del/Veh (s)	39.3

# Queuing and Blocking Report

## Baseline

02/11/2020

### Intersection: 6: Winooski & Bank

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	LT	T	T	TR
Maximum Queue (ft)	138	115	89	81	161	127
Average Queue (ft)	61	36	51	25	69	37
95th Queue (ft)	114	80	87	66	146	93
Link Distance (ft)	779		74	74	155	155
Upstream Blk Time (%)			3	1	0	0
Queuing Penalty (veh)			7	1	1	0
Storage Bay Dist (ft)		90				
Storage Blk Time (%)	4	0				
Queuing Penalty (veh)	3	0				

### Intersection: 8: Winooski & Cherry

Movement	EB	NB	NB	SB	SB
Directions Served	LR	LT	T	T	TR
Maximum Queue (ft)	218	117	118	99	89
Average Queue (ft)	104	49	37	41	35
95th Queue (ft)	193	100	92	86	77
Link Distance (ft)	794	143	143	342	342
Upstream Blk Time (%)		0	0		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

### Intersection: 11: Winooski & Main

Movement	EB	EB	WB	WB	WB	NB	SB	SB	SB	B21
Directions Served	L	TR	L	T	R	LTR	L	T	R	T
Maximum Queue (ft)	596	85	124	514	125	169	115	203	77	152
Average Queue (ft)	298	84	62	218	73	77	70	118	28	15
95th Queue (ft)	529	88	121	424	150	138	128	212	61	80
Link Distance (ft)	1179			1268		409		116	116	191
Upstream Blk Time (%)							1	7		0
Queuing Penalty (veh)							0	19		0
Storage Bay Dist (ft)		60	100		100		100			
Storage Blk Time (%)	7	38	2	23	0		2	8		
Queuing Penalty (veh)	40	30	14	53	1		7	12		

## Queuing and Blocking Report

### Baseline

02/11/2020

#### Intersection: 12: Winooski & College

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	269	228	118	84	206	98
Average Queue (ft)	140	100	48	28	105	30
95th Queue (ft)	236	183	101	69	186	72
Link Distance (ft)	766	508	191	191	200	200
Upstream Blk Time (%)					1	
Queuing Penalty (veh)					2	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

#### Intersection: 13: Winooski & Pearl

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	R	L	T	L	TR	L	T	TR
Maximum Queue (ft)	363	125	145	373	163	162	64	231	125
Average Queue (ft)	196	70	102	183	65	57	38	100	76
95th Queue (ft)	327	150	168	317	126	116	75	194	135
Link Distance (ft)	1190			974	342	342		823	
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		100	120				40		100
Storage Blk Time (%)	34	0	5	22			7	26	3
Queuing Penalty (veh)	31	1	16	32			21	60	6

#### Intersection: 16: Winooski & Gas Station/City Market

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	46	100	80	46	89	57
Average Queue (ft)	16	42	13	2	38	4
95th Queue (ft)	43	82	53	23	86	25
Link Distance (ft)	112	485	200	200	74	74
Upstream Blk Time (%)					2	0
Queuing Penalty (veh)					5	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

## Queuing and Blocking Report

### Baseline

02/11/2020

#### Intersection: 20: Winooski & Garage

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	T	T	T
Maximum Queue (ft)	59	67	6	17	6
Average Queue (ft)	23	31	0	1	0
95th Queue (ft)	49	54	4	13	4
Link Distance (ft)	145	145	155	143	143
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

#### Network Summary

Network wide Queuing Penalty: 364

# SimTraffic Performance Report

## Baseline

02/11/2020

### 6: Winooski & Bank Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	47.6	25.8	13.7	3.1	4.4	2.6	8.4

### 8: Winooski & Cherry Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.2	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	44.7	22.9	11.0	4.1	7.3	5.7	10.5

### 11: Winooski & Main Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	2.5	0.7	0.7	2.2	0.6	0.6	0.2	0.2	0.2	0.0	0.0	0.0
Total Del/Veh (s)	62.3	19.3	22.5	40.9	20.7	16.6	22.8	13.1	10.9	25.4	20.3	17.0

### 11: Winooski & Main Performance by movement

Movement	All
Denied Del/Veh (s)	0.6
Total Del/Veh (s)	21.8

### 12: Winooski & College Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	46.8	44.0	30.3	41.3	42.2	25.0	19.8	8.8	5.7	12.8	7.5	5.3

