City Council - Transportation, Energy and Utilities Committee

Monday, February 24, 2025, 7:00 PM,

Join in Person: Front Conference Room, 645 Pine St. Burlington, VT 05401

Join via Zoom: https://zoom.us/j/84603122855
To call into the meeting, including to speak during public comment:
Phone: 312-626-6799, Webinar ID: 846 0312 2855

1. Agenda

1.1. Motion to adopt/amend

2. Adopt Minutes

2.1. Minutes of 1/28/25

3. Public Forum

4. Deliberative Agenda

4.1. Transportation Demand Management Action Plan - 30 min

4.2. Battery Street Preferred Alternative Approval - 15 min

4.3. Courthouse Plaza Parking Agreement Modifications - 30 min

4.4. Institute Road Sidewalk - 5 min

4.5. Future TEUC Agenda Setting Work Session - 20 min

5. Director's Report

6. Councilor Items

7. Next Meeting

7.1. Next meeting: 3/25/25 at 5:30PM

8. Adjournment

CITY OF BURLINGTON, VERMONT

CITY COUNCIL TRANSPORTATION, ENERGY & UTILITIES COMMITTEE

c/o Department of Public Works
645 Pine Street, Suite A
Post Office Box 849
Burlington, VT 05402-0849

802.863.9094 VOX
802.863.0466 FAX
802.863.0450 TTY
www.burlingtonvt.gov

Councilor Mark Barlow, **Chair,** *North District*
Councilor Gene Bergman, *Ward 2*
Councilor Evan Litwin, *Ward 7*
Councilor Marek Broderick, *Ward 8*

Inquiries:
Rob Goulding
802.881-2278
rgoulding@burlingtonvt.gov

Transportation, Energy and Utilities Committee of the City Council
Tuesday January 28, 2025 – 5:30PM
--DRAFT MINUTES—

Councilors absent: None

Chair Barlow calls meeting to order at 5:31 PM

1. Agenda
Councilor Bergman moves to adopt the agenda.
Councilor Broderick seconds.
All in favor, Unanimous approval..

2. Minutes of 12/17/24
Councilor Bergman moves to adopt the minutes as presented.
Councilor Broderick seconds.
All in favor. Unanimous approval.

3. Public Forum
Ali Hamedani –. Resident of Ward 2 – Shared a couple of thoughts of the Battery Street Re-Design Project. One – Last meeting suggested to have 2 or 3 of the parking spots in front of one of the stores. Worried about pedestrian safety. Two – Crosswalks on Pearl St & Battery intersection 4 way work well – can all of the future walk signals work like them.

April Cornell – Business owners on Battery Street worried about her business going out of business due to making a decision that is not connected to the women in the community.

Steve Goodkind – Member of Stop Vermont Biomass – Reduce CO2 Emissions from McNeil Plant. TEUC has been passed by the City Council to collaborate with a bunch of stakeholders, including B.E.D. and put together some important studies. Create a simple spreadsheet to see how it's going.

Jak Tiano – Ward 5 – Battery St Scoping study – Feels the transportation planning process is kind of failing Burlington overall. Need to think ahead on how to make it safer for everyone.

Andy Tracy – Battery Street Scoping Study – always things to be improved. Good 1st Step.

Hans Van Weer – Westport Hospitality **-** Battery Street – Correction needed for option 2 - Fire lane is needed. Aesthetic perspective think about ways to make it more spectacular.

Ashley Adams – Burlington Electric Rate payer and a member of Stop Vermont Biomass **–** Burlington Electric missed deadlines on potential timeframes to transition away with the need for conventional wood chip combustion as a single power source for the City of Burlington. Feels community deserves to know if the project is moving forward.

04. Deliberative Agenda

- **4.1 GMT FY 26 Assessment & Special Assessment**

Clayton Clark from GMT - Special Assessment - Governors budget released today – it will let them know the baseline for potential reductions in June. Special Assessment in order for it to be binding all Urban Members have to approve it. Total cost is $308,000. Burlington's portion is $170,000.00. Assessment breakdown is $240,000 for driver buyouts, $50,000 set aside for assessment reform with CCRPC, Lobbying presence $18,000. Everything is still up in the air. Option 1 is the maximum. The range at highest is 2.28 and the lowest is 2.017 which equals about $260,000 difference in assessment options. If reduction of force is needed driver buyout in June of 2025. Decision needed on the fund fair free service on route 11.

DPW Director Chapin Spencer GMT is looking at some service adjustments that may dramatically change route 11 – continue as is until the service changes happen in June. College Street Assessment is showing around $243,000.00.

Chris Damiani Director of Planning GMT – Route 1 & 2 are the most popular routes on a monthly basis when colleges are in session approximately 50-60 thousand folks a month. 11 Route is much smaller. Since May 2024 - 40% of all rides covered by some sort of agreement.

Councilors asked questions about number of cents in an increase in taxes? What is the timeline on the driver buyout decision? Besides TEUC are you working with Mayor's and CAO's Office in terms of budget implications? How heavily is route 11 used? Is the bulk of 11 travel between the hospital and downtown? Is the elimination of the number 8 & 11 still on the table? If you find the funding for the shortage, will there be no reductions in service? Micro Transit - what is better for consistent service?

.**4.2 Battery Street Scoping Study Preferred Alternative Presentation**

Public Works Engineer Julia Ursaki turned the presentation over to **Drew Gingras** of **VHB.** He spoke about the purpose of the Battery Street Scoping Study - to identify and prioritize short- and long-term improvements that provide equitable, safe, low-stress, and accessible transportation for all along and across Battery Street, regardless of age, ability, or mode of travel. Folks want a safer Battery Street. Alternative 2 is favored.

Councilors asked questions about what will happen with the Railyard Enterprise Project and Southern Connector? Does the Crosswalk need to be at Monroe & Battery St? Looking for clarification on if fire lane is still needed? Clarification on April Cornell needs regarding the 13 spaces? What are the impacts to Battery Park? How is Storm water getting addressed?

Public Comments - Member of the Public – Lives on lowest block on Battery concerned with taking away all of the parking in that area. What are we doing with the bike path? Railroad Tracks? Feels option 2 doesn't work.

4.3 Parking Service License Place Reader Briefing

Director Chapin Spencer – mentioned the Mayors Modern Gov initiative and us looking at ways to offer new parking products to the public. **Parking & Traffic Division Director Jackie Esperti** – spoke about the City implementing this technology to achieve the goals of making parking more seamless for the end user by offering a broader range of products, making enforcement more efficient, financial contribution to the General Fund, and assisting the Parking Services financially through fine revenue. No intention to take jobs away. Startup cost $50,000.00. Yearly cost is $15,000.00

Councilors asked questions about Issues raised about the union? Data that is collected protection? Helpful to get data as it comes in. On Average shift how many plates can someone type in? How many plates per hour does it read? What is the cost? How many cameras? What about Vermont Strong Plates or dirty cars? Authority from the State?

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5. Director's Report

Director Chapin Spencer – Updated the bike share transition – Bird bikes are not coming back. Opportunity for local vendors. Fatal crash on RT 127 – still waiting for crash report from Police Department. Looking into Automated Traffic Enforcement.

Councilor's responses and questions- Bike share – are they remaining in the outlying towns? Feel that we should encourage local providers for Bikeshare. Wants to do what they can to help improve beltline safety.

6. Councilor Items

Councilors– Transportation plan – looking for written response – What is happening? What's the timeline? Planning process, connection of it and plan BTV, what departments involved and their roles? Making sure Burlington Electric Dept. is not overlooked. Connection with GMT, transportation options & management with impact fee statement. Spreadsheet on Agenda Items – important to have a listing, where things are at and see if we can schedule them. Needs to be part of every meeting. More protocol management.

7. Next Meeting

February 20, 2025 at 645 Pine St at 5:30 pm

8. Adjournment

Chair Barlow adjourns meeting at 8:24 pm.



Transportation Demand Management Action Plan

Strategies to Improve Transportation Options in Burlington

City of Burlington | August 2024

CONTENTS

Introduction **1**

Chapter 1: Existing Conditions **4**

Existing Plans and Policies 5

Existing Transportation Options 7

TDM Regulations, Implementation, and Funding 14

Chapter 2: Engagement **17**

Background 17

Engagement Goals + Strategies 18

Key Findings 21

Chapter 3: Recommendations and TDM Strategy Toolkit **25**

Summary of Toolkit Recommendations 26

T.1 | Work with CarShare Vermont to Expand Carshare Services and Supporting Programs 28

T.2 | Work with CATMA to Expand the Guaranteed Ride Home (GRH) Program 30

T.3 | Work with Go! Vermont to Expand the Ride Matching/Carpool Program 32

T.4 | Work with GMT to Expand Transit Service and Pilot Microtransit Service 34

T.5 | Create Shared Stop Guidelines and a Unified Shuttle Program 36

T.6 | Update the City of Burlington Employee Parking Benefits Program to Incentivize Sustainable Commuting Options 38

T.7 | Implement a Sustainable Travel Choice Information, Education, and Marketing Program 39

R.1 | Update and Expand Burlington's TDM Requirements 41

R.2 | Adopt a Commute Trip Reduction (CTR) Ordinance 43

R.3 | Adopt Neighborhood-Based TDM Plans Using the Neighborhood TDM Framework. 45

R.4 | Adopt a Framework for Creating Parking Benefit Districts (PBDs) 46

R.5 | Update the Residential Parking Permit (RPP) Program 48

R.6 | Develop and Implement a Downtown Public Realm Safety Plan 50

M.1 | Hire or Designate a TDM Program Manager/Coordinator 51

M.2 | Expand Funding Sources for TDM 52

M.3 | Formalize and Expand Burlington's Partnership with CATMA 53

M.4 | Expand Public Advisory Roles for Non-Driving Transportation Issues and Needs 54

N.1 | Establish a Public Bicycle/Electric Bicycle Lending Library 55

N.2 | Establish Community-Based Mobility Hubs and Delivery Hubs 57

N.3 | Expand Burlington's "Walk to Shop" Shopping Trolley Program.....60
N.4 | Implement a "Bus Buddies" Transit Rider Education Program.....61
N.5 | Pilot a Neighborhood Transportation Wallet Program.....62
Chapter 4: Neighborhood TDM Framework 64
Appendix 70

Figures

Figure 1 GMT Bus Route 8 on North Street at N. Winooski Ave 7
Figure 2 Examples of GMT bus stops in Burlington 8
Figure 3 Commute Mode by Geography (2021) 9
Figure 4 Commute Mode by Gender (2021) 9
Figure 5 Examples of bicycle facilities in Burlington 10
Figure 6 Pedestrian crossing near Roosevelt Park 10
Figure 7 CarShare Vermont vehicle and parking space 11
Figure 8 Downtown Study Area Parking Utilization, Weekday vs. Weekend 13
Figure 9 Estimated Hill Institution Parking Supply and Demand, 2028 14
Figure 10 Burlington TDM Requirements by Project Type 15
Figure 11 State, Regional, and Local Funding Sources for TDM 16
Figure 12 Event-Based Engagement Materials for the Transportation Options Study 19
Figure 13 Community Support for TDM Tools and Strategies 22
Figure 14 CarShare Vermont service area and vehicles 29
Figure 15 Go! Vermont's Ride Matching and Carpooling Platform 33
Figure 16 Map of Eligible Transit Stops for Shared Use 37
Figure 17 Get There ATX TDM program branading 40
Figure 18 Residential Parking Permit (RPP) Map 49
Figure 19 Bicycle Lending Library in Montpelier operated by Local Motion 56
Figure 20 Mini-hub pilot for last-mile delivery in Toronto, ON 58
Figure 21 GoHub! Mobility Hub pilot in Maverick Square, Boston MA 59

Tables

Table 1 Plans and Policies Reviewed 5
Table 2 Summary of TDM Strategy Recommendations 26
Table 3 Conceptual recommendations for an expanded GRH program 31
Table 4 Conceptual recommendations for a CTR ordinance 44
Table 5 Conceptual recommendation for an updated RPP price structure 49
Table 6 Neighborhood TDM Goals and Evaluation Methods 69

Introduction

What is TDM?

Transportation Demand Management (TDM) refers to policies, programs, and services that reduce single-occupancy vehicle use by supporting and encouraging alternatives to driving alone. It is a broad category of tools and tactics that can include financial incentives, marketing efforts, educational programs, pricing mechanisms, regulatory tools, mobility services, and parking policies—all of which contribute to a more balanced, accessible, and equitable transportation system. Benefits of TDM include:

- Easing roadway congestion and reducing greenhouse gas (GHG) emissions by reducing rates of vehicle travel
- Providing more transportation options by making non-driving modes easier to use, more convenient, and more reliable
- Supporting affordability by reducing regional parking demand and reliance on automobiles, which in turn reduces housing construction costs

What is the Transportation Options Study?

Beginning in 2020, the City of Burlington adopted a series of policy reforms to right-size vehicle parking requirements for new developments and reduce reliance on single-occupancy vehicle use. These reforms have included eliminating minimum parking requirements (first in certain neighborhoods, and then citywide in 2023), adopting new parking maximums, and expanding Transportation Demand Management (TDM) requirements for new developments. Together, these policies are designed to help achieve the City's mobility, sustainability, and housing affordability goals.

In 2023, the City initiated a year-long planning effort called the Transportation Options Study (TOS), which was led the Office of City Planning (OCP) and included collaboration and support from City staff, community members, and many local and regional partners. The goals of the TOS were to:

1. **Evaluate the City's TDM program and transportation needs.** Based on this evaluation, the TOS would formulate actionable recommendations to enhance and expand current TDM strategies and requirements to better support the City's near-term and long-term goals.
2. **Identify opportunities to expand TDM beyond new development.** Today, TDM requirements in Burlington only apply to new developments. While those requirements are essential for creating more affordable and sustainable transportation options in parts of Burlington where new development is occurring, they provide limited benefit for people who live, work, or go to school in other parts of the City. By identifying opportunities to expand the City's TDM program beyond new development, the TOS would help extend the benefits of TDM and sustainable transportation options to more people across the City and region.

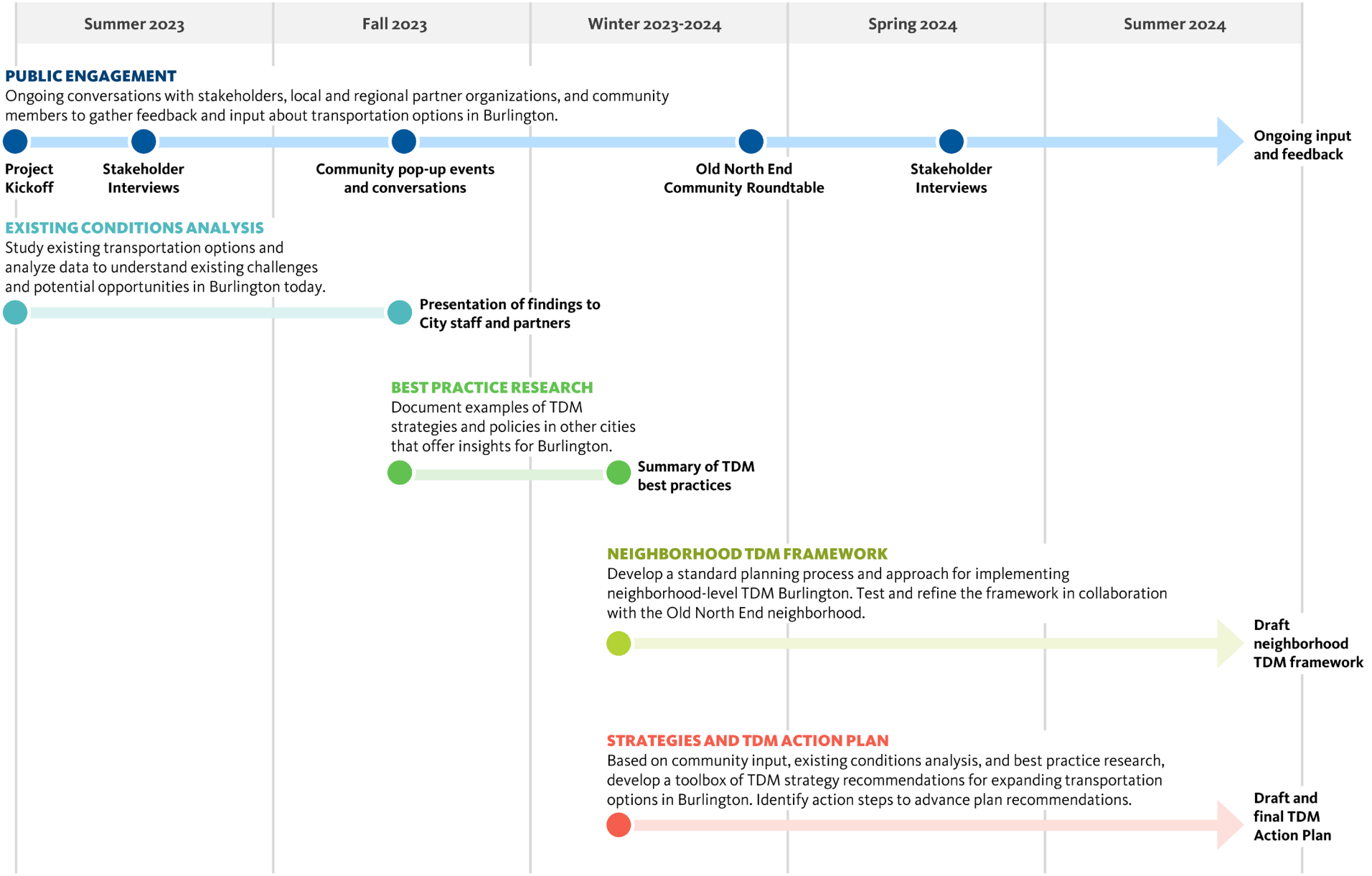
3. **Explore models for neighborhood based TDM.** The TOS would create a framework and strategies for implementing TDM at the neighborhood level, which would help address the unique and diverse range of transportation and mobility needs facing different communities throughout the City.

What is the TDM Action Plan?

This **Transportation Demand Management Action Plan** is the culmination of the TOS study. It features a comprehensive set of strategies and recommendations for improving transportation options in Burlington, as well as a set of action steps for advancing and implementing each of those strategies. The plan includes:

- **Chapter 1: Existing Conditions.** A review and summary of Burlington's current transportation policies, services, options, and management tools.
- **Chapter 2: Engagement Summary.** Lessons learned through community input, public events, and stakeholder conversations.
- **Chapter 3: TDM Strategy Recommendations.** A series of strategy recommendation "cut sheets," including action steps for implementation.
- **Chapter 4: Neighborhood TDM Framework.** A recommended process and toolbox of tactics for implementing TDM at the neighborhood level.

Project Timeline



Chapter 1: Existing Conditions

People who live in, work in, study in, and visit Burlington have a range of options to choose from to get around the City and meet daily travel needs. While existing transportation options work well for some, others face mobility barriers, have limited transportation options, or encounter gaps in the transportation network. This chapter summarizes the existing transportation options and travel patterns in Burlington today, as well as the policies, regulations, management frameworks, implementation strategies, and funding mechanisms that support transportation demand management. For additional information about existing conditions related to transportation options and TDM, see Appendix A.

Existing Conditions Themes, Challenges, and Opportunities

Communication and coordination: For people who live in, work in, study in, and visit Burlington, daily travel needs and patterns frequently extend beyond the boundaries of the City. Key partners in TDM, including the Chittenden Area Transportation Management Association (CATMA) and Green Mountain Transit (GMT), are regional organizations whose programs and services are not confined to Burlington alone. To successfully expand transportation options in Burlington and extend TDM beyond the development code, Burlington should increase efforts to communicate and coordinate with local and regional partners. The City is well-positioned to convene conversations and make connections between neighborhood, city-wide, and regional partners who are working to implement TDM.

Environmental sustainability: Stakeholders note that supporting sustainability and investing in programs that make the City more resilient to the effects climate change is a key priority for the community. TDM is a powerful tool that can help achieve climate goals and reduce regional greenhouse gas emissions associated with greenhouse gas emissions.

Driving and parking: While rates of biking, walking, and transit use in Burlington are high compared with regional and state averages, driving alone remains the most popular travel mode for commuters. Recent parking reforms are a key step towards a more balanced transportation system, but the widespread availability of cheap and/or free parking continues to be an obstacle for TDM.

Funding and resources: Both GMT and CATMA are key regional partners in implementing TDM and expanding transportation options, and both face staff capacity and funding constraints. There are opportunities for the City to build stronger relationships with these organizations, identify new funding sources for TDM efforts and mobility services they provide, and supply additional staff capacity to help manage TDM programs and services.

Challenges with development-focused TDM: Developers expressed interest and support for TDM strategies, but often lack experience, resources, and partnerships needed for achieving meaningful results. Furthermore, many community travel needs are not equitably addressed through the current development-focused TDM approach, such as shift and service workers, low-income populations, and new immigrant communities.

Existing Plans and Policies

A range of plans, studies, policies, and regulations continue to shape how TDM is implemented and how parking is managed in Burlington today. A brief description of these documents and their relevance for the Transportation Options Study is summarized in Table 1.

Table 1 Plans and Policies Reviewed

Plan	Overview	Relevance for TOS
Downtown Parking Study (2023)	Evaluation of existing parking supply in the Downtown area, including supply, utilization, and potential to absorb the loss of on-street parking on Main Street that is anticipated as part of Burlington's Great Streets project.	TDM/TOS can help achieve goal of using existing parking supply in the downtown area more effectively and efficiently. TDM/TOS strategies can help to address safety concerns, user-experience challenges, and public perception issues related to downtown parking garages.
Joint Institutional Parking Management Plan (2023)	Agreement that addresses Hill Institution parking needs and management strategies, including parking shuttles.	The latest update to the JIPMP emphasizes the role of TDM in achieving parking management goals and overall mobility vision. The TOS can help identify specific opportunities to achieve these goals and implement TDM.
Old Spokes Home One Mobility Audit (2021)	Findings from Old North End mobility audits, which included surveys, focus groups, and other research and engagement methods.	TDM can help advance recommendations including traffic calming measures, enhanced bus stops, improved pavement and sidewalks, installation of protected bike lanes, wheelchair-accessible crosswalks, and more timely maintenance of roads and sidewalks
North Winooski Ave Corridor Project (2020)	Plan for enhancing safety and multimodal mobility along Winooski Avenue in alignment with the City of Burlington's Complete Streets initiative and PlanBTV comprehensive plan.	TDM can help achieve plan goals of improving safety, convenience, and modal accessibility while supporting community needs and economic development.
CATMA Strategic Plan Overview (2020)	CATMA plays a central role in managing and implementing TDM in Chittenden County. The strategic plan summarizes CATMAs organization priorities and potential gaps.	The TOS is a critical opportunity for the City to coordinate with CATMA on TDM implementation and mobility management. The TOS can also help address some of CATMAs strategic plan focus areas, including partnerships, performance monitoring, resources, and inter-organizational communication.

Plan	Overview	Relevance for TOS
NetZero Energy Roadmap (2019)	Plan that outlines strategic methods, milestones, and recommendations for reducing and eventually eliminate fossil fuel use in heating and ground transportation sectors by 2030.	TOS recommendations can build on NetZero Energy Roadmap recommendations and help regional transportation-related GHG emissions.
PlanBTV: Walk/Bike (2017)	Citywide plan for supporting walking and biking in Burlington. Goals include creating safer streets, promoting vibrant neighborhood centers, and integrating cycling with public transit.	TDM strategies can help advance Walk/Bike recommendations including enhancing neighborhood amenities, utilizing pilot projects to improve mobility, and addressing safety goals through the Vision Zero framework.
VTrans Transportation Demand Management Guidance (2017)	State-level guidance on estimating vehicle trip reductions from TDM measures in new developments and adjusting impact or mitigation fees. Identifies steps for developers to obtain trip reduction credits, recommended TDM trip reduction measures, and monitoring/compliance guidelines.	TDM recommendations in the TOS should incorporate relevant elements from the state-level framework, and should be compatible with monitoring/compliance guidelines.
Downtown Parking Management Plan (2015)	Downtown area plan that recommends a "smart use" approach to parking management that emphasizes TDM, shared parking, and multimodal access.	The TOS builds on the approach and philosophy outlined in the plan. Strategies in the TOS should reflect the essential interdependence of parking management and TDM implementation.
City Employee Transportation Demand Management Action Plan (2015)	Plan for incentivizing City employees to choose sustainable transportation options for work commutes. Identifies a menu of short- and long-term strategies that include providing universal transit passes, flextime/telework policies, and charging for parking.	The TOS should build on the successes of the City employee TDM action plan and help can fill gaps where those recommendations have not yet been implemented.
City of Burlington Comprehensive Development Ordinance (2014 - 2024)	Key code sections include Article 8.1.16, which identifies TDM requirements for new developments including outreach and education, a TDM Coordinator role, carshare memberships, transit passes, parking studies, and priority parking allocation for shared modes.	A key objective of the TOS is to expand TDM beyond the development code and identify strategies for addressing barriers to TDM implementation, including technical assistance for ongoing TDM operations and impacts of TDM requirements on development affordability.