### 12: Winooski & College Performance by movement

Movement	All
Denied Del/Veh (s)	0.1
Total Del/Veh (s)	17.6

### 13: Winooski & Pearl Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.3	2.5	0.6	0.0	0.0	0.4	0.4	0.5	0.5
Total Del/Veh (s)	37.9	27.8	24.6	16.9	20.2	9.0	57.7	57.4	55.5	29.6

### 16: Winooski & Gas Station/City Market Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.1	0.1	0.2	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	20.1	5.7	22.2	30.1	14.2	6.0	2.5	1.6	5.4	1.3	0.5	3.5

# SimTraffic Performance Report

## Baseline

02/11/2020

### 20: Winooski & Garage Performance by movement

Movement	EBL	EBR	NBT	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.0	0.0	0.0
Total Del/Veh (s)	15.2	7.1	1.0	1.5	2.1

### Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	41.4



# Queuing and Blocking Report

## Baseline

02/11/2020

### Intersection: 6: Winooski & Bank

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	173	59	120	162
Average Queue (ft)	88	37	57	83
95th Queue (ft)	153	63	115	160
Link Distance (ft)	785		86	155
Upstream Blk Time (%)		0	3	1
Queuing Penalty (veh)		0	12	6
Storage Bay Dist (ft)		30		
Storage Blk Time (%)		22	9	
Queuing Penalty (veh)		76	7	

### Intersection: 8: Winooski & Cherry

Movement	EB	NB	NB	SB
Directions Served	LR	L	T	TR
Maximum Queue (ft)	221	90	150	243
Average Queue (ft)	112	34	64	98
95th Queue (ft)	194	74	131	204
Link Distance (ft)	800		143	355
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			2	
Storage Bay Dist (ft)		100		
Storage Blk Time (%)		0	2	
Queuing Penalty (veh)		1	2	

### Intersection: 11: Winooski & Main

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	TR	LTR	L	TR
Maximum Queue (ft)	144	489	125	350	130	125	346
Average Queue (ft)	74	193	63	197	58	86	177
95th Queue (ft)	147	400	131	313	106	143	299
Link Distance (ft)		1186		1368	409		376
Upstream Blk Time (%)		0					0
Queuing Penalty (veh)		0					0
Storage Bay Dist (ft)	120		100			100	
Storage Blk Time (%)	6	19	2	26		3	18
Queuing Penalty (veh)	34	15	14	18		15	28

# Queuing and Blocking Report

## Baseline

02/11/2020

### Intersection: 12: Winooski & College

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	269	234	108	194	100	199
Average Queue (ft)	145	109	32	83	28	104
95th Queue (ft)	233	191	81	163	81	194
Link Distance (ft)	773	513		376		199
Upstream Blk Time (%)						1
Queuing Penalty (veh)						5
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)			0	5	0	8
Queuing Penalty (veh)			0	3	0	4

### Intersection: 13: Winooski & Pearl

Movement	EB	WB	WB	NB	NB	SB
Directions Served	TR	L	T	L	TR	LTR
Maximum Queue (ft)	369	144	278	138	208	445
Average Queue (ft)	195	79	116	66	84	231
95th Queue (ft)	317	132	214	121	154	414
Link Distance (ft)	1195		1421		355	930
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		120		120		
Storage Blk Time (%)		1	7	1	2	
Queuing Penalty (veh)		4	9	4	3	

### Intersection: 16: Winooski & Gas Station/City Market

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	35	128	132	58	93
Average Queue (ft)	12	50	18	25	12
95th Queue (ft)	36	93	75	52	56
Link Distance (ft)	134	491	199		86
Upstream Blk Time (%)			0		0
Queuing Penalty (veh)			0		3
Storage Bay Dist (ft)				30	
Storage Blk Time (%)				7	1
Queuing Penalty (veh)				35	1

## Queuing and Blocking Report

### Baseline

02/11/2020

#### Intersection: 20: Winooski & Garage

Movement	EB	EB	NB	SB
Directions Served	L	R	T	T
Maximum Queue (ft)	57	75	66	93
Average Queue (ft)	25	32	3	8
95th Queue (ft)	49	59	28	50
Link Distance (ft)	123	123	155	143
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		0	0	1
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

#### Network Summary

Network wide Queuing Penalty: 302

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## APPENDIX E. OPINION OF PROBABLE COST

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# MEMO

**TO:** Project File

**DATE:** February 12, 2020

**SUBJECT:** Winooski Avenue Transportation Study:  
Opinion of Probable Construction Costs

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In support of the Winooski Avenue Transportation Study, RSG and DuBois & King have developed opinions of probable construction costs associated with the preferred alternative improvements along Winooski Avenue. The estimated opinions of construction costs are divided into the three project implementation segments for the shorter- and longer-term time periods.