Existing Transportation Options

Bus and Shuttle Services

Green Mountain Transit (GMT) operates 16 bus routes in Burlington and across the region. Fares are $2.00 for a single ride with fare caps by day ($4.00) and month ($50.00). Discounted fares are available for youth, elders, Medicare cardholders, and persons with disabilities. Bus stop amenities vary, with some locations including only a sign pole while others include shelters, seating, and lighting.

The COVID-19 pandemic has had a significant impact on GMT operations. From March 2020 until May 2024, GMT paused fare collection on all services, which significantly reduced the agency's operating income. Evolving commute patterns and increased hybrid work arrangements have led to reduced ridership on some routes compared with 2019 levels, though others have rebounded or exceeded 2019 levels. Combined, these changes have created financial and operational impacts that present challenges for the agency. Nonetheless, GMT continues to test new strategies for meeting regional mobility needs efficiently and effectively, including an on-demand microtransit service pilot project in Montpelier.

Shuttle Services

A variety of shuttle services operate in Burlington, including the UVM On Campus Bus (CATS Bus), the Champlain College Shuttle Bus, hotel shuttles, and medical center shuttles that provide connections to designated park-and-ride locations. Shuttle services are operated through contracts with third-party service providers and are generally not open to the public.

Figure 1 GMT Bus Route 8 on North Street at N. Winooski Ave



Figure 2 Examples of GMT bus stops in Burlington



Some stops in Burlington include shelters and seating. In the downtown area, some stops also include bollards (right) that protect people waiting at the stops from moving vehicles.

Biking, Walking, and Rolling

Biking, walking, and rolling can both be healthy, inexpensive, and flexible ways to get around. However, these travel options can be unappealing or infeasible for some people depending on age, physical ability, weather, distance, trip purpose, and condition of walking and biking infrastructure. In some areas, Burlington's sidewalk and bicycle facilities are in good condition and are designed to accommodate people of all ages and abilities. In other parts of the city, network gaps and condition may make it challenging, unappealing, or unsafe for some people to walk or bike (Figure 5 and Figure 6).

As of 2021, rates of biking (6%) and walking (19%) for work commutes were higher than state and regional averages (Figure 1). Rates of biking were higher for men (8%) than they were for women (4%), while rates of walking were higher for women (22%) than for men (17%) (Figure 4). TDM strategies can help increase overall rates of walking and biking by providing education and training, prioritizing network improvements, and expanding incentives for sustainable travel modes.

Figure 3 Commute Mode by Geography (2021)

Source: American Community Survey 5-year Estimates

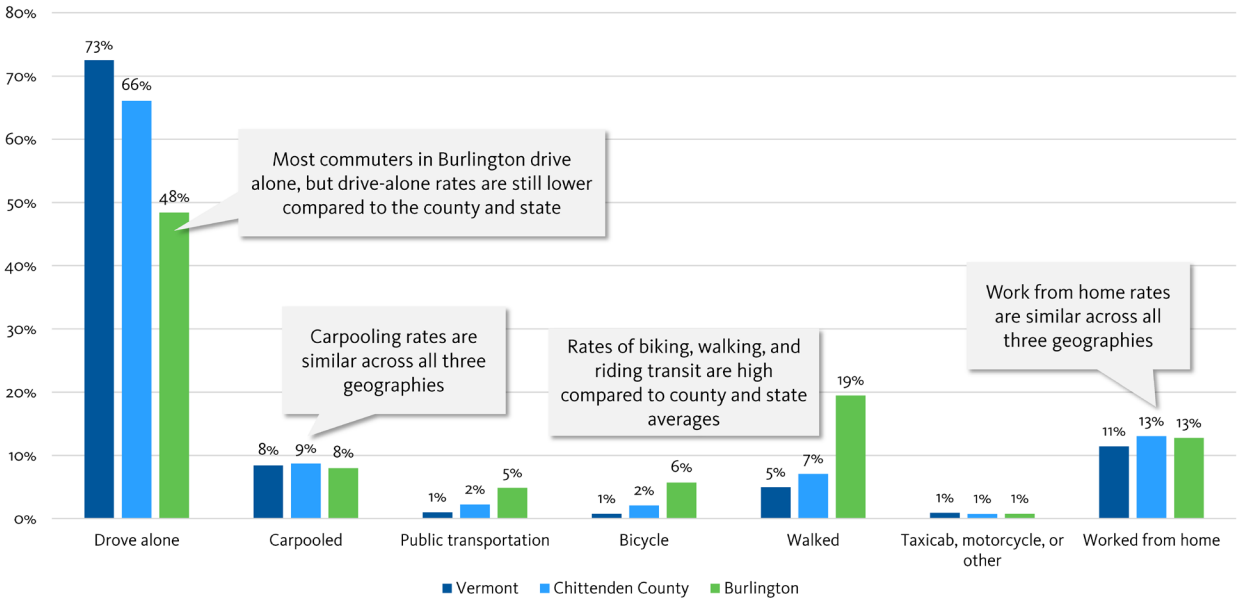
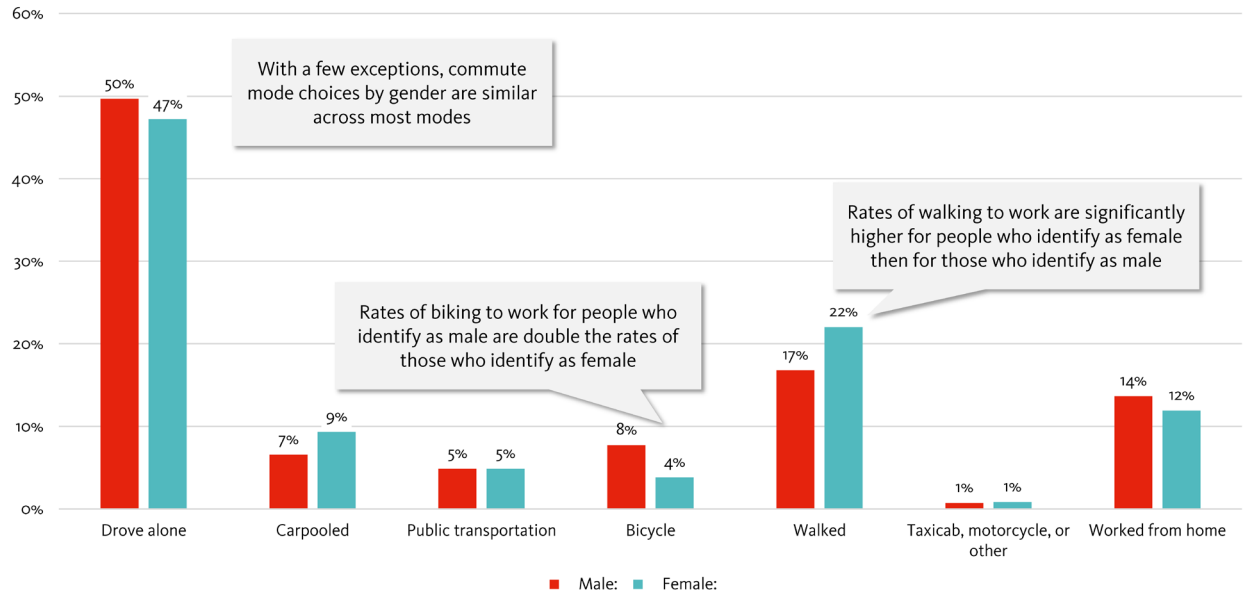


Figure 4 Commute Mode by Gender (2021)

Source: American Community Survey 5-year Estimates



In 2023, the company Bird launched a dockless electric bike share service in Burlington, which offers point-to-point rides via a fleet of 120 electric bicycles. Riders pay a fee of $1 to unlock, and then $0.49 per minute to ride. During the first year of operation, the service saw 5,200 unique users who took over 27,000 trips. On average, trips were 1.25 miles in length and lasted for 10.3 minutes.

Figure 5 Examples of bicycle facilities in Burlington



Bicycle facilities in Burlington include a variety of types and designs. Some, like dedicated bike lanes with painted markings at intersections (left), support a wider range of ages and abilities. Others, like "sharrow" indicators (right), offer little to no safety protection or priority for people who bike.

Figure 6 Pedestrian crossing near Roosevelt Park



Marked crossings with flashing beacons to alert drivers can help support pedestrian safety, especially near busy destinations such as parks, schools, commercial areas, and medical facilities.

CATMA operates the Walk/Bike Rewards program to incentivize walking and biking to work. Participants in the program use an app to log walking or biking commutes and receive a $15 gift card after recording 48 one-way trips within a 60-day period.

Several community-based organizations offer services and programs that also support bike use in Burlington. Old Spokes Home offers bicycle sales and repair services and operate a range of community programs, including the Everybody Bikes program. Though the program, people who qualify based on income can receive steep discounts on bicycle purchases, accessories, and services. Local Motion is a state-wide organization that provides bicycle rental services and advocates for policies and programs that support walking, biking, and rolling.

Shared Mobility Services

Car share service

CarShare Vermont, a nonprofit based in Burlington, offers short-term car rental services to the community, providing convenient driving options and reducing the need for owning a vehicle. This resource aligns with local TDM programs, often partnering with CarShare Vermont to offer discounted rates and promote sustainable transportation alternatives.

Figure 7 CarShare Vermont vehicle and parking space



CarShare Vermont operates a fleet of shared vehicles throughout the Burlington area.

Carpool and Vanpool

CATMA and the Hill Institutions in Burlington offer incentives and support for carpooling and vanpooling, aiming to reduce SOV trips and alleviate congestion. Programs like Go!Vermont provide subsidies for vanpool costs, making shared transportation more accessible and affordable for residents. There is considerable interest in expanding vanpool services to enhance the transit network and reduce emissions from SOVs.

Transportation Network Companies (TNCs)

TNCs like Lyft and Uber have been operating in Burlington since 2015 and 2018, respectively. These services offer alternatives to traditional taxi services and/or private vehicle ownership, contributing to efforts to reduce car dependency and encouraging transportation alternatives.

Parking and Curb Management

Burlington's parking system—including the on-street and off-street parking supply, parking regulations, and the City's parking management practices—has a major impact on how people choose to travel into, out, of, and within the City. When parking is cheap and plentiful, it can be difficult to incentivize people to choose other driving modes. Pricing parking so that it accurately reflects demand and recoups parking operations and management costs is a critical step towards balancing transportation choices. Parking revenue from on-street meters, off-street priced parking, and permit programs can be an important funding mechanism for TDM programs and citywide transportation options.

On- and Off-Street Parking Supply

Burlington's public parking supply includes a range of on- and off-street spaces that are managed and regulated using a variety of tools such as time limits, hourly pricing, and permits. Priced parking in both on- and off-street spaces is implemented using a combination of physical "smart" meters as well as app-based payment systems through the ParkMobile smartphone application.

Parking rates are set in the Municipal Code and vary by location and time of year, with hourly rates in most on-street spaces and surface lots starting at $1.00 per hour. In publicly owned downtown garages, hourly rates increase for longer stays up to a daily maximum of $12.00 - $14.00. Monthly permits are available for $84 - $120 per month. Parking revenue supports parking operations and capital costs.

In recent years, downtown stakeholders and members of the public have highlighted concerns about public safety at or near downtown parking garages, including the Downtown Garage and the Marketplace Garage. As a result, City staff and stakeholders have observed increase demand for on-street parking.

Downtown Parking Study (2023)

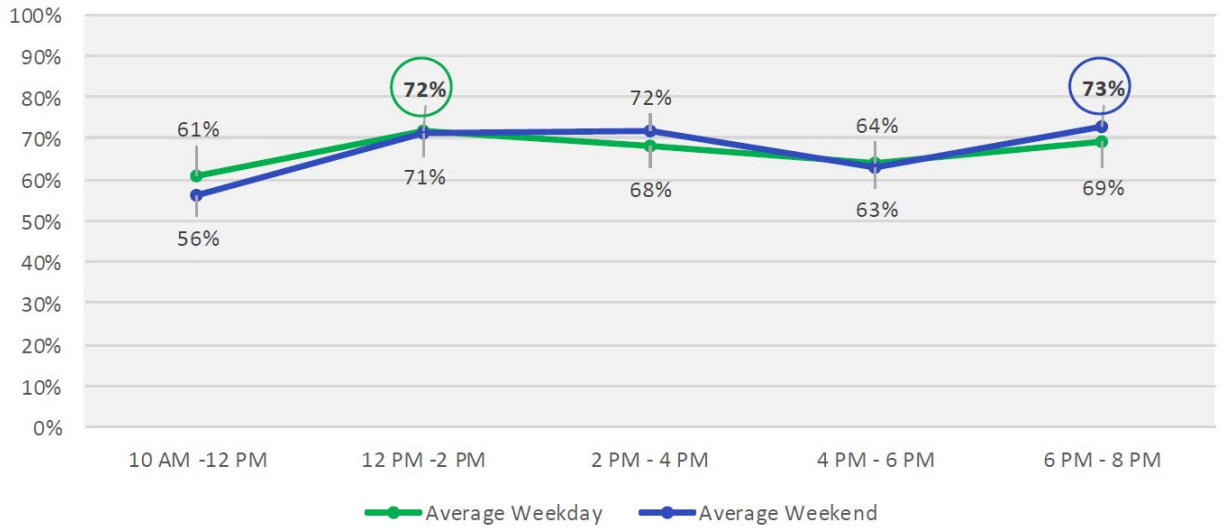
In 2023, the City completed a parking study focusing on the core downtown area. As part of the study, the City collected data including parking supply inventory, parking occupancy at different times of the day and days of the week, and parking turnover/duration of stay in several high-demand locations. The study found

that even at peak times, there are hundreds of empty spaces in the downtown area. Recommendations from the study included:

- Continuing to advance shared parking policies and programs
- Invest in management strategies and technology to use existing parking supply more effectively
- Expanding TDM programs to maintain a balanced transportation system

Figure 8 Downtown Study Area Parking Utilization, Weekday vs. Weekend

Source: 2023 Downtown Parking Study



Hill Institution Parking Management

Champlain College, the University of Vermont, and the University of Vermont Medical Center are required by Burlington's development ordinance to participate in a cooperative agreement for managing parking and transportation needs. This agreement, known as the Joint Institutional Parking Management Plan (JIPMP), is prepared and submitted every five years with updates submitted annually. The JIPMP documents the parking supply, projected parking demand, and planned parking management approach for the three Hill institutions. CATMA typically provides support to prepare each iteration of the JIPMP and annual updates.

In addition to parking management strategies, the latest iteration of the JIPMP, approved for 2023 – 2028, highlights the important role that TDM plays in addressing and managing parking demand for the Hill institutions, including:

- Bike Share discounts
- Bike/Walk rewards programs
- Carpool and vanpool services
- CarShare Vermont campus programs
- The "Commuter Champion" rewards program
- Education and marketing efforts

- The Guaranteed Ride Home program
- Off-site parking, served by institutional parking shuttles
- Transit discount programs

Figure 9 Estimated Hill Institution Parking Supply and Demand, 2028

Source: 2023-2028 Joint Institutional Parking Management Plan

	Champlain College	UVM	UVM Medical Center
Future Conditions			
Potential Users	2,990	17,820	9,427
Total Peak Parking Demand	992	4,988	2,145
Total Parking Supply	642	5,693	2,500
Net Spaces Peak Demand	-350	705	355

TDM Regulations, Implementation, and Funding

Burlington Comprehensive Development Ordinance

The City of Burlington Comprehensive Development Ordinance (CDO) serves as the primary framework for TDM regulations within the City. The TDM requirements in the ordinance, defined in Chapter 8.1.16, apply exclusively to new developments and projects, and vary based on project size and affordability (Figure 10). Depending on the project type, TDM programs must include a combination of:

1. Outreach and Education, including the designation of a TDM coordinator
2. At least two out of five TDM programs:
   - Membership in a TMA
   - Provide GMT transit passes at a 50% discount
   - Provide free car share membership
   - Provide free bike share membership
   - Provide shuttle service, implement a guaranteed ride home, or otherwise provide rides to a nearby transit center
3. TDM-supportive parking management strategies
4. A signed letter of TDM commitment

Figure 10 Burlington TDM Requirements by Project Type

Source: City of Burlington Comprehensive Development Ordinance, Chapter 8.1

Table 8.1.16-1 Transportation Demand Management Program Required			
	Applicable Projects	**Affordable Projects**	**Small Projects**
Project Type	• Creation of 10 or more dwelling units • A non-residential or Mixed Use development with a building footprint of eight thousand (8,000) sq.ft. or more; or the creation of fifteen thousand (15,000) sq.ft. or more of gross floor area	Projects involving one or more "Applicable Projects" and that also contain at least 75% of dwelling units meeting or exceeding the affordability criteria of Article 9, Inclusionary & Replacement Housing, or housing rented to tenants receiving federal or state rental assistance	Creation of five (5) to nine (9) dwelling units
Applicable TDM Sections	All provisions of Sec. 8.1.16 (c)	Sec. 8.1.16 (c) 1. and Sec. 8.1.16 (c) 4. only	Sec. 8.1.16 (c) 3. b. only

State and Regional Regulations

Although there are no state or regional TDM requirements in place, the Vermont Transportation Authority (VTrans) maintains guidance for implementing local TDM programs. In addition to identifying recommended measures and policy frameworks, the guidance document includes a detailed table of recommend trip reduction allowances that may be granted as part of local transportation impact analyses as well as recommended approaches for monitoring and enforcing TDM programs.

Chittenden Area Transportation Management Association (CATMA)

CATMA is a membership-based 501(c)(3) non-profit organization focused on implementing TDM programs throughout Chittenden County. Services and functions implemented by CATMA include:

- Managing and submitting regular updates to the JIPMP
- Managing contracts with mobility service providers, including Bird bike share
- Conducting periodic TDM and transportation-related surveys and data collection efforts
- Implementing TDM programs including the Guaranteed Ride Home program (GRH), the Go Green rewards program, the Bike Walk rewards program, carpool ride matching services, and a variety of multimodal discount programs for CATMA members

Local, Regional, and State Funding for TDM

Today, dedicated funding sources for TDM programs in Burlington are limited. Local sources include general fund allocations and certain parking revenues. Regional sources include CATMA member dues and CCRPC funding, which can support TDM and transportation planning but cannot be used to fund TDM programs or capital investments. Beyond funding support for GMT and for general statewide transportation infrastructure, state-level TDM funding is limited to vanpool incentives provided through Go!Vermont.

Figure 11 State, Regional, and Local Funding Sources for TDM

State Sources	Regional Sources	Local Sources
Go!Vermont (VTrans) ▪ State provides funding ($700 per month) toward vanpooling ▪ No other TDM funding currently available	**CCRPC** ▪ MPO provides competitive funding/grants for planning, education, marketing ▪ Cannot fund programs ▪ Provide grant application assistance **CATMA** ▪ Membership dues	**Parking Revenue** ▪ Garages/lots, meters, tickets, RPP permit fees ▪ 70% of parking fees collected through Parkmobile ▪ Revenue used for capital costs/debt servicing, management, and enforcement **Other** ▪ General fund contributions

Chapter 2: Engagement

The Burlington City Council has declared that a climate emergency exists which threatens Burlington's community and human health and safety, biodiversity, and common environment. Emissions in Vermont have risen since 1990, with the largest increases coming from the transportation sector, which also accounts for the largest share of greenhouse gas emissions in both the City and State. This climate emergency declaration calls for the reduction of vehicle miles traveled (VMT) through transportation demand management (TDM). The City additionally recognizes that TDM programs improve equity for the Burlington workforce by providing financial and other benefits for Burlington residents and workers who do not own automobiles – a population that is disproportionately low-income, Black, Indigenous, and people of color.

Background

In 2020, the City revised minimum on-site parking standards in its zoning ordinance to implement a number of policy best practices to support housing creation and transportation options. These zoning changes created the Multimodal Mixed Use Parking district, requiring no minimum on-site parking and establishing lower maximum parking thresholds than other parking districts in the city. Additionally, the zoning changes established new TDM requirements for developments within this parking district and over a certain size; these strategies built on the city's existing requirements for on-site bike parking and for parking management plans by the major academic and medical institutions.

In 2022, the Burlington City Council is considering expanding upon these policies by eliminating minimum on-site parking requirements citywide, relying instead on its maximum parking limits, and expanding TDM requirements to new developments of a certain size in all parking districts. Separately, the City is currently working with the Chittenden County Regional Planning Commission to complete a transportation impact fee study to update the city's existing impact fee system, including exploring the possibility of a multi-modal impact fee. The parking standard amendment to the Comprehensive Development Ordinance will be reviewed and adopted or rejected by late October, 2023.

Some of the largest institutions and employers in Burlington, such as the University of Vermont, have extensive TDM programs that include charging for parking and offering incentives to support other modes of transportation to and from those institutions. The Chittenden Area Transportation Management Association (CATMA) was created in 1992 to assist these agencies to share resources and jointly plan, develop and manage transportation systems and programs. CATMA has since evolved to serve as a non-profit, member-based transportation management association serving Chittenden County, VT. In 2014, the City commissioned a consultant with CATMA to study and propose a City Employee TDM Action Plan. This plan was released in October 2015 to reduce congestion, emissions, downtown parking demand, and encourage healthy choices by City staff through recommendations covering the short term (3 years or less) and long term (4 years or more), as well as ongoing capital and administrative improvements. Many strategies identified in this 2015 plan have not yet been implemented.

Through a collaboration between the City and the Burlington Business Association, further research and analysis was completed in 2017 to inform a pilot and intended implementation plan for a suite of TDM services for other downtown Burlington employers and employees. Many employers in Burlington have no TDM policies or strategies in place, and by implementing such policies and strategies, those employers could facilitate the use of more sustainable modes of transportation among those travelling to and from their physical location. This collaboration anticipated that a primary mechanism for developing and funding a downtown TDM program would have been through the creation of a Downtown Improvement District. The creation of a DID, however, was rejected by the Burlington voters in 2019.

Engagement Goals + Strategies

Goals:

1. Engagement should build strong relationships between the City, Nelson\Nygaard, and the broadest possible cohort of stakeholders.
2. Engagement should be conducted using accessible, equitable and appropriate language and tools, according to each task's specific audience
3. Engagement should uncover and identify what matters most to Burlington's people and businesses.

This public input summary documents feedback gathered through the following approaches:

Engagement Strategy 1: Visual Preference Boards

Visual preference boards were used to provide education and gauge preferences related to TDM tools and strategies. Between June and August of 2023, City of Burlington staff tabled at five established community events across the city's neighborhoods, engaging with approximately 105 households.

- Juneteenth
- Farmers Market (2)
- Beach Bites
- VPOP World Car Free Day

Figure 12 Event-Based Engagement Materials for the Transportation Options Study



Engagement Strategy 2: Surveying

CATMA performs a yearly Transportation Survey each fall to 16 organizations, typically receiving over 2,000 responses each year. The purpose of this survey is to better understand employee travel behavior and evaluate trends and improvements to sustain transportation options, services, and resources from CATMA members. Additionally, the City of Burlington released a survey that was open to City of Burlington residents as well as CATMA members who are not otherwise surveyed annually by CATMA. This survey asked questions similar to those in the CATMA survey, and was intended to supplement the responses from CATMA organizations.

Engagement Strategy 3: Stakeholder Interviews

City staff and Nelson\Nygaard conducted small group stakeholder interviews to collect feedback on current parking and TDM requirements, perspectives on parking and TDM more generally, and the broader mobility needs of residents and commuters.