## Shorter Term

Shorter term improvements include:

- **Corridor restriping**, involving removal of existing line striping and painted symbols, placing new painted line striping and symbols, and updating signs, parking meters, and other incidental work.
- **Installation of mini-roundabouts** at two locations, which includes minor excavation, installation of curbing, new drainage features, and associated line striping. The construction cost estimates include allowances for landscaping, streetscaping, and an estimate for disposal of a small quantity of contaminated soil.

## Longer Term

Longer term improvements are defined by a greater area of disturbance associated with corridor widening. Roadway widening requires significantly more expensive activities, including excavation of potentially contaminated soils, utility relocation (overhead or underground), new drainage infrastructure, and compliance with updated stormwater regulations.

The longer term opinions on probable construction costs are divided into two categories based on overhead or underground utility relocation. Aside from the cost of conduits and duct banks, underground utility relocation requires underground vaults for transformers and other equipment, increases the potential exposure of contaminated soils, and requires underground connections to all properties along the corridor. These features increase the cost of underground utility relocation relative to overhead utility relocation.



## Summary of Opinion of Probable Construction Costs

SHORTER TERM – CORRIDOR RESTRIPIING	
Northern Segment: (Riverside Ave to Pearl St)	\$45,000
Downtown Segment: (Pearl St to Main St)	\$53,000
Southern Segment: (Main St to Maple St)	\$10,500
SHORTER TERM – MINI-ROUNDAABOUTS	
Northern Segment: Union St	\$115,000
Northern Segment: North St	\$150,000
LONGER TERM – CORRIDOR WIDENING	
Northern Segment: Overhead Utilities (Riverside Ave to Pearl St)	\$2,380,000
Northern Segment: Underground Utilities (Riverside Ave to Pearl St)	\$10,000,000+
Southern Segment: No Widening, Restriping Only (Main St to Maple St)	\$10,000

## Detailed Opinions of Probable Construction Costs

The following detailed quantities and unit costs represent conceptual level estimations of construction costs for the preferred alternative. Where applicable, quantities were estimated based on the application of a conceptual design along a corridor or specific location. Unit costs are generally based on 5-year averages provided by the Vermont Agency of Transportation; where unit costs are not available of individual items, RSG and D&K estimated unit costs based on project experience and engineering judgement. Allowances, incidentals, contingency, and administrative costs were estimated using percentages of the running total or as fixed costs, as appropriate.

As with all conceptual level opinions of probable costs, the final estimates described herein may change as the design progresses.



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### Shorter Term - Pearl to Riverside - Only remove & restripe pavement markings

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SF	6200	\$0.39	\$2,418.00
646.21	4 INCH YELLOW LINE	LF	6700	\$0.30	\$2,010.00
646.20	4 INCH WHITE LINE	LF	11800	\$0.20	\$2,360.00
646.26	24 INCH STOP BAR	LF	250	\$3.68	\$920.00
646.30	LETTER OR SYMBOL	EA	10	\$125.00	\$1,250.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	160	\$100.00	\$16,000.00
	Incidentals (signs, parking meter removal, minor sidewalk repair, etc) (10%)				\$2,495.80
	Traffic Control (10%)				\$2,495.80
	Mobilization/Demobilization (10%)				\$2,495.80
	Running Total				\$32,445.40
	Contingency (20%)				\$6,489.08
					<b>\$39,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$5,850.00
	<b>Grand Total</b>				<b>\$44,850.00</b>



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Shorter Term - Main to Pearl - Only remove & restripe pavement markings					
ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SF	4000	\$0.39	\$1,560.00
646.21	4 INCH YELLOW LINE	LF	2350	\$0.30	\$705.00
646.20	4 INCH WHITE LINE	LF	4100	\$0.20	\$820.00
646.26	24 INCH STOP BAR	LF	450	\$3.68	\$1,656.00
646.30	LETTER OR SYMBOL	EA	44	\$125.00	\$5,500.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	190	\$100.00	\$19,000.00
	Incidentals (signs, minor sidewalk repair, etc) (10%)				\$2,924.10
	Traffic Control (10%)				\$2,924.10
	Mobilization/Demobilization (10%)				\$2,924.10
	Running Total				\$38,013.30
	Contingency (20%)				\$7,602.66
					<b>\$46,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$6,900.00
	<b>Grand Total</b>				<b>\$52,900.00</b>



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**Shorter Term - Howard to Main - Only remove & restripe pavement markings**

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SF	2000	\$0.39	\$780.00
646.21	4 INCH YELLOW LINE	LF	1300	\$0.30	\$390.00
646.20	4 INCH WHITE LINE	LF	1600	\$0.20	\$320.00
646.26	24 INCH STOP BAR	LF	450	\$3.68	\$1,656.00
646.30	LETTER OR SYMBOL	EA	8	\$125.00	\$1,000.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	10	\$100.00	\$1,000.00
	Incidentals (signs, parking meter removal, minor sidewalk repair, etc) (10%)				\$514.60
	Traffic Control (10%)				\$514.60
	Mobilization/Demobilization (10%)				\$514.60
	Running Total				\$6,689.80
	Contingency (20%)				\$1,337.96
					<b>\$9,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$1,350.00
	<b>Grand Total</b>				<b>\$10,350.00</b>



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### North Winooski & Union & Decatur Mini Roundabout

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
203.15	COMMON EXCAVATION	CY	100	\$12.16	\$1,216.00
210.10	COLD PLANING, BITUMINOUS BAVEMENT	SY	1250	\$2.29	\$2,862.50
404.65	EMULSIFIED ASPHALT	CWT	10	\$20.16	\$201.60
406.25	BITUMINOUS CONCRETE PAVEMENT	TON	110	\$128.71	\$14,158.10
601.09	18" CPEP	LF	5	\$67.73	\$338.65
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN	EA	1	\$3,616.00	\$3,616.00
616.21	VERTICAL GRANITE CURB	LF	50	\$46.07	\$2,303.50
616.22	VERTICAL GRANITE CURB, MOUNTABLE	LF	250	\$62.00	\$15,500.00
616.40	REMOVING AND RESETTNG CURB	LF	50	\$27.19	\$1,359.50
646.21	4 INCH YELLOW LINE	LF	300	\$0.30	\$90.00
646.20	4 INCH WHITE LINE	LF	700	\$0.20	\$140.00
646.31	CROSSWALK MARKING	LF	130	\$14.15	\$1,839.50
646.30	LETTER OR SYMBOL	EA	6	\$125.00	\$750.00
646.26	24 INCH STOP BAR	LF	0	\$3.68	\$0.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	0	\$100.00	\$0.00
	Soil Disposal	CY	50	\$200.00	\$10,000.00
	Landscaping allowance				\$5,000.00
	Streetscaping allowance				\$5,000.00
	Incidentals (signs, minor sidewalk repair, concrete removal, etc) (10%)				\$6,437.54
	Traffic Control (10%)				\$6,437.54
	Mobilization/Demobilization (10%)				\$6,437.54
	Running Total				\$82,471.96
	Contingency (20%)				\$16,494.39
					<b>\$100,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$15,000.00
	Grand Total				<b>\$115,000.00</b>



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### North Winooski & North St Mini Roundabout