From August to October 2023, City Staff conducted 24 interviews representing the following stakeholder group types:

Stakeholder Group	Organization or Agency
Underserved Community Advocates + Representatives	▪ Green Mountain Transit ▪ City of Burlington Aging Council ▪ AARP ▪ AALV ▪ Walk to Shop
Local Mobility Providers + Departments	▪ BTV Public Works Traffic Team ▪ BTV Public Works Leadership Team ▪ CCRPC Staff ▪ CarShare Vermont ▪ Green Mountain Transit (GMT)
Housing Developers	▪ Farrell Properties ▪ Champlain Housing Trust ▪ Cathedral Square
Employers	▪ University of Vermont UVM Medical Campus ▪ Champlain College ▪ Rhino Foods
Cyclist & Pedestrian Advocacy	▪ Vermonters for People Oriented Places ▪ Local Motion ▪ Burlington Walk\Bike Council

Engagement Strategy 4: Working Group

The working group is made up of key members of Burlington's existing TDM Ecosystem. In addition to providing feedback through the stakeholder interview process, members worked with city staff to coordinate additional interviews with partners.

The working group consists of the following members:

- Ann Bourdon, CarShare Vermont
- Will Clavelle, City of Burlington Business and Workforce Development
- Chris Damiani, Green Mountain Transit
- Bryan Davis, CCRPC

- Jen Green, Burlington Electric Department
- Scott Gustin, City of Burlington Department of Permitting and Inspections
- Katie Martin, CATMA
- Jonathon Weber, Local Motion

Key Findings

Survey Data: Travel Behavior

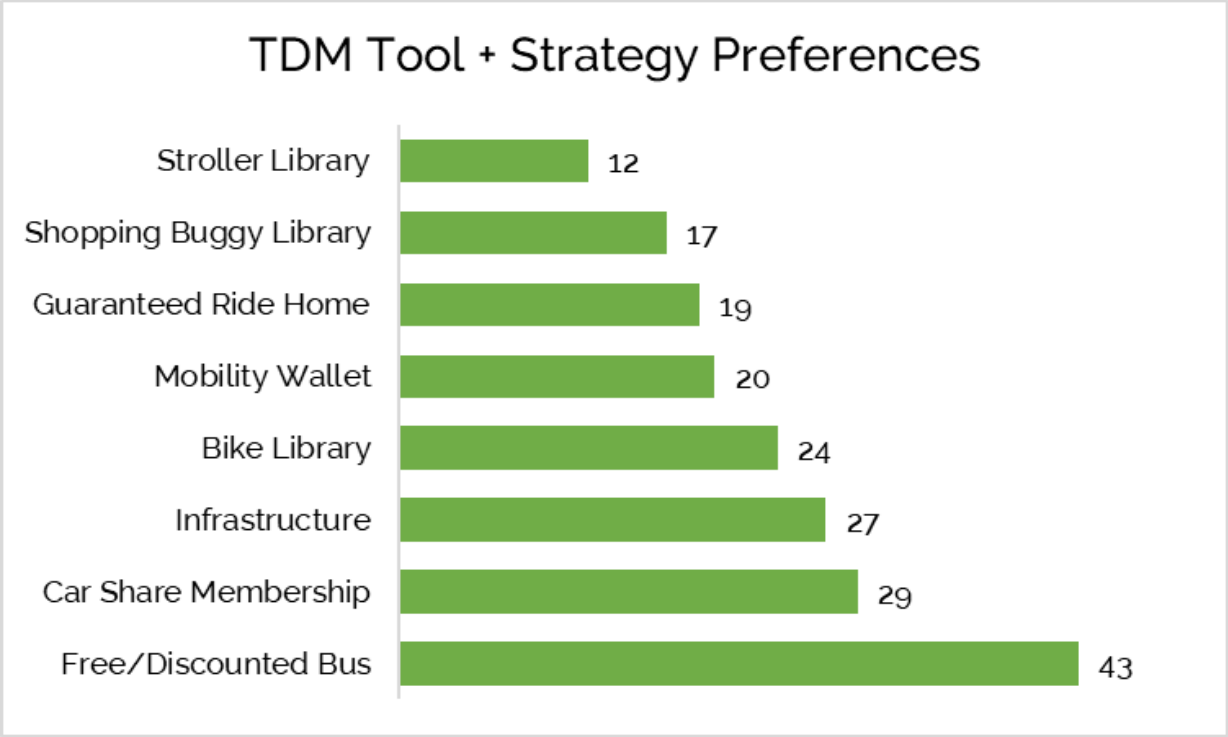
Commuting to work: When asked about the primary mode of commuting to work, the majority of respondents in both surveys indicated that they drive alone in a car, truck, van, or SUV. Other popular modes of transportation included walking, taking public transportation, or cycling. When asked what modes they would be likely to use to travel to work if driving was not an option, respondents indicated that they would prefer to either get dropped off by a friend or family member, carpool or vanpool, or utilize the public bus. When asked what factors were most important when choosing how they got to work, the top responses were travel time, convenience, environmental impact, cost, and ease of use (19%).

Other travel needs: When asked how respondents travel to shops like grocery stores and pharmacies, the 45% of respondents indicated that they drive alone, followed by walking (23%). Factors for deciding transportation modes unrelated to commuting into work were travel time, environmental impacts, and convenience. When asked what modes they would take if they could not drive alone, respondents indicated that they would walk, utilize the public bus, or bicycle.

Preferred TDM Strategies: City of Burlington staff used both the supplemental survey as well as visual preference boards to provide education about what Transportation Demand Management was as well as what strategies can be utilized. Out of eight TDM options, the most popular strategy that respondents wanted to see were free or discounted bike passes, Car Share memberships, and improved infrastructure around the city.

Figure 13 Community Support for TDM Tools and Strategies

Number of community responses indicating support for various TDM tools and strategies (City survey, 2023)



Stakeholder Interview Themes

Following each stakeholder interview, Office of City Planning staff used qualitative data analysis methods to derive common themes. Sixteen themes were found and can be viewed in the attached table, with descriptions of the nine most commonly occurring themes below.

1. Stakeholders indicated that **TDM should focus on inclusivity and serving underrepresented populations,** while also acknowledging that the same populations have the highest need for cars. Specific affordable housing developments are home to residents that struggle to adapt to the car-free or car-lite requirements in place and are reluctant to let go of the vehicles that once provided security and temporary housing. Additionally, some historically underserved communities view owning a car as a milestone achievement or success indicator.

   Burlington's housing crisis remains an underlying theme across nearly every stakeholder interview, with some of the **biggest concerns for underrepresented groups being access to affordable grocery stores, jobs, medical care, and other important services.** As housing costs closest to Burlington's downtown and transportation hubs continue to rise, affordable housing is increasingly far away from jobs and essential services, resulting in a reliance on cars as a primary mode of transportation.

   Burlington's **existing public transportation network struggles to meet the needs of the city's aging population.** The limited resources for older adults to age in their own community results in

many Vermonters living in long term care facilities. Older adults in these situations without a vehicle often solely depend on services like SSTA or want to travel to destinations that are not on a bus route. Long-term care facilities, as well as other or organizations providing older adults essential services, must rely heavily on internal volunteerism from staff and residents. The mobility limitations faced by older adults exacerbate existing frustrations with one's own health, and can lead to social isolation. Stakeholders hope that TDM could help the city's aging population move beyond viewing a car as the key to independence.

2. **There is a negative perception of alternative transportation.** Advocates and residents shared that services and infrastructure related to alternative transportation modes (such as sidewalks, busses, and bike lanes) see less investment that car-centered amenities. Stakeholders expressed that they felt like they were "second class users" when sharing roadways with cars or waiting for the bus. This perception of status, in addition to other user experience frustrations, will cause people to turn away from or not consider using public transportation.
3. Stakeholders call for an **improved multi-modal network** that expands micro-transit options, improves walkability, and incorporates considerations for infrastructure maintenance. While Burlington's neighborhoods and commercial districts typically include sidewalks, lack of maintenance is a primary concern. Regarding bicycle infrastructure, separated facilities and an interest in incorporating e-bikes into a first/last-mile network are highlighted. While transit riders fairly consistently remark on their satisfaction with the service, a large portion of those surveyed do not use transit, suggesting a need for increased transit funding and planning, both within Burlington and the surrounding Chittenden County and state networks.
   - E-Bike challenges
   - GMT's current limitations
   - Regulatory Challenges
4. **Safety is a major concern** across all stakeholder interviews, and is a major reason as to why Burlington residents choose to drive. These concerns related to safety are echoed by AARP's 2022 Livability Survey, which found that the perception of lack of safety in the city to be a top concern of residents. However, GMT stated that that though there are common safety issues, the busses are not less safe. Employers across the city express that their employees feel unsafe or uncomfortable biking or walking to a destination, citing speeding vehicles and the lack of police presence along their routes as causes for concern.
5. Successful TDM emphasizes the **need for bike infrastructure, maintenance, and education.** Secure and sheltered bike parking, mobile repair units, protected bike lanes and facilities are all frequently cited by stakeholders and the public. Bike theft, a subset of a growing perception that public safety in Burlington is inadequate, has gotten worse in the last two years; it is clear that secure bicycle parking facilities, particularly for residents of multi-family residences and those who commute and/or travel by bicycle to non-work destinations are needed.

6. There are **concerns related to the return of GMT's bus fares.** GMT is faced with cutting back service or bringing back fare revenue, noting that the fare-free system is not currently sustainable. The new GMT fare structure will provide discounts to residents [6-16, over 60 and with disabilities and/or medicare]. The proposed fare will reduce the LINK (?) fare but will increase all other fares by $0.50 with monthly fares capped at $50 and daily fares capped at $4. Many organizations and residents advocated for GMT to remain fare-free, citing that many downtown residents or staff in downtown areas don't have cars and rely on the bus.
7. Outside of GMT, Burlington's **public transportation/mobility network is costly for users.** When GMT service is not available, non-driving, vulnerable residents turn to Special Services Transportation Agency (SSTA) and ride-sharing services like Uber and Lyft. SSTAis a vital link, if inadequate, and ridesharing is an expensive service that capitalizes on underfunding of public mobility infrastructure and services, ultimately leading to the high cost of moving around for many in Burlington. Looking forward, stakeholders and the public recognize the need for a more sustainable funding model for all mobility modes.
8. **There is a need for regional connectivity.** Burlington is the most populous city in Vermont's primary metropolitan region. Daily, there are significant movements of Burlington residents to points outside the city for work and play. The reverse is true as well, with Burlington as the region's and state's most important employment, commercial and tourism center. However, aside from limited inter-city public and private bus service, regional connectivity is a story of driving in low-occupancy vehicles. Stakeholders and the public alike cite regional connectivity as a major topic and impediment to managing transportation demand in Burlington.
9. **Employees and employers face transportation-related challenges.** From large, well-endowed institutions like UVM, UVMMC and Champlain College to white-collar and blue-collar employers, getting to work is often a story of massive parking demand; long, inconvenient commutes, and wasted time. Continued work to refine the institutional Joint Institutional Parking Management Plan to focus more holistically on TDM is an area to explore. For low-wage workers, micro-transit, public safety and improved infrastructure would be positive, life-changing developments.

Chapter 3: Recommendations and TDM Strategy Toolkit

Expanding transportation options in Burlington cannot be achieved by any single solution alone—it will require a coordinated and holistic package of near- and long-term TDM strategies. The TDM action plan includes a comprehensive toolkit of 22 TDM recommendations that are intended to be complementary and mutually-supportive. The strategies are organized into four general categories:

Transportation Options	**Regulations and Plans**	**TDM Management and Funding**	**Neighborhood TDM Strategies**
			
Strategies to add, modify, or expand transportation services and programs	New or updated regulations and plans to better support TDM	Strategies to expand TDM funding and management capacity	Neighborhood-level TDM programs, tactics, and services

How to use the strategy toolkit

The strategy Toolkit summarizes each strategy recommendation and identifies key action steps for implementation. Each strategy "cut sheet" includes:

- A brief description of the strategy
- The strategy applicability (citywide or neighborhood)
- A planning-level indication of relative strategy cost (based on a scale from $ to $$$$)
- A summary of key benefits for Burlington that the strategy would help achieve
- Recommended action steps for implementing each strategy, including near-term and long-term actions (where applicable) and key partnerships/collaborators
- For some strategies, best practice spotlights that demonstrate how similar strategies have been successfully implemented elsewhere and what might be learned from those examples

Summary of Toolkit Recommendations

Table 2 Summary of TDM Strategy Recommendations

= *key strategy*

ID	Strategy Recommendation	Citywide	Neighborhood	Relative Cost	Timeframe
T	**Transportation Options**				
T.1	Work with CarShare Vermont to expand carshare services and supporting programs.	✓	✓	$$$$	Near term
T.2	Work with CATMA to expand the Guaranteed Ride Home (GRH) program.	✓		$$$$	Near & medium term
T.3	Work with Go! Vermont to expand the ride matching/carpool program.	✓	✓	$$$$	Near term
T.4	Work with Green Mountain Transit to expand transit service, including piloting on-demand microtransit services in parts of Burlington that are not well-served by fixed route transit.	✓	✓	$$$$	Near, medium, & long term
T.5	Create shared stop guidelines and a unified shuttle program that combines and coordinates services offered by hill institutions, Green Mountain Transit, and others.	✓		$$$$	Medium & long term
T.6	Update the City of Burlington employee parking benefits program to incentivize sustainable commuting options.	✓		$$$$	Near term
T.7	Implement a sustainable travel choice information, education, and marketing program.	✓	✓	$$$$	Near & medium term
R	**Regulations and Plans**				
R.1	Update and expand Burlington's TDM requirements. Adopt a point-based requirement structure that includes additional TDM measures and provides flexibility for developers.	✓		$$$$	Near & medium term
R.2	Adopt a Commute Trip Reduction (CTR) ordinance that requires larger employers to implement TDM programs.	✓		$$$$	Near & medium term
R.3	Adopt neighborhood-based TDM plans using the neighborhood TDM framework.	✓	✓	$$$$	Near & medium term
R.4	Adopt a framework for creating parking benefit districts (PBDs) in Burlington.	✓	✓	$$$$	Medium & long term
R.5	Update the Residential Parking Permit (RPP) program.	✓		$$$$	Medium term

ID	Strategy Recommendation	Citywide	Neighborhood	Relative Cost	Timeframe
R.6	Develop and implement a downtown public realm safety plan.	✓	✓	$$$$	Medium & long term
M	TDM Management and Funding				
M.1	Hire or designate a TDM Program Manager/Coordinator.	✓		$$	Near & medium term
M.2	Expand funding sources for TDM programming, including parking revenue, transportation impact fees, and state/federal grant opportunities.	✓		$	Near, medium & long term
M.3	Formalize and expand Burlington's partnership with CATMA to strengthen coordination and create opportunities for sharing resources.	✓		$$	Near & medium term
M.4	Expand public advisory roles for non-driving transportation issues, needs, and priorities by expanding the Walk|Bike Council or establishing a transit riders council.	✓		$	Near term
N	Neighborhood TDM Strategies				
N.1	Establish a public bicycle/electric bicycle lending library.		✓	$$	Near & medium term
N.2	Establish community mobility hubs that combine mobility information and services in centralized locations. Partner with community organizations to create a neighborhood delivery program.		✓	$$	Medium term
N.3	Expand "walk-to-shop" programs that provide shopping trolleys and wagons, and create neighborhood trolley libraries.		✓	$	Near term
N.4	Implement a "bus buddies" program that matches newly-arrived Burlingtonians with volunteers who accompany them on trips to/from work and appointments and teach them how to get around.		✓	$	Near term
N.5	Pilot a neighborhood transportation wallet program that offers a flexible package of transportation discounts and credits.		✓	$$$$	Long term

T.1 | Work with CarShare Vermont to Expand Carshare Services and Supporting Programs

Strategy Overview

CarShare Vermont operates an extensive network of shared vehicles in Burlington, South Burlington, and Winooski. **Burlington should work with CarShare Vermont to expand the service** by adding more vehicles and carshare parking spaces, which would help broaden the impact of the service and address a wider range of mobility needs. Additional marketing and education efforts (see strategy T.11) would help more residents participate in the program.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Streamlining the permitting process for creating designated carshare parking spaces and adding requirements for shared vehicle spaces in new developments would help ensure that carshare spaces can be located close to key destinations and trip generators.

Benefits for Burlington

- Carshare helps meet transportation needs for households who have limited or no vehicle access. Currently, CarShare Vermont estimates that 90% of users are zero-car households.
- Carshare helps reduce the amount of parking needed throughout the City. Studies suggest that each carshare vehicle added can result in up to 15 fewer cars on the road.[1]
- Adding more vehicles and locations would expand access and would address a wider range of trip types and destinations for people who already have access to the service.

Recommended Action Steps

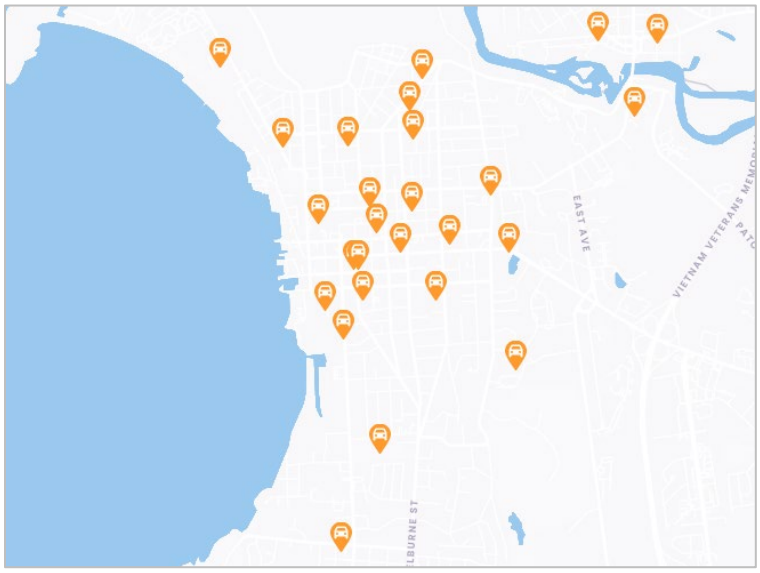
1. **Work with CarShare Vermont to identify specific areas and demographic groups where there is unmet demand or opportunities for car sharing.** Design and implement targeted outreach and education efforts that teach community members how to use carshare. Include translated materials into multiple languages. Partner with community-based organizations to distribute materials.
2. **Streamline the permitting processes for allocating carshare spaces.** Review current processes and procedures and, if feasible, grant the Department of Public Works director authority to designate carshare spaces as needed.

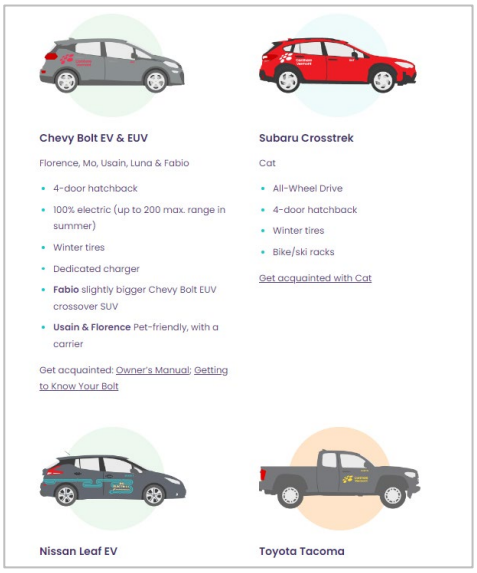
[1] NYC DOT Begins Major Expansion of On-Street Carshare After Successful Pilot

3. **Integrate carshare space planning into all neighborhood planning processes.** Consider demand, community support, location opportunities, and CarShare Vermont operational capacity.
4. **Update the City's development code to include requirements for shared spaces that can be used for carshare.** For each project that provides 20 or more off-street parking spaces, require that at least 1 out of every 20 spaces (rounded up) is reserved for carshare vehicles or carpool users. Allow developers to contribute funding to implement an equal number of off-site carshare spaces in the project vicinity (within ¼ mile) as an alternative to reserving on-site carshare parking.
5. **As funding becomes available, provide additional operating funds for CarShare Vermont.** Identify and allocate local funding sources that can support expanded operations and fleet growth.

Figure 14 CarShare Vermont service area and vehicles

CarShare Vermont operates a diverse fleet of shared vehicles in and around Burlington.







T.2 | Work with CATMA to Expand the Guaranteed Ride Home (GRH) Program

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

A Guaranteed Ride Home (GRH) program provides support for non-driving commuters by offering reimbursement for unplanned taxi or rideshare rides resulting from unexpected circumstances, such a health emergency, overtime at work, or disruption to regular transportation options. Currently, CATMA operates a GRH program that is available for employees of member businesses and institutions. **Burlington should partner with CATMA to expand the GRH program beyond CATMA members to include anyone who lives and/or works in Burlington.**

Benefits for Burlington

- Expanding the GRH program beyond CATMA members would extend the same benefits of GRH to more people who live and work in Burlington and rely on non-driving travel modes.
- By reducing the risk of becoming "stranded" or stuck without a ride, an expanded GRH program in Burlington would make non-driving travel modes more reliable and flexible, especially for caregivers and people with commutes that occur during times when reliable alternatives are limited (such as early in the morning, late in the evening, or on the weekend).

Recommended Action steps

1. **Establish a program structure and define equitable eligibility criteria for participants.** Define annual limits on number of rides or reimbursement value, qualifying travel modes, and circumstances warranting reimbursement. As budget allows, allow broad-based participation and flexible qualifications to maximize program impact. Apply higher limits on annual reimbursement for qualifying low-income individuals, who are less likely to have alternative travel options available and more likely to be constrained by the cost of a taxi ride home (Table 3).
2. **Draft an annual program budget and secure funding.** Allocate dedicated funding resources to support the program's operational costs and reimbursement payouts, including parking revenue. Coordinate with local taxi services and ride-sharing companies (Lyft, Uber) to identify potential opportunities for discounts for GRH reimbursements.
3. **Implement a user-friendly registration system.** Include a web-based registration and reimbursement management platform that integrates with other City permitting and parking management systems to streamline program management and administration.

4. **Develop and distribute marketing and education materials.** Partner with CATMA and local community-based organizations to raise awareness and encourage participation. Coordinate with major employers to register participants. Include program information in citywide education, information, and marketing materials (see Strategy T.7).

Table 3 Conceptual recommendations for an expanded GRH program

GRH Program Component	Recommendations
Qualifying participants	To qualify for program participation, applicants must: ▪ Use a non-driving commute mode at least twice per week (transit, carpool/vanpool, walking, biking) ▪ Live and/or work in Burlington
Annual reimbursement limit	▪ Standard limit: Reimbursement for up to 3 rides per year ▪ Affordable limit: Reimbursement for up to 6 rides per year for participants who qualify as low-income ▪ No dollar value cap
Qualifying circumstances	As currently defined by CATMA, allow reimbursement for the following circumstances: ▪ Unplanned overtime at work ▪ Medical care (personal or family member) ▪ Transit service disruption ▪ Carpool unavailable ▪ Extreme weather event (rain, snow)
Qualifying travel mode for ride home	▪ Taxi services ▪ Ride-sharing services (Lyft, Uber)
Program hours/span of service	▪ Do not limit reimbursable trips by time of day, to maximize benefit for shift workers and people who do not work 9-5 weekday jobs.

T.3 | Work with Go! Vermont to Expand the Ride Matching/Carpool Program

Strategy Overview

A carpool or ride matching program helps connect people to share rides who have similar commutes to work or school. Some ride matching programs use a web- or app-based service that allows participants to find compatible commute partners based on trip origin/destination and schedule. Some programs also provide mileage-based reimbursement or other subsidies to incentivize program participation.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Currently, Vermont residents have access to a carpool and ride matching program for work and school trips through Go! Vermont's trip planner. **Burlington should expand participation in Go! Vermont's ride matching program** by identifying participation gaps, implementing targeted marketing and education efforts, and contributing funding for additional rewards and incentives.

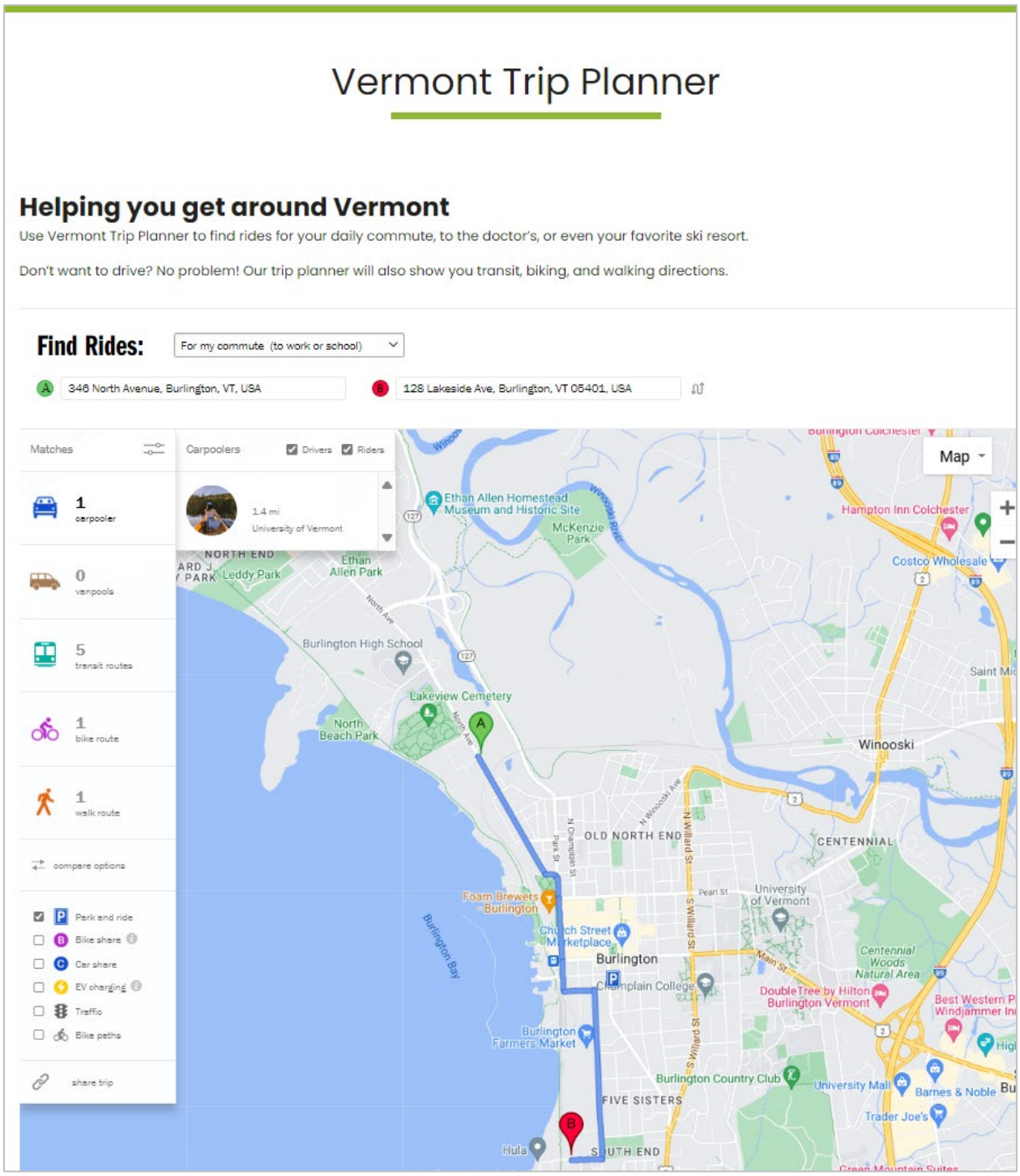
Benefits for Burlington

- Carpooling and ride sharing expands transportation options for people who live or work in places that are not served by transit or who have commute schedules outside the typical service hours, such as people who work late night shifts at Burlington's medical centers or shift workers at large manufacturing facilities in Burlington and neighboring communities.
- Carpooling and ride sharing also creates opportunities to strengthen community connections, especially for new residents to the region who do not yet have extensive networks of support.

Recommended Action steps

1. **Coordinate with Go! Vermont to evaluate gaps in participation.** Develop targeted messaging/awareness strategies, including educational resources and tools or materials that address language barriers for non-English speaking participants.
2. **Meet with local employers, schools, and community-based organizations** to increase awareness of the program, recruit participants, and create more opportunities for commute matches.

Figure 15 Go! Vermont's Ride Matching and Carpooling Platform



T.4 | Work with GMT to Expand Transit Service and Pilot Microtransit Service

Strategy Overview

Transit service can provide one of the most reliable, accessible, and affordable alternatives to driving alone, and there are many ways for TDM strategies to support and incentivize transit. Marketing and promotional campaigns, educational and trip planning initiatives, fare subsidies, and bus stop amenities can all make it easier for potential riders to choose transit. However, the benefits of transit-supportive TDM are limited in places where transit service itself is unavailable or the routes and schedule don't align with the needs of potential riders.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near, medium, & long term

In the near term, Burlington should collaborate with GMT to identify opportunities for the City to help address marketing, promotional, and communication needs while GMT remains focused on maintaining core service levels and addressing projected funding shortfalls.

In the medium and long term, work with GMT to assess gaps in local transit options and identify opportunities to add or modify fixed-route bus service to better serve local demand. In parts of Burlington where fixed route service is not viable, implement a microtransit service pilot to test the potential for on-demand service to help fill gaps. Alongside new investments in transit service, Burlington should continue to implement and expand transit-supportive TDM initiatives.

Opportunities to improve transit in Burlington include:

- **Improving transit information and wayfinding.** While GMT provides real-time bus routes and locations on the agency's website, they do not maintain a system map that simultaneously shows all bus routes available in Burlington. On-street wayfinding, including signs at and near bus stops, are limited. Community members report that navigating the transit system can be challenging for people who do not speak English. Burlington should help address these challenges with marketing, educational, and informational support. See related strategies T.7 (travel choice information, education, and marketing campaign) and N.5 ("Bus Buddies" program).
- **Providing subsidies for riding transit.** During the COVID-19 pandemic, GMT suspended fare collection on all services. The agency is in the process of re-launching fare collection with an updated fare structure and improved collection technology. After fare collection resumes, Burlington should continue to encourage/require new TDM plans to include transit fare discounts and subsidies as a priority strategy.
- **Improving bus stop amenities.** While some GMT bus stops in Burlington have a variety of useful amenities including bus shelters, seating, and information, others are very "bare bones" with

nothing more than a small sign indicating the stop location. Burlington should adopt bus stop design standards that set the minimum level of amenities that should be provided at all stops within the City. Improvements should be implemented as funding allows, and may be implemented as part of neighborhood-level planning processes.

Benefits for Burlington

- Improved transit service that is supported with complementary TDM strategies can provide a reliable, accessible travel option that is available year-round.
- Transit-supportive TDM strategies can make using transit easier, safer, and more comfortable, both for people who already use transit and for potential new riders.

Recommended Action steps

In the near term:

1. **Develop and adopt bus stop design standards for Burlington.**
   - In collaboration with community members and GMT, identify critical amenities that should be provided bus stops in Burlington.
   - Draft and adopt a policy document that identifies (a) minimum priority amenities to be provided at all stops, and (b) optional amenities to be provided depending on local conditions and available curbside space.
   - Conduct an inventory of existing stops to identify which locations do not meet minimum standards. Begin prioritizing investments in stop improvements at locations based on community goals, which may include: stops with highest ridership, stops where current design/configuration creates safety concerns, stops with a high number of transfers.
2. **In partnership with GMT, launch a marketing and information campaign to support transit.** Work with GMT to develop and distribute a system map that shows all transit routes and services available in Burlington. Ensure that the map and other key service information materials are available in all languages spoken in Burlington. Coordinate with Strategy T.7 (sustainable travel choice information, education, and marketing campaign) and Strategy N.5 ("Bus Buddies" program).

In the medium and long term:

3. If microtransit service is identified as a priority service, **implement a microtransit pilot program** that builds on lessons learned through the implementation of GMTs MyRide microtransit service in Montpelier. With community input, identify performance metrics to evaluate the pilot.
4. As funding allows, **allocate additional local funding to support expanded GMT service**.[2]

[2] In FY-2024, Burlington contributed $1.8 million from the City's general fund to support GMT services.

T.5 | Create Shared Stop Guidelines and a Unified Shuttle Program

Strategy Overview

Today, there are a variety of shuttle services operating in Burlington that connect institutional campuses with off-site parking locations and other destinations. These services are not available to the general public.

In the near term, **Burlington should formalize a framework for private shuttles to share transit stops and curbside loading space for transit.** In the long term, **Burlington should partner with institutions and shuttle operators to unify these shuttle programs** under a shared brand with a coordinated service plan.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Benefits for Burlington

- A shared stop policy would ensure that private shuttle operations are coordinated seamlessly with Green Mountain Transit services.
- A unified shuttle program that allows access for the general public would make it easier for more people who live, work, and visit Burlington to get to multiple destinations in and around central Burlington without driving and re-parking.

Recommended Action steps

In the medium term:

1. **Develop and adopt a shared stop policy.**
   - In partnership with GMT and private shuttle operators, draft operational guidelines that ensure shared stop use does not negatively impact service delivery for GMT buses or shuttles.
   - Identify goals and performance metrics for evaluating ongoing operations and stop sharing.

In the long term:

2. **Create public access to privately-operated shuttles.** Working with UVM, the UVM medical center, Champlain College, and other institutions who provide shuttle services to enable access for members of the general public.
3. **Develop a unified branding identity for shuttle service,** including the vehicles themselves as well as marketing and informational materials for the services.

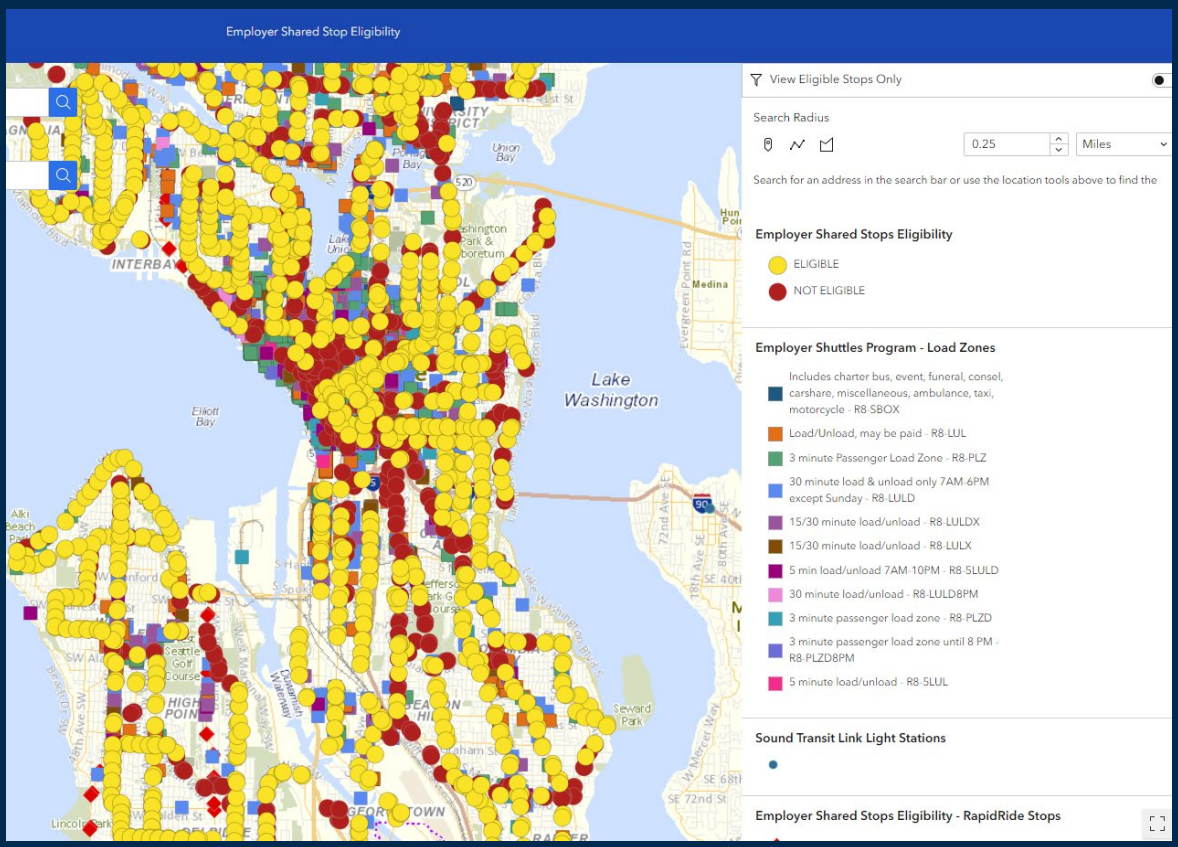
BEST PRACTICE SPOTLIGHT: SEATTLE, WA

In 2017, the City of Seattle began a pilot program to evaluate the potential for shared use of 10 transit stops throughout Seattle. The stops were shared by buses operated by King County Metro buses and privately-operated employer shuttles serving Microsoft and Seattle Children's Hospital. The pilot identify three goals for the program: Increasing safety for all road users, maximizing ridership on transit and shuttles, and limiting the amount of curbside space needed to serve transit and shuttle operations.

After completing the pilot in 2018, the City used the findings to develop and launch a citywide employer shuttle program in May 2024. The program includes operational guidelines for private shuttles, data sharing requirements, and a shuttle permitting structure that charges shuttle operators an annual fee of $632 for shared use of transit stops.

Figure 16 Map of Eligible Transit Stops for Shared Use

Source: Seattle Department of Transportation



T.6 | Update the City of Burlington Employee Parking Benefits Program to Incentivize Sustainable Commuting Options

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

The City of Burlington itself is one of the largest employers in the central part of the City. As the City continues to strive for a more balanced, TDM-supported transportation system across the City, the commuting benefits offered to City employes should reflect the same priorities. Continuing to build on recommendations from the 2015 TDM action plan, **Burlington should assess current employee parking and transportation benefits and update policies to incentivize sustainable commuting options.**

Benefits for Burlington

- Implementing an employee parking and benefit program that reflects the City's transportation goals and priorities for the community is a key opportunity for the City to lead by example.
- As one of Burlington's largest employers, shifting employee commute choices towards sustainable commuting options—including transit, carpooling, biking, and walking—will help address overall parking demand in the City.

Recommended Action steps

1. **Review current City employee transportation benefits and parking policies,** including the price charged for parking permits. Compare the monthly transportation cost for people who drive alone vs. people who carpool or use other sustainable travel modes.
2. **Update benefits to provide balanced options for employees.** If needed, consider increasing employee parking permit prices. At a minimum, ensure that transportation benefits offered to people who do not drive alone have equal monetary value to those who use other modes. If not already available, potential new sustainable travel benefits could include:
   - Expanded bicycle benefits, including reimbursement for bicycle maintenance or purchase, up to a certain dollar value each year.
   - Carpool rewards and incentives, including per-mile or per-trip cash rewards. Expand efforts to encourage and facilitate shared rides (see Strategy T.3).

T.7 | Implement a Sustainable Travel Choice Information, Education, and Marketing Program

Strategy Overview

Sustainable travel choice information, education, and marketing programs help people learn about travel options and understand how to use them. These programs are essential for maximizing the reach and impact of investments in transportation options and other TDM programs. Some also help create a unified "brand" for a range of available TDM programs and initiatives, which helps centralize useful information for users.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Benefits for Burlington

- A comprehensive information, education, and marketing program helps improve awareness of available transportation options and TDM benefits, which helps more people connect with resources that help meet their travel needs.

Recommended Action steps

In the near term:

1. Begin coordinating with CATMA, GMT, Go! Vermont, and other local and regional partners to develop a unified brand for TDM programs in Burlington.
   - Inventory existing marketing programs currently implemented by partners. Identify which programs would benefit from incorporation into a unified brand.
2. Launch a branded TDM website for Burlington. The website may be integrated into the City's existing website, or may be stand-alone. Centralize information about existing programs on the website, including links to partners.

In the medium term:

3. As part of neighborhood TDM planning processes, develop and distribute marketing materials that include trip planning information. Ensure materials are available in all languages spoken with target neighborhoods.
4. Coordinate marketing and educational materials distribution with neighborhood Community Mobility Rituals programs (Strategy N.4).

BEST PRACTICE SPOTLIGHT: AUSTIN, TX

The City of Austin's TDM program is unified under the Get There ATX brand. The Get There ATX website provides a centralized location for trip planning information and TDM programs. Marketing materials include trip planning resources and branded goods that help raise awareness and visibility for the program.

Figure 17 Get There ATX TDM program branading

Get There ATX branding includes digital and printed marketing materials, as well as in-person event-based promotion efforts (Image credit: Get There ATX)



R.1 | Update and Expand Burlington's TDM Requirements

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

In 2020, Burlington adopted TDM requirements for new developments. They include four core required elements: outreach and educational efforts, TDM program strategies (including subsidized transit passes), parking management requirements, and a TDM agreement that documents a commitment to implementing TDM requirements. While the TDM requirements have helped the City make progress towards a successful TDM environment, there are opportunities to modify and expand the requirements to better serve the City's goals. Some of the challenges with the City's current TDM requirements for new developments include:

- **Requirements apply only to new developments.** As a result, the TDM requirements have produced limited benefit in parts of the City where little or no development is occurring.
- **There is a limited number of TDM strategies reflected in the ordinance.** In addition to current requirements for transit subsidies, marketing/outreach efforts, and parking management strategies, a comprehensive TDM program should address other sustainable travel modes. Examples may include: carpool incentives, carshare memberships and subsidies, shared mobility incentives, family-supportive TDM programs, and shuttle programs.
- **There is limited flexibility.** In recent years, many cities have opted for TDM requirements that use a points-based structure. These structures typically include some "baseline" TDM strategies that are required for all projects as well as a list of "optional" strategies from which developers can select a certain number of additional TDM measures that align with their project context and vision. The flexibility provided by points-based structures makes it easier for projects of different sizes and in different locations to fulfill TDM requirements with meaningful and effective strategies.
- **There is limited guidance available to help developers fulfill requirements.** Developers, who may have limited experience implementing TDM, report challenges in fulfilling TDM requirements without clear guidance and/or best practice information available. While CATMA has been a key resource to help some developers implement TDM, managing TDM implementation for all developments in Burlington is beyond CATMA's mission and current staff capacity.

Building on successes achieved through the current TDM framework, **Burlington should adopt an expanded TDM framework and ordinance that uses a points-based system.** New requirements should be supported by public-facing user-friendly program guidelines that describe how to implement each strategy. Updated TDM requirements should be coordinated with a Commute Trip Reduction (CTR) ordinance (Strategy R.2).

Benefits for Burlington

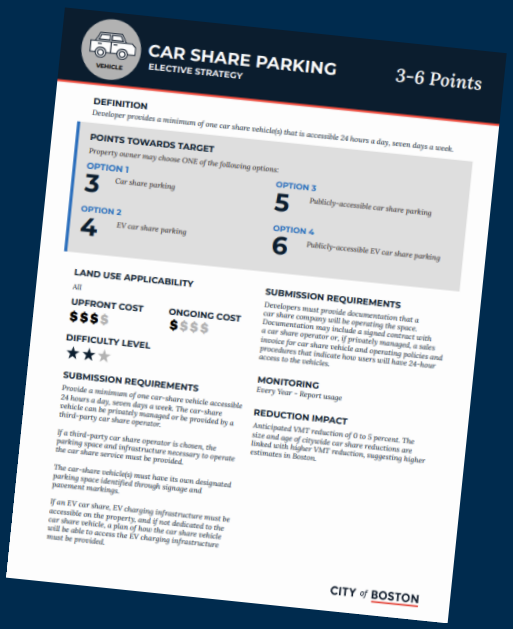
- An updated TDM ordinance that provides more flexibility for developers to customize TDM programs for local context will ensure that TDM benefits resonate with local transportation needs and conditions.
- An updated ordinance that includes an expanded list of TDM strategies will help incentivize more alternatives to driving alone, including carpooling, biking, and walking.
- A clear, user-friendly set of TDM program guidelines will help developers and other stakeholders understand how to implement TDM strategies successfully and in alignment with best practices.

Recommended Action steps

1. **Begin drafting a points-based TDM ordinance.** Incorporate feedback and lessons learned to date from developers and stakeholders, including CATMA. Identify an expanded "menu" of TDM measures to be included in the expanded ordinance.
2. After finalizing the ordinance structure, **begin developing TDM program guidelines to support successful implementation.** Guidelines should include diagrams, infographics, and other visual aids that help communicate requirements and best practices.

BEST PRACTICE SPOTLIGHT: BOSTON, MA

The City of Boston uses a points-based system for applying TDM requirements. Each development that is subject to the requirements must achieve a TDM point target that varies based on project size, type, and location. Developers can select from a long list of TDM strategies to achieve the required target. The City maintains a spreadsheet-based tool for developers to calculate point target requirements, as well as a set public-facing set of TDM "fact sheets" that provide additional information for fulfilling the requirements for each TDM strategy.



R.2 | Adopt a Commute Trip Reduction (CTR) Ordinance

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

A Commute Trip Reduction (CTR) program establishes requirements for employers to implement TDM programs that support sustainable travel modes for employees. Often, these programs apply only to employers larger than a certain minimum size (for example, 50 employees or more). CTR programs help engage employers in TDM implementation and provide a mechanism for applying TDM requirements to existing businesses. **Burlington should draft and adopt a CTR ordinance to complement TDM requirements in the development code.**

Benefits for Burlington

- A CTR ordinance extends TDM benefits beyond new developments by applying to existing employers. The TDM benefits achieved through a CTR ordinance would make it easier and cheaper for more people who work in Burlington to get to and from work without driving alone.
- Employers are uniquely well-positioned to help implement TDM effectively. They typically have detailed knowledge about the commuting patterns and home locations of employees, which allows them to tailor TDM programs to the specific needs of their employees. A CTR ordinance in Burlington would bring employers into the TDM process.
- Many CTR programs include a mechanism for collecting and sharing data about TDM program performance between employers and TDM program managers (for example, through employee surveys or monitoring efforts). This information helps the City and mobility service operators manage and fine-tune citywide TDM programs and transportation options.

Recommended Action steps

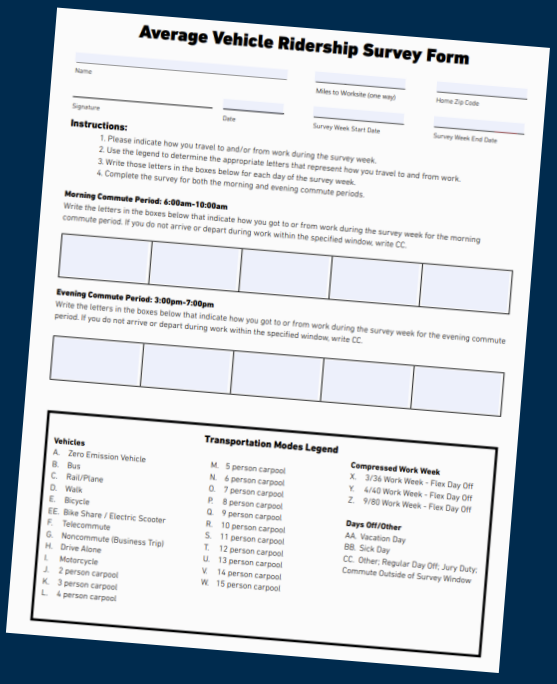
1. **Begin developing a CTR framework .** Define applicability thresholds for employers based on number of employees. Set performance targets and/or required TDM programs. Establish an annual monitoring and reporting program. Consider the role of a fee structure to help fund program costs. See Table 4 for initial CTR framework recommendations.
2. **Draft and adopt the CTR ordinance.** Coordinate the adoption of the program with an updated and expanded TDM ordinance (Strategy R.1) and expanded coordination with CATMA (Strategy M.3).
3. **Develop TDM program guidelines to support successful implementation.** Guidelines should include diagrams, infographics, and other visual aids that help communicate requirements and best practices.