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
203.15	COMMON EXCAVATION	CY	100	\$12.16	\$1,216.00
210.10	COLD PLANING, BITUMINOUS BAVEMENT	SY	1700	\$2.29	\$3,893.00
404.65	EMULSIFIED ASPHALT	CWT	10	\$20.16	\$201.60
406.25	BITUMINOUS CONCRETE PAVEMENT	TON	150	\$128.71	\$19,306.50
601.09	18" CPEP	LF	0	\$67.73	\$0.00
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN	EA	0	\$3,616.00	\$0.00
616.21	VERTICAL GRANITE CURB	LF	100	\$46.07	\$4,607.00
616.22	VERTICAL GRANITE CURB, MOUNTABLE	LF	450	\$62.00	\$27,900.00
616.40	REMOVING AND RESETTING CURB	LF	100	\$27.19	\$2,719.00
646.21	4 INCH YELLOW LINE	LF	900	\$0.30	\$270.00
646.20	4 INCH WHITE LINE	LF	1100	\$0.20	\$220.00
646.31	CROSSWALK MARKING	LF	130	\$14.15	\$1,839.50
646.30	LETTER OR SYMBOL	EA	6	\$125.00	\$750.00
646.26	24 INCH STOP BAR	LF	0	\$3.68	\$0.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	0	\$100.00	\$0.00
	Soil Disposal	CY	50	\$200.00	\$10,000.00
	Landscaping allowance				\$5,000.00
	Streetscaping allowance				\$5,000.00
	Incidentals (signs, minor sidewalk repair, concrete removal, etc)				\$8,292.26
	Traffic Control (10%)				\$8,292.26
	Mobilization/Demobilization (10%)				\$8,292.26
	Running Total				\$106,583.38
	Contingency (20%)				\$21,316.68
					<b>\$130,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$20,000.00
	Grand Total				<b>\$150,000.00</b>



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### Longer Term - Pearl to Riverside - Road Widening (Relocate Utility Poles)

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
201.15	REMOVING MEDIUM TREES	EA	39	\$511.15	\$19,934.85
210.16	REMOVING LARGE TREES	EA	15	\$1,069.44	\$16,041.60
203.15	COMMON EXCAVATION	CY	3600	\$12.16	\$43,776.00
210.10	COLD PLANING, BITUMINOUS BAVEMENT	SY	16200	\$2.29	\$37,098.00
301.25	SUBBASE OF CRUSHED GRAVEL, COURSE GRADED GRADED	CY	1800	\$38.26	\$68,868.00
301.26	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	CY	900	\$33.12	\$29,808.00
404.65	EMULSIFIED ASPHALT	CWT	60	\$20.16	\$1,209.60
406.25	BITUMINOUS CONCRETE PAVEMENT	TON	1540	\$128.71	\$198,213.40
601.09	18" CPEP	LF	70	\$67.73	\$4,741.10
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN	EA	8	\$3,616.00	\$28,928.00
616.21	VERTICAL GRANITE CURB	LF	1000	\$46.07	\$46,070.00
616.40	REMOVING AND RESETTING CURB	LF	4650	\$27.19	\$126,433.50
626.29	RELOCATE HYDRANT	7	7	\$3,651.71	\$25,561.97
646.21	4 INCH YELLOW LINE	LF	7000	\$0.30	\$2,100.00
646.20	4 INCH WHITE LINE	LF	13050	\$0.20	\$2,610.00
646.31	CROSSWALK MARKING	LF	910	\$14.15	\$12,876.50
646.30	LETTER OR SYMBOL	EA	22	\$125.00	\$2,750.00
646.26	24 INCH STOP BAR	LF	250	\$3.68	\$920.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	200	\$85.00	\$17,000.00
	Utility pole relocation	EA	50	\$3,000.00	\$150,000.00
	Soil Disposal	CY	2700	\$200.00	\$540,000.00
	Landscaping allowance				\$10,000.00
	Streetscaping allowance				\$10,000.00
	Incidentals (10%)				\$139,494.05
	Traffic Control (10%)				\$131,518.81
	Mobilization/Demobilization (10%)				\$131,518.81
	Running Total				\$1,717,719.74
	Contingency (20%)				\$343,543.95
					<b>\$2,065,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$310,000.00
	<b>Grand Total</b>				<b>\$2,375,000.00</b>