Table 4 Conceptual recommendations for a CTR ordinance

CTR Ordinance Component	Recommendations
Threshold for Applicability	▪ Employers in Burlington with 20 or more full-time employees – Small employers: 20-49 full time employees – Large employers: 50+ full-time employees
Requirements and/or Performance Targets	Minimum required strategies (small and large employers): ▪ Employee parking cash-out program ▪ Preferential carpool parking ▪ Ride matching support Additional strategies (large employers only): ▪ Select at least 4 other strategies included in the expanded TDM ordinance
Monitoring and Reporting	▪ Small and large employers: submit an annual employee trip reduction report that documents which TDM programs are implemented to satisfy program requirements ▪ Large employers only: conduct an annual employee mode share survey and include results in annual trip reduction report
Program Fees	▪ Large employers only: annual fee of $20 per employee to support program management – Fee is waived for employers who achieve 65%+ non-drive-alone mode share

BEST PRACTICE SPOTLIGHT: SANTA MONICA, CA

The City of Santa Monica requires employers with 50 or more full-time employees to comply with commute trip reduction requirements under the Emission Reduction Program (ERP). Under the program, employers must implement TDM strategies, conduct annual travel surveys, and, depending on employer size, designate an on-site transportation coordinator. The City evaluates employer TDM performance based on the percentage of employees who drive to work, and annual per-employee transportation fees are reduced or waived for employers who meet or exceed performance targets. GoSaMo, Santa Monica's Transportation Management Association (TMA), the City maintains a program handbook that help employers understand and fulfill ERP requirements.


Average Vehicle Ridership Survey Form

Name

Signature

Date

Miles to Worksite (one way)

Survey Week Start Date

Home Zip Code

Survey Week End Date

Instructions:

1. Please indicate how you travel to and/or from work during the survey week.
2. Use the legend to determine the appropriate letters that represent how you travel to and from work.
3. Write those letters in the boxes below for each day of the survey week.
4. Complete the survey for both the morning and evening commute periods.

Morning Commute Period: 6:00am-10:00am

Write the letters in the boxes below that indicate how you got to or from work during the survey week for the morning commute period. If you do not arrive or depart during work within the specified window, write CC.

Evening Commute Period: 3:00pm-7:00pm

Write the letters in the boxes below that indicate how you got to or from work during the survey week for the evening commute period. If you do not arrive or depart during work within the specified window, write CC.

Vehicles

A. Zero Emission Vehicle
B. Bus
C. Rail/Plane
D. Walk
E. Bicycle
EE. Bike Share / Electric Scooter
F. Telecommute
G. Noncommute (Business Trip)
H. Drive Alone
I. Motorcycle
J. 2 person carpool
K. 3 person carpool
L. 4 person carpool

Transportation Modes Legend

M. 5 person carpool
N. 6 person carpool
O. 7 person carpool
P. 8 person carpool
Q. 9 person carpool
R. 10 person carpool
S. 11 person carpool
T. 12 person carpool
U. 13 person carpool
V. 14 person carpool
W. 15 person carpool

Compressed Work Week

X. 3/36 Work Week - Flex Day Off
Y. 4/40 Work Week - Flex Day Off
Z. 9/80 Work Week - Flex Day Off

Days Off/Other

AA. Vacation Day
BB. Sick Day
CC. Other; Regular Day Off; Jury Duty; Commute Outside of Survey Window

R.3 | Adopt Neighborhood-Based TDM Plans Using the Neighborhood TDM Framework

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Neighborhood-based TDM plans are local efforts led by the City that engage residents, businesses, and community-based organizations to develop, formalize, and implement tailored TDM strategies. **Burlington should implement the neighborhood TDM framework** as outlined in Chapter 4). Each neighborhood TDM plan should include:

- Development of a mapped inventory of neighborhood transportation elements, including transit stop locations, bicycle facilities, and sidewalk networks and conditions.
- Community engagement efforts to gather input about mobility needs, concerns, and priorities.
- Coordination and cooperation with community-based organizations within the community to learn about current programs and efforts that support mobility and identify opportunities for new or expanded efforts and partnerships.
- A finalized neighborhood TDM plan document, which summarizes input and feedback gathered from the community and identifies priorities for supporting TDM within the neighborhood.

Benefits for Burlington

- Neighborhood TDM plans will provide resources for community members, resources for decision-makers, and coordination opportunities for local organizations and stakeholders to better address mobility needs.
- The neighborhood TDM framework is designed to empower local residents to set priorities for TDM investments and foster a sense of community ownership of plan outcomes.

Recommended Action Steps

1. Building on lessons learned through the Old North End neighborhood TDM planning effort, **begin implementing the TDM framework process through City-led planning efforts.** As needed, modify the process to address lessons learned through initial neighborhood TDM planning efforts in the Old North End and the New North End. For additional information, see Chapter 4.

R.4 | Adopt a Framework for Creating Parking Benefit Districts (PBDs)

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Parking Benefit Districts (PBDs) create a mechanism by which a portion of locally-collected parking revenue is spent on not only local and citywide parking operations, but also TDM programs, mobility services, and neighborhood improvements with the meter district. PBDs are often similar in structure to a business improvement district, with an oversight board that includes both city staff as well as district residents, employees, business owners, and other stakeholders. **Burlington should develop and adopt an ordinance that allows for the creation of PBDs in the City.**

Benefits for Burlington

- PBDs help ensure that the cost of introducing parking meters in new parts of the City comes with valuable local benefit and provides a collaborative platform for identifying and prioritizing community investments.
- PBDs can provide a platform for coordination and cooperation that aligns neighborhood-level transportation needs and priorities with citywide parking policies.

Recommended Action steps

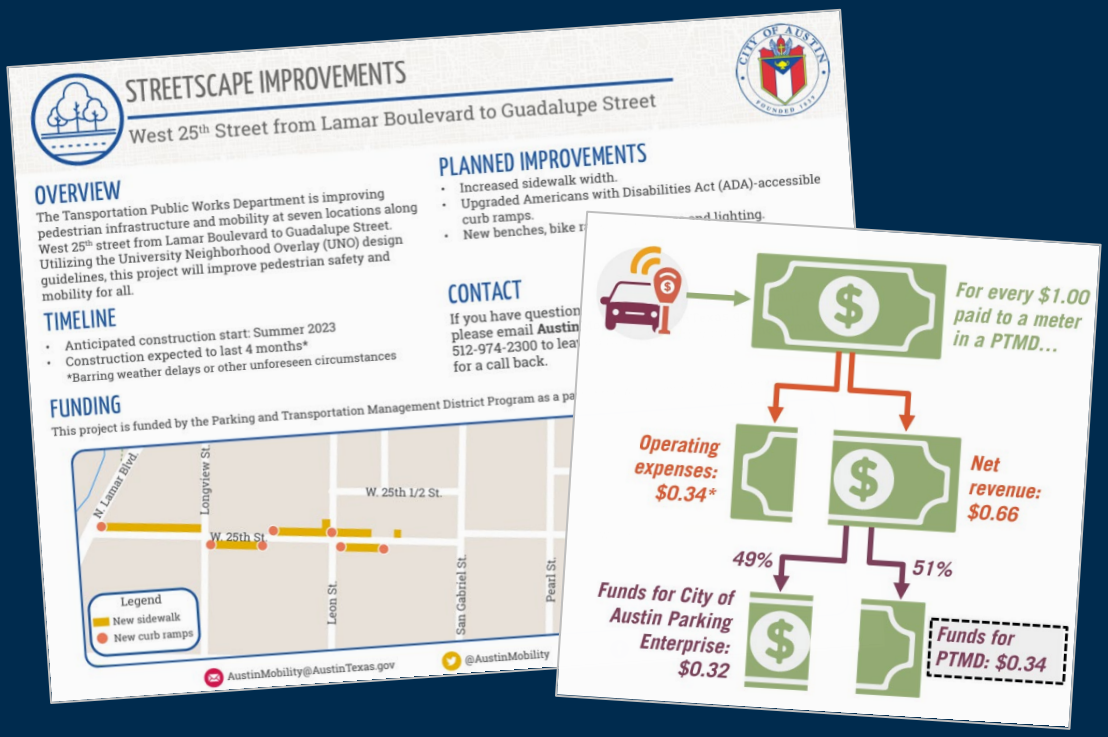
1. **Develop and adopt a PBD ordinance.** Ensure that the ordinance allows for a broad use of PBD funds. Eligible expenditures should not only include parking operations and infrastructure (such as enforcement, meter installation, signage, and administrative costs), but also local mobility improvements (such as bicycle parking, transit amenities, and TDM benefits).
2. If and when priced parking expands to new parts of the city, **collaborate with local stakeholders to implement PBDs.** PBDs should be structured to include local stakeholders on an oversight board. The board should maintain a prioritized list of local investments and should collaborate with City staff to implement those investments as revenue becomes available.

BEST PRACTICE SPOTLIGHT: AUSTIN, TX

The City of Austin has implemented one PBD and four Parking and Transportation Management Districts (PTMDs) throughout the city. After covering operating expenses, net parking meter revenue is shared between the district (51% of net revenue) and the Austin Parking Enterprise (49% of net revenue), which manages citywide parking programs. Net revenue can be used for a range of mobility improvements, including streetscape improvements and multimodal infrastructure.

To form a PTMD, applications must be submitted to the division director by a representative from a neighborhood organization. The application may be done collaboratively with City staff, and involves a series of required steps including:

- Convening a community meeting to gather input and share information
- Communicating the justification for the creation of a PTMD
- Identifying specific proposed locations for priced on-street parking
- Developing a prioritized list of improvement projects to be funded by parking revenue
- Identifying any additional supporting parking management tools to be used in conjunction with priced parking



R.5 | Update the Residential Parking Permit (RPP) Program

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Burlington's Resident Parking Permit (RPP) program helps manage spillover parking demand in residential areas that are close to busy destinations, such as educational/medical campuses and retail/dining districts.

While the program plays an important role in managing on street parking, permit prices and the overall program structure are not as supportive of Burlington's multimodal goals as they could be. **Burlington should update and modernize the resident parking permit program and increase annual permit costs.** Any net revenue remaining after covering program operating costs should be used to fund citywide TDM programs. The RPP program should be coordinated with a neighborhood mobility wallet program to reward residents who opt for one or zero RPP permits with additional multimodal benefits.

Benefits for Burlington

- Modernizing the RPP program will help balance demand for on street parking with other multimodal uses, including biking and carshare.
- Currently, each RPP permit costs $10 per year. Increasing permit prices to fully cover program costs will help the City maintain a financially sustainable parking and TDM program. Investing any net revenue in TDM programs will provide local mobility benefits.

Recommended Action steps

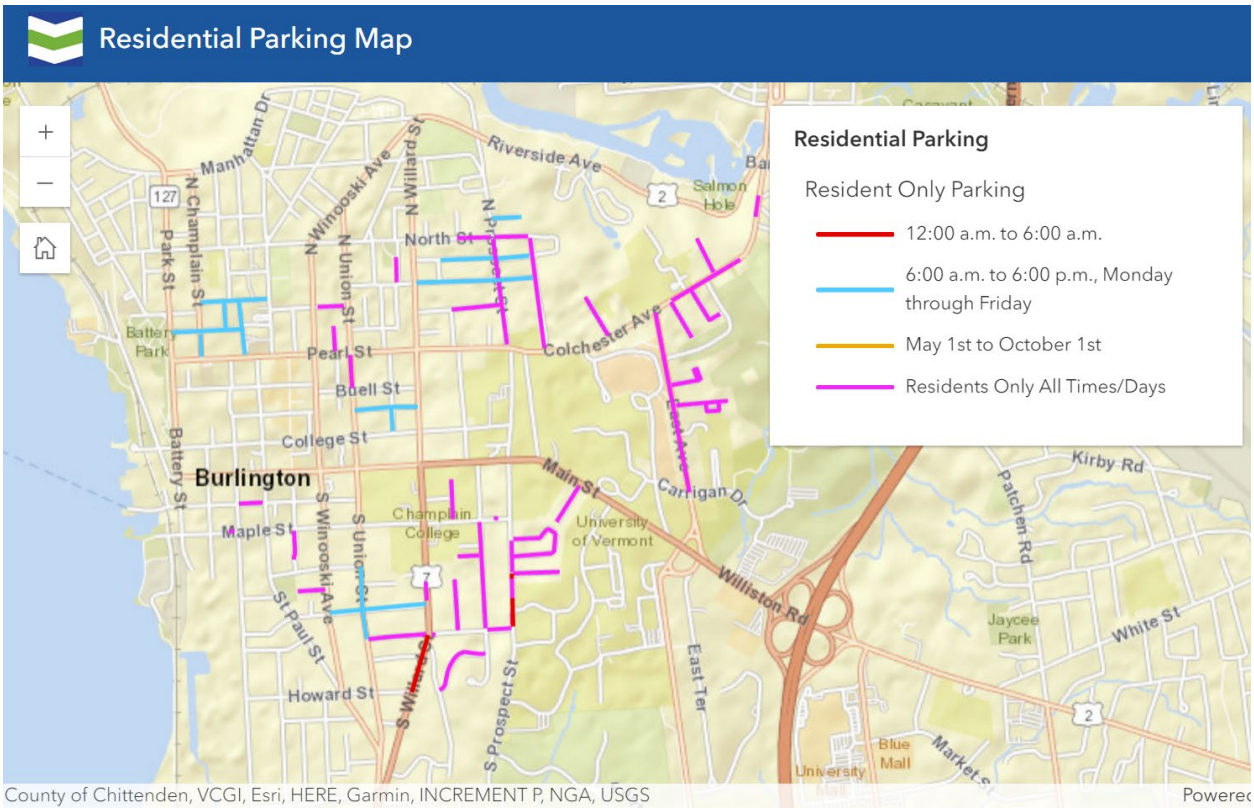
1. **Review the residential permit pricing structure and program management/operating costs.** Establish a new tiered pricing structure in which the per-permit price increases for each additional permit per household. Include an affordable option for qualifying low-income households. An initial conceptual price structure is shown in Table 5.
2. **Tie RPP permits to Transportation Demand Management (TDM) programs.** TDM includes a variety of benefits and incentives for non-driving modes, such as subsidized transit passes. Households that give up one or more of their RPP permits, or forgo them altogether, should be eligible for additional TDM incentives and programs. See strategy N.6 (Mobility Wallet Program).
3. **As space allows, incorporate an employee permit option.** Where resident-only parking areas are consistently less than 75% full at peak times, make a limited number of RPP permits available for people who work at nearby businesses. Pricing for employee permits should be calibrated so that non-driving travel options are still competitive with driving.

Table 5 Conceptual recommendation for an updated RPP price structure

Permits per Household	Annual Price (Baseline)	Annual Price (Low-Income Residents)	Multimodal Incentives Offered
0 permits	--	--	●●●
1ST permit	$25	$10	●○○
2nd permit	$50	$20	○○○
3rd permit	$75	$30	○○○
4th permit	$100	$40	○○○
5+ permits	(prohibited)		

Figure 18 Residential Parking Permit (RPP) Map

RPP restrictions are concentrated in the central parts of the city near commercial districts and university campuses.



R.6 | Develop and Implement a Downtown Public Realm Safety Plan

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Shared parking arrangements and "park once" strategies (which encourage people to park in centrally-located parking space and walk to multiple destinations without driving and re-parking) can be difficult to implement if people do not feel safe walking to or from their vehicle. A Downtown Public Realm Safety Plan would address safety concerns and challenges faced by people walking to and from public and shared parking facilities in the downtown area. A safety plan would identify priority locations where safety challenges occur, as well as strategies to address them.

Mechanisms to improve safety may include enhanced lighting, additional security personnel, placemaking and activation in key locations or priority times of day, or the integration of security technology. The plan will address safety concerns identified through a comprehensive safety audit and community engagement efforts, focusing on priority areas and times of day.

Benefits for Burlington Summary

- Addressing safety challenges and perceptions in the downtown area will make it easier and more appealing for people who drive to/from downtown to use centrally-located public parking garages, which will help the City meet downtown parking demand without over-building parking.

Recommended Action steps

1. **Conduct a safety audit for downtown to assess current conditions and identify areas for improvement.** Identify main safety concerns, locations, times of day/week, and potential strategies to improve conditions.
2. In partnership with the Police Department, Parking Services, Public Safety Committee, and Downtown Burlington, develop and implement safety improvements. Solutions may include:
   - Improved lighting and streetscape/landscape treatments near public parking facilities, including the Downtown Garage and the Marketplace garage.
   - An ambassador program that deploys staff in the downtown area to monitor and respond to safety issues at priority locations and times of day, or offers to escort people to or from their vehicle upon request.

M.1 | Hire or Designate a TDM Program Manager/Coordinator

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Implementing new TDM strategies in Burlington will require considerable time and effort. Without dedicated staff resources to support the program, progress will be slow. **Burlington should hire or designate a TDM program manager** who can work with other City staff, regional partners, and community stakeholders to advance the City's TDM goals and begin implementing many of the key recommendations in this plan. A TDM program manager will also expand the City's capacity to pursue grant and funding opportunities that can support TDM programs and transportation investments.

Benefits for Burlington

- A TDM program manager would be a critical resource for leading the implementation of all of Burlington's TDM objectives, including the recommendations included in this plan.
- A TDM program manager would also provide a point of contact for TDM and mobility issues in the community and a resource for developers and other partners who are working to implement and manage TDM programs throughout the City.

Recommended Action Steps

In the near term:

1. **Designate a TDM coordinator at the City of Burlington.**
   - Identify existing staff with available capacity to lead ongoing TDM efforts. Initially, allocate 25-50% of time for managing the City's TDM program. Draft a job description that defines roles and responsibilities of the TDM Program Manager position.

In the medium term:

2. **As funding allows, hire a full-time TDM coordinator at the City.**
   - Expand the job description, roles, and responsibilities of the TDM program manager to include full-time responsibilities.
   - Coordinate with regional partners including CATMA and GMT to ensure the position can effectively support inter-agency coordination and programs.

M.2 | Expand Funding Sources for TDM

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near, medium & long term

While some of the recommendations in this plan can be implemented with existing resources, many will require additional funding sources. **Burlington should invest expand funding sources for TDM by reallocating existing revenues and securing new funding sources.**

There is no single funding solution that can meet all of Burlington's TDM needs—success will require pursuing a range of resources that are likely to include:

- Allocating a portion of existing parking revenue, including parking meters and permits, for TDM programs and related investments
- Pursuing regional, state, and federal grant opportunities
- Allocating new local revenue sources to support TDM, such as impact fees or utility charges
- Leveraging development opportunities to fund or directly implement components of neighborhood or citywide TDM initiatives

Benefits for Burlington

- Dedicated revenue for TDM will support ongoing implementation of the City's TDM vision, which seeks to create a more accessible, sustainable, affordable, and equitable transportation network.

Recommended Action Steps

In the near and medium term:

1. **Review existing local revenue sources, including parking revenue and impact fees, to confirm eligibility and feasibility for funding TDM programs.** If needed, modify City code to enable TDM programs and an eligible use of funds.
2. **Establish an annual TDM program budget and allocate funding from existing revenue sources.** High priority strategies for funding include: Hiring or designating a TDM program manager (Strategy M.1), Expanding GMT transit services (Strategy T.4), and Expanding Burlington's partnership with CATMA (Strategy M.3)

In the long term:

3. After designating a TDM program manager, pursue state and federal TDM grant opportunities to fund TDM pilots and programs, including the Congestion Mitigation and Air Quality Program and the Carbon Reduction Program.

M.3 | Formalize and Expand Burlington's Partnership with CATMA

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

The Chittenden Area Transportation Management Association (CATMA) plays a central role in managing and implementing TDM services and programs in the greater Burlington area. CATMA has a membership-based structure in which employers, developers, and institutions pay annual dues based on the number of employees in return for a variety of TDM planning services and mobility programs. CATMA also supports Burlington's Hill Institutions to manage and implement the Joint Institutional Parking Management Plan process.

Today, collaboration between the City of Burlington and CATMA to implement local and regional TDM implementation is limited. **Burlington should work with CATMA to establish a formal partnership** that includes additional funding for CATMA and an expanded role for CATMA in local TDM implementation.

Benefits for Burlington

- TMA's can help implement TDM programs more effectively by acting as a central coordinating entity that works directly with local and regional stakeholders, mobility service providers, and governments.
- TMA staff can provide specialized technical knowledge and experience with TDM programs and services that developers and employers may not otherwise have access to.
- For many people who live or work in Burlington, day-to-day travel patterns regularly cross municipal boundaries. TMAs like CATMA can help address these regional travel needs and challenges.

Recommended Action Steps

1. **Form a working group and hold monthly coordination meetings** with City of Burlington and CATMA staff. Review strategic plan and vision, and identify opportunities for closer collaboration. Identify needs and opportunities to contribute additional funding and resources for CATMA.
2. **Identify and formalize goals, roles, and responsibilities,** and memorialize in a Memorandum of Understanding.
3. **Periodically evaluate the impact of partnership** by collectively reviewing the success of TDM initiatives and adjust strategies as needed

M.4 | Expand Public Advisory Roles for Non-Driving Transportation Issues and Needs

Strategy Overview

Advisory councils like the Walk | Bike council help public decision-makers develop and prioritize plans, projects, and services by providing input and feedback on behalf of the broader community. Burlington should expand public advisory roles for people who use transit and other non-driving modes by expanding the Walk Bike council or by establishing a new advisory body dedicated to advocating for and improving public transit options in the City.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Benefits for Burlington

- Expanding public advisory roles for non-driving transportation issues will help the City identify, understand, and prioritize solutions that address the needs and challenges facing people who rely on transit or other non-driving modes.

Recommended Action Steps

1. Review scope and responsibilities for the Walk | Bike council.
   - If feasible, expand council's focus to include all non-driving car modes. If needed, expand council size to include at least two members who can advise the City on challenges and perspectives facing people who regularly use transit.
   - If expanding the scope of the Walk | Bike council is not feasible, establish a new council dedicated to transit advocacy.
2. Ensure that a new or expanded council includes diverse representation of the community.

N.1 | Establish a Public Bicycle/Electric Bicycle Lending Library

Strategy Overview

A bicycle lending library is a publicly available service that allows anyone to borrow a conventional or electric bicycles, free of charge. The length of rentals can vary depending on the operating model and fleet size, but may be short term (1-7 days), medium-term (up to a month), or longer (6-12 months). Some bicycle libraries offer a range of bicycle types, including conventional bicycles, electric bicycles, cargo bicycles, and adaptive/accessible bicycles. **Burlington should establish a bicycle lending library in the City.**

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Benefits for Burlington

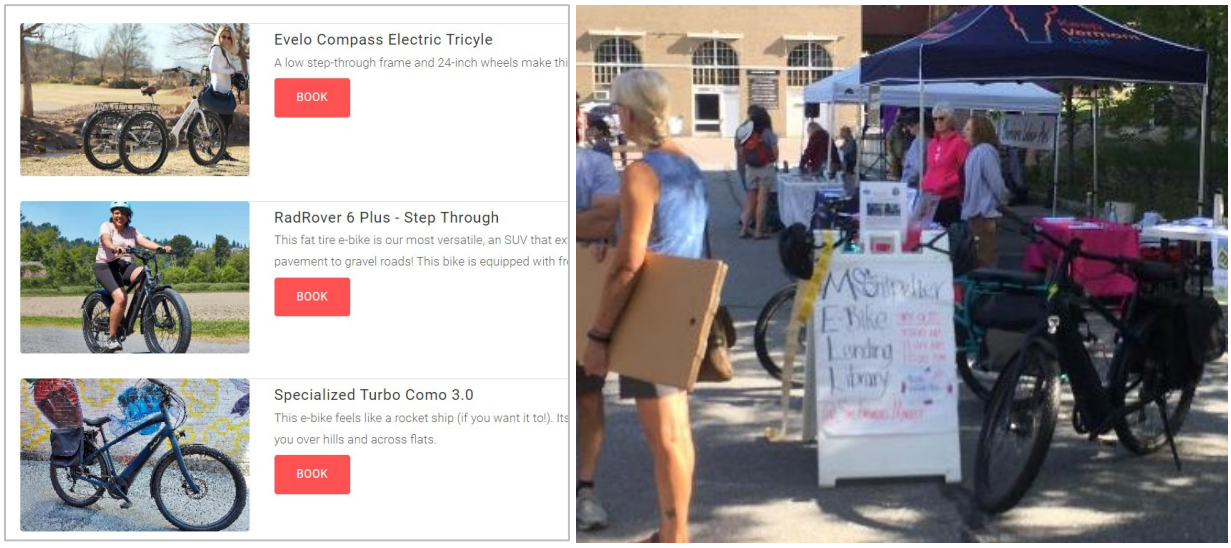
- A bicycle lending library in Burlington would expand public access to bicycles. It would create a new option that complements and fills gaps in existing bicycle programs and services available in the community, including:
  - Old Spokes Home currently operates the Everybody Bikes program, which provides steeply discounted bicycles for low-income residents. Establishing a bicycle lending library would create opportunities for people to try different types of bicycles (including electric bicycles) and gain experience before purchasing their own bicycle.
  - Local Motion currently offers short-term e-bike and conventional bike rentals near downtown. Rates for a conventional bicycle range from $27 for 3 hours to $40 per day, and can be rented for multiple days. A bicycle lending library would create a free service that could help meet demand for longer rentals (weekly or monthly).
  - Bird Bikeshare currently operates a fleet of 200 electric bicycles in Burlington, South Burlington, and Winooski. This smartphone app-based service allows customers to make point-to-point trips within the service area for a fee of $1 plus $0.49 per minute. A bicycle library would provide a free alternative that would complement privately-operated services by offering a wider array of vehicle types and longer-term borrowing options.
- A bicycle library in Burlington would provide access to specific types of bicycles that people may not need all the time—for example, a cargo bicycle to transport equipment or goods for work.
- Bicycle libraries can create valuable touchpoints with community members that provide opportunities to offer trainings and services that help people of all ages and levels of bicycle comfort learn to ride, maintain, and repair bicycles. Partnering with Old Spokes Home and/or Local Motion could create opportunities to amplify existing programs offered by these organizations.

Recommended Action Steps

1. **Identify partners and develop an operating plan.** The operating plan should include:
   - Resources available for funding day-to-day operations. In the near term, consider identifying opportunities to purchase operating services from community-based organizations. In the long term, assess the need for part- or full-time staff.
   - Hours of operation. As much as possible, hours should align with community need and should include some day, evening, and weekend hours to provide sufficient flexibility for people who are constrained by a variety of work, school, or care schedules.
   - Fleet size and types. At a minimum, an initial fleet should include 2 electric bikes, 2 adaptive/accessible bikes, 1 cargo bike, and a selection of conventional bicycles with a range of sizes. Over time, increase fleet size based on demand, funding availability, and maintenance capacity.
   - A lending management system. Consider opportunities to leverage the existing library lending system to manage bicycle rentals (example: Madison, WI)
2. **Identify a central location for the library.** The location could be a City-owned property, or could be leased through an agreement with a community partner. It should be close to a safe bicycle route and should be easy to access for people of all ages and biking abilities.
3. **Promote the bike library.** Integrate information about the library in citywide marketing materials and with community partners.

Figure 19 Bicycle Lending Library in Montpelier operated by Local Motion

Image credit: Local Motion



N.2 | Establish Community-Based Mobility Hubs and Delivery Hubs

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium term

A community-based mobility hub is a public space that provides a centralized location for accessing transportation options and information. Mobility hubs support non-driving travel modes by making it easier, more convenient, and safer to wait for or transfer between different transportation options. As centrally-located public spaces, community-based hub scan also be opportune places to locate other amenities and services such as parcel delivery lockers, food and beverage options, or events. **Burlington should implement a mobility hub pilot project** in the Old North End neighborhood and, if successful, expand the program to other neighborhoods throughout the City.

As part of the mobility hub. pilot, **Burlington should pilot a first/last-mile delivery hub**. These delivery hubs reduce provide a centralized location where packages are consolidated before being delivered to their final destinations via an e-bike delivery service. They may also include parcel pick-up lockers where recipients can pick up packages on their way to or from other destinations.

Benefits for Burlington

- Mobility hubs reduce vehicle trips by making non-driving options more convenient, enjoyable, and appealing. Centralized parcel delivery locations also reduce freight traffic.
- Community-based mobility hubs would provide public spaces that increase the visibility of locally-available transportation options and create opportunities for touchpoints between community members and other services beyond transportation.
- Delivery hubs help reduce freight traffic and associated vehicle emissions in nearby neighborhoods.

Recommendation Action Steps

1. **Pilot the community-based hub concept in the Old North End neighborhood.** Identify a location in the neighborhood that has access to transit service and is publicly accessible to a diverse range of community residents. As needed, make design modifications to the site to accommodate mobility services, including but not limited to:
   - Establishing a designated pick-up/drop-off zone for shared rides
   - Adding secure, weather-protected bicycle parking
   - Parking for Bird bike share and/or other shared micromobility options
   - Allocating space for a CarShare Vermont vehicle

- Enhancing the transit stop to include a shelter, seating, and lighting
- Adding signage, wayfinding, and placemaking elements that make the hub easily identifiable and easy to navigate to/from

2. **Coordinate with community organizations in the Old North End** to increase awareness about the hub and identify programming opportunities for the space, such as special events and service/resource distribution.
3. After 1 year, **evaluate the impact of the hub and modify the approach as needed for application in other neighborhoods throughout Burlington.** Evaluation should include:
   - Use of the hub – who uses the space, and how often? Is it accessible to everyone in the neighborhood? Are there uses which aren't addressed that could be included?
   - Safety and accessibility – were there any reported incidents of safety issues related to site design or use?
   - Community resonance – Does the community feel "ownership" of the space? Does the look and feel of the hub reflect the neighborhood identity and vision?

Figure 20 Mini-hub pilot for last-mile delivery in Toronto, ON

Image credit: Charles Dillard



BEST PRACTICE SPOTLIGHT: BOSTON, MA

In 2021, the City of Boston developed design guidelines for implementing a network of mobility hubs called "GoHubs!" and began a pilot project to test and evaluate the program. Eight GoHubs! were installed throughout East Boston at locations that were identified based on community input, access to transportation infrastructure, and neighborhood context.

The GoHubs! pilot sought to address three core goals: improve access, enhance public spaces, and provide information. One year after the pilot began, the City conducted and published an evaluation that looked at changes in bikeshare ridership, carshare use, transit ridership, and community sentiment (gathered via survey). The City incorporated findings and lessons learned from the pilot into the design guidelines for Citywide implementation.

Figure 21 GoHub! Mobility Hub pilot in Maverick Square, Boston MA

Image credit: Nelson\Nygaard



N.3 | Expand Burlington's "Walk to Shop" Shopping Trolley Program

Strategy Overview

Net Zero Vermont's Walk-to-Shop program is an initiative that distributes two- and four-wheeled shopping trolleys that help people get to and from shopping destinations without the need to drive and park. Trolley prices range from $40 to $65, depending on the size. In 2022, the City of Burlington provided funding to distribute more than 50 trolleys to residents of the Old North End free of charge. Building on the success of this program, **Burlington should expand funding and support to distribute shopping trolleys** as part of neighborhood TDM implementation and create a trolley lending library.

This initiative includes exploring shared, neighborhood trolley libraries to facilitate convenient transportation of groceries and goods. The City will identify areas with high pedestrian traffic and proximity to shops, pilot the program in selected neighborhoods, collaborate with local businesses for support and participation, and eventually implement the program city-wide based on the success of the pilot.

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term



Benefits for Burlington

- Shopping trolleys help people run errands and get to and from shops without the need to drive and park.
- In addition to distributing the trolleys, Net Zero Vermont's walk to shop initiative integrates programs that facilitate community building and food security.

Recommended Action Steps

1. **Include funding for shopping trolley distribution as part of neighborhood TDM implementation.** At a minimum, secure shopping trolleys for low-income residents, free of charge. As funding allows, expand eligibility to all neighborhood residents.
2. **Explore the establishment of shared, neighborhood trolley libraries to facilitate convenient transportation of groceries and goods.** Consider integrating trolley borrowing options with a bicycle lending library (strategy N.1).

N.4 | Implement a "Bus Buddies" Transit Rider Education Program

Strategy Overview

A "Bus Buddies" program matches volunteers with people who are new to the region or who do not have familiarity with the transit system to accompany them on trips to and from work or services. These programs can be effective strategies to overcome language or cultural barriers that may make it difficult for people to navigate an unfamiliar transit system. In partnership with GMT and community-based organizations, Burlington should implement a "Bus Buddies" program.

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Benefits for Burlington

- "Bus Buddies" programs help build community relationships while helping address mobility needs of people who rely on or wish to use transit but do not know how.
- These programs can be particularly beneficial to people who have arrived in Burlington as part of refugee resettlement programs and people who do not speak English.

Recommended Action Steps

1. Form a "Bus Buddies" working group that includes GMT and community-based organizations who work with populations that may benefit from the program. Begin recruiting volunteers to support the program and program participants who need assistance.
2. Develop and implement a training course for bus buddy volunteers to help them effectively support program participants.
3. Begin operating the program. Regularly gather input and feedback from bus buddy volunteers and from program participants to identify gaps in the program. Augment training as needed.

N.5 | Pilot a Neighborhood Transportation Wallet Program

Strategy Overview

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Long term

A mobility wallet is a package of discounts, passes, and/or funds that can be used for a range of transportation options, such as free or discounted transit passes, credits for shared mobility services (bike share or car share), and credits for ride hailing services (such as Lyft or Uber). Mobility wallets are flexible and user-friendly incentives that can help address a range of different trip types and travel needs. They may include a tiered pricing in which wallet can be purchased for a steep discount for most participants and is available free of charge for qualifying low-income individuals. Some mobility wallet programs only offer the wallet to recipients who decline or opt out of other programs, such as forgoing a residential parking permit (RPP).

Benefits for Burlington

- A mobility wallet provides a user-friendly tool that makes it easier for participants to become aware of and take advantage of available mobility benefits.
- When offered as a trade-off for parking benefits (such as an RPP permit), a mobility wallet rewards residents who choose to live a car-free or car-light lifestyle.

Recommendation Action Steps

1. **Identify funding and develop a budget for the transportation wallet pilot program.** In the long term, dedicated funding should include revenue from parking permits and parking meters. For the pilot, funding may include regional sources such as state/federal grants.
2. **Identify eligibility criteria and a pilot area to test the mobility wallet.** As budget allows, offer the wallet to all residents within the pilot area (no eligibility limits).
3. Coordinate with local community-based organizations and residents within the study area to **identify mobility needs and desired benefits to include in the wallet.** Consider:
   - A Green Mountain Transit Smart Card with $200 pre-loaded
   - $50 in credits for Bird Bikeshare rides and/or store credit to Old Spokes Home
   - $50 in taxi or rideshare credits (Lyft or Uber)
4. **Develop a price structure** that includes “base” and “affordable” options.
5. **Evaluate preferred format and technology options for distributing and managing the wallet.** Options include distributing “debit card” style tools that can be used for eligible services (example:

LA Metro MW Program), digital transportation benefits platforms, or physical credits and coupons distributed by mail (example: Portland, OR)

6. **Define equity-driven pilot evaluation criteria.** Performance evaluation metrics should address: wallet participation and utilization rates by participant characteristics and demographics, including income, primary language, gender, age, and race.
7. Based on pilot evaluation, **consider opportunities to refine or expand the program.**

BEST PRACTICE SPOTLIGHT: PORTLAND, OR

The City of Portland manages a Transportation Wallet program that offers a flexible, deeply discounted package of credits and passes for transit, bike share membership, e-scooter services, and car share services. The wallet is available to anyone who lives or works in the Northwest and the Central Eastside Parking Districts, where on-street parking is limited.

The transportation wallet program is integrated with Portland's zone-based, on-street residential parking permit (RPP) program. Revenue from parking permits provides funding for the transportation wallet program The base price of the wallet is $99, but is available free of charge to district residents who forgo a residential parking permit. The Access for All Wallet option provides a Transportation Wallet free of charge to qualifying low-income residents who live anywhere in the city.



Chapter 4: Neighborhood TDM Framework

The Neighborhood TDM Framework is a strategy developed in conjunction with this study designed to address transportation challenges within communities from the bottom up. This framework aims to enhance mobility options, promote active transportation, and create opportunities for meaningful interactions among residents, seeking to improve the overall quality of life within Burlington's neighborhoods.

At the core of this framework, and a primary responsibility of the City, is the process of neighborhood selection, which involves careful consideration of various factors such as ongoing or planned transportation projects, demographics, and other equity-based criteria. By selecting neighborhoods facing transportation challenges and ensuring equitable distribution of municipal resources, the framework aims to address disparities in access to transportation while encouraging collaboration with local stakeholders and community-based organizations.

The framework then follows a systematic approach, starting with the establishment of a vision, purpose, and goals tailored to the specific needs of the neighborhood, while also maintaining ties to the City's overarching mission for TDM. Through data collection and robust community engagement, key insights are gathered to inform decision-making and prioritize strategies. Implementation involves assigning clear roles and responsibilities to 'champions,' and creating pilot programs to test selected strategies on a small scale. Evaluation and adjustment phases ensure that initiatives are effective and aligned with community needs. Overall, the framework provides a structured approach to address transportation challenges, enhance neighborhood resiliency, and promote community-based solutions.

Neighborhood Selection

Choosing the right neighborhood is critical for both the success of TDM interventions and to ensure equitable solutions throughout the city. Several factors should be considered during this process:

- Existing Transportation Projects: Assess whether the neighborhood is already implementing transportation initiatives or undergoing changes to transportation infrastructure.
- Impact of Transportation Challenges: identify neighborhoods facing transportation challenges, such as limited access to GMT, safety concerns for pedestrians and bicyclists, or other mobility challenges.
- Demographics / Equity Scan: Work with Burlington's Data Analytics team to analyze demographic data to ensure equitable distribution of resources.
    a. Establish equity-based criteria to ensure that transportation interventions prioritize the needs of underserved communities and address disparities in access to transportation resources.

Consider factors including income, race, ethnicity, age, disability status, geographic/neighborhood location.

b. Ensure the neighborhood meets equity-based criteria before intervention.

c. Consider collaborating with and/or solicit input from REIB office, local nonprofits, and other community organizations to gather feedback, identify blind spots, and confirm that racial equity considerations are being properly integrated from the start.

- Identify Stakeholders and Collaborative Potential: Evaluate the readiness of local stakeholders, including city councilors, community-based organizations, and residents to collaborate on TDM initiatives and ensure long-term sustainable solutions.
  a. Pinpoint relevant municipal departments such as the Office of City Planning, Department of Public Works, Burlington Electric Department, etc.
  b. Determine relevant community-based organizations who are active in the neighborhood (Burlington Community Development Corporation, Old Spokes Home, Local Motion, BHA, Neighborhood Associations, etc.).
  c. Identify local residents and neighborhood leaders who may be of interest. The City should set aside and allocate funds to compensate these individuals for their contribution to the process.

Step 1: Vision, Purpose, and Goals

1. **Establish a Vision and Purpose statement tailored to the neighborhood's transportation and mobility goals**
   a. The vision statement should serve as a guiding measure to identify the desired future state of the neighborhood's transportation system and includes the goals and values of the community in the realm of mobility, accessibility, and connectivity.

2. **Goals for Neighborhood TDM**
   a. Improving Community Resiliency and Emotional Connectivity: Create a sense of belonging and connection among residents by enhancing mobility options, promoting active transportation, and creating opportunities for meaningful interaction with other community members with a particular focus on the equity population.
   b. Reducing VMT, Reliance on SOV Ownership, and GHG Emissions: Encourage sustainable travel behaviors, such as walking, bicycling, and using public transit to minimize reliance on SOVs and mitigate the City's environmental impact, while also reducing transportation costs for burdened communities.
   c. Prioritize Safety for Vulnerable Road Users: Implement measures to enhance safety for all road users, with particular emphasis on protecting vulnerable populations such as pedestrians, bicyclists, public transit users, and those with mobility challenges to emphasize equitable solutions in transportation infrastructure and programs.

d. [Goal X, Y, Z]: *Provide opportunities for the community to establish their own Neighborhood TDM goals in addition to those listed above.*

Step 2: Data Collection

Effective TDM efforts begin with understanding the existing conditions and challenges within the target neighborhood. Key insights will be developed from comprehensive data collection to help inform analysis and recommendations.

1. **Gather Background Information + Develop Existing Conditions**
    a. Identify and map existing transportation infrastructure, including roads, bike facilities, sidewalks, public transit, and shared mobility options.
    b. Conduct site visits to understand the condition and location of existing facilities.
    c. Gather demographic information such as population density, age distribution, income levels, languages, and car ownership.
    d. Recognize current transportation challenges including safety concerns, parking issues, access to alternative modes, and congestion. Understand existing resources and organizations that can help foster collaboration and address challenges holistically.
    e. Identify relevant transportation or other types of projects that are near-term that may impact this effort.
2. **Parking Conditions**
    a. Ensure a baseline understanding of parking challenges.
    b. Confirm whether the city has already developed a parking management plan.

Step 3: Community Engagement

Robust community engagement helps establish an inclusive planning process by creating opportunities for residents and stakeholders to connect on matters related to transportation challenges in their communities.

1. **Host Initial Listening Session / Open Forum**
    a. Organize an initial listening session or open forum to gather insights and expertise from local residents and stakeholders regarding neighborhood-specific mobility-related issues.
    b. Invite key stakeholders and publicize the event through local media channels and social networks to maximize participation.
    c. Facilitate mobility-focused questions and discussions during the listening session touching on topics including pedestrian safety, bike infrastructure, public transit accessibility, and commute difficulties. Gain a better understanding of how the neighborhood interacts with each other.
2. **Conduct Additional Outreach and Engagement**
    a. Implement a minimum of two outreach and engagement strategies, which should have language translation. Choose from the following:

i. Community Meetings: Host additional interactive community meetings featuring informational presentations, Q&A sessions, and breakout groups or small group discussions to ensure active participation from all attendees. Accessibility considerations are crucial to ensure an inclusive outcome, such as providing language interpretation and scheduling meetings at different times of day and in hybrid format.

ii. Survey: Conduct a comprehensive neighborhood survey to broaden the reach for collecting feedback. Distribute through various channels including online and in-person.

iii. Focus Groups: Organize focus groups with specific demographics or interest groups within the community to gather targeted insights on particular topics or issues. May include groups such as youth, seniors, immigrants/New Americans, students, etc.

iv. Neighborhood Event: Participate in or host neighborhood events such as farmers' markets, block parties, or other planned community events to engage with residents. Set up informational booths and/or interactive activities to facilitate conversations about transportation and mobility topics.

v. Neighborhood Walk: As a group, take a walk through the neighborhood to visit key locations where challenges, opportunities, or previously implemented solutions are present (i.e. bus stops/shelters, bike rack locations, hotspots for double-parking or other prevalent violations, CarShare Vermont or EV-charging parking spaces, etc.). This helps by providing channels for feedback, fostering relevant dialogue, and educating participants about pressing issues.

Step 4: Needs Assessment, Develop Strategies, and Prioritization

The data analysis process helps inform decision-making and prioritization by examining quantitative and qualitative data to identify patterns and key challenges.

In conjunction with Step 4, the City may consider pursuing a partner policy aimed at ensuring minimum access to essential commercial and community services, which could include a 15-minute walk time guarantee, where all residents have convenient access within a short walking distance to necessary amenities such as grocery stores, healthcare facilities, schools, and public transportation hubs.

1. **Data Analysis**
   a. Analyze data from existing conditions and community engagement to identify key concerns, themes, and priorities.
2. **Identify TDM Strategies**
   a. Review menu of Transportation Demand Management (TDM) offerings provided by the city.
   b. Prioritize strategies based on feedback, data analysis, and feasibility considerations, distinguishing between short-term and long-term interventions.
   c. Prioritize low-cost/high-impact interventions and assist in planning longer-term infrastructure projects.
3. **Iterate and Finalize TDM Strategies**

a. Bring the strategies list back to key stakeholders: those from the initial listening session and/or identified from additional outreach and engagement.

Step 5: Implementation

Implementing solutions includes the identification, testing, and scaling of TDM strategies to address critical challenges in the neighborhood.

1. **Identify Champions and Create Community Advisory Committee**
   a. Identify stakeholders who are influential in their respective communities and can speak to mobility challenges and opportunities. Champions can be individuals or groups who regularly engage with residents and can mobilize support for this initiative.
   b. Establish a Community Advisory Committee with representatives from various stakeholder groups, including local residents, community-based organizations, and municipal departments. Ensure that representation is reflective of the neighborhood. Schedule regular meetings with committee to review progress, provide feedback, help guide decision-making.
2. **Pilot Programs**
   a. Pilot selected programs or strategies on a small scale.
   b. Gather feedback and make necessary adjustments based on participant and stakeholder input.

Step 6: Evaluation and Adjustment

The evaluation phase assesses the effectiveness of implemented TDM initiatives and ensures alignment with community needs. This involves measuring program impact and collecting feedback on changes to travel behavior to understand the success, or need for adjustments, of interventions.

1. **Monitor and Measure Program Impact**
   a. Analyze mode shift changes and community impact by collecting feedback and data on travel behavior.
   b. Utilize surveys, focus groups, traffic counts, ridership data, etc., to assess program impact.
2. **Adjustment**
   a. Based on evaluation findings, make necessary adjustments to programs and strategies to enhance effectiveness and address emerging needs.

Table 6 Neighborhood TDM Goals and Evaluation Methods

Goal	Example Evaluation Method	Example Measure for Success
Improving Community Resiliency and Emotional Connectivity	Community survey before and after implementation	Increase in community satisfaction levels
Reducing VMT and Reliance on SOV Ownership	Conduct mode share surveys before and after implementation to understand change in transportation modes used for daily trips (measure both mode shift + shifts along the behavior change spectrum)	Positive shift in the distribution of transportation modes used by the community for daily trips, with reduction in the use of SOV travel and increase in walking, biking, carpooling, public transit, etc.
Prioritize Safety for Vulnerable Road Users	Review traffic incident reports and conduct pedestrian and bicyclist counts before and after implementation. Community survey on perceived safety before and after.	Reduction in traffic incidents involving vulnerable road users, and an increase in pedestrian and bicyclist safety measures. Increases in perceived safety.
[Other goals established by the community…]	*TBD*	*TBD*

Appendix A: Existing Conditions

Appendix B: Best Practices

Transportation Demand Management Action Plan

BURLINGTON OFFICE OF CITY PLANNING

CHARLES DILLARD, AICP, DIRECTOR

Citywide Transportation Options Study Overview

The Citywide Transportation Options Study was a project led by the City of Burlington's Planning Department in close coordination with other city departments to **assess existing and previous TDM programs** in the city and **recommend approaches the City may take** to build on those efforts.

The study is the product of a 2021 City Council resolution.