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Longer Term - Pearl to Riverside - Road Widening (Underground Utilities)					
ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
201.15	REMOVING MEDIUM TREES	EA	39	\$511.15	\$19,934.85
210.16	REMOVING LARGE TREES	EA	15	\$1,069.44	\$16,041.60
203.15	COMMON EXCAVATION	CY	3600	\$12.16	\$43,776.00
204.20	TRENCH EXCAVATION	CY	2800	\$18.45	\$51,660.00
210.10	COLD PLANING, BITUMINOUS BAVEMENT	SY	16200	\$2.29	\$37,098.00
301.25	SUBBASE OF CRUSHED GRAVEL, COURSE GRADED GRADED	CY	1800	\$38.26	\$68,868.00
301.26	SUBBASE OF CRUSHED GRAVEL, FINE GRADED	CY	900	\$33.12	\$29,808.00
404.65	EMULSIFIED ASPHALT	CWT	60	\$20.16	\$1,209.60
406.25	BITUMINOUS CONCRETE PAVEMENT	TON	1540	\$128.71	\$198,213.40
601.09	18" CPEP	LF	70	\$67.73	\$4,741.10
604.20	PRECAST REINFORCED CONCRETE CATCH BASIN	EA	8	\$3,616.00	\$28,928.00
616.21	VERTICAL GRANITE CURB	LF	1000	\$46.07	\$46,070.00
616.40	REMOVING AND RESETTNG CURB	LF	4650	\$27.19	\$126,433.50
626.29	RELOCATE HYDRANT	7	7	\$3,651.71	\$25,561.97
646.21	4 INCH YELLOW LINE	LF	7000	\$0.30	\$2,100.00
646.20	4 INCH WHITE LINE	LF	13050	\$0.20	\$2,610.00
646.31	CROSSWALK MARKING	LF	910	\$14.15	\$12,876.50
646.30	LETTER OR SYMBOL	EA	22	\$125.00	\$2,750.00
646.26	24 INCH STOP BAR	LF	250	\$3.68	\$920.00
678.23	WIRED CONDUIT	LF	4700	\$21.83	\$102,601.00
678.25	PULL BOX, STANDARD	EA	27	\$2,632.60	\$71,080.20
678.30	ELECTRICAL CONDUIT SLEEVE	LF	9300	\$72.12	\$670,716.00
900.62	SPECIAL PROVISION (UTILITY HOLE)	EA	7	\$25,000.00	\$175,000.00
900.64	SPECIAL PROVISION (CONCRETE ENCASED DUCTBANK)	LF	4700	\$60.00	\$282,000.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	200	\$85.00	\$17,000.00
	Lighting	EA	27	\$12,700.00	\$342,900.00
	Soil Disposal	CY	4800	\$200.00	\$960,000.00
	Landscaping allowance				\$100,000.00
	Streetscaping allowance				\$100,000.00
	U/G service connection allowance				\$1,000,000.00
	Electrical equipment allowance				\$1,000,000.00
	Incidentals (15%)				\$831,134.66
	Traffic Control (10%)				\$554,089.77
	Mobilization/Demobilization (10%)				\$554,089.77
	Running Total				\$7,348,799.47
	Contingency (20%)				\$1,469,759.89
					<b>\$8,820,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$1,325,000.00
	<b>Grand Total</b>				<b>\$10,145,000.00</b>



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Engineering • Planning • Development • Management

JOB Winooski Ave Corridor Study

SHEET NO. 1 OF 1

CALCULATED BY: JLU DATE: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_

SCALE: \_\_\_\_\_

### Longer Term - Howard to Main - Remove Pavement Markings & Restripe only

ITEM NO.	DESCRIPTION	UNIT	QUANT.	UNIT PRICE	AMOUNT
646.85	REMOVAL OF EXISTING PAVEMENT MARKINGS	SF	2000	\$0.39	\$780.00
646.21	4 INCH YELLOW LINE	LF	700	\$0.30	\$210.00
646.20	4 INCH WHITE LINE	LF	1050	\$0.20	\$210.00
646.31	CROSSWALK MARKING	LF	0	\$14.15	\$0.00
646.30	LETTER OR SYMBOL	EA	4	\$125.00	\$500.00
646.26	24 INCH STOP BAR	LF	50	\$3.68	\$184.00
900.68	SPECIAL PROVISION (GREEN PAVEMENT MARKINGS - BICYCLE LANE)	SY	0	\$100.00	\$0.00
	Landscaping allowance				
	Streetscaping allowance				
	Incidentals (10%)				\$188.40
	Traffic Control (10%)				\$188.40
	Mobilization/Demobilization (10%)				\$188.40
	Running Total				\$2,449.20
	Contingency (20%)				\$489.84
					<b>\$5,000.00</b>
	Soft Costs (local project management, design fee) (15%)				\$5,000.00
	<b>Grand Total</b>				<b>\$10,000.00</b>





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