The goals of the TOS are to:

1. Evaluate the City's TDM program and transportation needs
2. Identify opportunities to expand TDM beyond new development
3. Explore models for neighborhood-based TDM

The TDM Action Plan is the culmination of the CTOS

TDM Action Plan Overview

Plan components:

1. Analysis of Previous and Current Plans and Studies
2. Best Practices Analysis
3. Public Engagement Summary
4. Strategies Toolkit

Strategies Toolkit

Toolkit components:

1. **Transportation Options** – specific ways of moving that the City should prioritize
2. **Regulations and Plans** – ordinance and policy planning priorities
3. **TDM Management and Funding** – operational and funding priorities
4. **Neighborhood TDM Strategies** – tools that expand the reach and equity of TDM

Strategies Toolkit

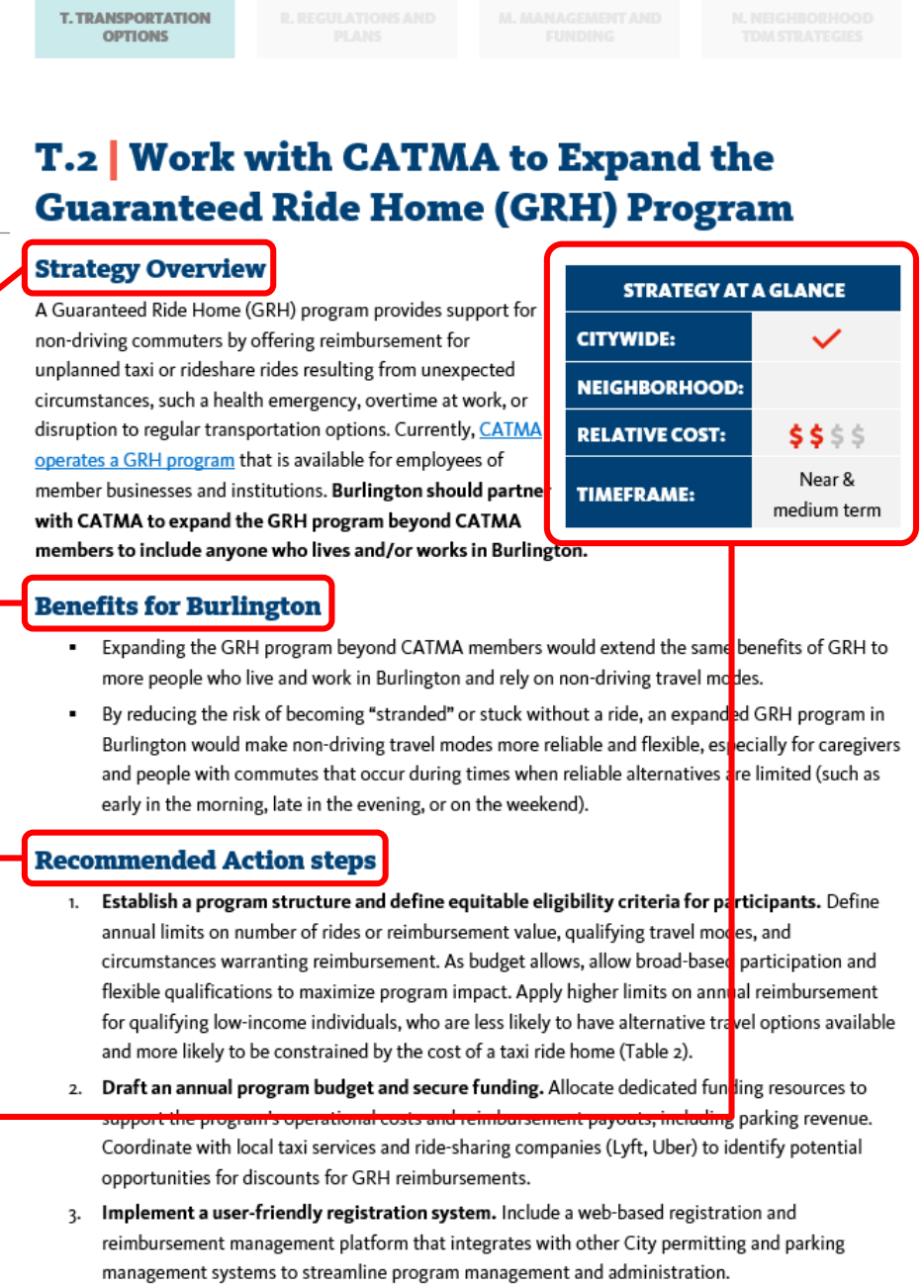
Toolkit format:

ID	Strategy Recommendation	Citywide	Neighborhood	Relative Cost	Timeframe
T	**Transportation Options**				
T.1	Work with Carshare Vermont to expand carshare services and supporting programs.	✓	✓	$$$$	Near term
T.2	Work with CATMA to expand the Guaranteed Ride Home (GRH) program.	✓		$$$$	Near & medium term
T.3	Work with Go! Vermont to expand the ride matching/carpool program.	✓	✓	$$$$	Near term
T.4	Work with Green Mountain Transit to expand transit service, including piloting on-demand microtransit services in parts of Burlington that are not well-served by fixed route transit.	✓	✓	$$$$	Near, medium, & long term
T.5	Create shared stop guidelines and a unified shuttle program that combines and coordinates services offered by hill institutions, Green Mountain Transit, and others.	✓		$$$$	Medium & long term
T.6	Update the City of Burlington employee parking benefits program to incentivize sustainable commuting options.	✓		$$$$	Near term
T.7	Implement a sustainable travel choice information, education, and marketing program.	✓	✓	$$$$	Near & medium term

Strategies Toolkit

Toolkit format:

1. **Strategy Overview** – describes tool, assesses current application in Burlington, if applicable, and makes general recommendation
2. **Benefit for Burlington** – provides the rationale for why the recommendation is made and what the tool can do for our communities
3. **Recommended Action Steps** – details specific steps the City should take in implementing the recommendation; includes identification of any necessary partners
4. **Strategies At a Glance** – profiles whether the strategy is a citywide or neighborhood strategy, its relative cost, and a realistic implementation timeline



T. TRANSPORTATION OPTIONS | R. REGULATIONS AND PLANS | M. MANAGEMENT AND FUNDING | N. NEIGHBORHOOD TDM STRATEGIES

T.2 | Work with CATMA to Expand the Guaranteed Ride Home (GRH) Program

Strategy Overview

A Guaranteed Ride Home (GRH) program provides support for non-driving commuters by offering reimbursement for unplanned taxi or rideshare rides resulting from unexpected circumstances, such a health emergency, overtime at work, or disruption to regular transportation options. Currently, CATMA operates a GRH program that is available for employees of member businesses and institutions. **Burlington should partner with CATMA to expand the GRH program beyond CATMA members to include anyone who lives and/or works in Burlington.**

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Benefits for Burlington

- Expanding the GRH program beyond CATMA members would extend the same benefits of GRH to more people who live and work in Burlington and rely on non-driving travel modes.
- By reducing the risk of becoming "stranded" or stuck without a ride, an expanded GRH program in Burlington would make non-driving travel modes more reliable and flexible, especially for caregivers and people with commutes that occur during times when reliable alternatives are limited (such as early in the morning, late in the evening, or on the weekend).

Recommended Action steps

1. **Establish a program structure and define equitable eligibility criteria for participants.** Define annual limits on number of rides or reimbursement value, qualifying travel modes, and circumstances warranting reimbursement. As budget allows, allow broad-based participation and flexible qualifications to maximize program impact. Apply higher limits on annual reimbursement for qualifying low-income individuals, who are less likely to have alternative travel options available and more likely to be constrained by the cost of a taxi ride home (Table 2).
2. **Draft an annual program budget and secure funding.** Allocate dedicated funding resources to support the program's operational costs and reimbursement payouts, including parking revenue. Coordinate with local taxi services and ride-sharing companies (Lyft, Uber) to identify potential opportunities for discounts for GRH reimbursements.
3. **Implement a user-friendly registration system.** Include a web-based registration and reimbursement management platform that integrates with other City permitting and parking management systems to streamline program management and administration.

Transportation Options Strategies

T.1: Work with CarShare Vermont to expand carshare services and supporting programs

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Recommended Action Steps:

1. Work with CarShare Vermont to identify specific areas and demographic groups where there is unmet demand or opportunities for car sharing.
2. Streamline the permitting processes for allocating carshare spaces.
3. Integrate carshare space planning into all neighborhood planning processes.
4. Update the City's development code to include requirements for shared spaces that can be used for carshare.
5. As funding becomes available, provide additional operating funds for CarShare Vermont.

Transportation Options Strategies

T.2: Work with CATMA to Expand the Guaranteed Ride Home (GRH) Program

Recommended Action Steps:

1. Establish a program structure and define equitable eligibility criteria for Draft an annual program budget and secure
2. Implement a user-friendly registration system.
3. Develop and distribute marketing and education materials.
4. Develop and distribute marketing and education materials.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Transportation Options Strategies

T.3: Work with Go! Vermont to Expand the Ride Matching/Carpool Program

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Recommended Action Steps:

1. Coordinate with Go! Vermont to evaluate gaps in participation.
2. Meet with local employers, schools, and community-based organizations to increase awareness of the program, recruit participants, and create more opportunities for commute matches.

Transportation Options Strategies

T.4: Work with GMT to Expand Transit Service and Pilot Microtransit Service

Recommended Action Steps:

1. Develop and adopt bus stop design standards for Burlington. (Near Term)
2. In partnership with GMT, launch a marketing and information campaign to support transit. (Near Term)
3. If microtransit service is identified as a priority service, implement a microtransit pilot program. (Med - Long Term)
4. As funding allows, allocate additional local funding to support expanded GMT service. (Med - Long Term)

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near, medium, & long term

Transportation Options Strategies

T.5: Create Shared Stop Guidelines and a Unified Shuttle Program

Recommended Action Steps:

1. Develop and adopt a shared stop policy. (Med. Term)
2. Create public access to privately-operated shuttles. (Long Term)
3. Develop a unified branding identity for shuttle service. (Long Term)

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Transportation Options Strategies

T.6: Update the City of Burlington Employee Parking Benefits Program to Incentivize Sustainable Commuting Options

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Recommended Action Steps:

1. Review current City employee transportation benefits and parking policies,
2. Update benefits to provide balanced options for employees.

Transportation Options Strategies

T.7: Implement a Sustainable Travel Choice Information, Education, and Marketing Program

Recommended Action Steps:

1. Begin coordinating with CATMA, GMT, Go! Vermont, and other local and regional partners to develop a unified brand for TDM programs in Burlington. (Near Term)
2. Launch a branded TDM website for Burlington. (Near Term)
3. Develop and distribute marketing materials that include trip planning information. (Med. Term)
4. Coordinate marketing and educational materials distribution with neighborhood Community Mobility Rituals programs. (Med. Term)

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Regulations and Plans Strategies

R.1: Update and Expand Burlington's TDM Requirements

Recommended Action Steps:

1. Begin drafting a points-based TDM ordinance.
2. After finalizing the ordinance structure, begin developing TDM program guidelines to support successful implementation.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Regulations and Plans Strategies

R.2: Adopt a Commute Trip Reduction (CTR) Ordinance

Recommended Action Steps:

1. Begin developing a CTR framework.
2. Draft and adopt the CTR ordinance.
3. Develop TDM program guidelines to support successful implementation.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Regulations and Plans Strategies

R.3: Adopt Neighborhood-Based TDM Plans Using the Neighborhood TDM Framework

Recommended Action Steps:

1. Building on lessons learned through the Old North End neighborhood TDM planning effort, begin implementing the TDM framework process through City-led planning efforts.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Regulations and Plans Strategies

R.4: Adopt a Framework for Creating Parking Benefit Districts (PBDs)

Recommended Action Steps:

1. Develop and adopt a PBD ordinance.
2. If and when priced parking expands to new parts of the city, collaborate with local stakeholders to implement PBDs.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Regulations and Plans Strategies

R.5: Update the Residential Parking Permit (RPP) Program

Recommended Action Steps:

1. Review the residential permit pricing structure and program management/operating costs.
2. Tie RPP permits to Transportation Demand Management (TDM) programs.
3. As space allows, incorporate an employee permit option.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Regulations and Plans Strategies

R.6: Develop and Implement a Downtown Public Realm Safety Plan

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium & long term

Recommended Action Steps:

1. Conduct a safety audit for downtown to assess current conditions and identify areas for improvement.
2. In partnership with the Police Department, Parking Services, Public Safety Committee, and Downtown Burlington, develop and implement safety improvements.
    - Improved lighting and streetscape/landscape treatments near public parking facilities, including the Downtown Garage and the Marketplace garage.
    - An ambassador program that deploys staff in the downtown area to monitor and respond to safety issues at priority locations and times of day, or offers to escort people to or from their vehicle upon request.As space allows, incorporate an employee permit option.

Management and Funding Strategies

M.1: Hire or Designate a TDM Program Manager/Coordinator

Recommended Action Steps:

1. Designate a TDM coordinator at the City of Burlington. (Near Term)
2. As funding allows, hire a full-time TDM coordinator at the City. (Med. Term)

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Management and Funding Strategies

M.2: Expand Funding Sources for TDM

Recommended Action Steps:

1. Review existing local revenue sources, including parking revenue and impact fees, to confirm eligibility and feasibility for funding TDM programs. (Near-Med. Term)
2. Establish an annual TDM program budget and allocate funding from existing revenue sources. (Near-Med. Term)
3. After designating a TDM program manager, pursue state and federal TDM grant opportunities to fund TDM pilots and programs. (Long Term)

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near, medium & long term

Management and Funding Strategies

M.3: Formalize and Expand Burlington's Partnership with CATMA

Recommended Action Steps:

1. Form a working group and hold monthly coordination meetings with City of Burlington and CATMA staff.
2. Identify and formalize goals, roles, and responsibilities, and memorialize in a Memorandum of Understanding.
3. Periodically evaluate the impact of partnership by collectively reviewing the success of TDM initiatives and adjust strategies as needed.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Management and Funding Strategies

M.4: Expand Public Advisory Roles for Non-Driving Transportation Issues and Needs

Recommended Action Steps:

1. Review scope and responsibilities for the Walk | Bike council.
2. Ensure that a new or expanded council includes diverse representation of the community.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Neighborhood TDM Strategies

N.1: Establish a Public Bicycle/Electric Bicycle Lending Library

Recommended Action Steps:

1. Identify partners and develop an operating plan.
2. Identify a central location for the library.
3. Promote the bike library. Integrate information about the library in citywide marketing materials and with community partners.

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near & medium term

Neighborhood TDM Strategies

N.2: Establish Community-Based Mobility Hubs and Delivery Hubs

Recommended Action Steps:

1. Pilot the community-based hub concept in the Old North End neighborhood.
2. Coordinate with community organizations in the Old North End to increase awareness about the hub and identify programming opportunities for the space, such as special events and service/resource distribution.
3. After 1 year, evaluate the impact of the hub and modify the approach as needed for application in other neighborhoods throughout Burlington.

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Medium term

Neighborhood TDM Strategies

N.3: Expand Burlington's "Walk to Shop" Shopping Trolley Program

Recommended Action Steps:

1. Include funding for shopping trolley distribution as part of neighborhood TDM implementation.
2. Explore the establishment of shared, neighborhood trolley libraries to facilitate convenient transportation of groceries and goods.

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Neighborhood TDM Strategies

N.4: Implement a "Bus Buddies" Transit Rider Education Program

Recommended Action Steps:

1. Form a "Bus Buddies" working group that includes GMT and community-based organizations who work with populations that may benefit from the program.
2. Develop and implement a training course for bus buddy volunteers to help them effectively support program participants.
3. Begin operating the program. Regularly gather input and feedback from bus buddy volunteers and from program participants to identify gaps in the program. Augment training as needed.

STRATEGY AT A GLANCE	
CITYWIDE:	
NEIGHBORHOOD:	✓
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Near term

Neighborhood TDM Strategies

N.5: Pilot a Neighborhood Transportation Wallet Program

STRATEGY AT A GLANCE	
CITYWIDE:	✓
NEIGHBORHOOD:	
RELATIVE COST:	$ $ $ $
TIMEFRAME:	Long term

Recommended Action Steps:

1. Identify funding and develop a budget for the transportation wallet pilot program.
2. Identify eligibility criteria and a pilot area to test the mobility wallet.
3. Coordinate with local community-based organizations and residents within the study area to identify mobility needs and desired benefits to include in the wallet.
4. Develop a price structure that includes “base” and “affordable” options.
5. Evaluate preferred format and technology options for distributing and managing the wallet.
6. Define equity-driven pilot evaluation criteria.
7. Based on pilot evaluation, consider opportunities to refine or expand the program.

Strategies Prioritization

Based on the recommended timeframes, budget realities and community priorities, the following strategies are recommended for a first phase of implementation, to be completed in 2025:

1. **Update and expand Burlington's TDM requirements.** Adopt a point-based requirement structure that includes additional TDM measures and provides flexibility for developers.
2. **Adopt a Commute Trip Reduction (CTR) Ordinance**, including amendments to Institutional Parking Plan requirements.
3. **Adopt neighborhood-based TDM plans** using the neighborhood TDM framework (New North End).

Next Steps

planBTV: New North End

- Neighborhood TDM Frameworks for 3-4 sub-areas
- Neighborhood Mobility Hub Conceptual Planning

Mobility and Transportation Innovations (MTI) Grant

- Funding for Mobility Hub Guidebook
- Funding for conceptual design and implementation of a pilot Mobility Hub in Burlington's Old North End neighborhood

SECORD (South End Coordinated Redevelopment)

- Goal to create one or two Mobility Hubs that can facilitate the City's and its partners' goal of creating a car-light urban district in Burlington's South End

THANKS!

Charles Dillard

Principal Planner/Interim Director

City of Burlington Office of City Planning

cdillard@burlingtonvt.gov

City of Burlington
Department of Public Works

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

Memo

Date: February 20, 2025

To: Transportation, Energy, and Utilities Committee (TEUC)

From: Julia Ursaki, PE, Public Works Engineer
Phillip Peterson, PE, Senior Transportation Planner

CC: Chapin Spencer, Director of Public Works
Laura Wheelock, PE, City Engineer/Division Director – Technical Services

Subject: Battery Street Scoping Study Preferred Alternative Approval

---

Request:
We are respectfully requesting that the TEUC approve the following motion:

> The TEUC approves and recommends that the City Council approves the Battery Street Scoping Study Project Advisory Committee's selection of revised Alternative 2 as the preferred alternative for this study.

Follow-up from the January TEUC Meeting

Based on direction from the TUEC at the January 28, 2025 meeting, the Battery Street Scoping Study project team:

- Revised the Alternative 2 graphic to show
  - Parking on both sides of the street between King Street and Main Street
  - Retaining the existing pull-off area in front of the Mariott Hotel
  - Left turn pockets for turning into the hotels between College and Cherry Street
- Updated the report to include more narrative around the engagement with April Cornell and subsequent changes to the design
- Reached out to April Cornell describing the design changes made to Alternative 2 to accommodate their concerns
- Met with Jak Tiano to discuss his comments from the January meeting about protected bike lanes and the planning process in general

- Added narrative to the report about the intent to use the green space in the design to manage and treat stormwater along this corridor

The updated draft report is attached. As we wrap up this multi-year planning initiative, it is a good time to acknowledge the Chittenden County Regional Planning Commission for their ongoing support of Burlington's transportation planning initiatives and the advisory committee members who spent many hours contributing valuable feedback along the way.

Recognizing that the overall recommendations are large and will take many years to implement, staff has already been working on how to make some interim improvements. Staff has submitted a request to the Chittenden County Regional Planning Commission as part of the City's FY'26 Unified Planning Work Program application that would fund additional planning and design for lower-cost interim improvements along the corridor.

Feel free to reach out to DPW staff prior to the upcoming meeting with any questions.

Attachments

1. Executive Summary
2. Draft Report and Appendices



Battery Street Scoping Study

Burlington, Vermont

PREPARED FOR

Chittenden County RPC
Communities Planning Together

110 West Canal Street
Suite 202
Winooski, VT 05404
802.846.4494

PREPARED BY

vhb

40 IDX Drive
Building 100, Suite 200
South Burlington, Vermont 05403
802.497.6100

FEBRUARY 2025

Table of Contents

1 Introduction 1

1.1 Project Overview 2
1.2 Project Purpose and Need 3
1.2.1 Project Purpose 3
1.2.2 Project Needs 3

2 Existing Conditions 5

2.1 Study Corridor Description 6
2.2 Land Use & Zoning Characteristics 7
2.3 Transportation System Characteristics 8
2.4 Existing Traffic Conditions 12
2.5 Crash Data Inventory 13
2.6 Key Destinations 14
2.6.1 Destinations 14
2.7 Review of Previous Studies 15
2.7.1 2024 Northern Waterfront Connections 15
2.7.2 2023 Amtrak Connections 15
2.7.3 2022 Chittenden County Active Transportation Plan Update 15
2.7.4 2020 Railyard Enterprise Project (REP) Supplemental Scoping 16
2.7.5 2017 planBTV Walk Bike Master Plan 16
2.7.6 2016 Great Streets Initiative 16
2.7.7 2013 planBTV Downtown and Waterfront Plan 16
2.7.8 2011 Transportation Plan for the City of Burlington 17
2.8 Review of Ongoing Projects and Studies 17
2.8.1 Railyard Enterprise Project (REP) 17
2.8.2 Main Street Great Streets Project 17
2.8.3 CityPlace Burlington 18
2.8.4 Champlain Parkway 18
2.8.5 Great Streets Project - Bank and Cherry Street 18

3 Public Outreach 19

3.1 Public Involvement Plan 20
3.2 Project Advisory Committee 20
3.2.1 Advisory Committee Meeting #1 21
3.2.2 Advisory Committee Meeting #2 21
3.2.3 Advisory Committee Meeting #3 22
3.2.4 Advisory Committee Meeting #4 22
3.3 Local Concerns Meeting 23
3.4 Draft Alternatives Meeting 24
3.5 Burlington Transportation, Energy and Utilities Committee (TEUC) 24
3.6 ArcGIS StoryMap and Public Surveys 25

3.7 Targeted Outreach 27
3.7.1 One-on-One Meeting with April Cornell – January 23, 2024 27
3.7.2 One-on-One Meeting with Burlington Bay – January 26, 2024 28

4 Alternatives Analysis 29

4.1 Conceptual Alternatives: Considerations 30
4.1.1 Road Diet 30
4.1.2 Bicycle Facilities 30
4.1.3 Pedestrian Accommodations at Intersections 31
4.1.4 On-Street Parking 32
4.1.5 Traffic 33
4.1.6 Traffic Analysis 33
4.1.7 Streetscape & Stormwater Management 33
4.2 Alternative 1: One-Way Separated Bike Lanes 34
4.2.1 Active Transportation & Parking 34
4.2.2 Traffic Analysis 34
4.2.3 Alternative 1 Summary 35
4.3 Alternative 2: Two-Way Separated Bike Lanes 37
4.3.1 Active Transportation & Parking 37
4.3.2 Traffic Analysis 37
4.3.3 Alternative 2 Summary 38
4.4 Alternative 3: A Hybrid Option – Two-Way Separated Bike Lanes (Maple Street to Main Street) and One-Way Separated Bike Lanes (Main Street to Sherman Street) 40
4.4.1 Active Transportation & Parking 40
4.4.2 Traffic Analysis 40
4.4.1 Alternative 3 Summary 41
4.5 Conceptual Cost Estimates 43
4.6 Alternatives Evaluation Matrix 43

5 Recommended Preferred Alternative & Implementation Plan 44

5.1 Recommended Preferred Alternative 45
5.1.1 Presentation to the Transportation, Energy, and Utilities Committee (TEUC) and Subsequent Revisions 46
5.1.2 Additional Considerations 46
5.2 Implementation Plan & Funding Opportunities 48
5.2.1 Proposed Implementation Timeline 48
5.2.2 Funding Opportunities 49

List of Tables

Table No.	Description	Page
Table 1	Existing Conditions Traffic Analysis	12
Table 2	Alternative 1 Traffic Analysis	35
Table 3	Alternative 2 Traffic Analysis	38
Table 4	Alternative 3 Traffic Analysis	41
Table 5	Alternatives Evaluation Matrix	43

List of Figures

Figure No.	Description	Page
Figure 1	Battery Street Looking North Toward the College Street Intersection	2
Figure 2	Project Study Area	6
Figure 3	Zoning Surrounding Project Extents	7
Figure 4	Two-Lane Configuration between Maple and King Street	11
Figure 5	Eastern and Northern Crosswalks at the College Street Intersection	11
Figure 6	Pedestrian Facilities	11
Figure 7	Bike Lane between Pearl and Sherman Street	11
Figure 8	Reported Crash Location Heat Map (2018 -2022 Crash Data)	13
Figure 9	Battery Park Paved Path	14
Figure 10	Sidewalk by April Cornell	14
Figure 11	Public Involvement Plan	20
Figure 12	Engagement at the Local Concerns Meeting	23
Figure 13	Engagement at the Draft Alternatives Meeting	24
Figure 14	StoryMap Cover Page	25
Figure 15	Tabling Pop Up at Western side of Cherry Street Intersection	27
Figure 16	Four-Lane Cross-Section between College and Cherry Street	30
Figure 17	FHWA Bikeway Selection Guide	31
Figure 18	Two-Way Separated Bike Lane	31

Figure 19 Maple Street Intersection 32
Figure 20 College Street Intersection 32
Figure 21 Number of Existing On-Street Parking Spaces between Maple and Main Street 32
Figure 22 50-Scale Layout Plan of Alternative 1 36
Figure 23 50-Scale Layout Plan of Alternative 2 39
Figure 24 50-Scale Layout Plan of Alternative 3 42
Figure 25 50-Scale Layout Plan of the Recommended Preferred Alternative 47

Appendices

A. Traffic Volume Data
B. Crash Data
C. Public Meeting Materials
D. Traffic Analysis
E. Supplementary Conceptual Alternatives
F. Supplementary Cost Estimates
G. Preferred Alternative Conceptual Plan

1

Introduction

The Battery Street Scoping Study examined the Battery Street corridor from Maple Street to Sherman Street to identify and prioritize a suite of short- and long-term transportation improvements that provide equitable, safe, low-stress, accessible transportation for all road users along this important north-south route that doubles as a gateway between the downtown and waterfront districts. Recognized in planBTV's Walk Bike Master Plan as a priority location for transportation improvements, Battery Street was previously reported as one of the top five streets in the city that survey respondents felt the least safe to walk or bike on. The recommendations identified in this study were arrived at through an extensive public and stakeholder engagement process, combined with an in-depth evaluation of relevant planning and design considerations of Battery Street.

1.1 Project Overview

The Battery Street Scoping Study was conducted by VHB and the Chittenden County Regional Planning Commission (CCRPC) in coordination with the City of Burlington Department of Public Works (City). The primary objective of the study was to identify and prioritize improvements along the Battery Street corridor to better and more safely accommodate all roadway users. Key goals included, improving safety and accessibility for all users and strengthening connections to adjacent parks and businesses. To achieve these goals, the project team conducted a thorough review of existing conditions, solicited and incorporated public and stakeholder input, performed a comprehensive alternatives analysis, and ultimately developed a preferred concept plan.

The study area runs approximately 3,100 feet (0.58 miles) along Battery Street from Maple Street to Sherman Street. If brought forward into preliminary engineering design and eventual construction, the outcomes of this study are anticipated to significantly enhance the corridor's functionality and aesthetic appeal, transforming it into a truly multimodal corridor.

Figure 1 Battery Street Looking North Toward the College Street Intersection



Source: VHB

1.2 Project Purpose and Need

In line with the scope of work, the project team developed the following Purpose and Need Statement. This statement functions as the guiding principle for the work completed in the study.

1.2.1 Project Purpose

The purpose of the Battery Street Scoping Study is to identify and prioritize short- and long-term improvements that provide equitable, safe, low-stress, and accessible transportation for all along and across Battery Street, regardless of age, ability, or mode of travel.

1.2.2 Project Needs

The needs for this project are driven by deficiencies in Battery Street's current transportation infrastructure and by a need for comprehensive corridor planning. These requirements are further articulated below:

- **Improve corridor and intersection safety for all users:** Over the five-year period from 2018 to 2022, there were 216 crashes along the Battery Street corridor, with over 80% of these crashes occurring at intersections. Along Battery Street's four-lane section, the most common crash type was rear-ending incidents. There were nine injury-related crashes involving vulnerable users, with five involving pedestrians and four involving bicyclists. Among several factors, Battery Street's wide cross-section leads to high speeds, and its variable lane configurations lead to driver confusion at the areas of highest consequence – intersections.
- **Enhance comfort and accessibility for pedestrians along Battery Street:** Battery Street represents the downtown core's western boundary and functions as a barrier between the waterfront and downtown for pedestrians traveling between these popular destinations. The street's four-lane cross-section creates lengthy crossings for people on foot and/or using mobility-aid devices. Published in 2016, Burlington's Great Streets Standards establish a Modal Hierarchy to guide the design of downtown's streets, with pedestrian travel taking priority over all other modes.
- **Provide end-to-end bicycle facilities and connections:** Currently, Battery Street contains one two-block-long striped bike lane between Pearl Street and Sherman Street northbound only. In Burlington's Walk Bike Master Plan, "planBTV Walk Bike", Battery Street was identified by City residents as a top 5 "worst" street for walking and biking. In addition, planBTV Walk Bike identified Battery Street as a corridor in need of protected (separated) bike lanes. Moreover, there are several designs ongoing or completed designs that include bicycle facilities that will connect into or across Battery Street. These efforts include a shared-use path proposed by the Railyard Enterprise Project and separated bike lanes designed for Main Street and North Champlain Street.
- **Integrate street ecology into Battery Street's overall design:** Battery Street's proximity to Lake Champlain and steep topography emphasize the need for critical street ecology improvements. Additionally, like most of the downtown core, Battery Street is in Burlington's Combined Sewer Area. In its current condition, Battery Street lacks any stormwater management practices. Additionally, it has large areas of impervious surfaces within the right-of-way, but outside of the motor vehicle travel way, like the wide sidewalks that abut

building fronts. In line with the City's goals of easing the burden on the combined system, and to be in line with Burlington's Great Streets standards, Battery Street needs to better integrate sustainable street ecology and stormwater management practices.

› **Provide acceptable mobility for all modes of transportation along Battery Street:** While Battery Street represents a critical north-south commuter route for motorists, the use of its transportation right-of-way disproportionately favors the driving population. Along the full length of the project corridor, over one-half of this right-of-way – and in some cases more than two-thirds – is occupied by paved surfaces that exclusively serve drivers and motor vehicle use. While the existing sidewalks stretch the full length of the corridor, they are, for the most part, designed to the minimum standard, and in some locations share lengths of spaces with motor vehicles. Additionally, there is only one short stretch of striped bike lane along the full corridor. There is a need to provide a more equitable use of space for walkers and bikers, while not significantly compromising Battery Street as a commuter route.

2

Existing Conditions

The first step of the Battery Street Scoping Study was to identify the existing transportation and land use conditions along the project corridor to identify issues and opportunities to be addressed through the Study. This section includes an evaluation of the corridor's existing and future land use characteristics, existing transportation infrastructure, existing and projected traffic flows, historic safety data, and a review of relevant studies and projects within or proximate to the study area.

2.1 Study Corridor Description

The 0.58-mile study corridor is located along Battery Street with a northern terminus at Sherman Street and a southern terminus at Maple Street. Battery Street is classified as a Principal Arterial and serves as a key north-south route connecting Burlington's residents to destinations and neighborhoods within the city while also transporting commuters into and out of the city. The corridor is used by approximately 15,500 vehicles per day and is a major corridor for Tri-Valley Transit, Vermont Translines, and four Green Mountain Transit (GMT) routes: the City Loop, Shelburne, Pine Street, and Williston.

The full project study corridor is shown in **Figure 2** below.

Figure 2 Project Study Area



Source: VHB.

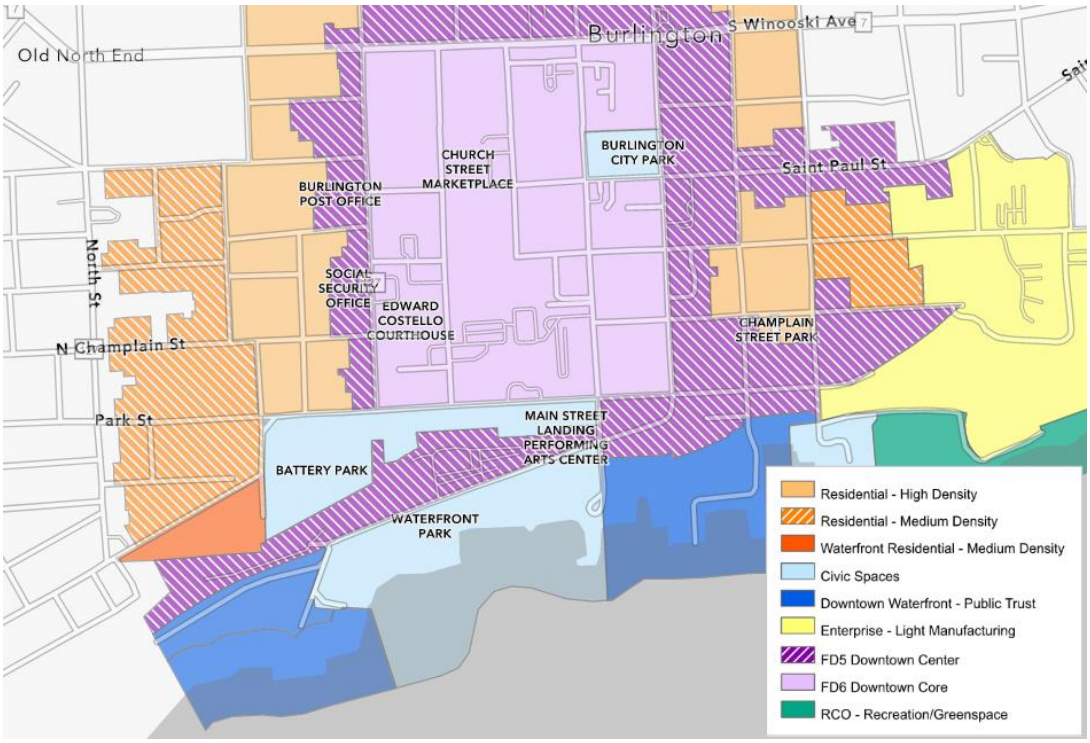
2.2 Land Use & Zoning Characteristics

The land use along the corridor varies significantly from north to south. To the north, development density is lower with a prevalence of single-family homes and duplex-style apartment buildings. Moving south, the terrain slopes downward and development transitions to 5 to 7-story mixed-use residential and office buildings lining the east side of the corridor. On the west side, there is ample public space, notably Battery Park. The southern segment features 3-story residential buildings.

The northern terminus of the corridor is in a medium or high-density residential zoning district. Further south, the east side of the corridor is in a FD5 Downtown Center, transitioning into the FD6 Downtown Core, before reverting back to FD5 Downtown Center near the southern terminus. The west side of the corridor is public space, and then transitions into FD5 Downtown Center.

Future growth and developments along Battery Street are dictated by Burlington's Comprehensive Development Ordinance (CDO), administered by the Zoning Division of the Department of Permitting & Inspections, ensuring that changes align with the city's planning framework.

Figure 3 Zoning Surrounding Project Extents

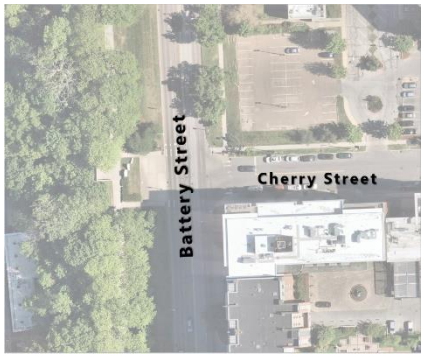


Source: CCRPC.

2.3 Transportation System Characteristics

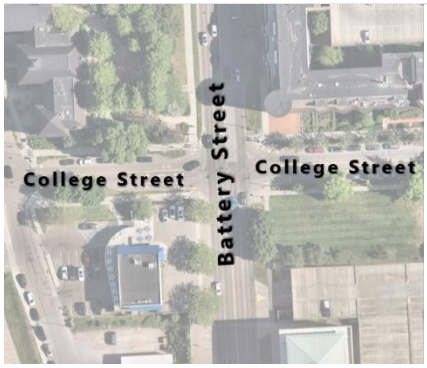
The following section summarizes the relevant transportation system characteristics of Battery Street through the project area. Existing conditions identified as part of this study include daily traffic volumes, roadway geometry, multimodal facilities, and other roadway elements.

Functional Classification:	Principal Arterial
Right of Way (ROW):	6-ROD (100 feet)
2022 Annual Average Daily Traffic (AADT):	15,500 vehicles per day
Study Intersection Geometry:	
	**Park Street & Sherman Street** Four-way signalized intersection with Park Street having two southbound travel lanes and Sherman Street having one westbound travel lane on the east leg of the intersection and one lane in each direction on its west leg. Park Street has one northbound travel lane that is left-only onto Sherman Street that shortly thereafter melds into North Avenue. An eastbound slip lane allows for vehicles turning right onto Battery Street from Sherman Street. There are signalized pedestrian crosswalks across Park Street to the north and the west leg of Sherman Street. There is also a short crosswalk across the east leg of Sherman Street that is currently lacking a pedestrian signal head.
	**Park Street/Battery Street & Pearl Street** Three-way signalized intersection with Park Street's southbound approach having one left turn lane and one through lane, while Battery Street's northbound approach has one through lane and one right turn lane. Pearl Street has one left and one right turn lane approaching Battery & Park Streets. There are signalized pedestrian crosswalks across all three sides of the intersection.



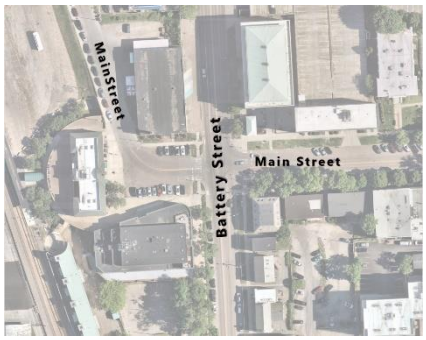
Battery Street & Cherry Street

Three-way signalized intersection with Battery Street's southbound approach having one shared left and through lane and one through lane, while its northbound approach has one shared through and right lane and one through lane. Cherry Street has one lane in each direction. Each leg of the intersection has signalized pedestrian crosswalks.



Battery Street & College Street

Four-way signalized intersection with Battery Street's southbound approach having one shared left and through lane and one shared through right lane, while its northbound approach has one shared through and right lane and one shared through and left lane. College Street's westbound approach has one lane in each direction, while its eastbound approach has an exclusive left turn lane and one shared lane for through and right turning traffic. Each leg of the intersection has signalized pedestrian crosswalks.



Battery Street & Main Street

Four-way signalized intersection with Battery Street's southbound approach having an exclusive left lane and one shared through and right lane, while its northbound approach has two lanes, one for through and left turning traffic and another for through and right turning traffic. Main Street's eastbound and westbound approaches have one lane for through and left traffic and another for right turning traffic. All legs of the intersection have signalized pedestrian crosswalks.



Battery Street & King Street

Four-way signalized intersection with the eastbound King Street approach having a shared left and through lane and exclusive right turn lane. All remaining legs have one lane in each direction. All sides of the intersection have signalized pedestrian crosswalks.



Battery Street & Maple Street

Four-way signalized intersection with all legs having one lane in each direction except Maple Street's westbound approach which has one lane for right turning traffic and one lane for through and left turning traffic. All legs of the intersection have signalized pedestrian crosswalks.

Pedestrian Facilities:	› Five-foot concrete sidewalks on both sides of the street from Sherman Street to Pearl Street. Continues on east side on from Pearl Street to Maple Street. Street trees are placed on road edges separating the sidewalks from roadway › Eight-foot concrete shared use path on the west side of Battery Street along Battery Park from Pearl Street to College Street. › Five-foot concrete sidewalks continue from College Street to Maple Street (**Figure 6**). › Crosswalks exist at all legs of every signalized intersection. Additionally, there is a marked crosswalk at the Park Street & Monroe Street intersection.
Bicycle Facilities:	› Northbound bike lane from Pearl Street to Sherman Street (**Figure 7**), which then continues down Sherman Street to North Avenue. › *It is also worth noting that during reconstruction of the Burlington Greenway, two-way separated bike lanes were installed in a temporary condition between Maple Street and Main Street in place of on-street parking. Feedback from nearby businesses indicated that this configuration was challenging, especially for customers with ADA needs.*

Figure 4 Two-Lane Configuration between Maple and King Street



Source: VHB

Figure 5 Eastern and Northern Crosswalks at the College Street Intersection



Source: VHB

Figure 6 Pedestrian Facilities



Source: VHB

Figure 7 Bike Lane between Pearl and Sherman Street



Source: VHB

2.4 Existing Traffic Conditions

Traffic was simulated using existing lane counts and types, traffic signal timing and phasing, and pedestrian handling to determine existing operations. At Design Hour Volumes, all intersections currently operate at LOS B or C. The average network speed, which includes time waiting at red lights, is 15 mph.

Table 1 Existing Conditions Traffic Analysis

Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St.....	15.3
Battery St & Pearl St.....	23.0
Battery St & Cherry St.....	11.2
Battery St & College St.....	22.9
Battery St & Main St.....	17.5
Battery St & King St.....	12.4
Battery St & Maple St.....	15.2
Corridor End to End	
Network Delay (s)	67.3
Average Network Speed (mph)	15
End-to-End Travel Time, NB (mins, s)	2:52
End-to-End Travel Time, SB (mins, s)	2:24

2.5 Crash Data Inventory

A review of reported crashes along the study corridor was conducted for the most recent five-year period that data was available (2018-2022). During this time, there were 216 reported crashes, with five of them involving pedestrians and four of them involving cyclists. 80% of the crashes along this corridor are concentrated at intersections. The intersections with the most frequent crashes are at College Street and at Main Street. Among several factors, Battery Street's wide cross-section leads to high speeds, and its variable lane configurations lead to driver confusion at the areas of highest consequence – intersections.

The distribution of reported crashes along the corridor is shown in **Figure 8** below in a heat map that displays the density of the crashes. Additionally, the crashes involving a pedestrian or cyclist are shown in red and orange symbols.

Figure 8 Reported Crash Location Heat Map (2018 -2022 Crash Data)



Source: VHB.

2.6 Key Destinations

2.6.1 Destinations

The Battery Street corridor includes a variety of destinations that serve residents and visitors:

- **Sherman Street to Cherry Street:** The east side of Battery Street in this segment is primarily residential, aside from Simon's Gas Station and the Cathedral Church of St. Paul. On the west, Battery Park is a sizeable public park with placemaking features across from Pearl Street. The Battery Park Extension provides a tree-lined linear park with a wide sidewalk running south from Battery Park along the corridor, offering a viewpoint of Lake Champlain across from Cherry Street.
- **Cherry Street to College Street:** This segment includes hotels such as Courtyard Marriott, Hotel Champlain, and Hotel Vermont. There is also an access drive to the Downtown Parking Garage on the east side of Battery Street. Battery Park Extension continues along the west side, and an informal trail across from Hotel Champlain connects down to the southeast corner of the 112 Lake Street parking lot.
- **South of College Street:** This area hosts a range of businesses, including Burlington Bay, April Cornell and Shanty on the Shore. The College Street and Main Street intersections with Battery Street provide the primary pedestrian access to the Burlington Waterfront, a key destination featuring Waterfront Park, the ECHO Museum, the Moran Frame, A_Dog Skatepark, Foam Brewers, Skinny Pancake, and other attractions.

Figure 9 Battery Park Paved Path



Source: VHB.

Figure 10 Sidewalk by April Cornell



Source: VHB.

2.7 Review of Previous Studies

2.7.1 2024 Northern Waterfront Connections

In 2024, the CCRPC, the City of Burlington Community & Economic Development Office (CEDO), Office of Planning, and DPW conducted the Northern Waterfront Connections Study (NWCS): An alternatives analysis for a new pedestrian route to better connect the downtown core and to the northern waterfront. The study emphasized that Battery Street would greatly benefit from enhanced pedestrian connections between the downtown core and the waterfront. The proposal included a direct staircase, which would significantly shorten the current 2,200-foot route from Battery Street to Waterfront Park.

2.7.2 2023 Amtrak Connections

In 2023, a review of Amtrak's Connections to and from Union Station was performed culminating in a series of recommendations to help create more seamless multimodal connections for the Amtrak users it serves. The following improvements were identified in the report which are relevant to the Battery Street Scoping Study:

- Pedestrian level lighting enhancements along Battery Street, and specifically at bus shelters.
- A parking wayfinding sign at the Battery Street entrance to the Downtown Garage.
- Audible/vibrotactile push buttons and detectable warning surfaces at all crossings/corners of Battery Street.
- Dedicated bike infrastructure and improved pedestrian facilities, connecting Union Station to other destinations in the city.
- The shortening of crossing distances along and across Battery Street.

2.7.3 2022 Chittenden County Active Transportation Plan Update

In 2022, the Chittenden County Active Transportation Plan was updated to provide a region-wide plan for existing and future bicycle and pedestrian facilities and programs which served as the active transportation element of the CCRPC's long-range Metropolitan Transportation Plan (MTP). As a higher-level review of active transportation, Battery Street was not explicitly mentioned though the City of Burlington was largely shown as a hot spot for active transportation. The update culminated in the following program and policy recommendations:

- **Equity:** Increase equitable access to transportation networks.
- **Encouragement:** Promote a culture of walking and bicycling.
- **Connectivity and Economic Development:** Provide safe and comfortable active transportation routes to support access to jobs, training, education, and childcare.
- **Mode Shift:** Make it easier for people to choose low-carbon transportation modes.
- **Maintenance:** Maintain a safe active transportation network throughout the winter by proactively managing walking and bicycling facilities before, during, and after winter precipitation.

2.7.4 2020 Railyard Enterprise Project (REP) Supplemental Scoping

In 2020, the Railyard Enterprise Project was developed to address multimodal safety, mobility, and operational transportation issues and also to advance economic development opportunities in the Southern Waterfront area of Burlington by improving access and mobility through new urban streets. The study focused on connecting Pine Street and Battery Street. The Burlington City Council voted to accept the REP Supplemental Scoping report, and to direct the Department of Public Works to seek State and Federal funds to advance the preliminary engineering for the REP Phase 2 Alternatives 1B, 2, and 5B on June 29th, 2020.

2.7.5 2017 planBTV Walk Bike Master Plan

In 2017, planBTV's Walk Bike Master Plan was developed to provide background on the planning process, examine existing conditions, and make recommendations for ways Burlington can improve its pedestrian and bicycle conditions. In the report, Battery Street is identified as a priority location after it was reported to be one of the five streets that feel most unsafe for walking and biking by a pool of 500 residents of all ages. In another survey distributed by Local Motion, Battery Street was identified as one of the five priority locations for the addition of protected bike lanes. The report suggested Battery Street Complete Streets upgrades be considered for federal funding to improve its pedestrian and bicycle conditions.

2.7.6 2016 Great Streets Initiative

The Great Streets initiative was developed in 2016 to support the City's "great streets" goals. The initiative states that to have a great streets system, the City's transportation infrastructure will strive to merge seamlessly with public parks, plazas, the built environment, pathways, and open spaces. As a primary street running north to south in Burlington, Battery Street received its own set of design considerations including studying the potential expansion of Battery Street south through the rail yard to Pine Street and supported the addition of important bike and pedestrian connections from the terminus of Main Street at Union Station to the Waterfront. Any reconstruction of Battery Street will use the Great Street Standards to provide a cohesive character to Burlington's Downtown.

2.7.7 2013 planBTV Downtown and Waterfront Plan

The 2013 planBTV Downtown and Waterfront Plan provided a summary of the studies done to inventory and assess existing conditions and identify primary needs in Burlington. The following improvements were identified in the report which are relevant to the Battery Street Scoping Study:

- Explore possibility of constructing parking garage below Battery Street.
- Improved facilities along Battery Street to support transit, bicycles, and pedestrians.
- Planned conversion of Battery Street into a shared street where pedestrians and cyclists have legal priority over motorists.
- Improved stormwater management to capture runoff from Battery Street prior to traveling over the slope to Lake Champlain.
- To sink the Pearl Street Overlook to open views to the lake and mountains beyond.

2.7.8 2011 Transportation Plan for the City of Burlington

The 2011 Transportation Plan for the City of Burlington conveyed Burlington's long-term transportation vision and described intermediate-term strategies for attaining its vision. The plan mentions Battery Street briefly to advise that improvements on this street be done consistently with the Complete Streets model and that a waterfront parking pricing pilot project help provide matching funds for the improvements.

2.8 Review of Ongoing Projects and Studies

2.8.1 Railyard Enterprise Project (REP)

The REP as discussed in the REP Supplemental Scoping review has proposed a new railway connecting Pine Street and Battery Street in support of the Complete Streets principles to:

- Support economic development in the area.
- Improve the livability of the surrounding neighborhoods
- Enhance the multimodal travel connectivity between the Pine Street corridor and Battery Street in the Burlington Waterfront South area
- Improve the intermodal connections to the Burlington Railyard, a National Highway System (NHS) designated intermodal facility.

Since the Supplemental Scoping study, the City Council has approved the selection of Alternative 1B as the Preferred Alternative for the REP. The Federal Highway Administration approved the project's Environmental Assessment (EA) and Individual Section 4(f) Evaluation on February 2nd, 2024. Construction is expected to start in late 2027 or 2028, depending on the amount of time needed for right-of-way acquisition, and the project's ability to gain funding.

2.8.2 Main Street Great Streets Project

The Main Street Great Streets Project is an ongoing project designed to balance all the road uses for long-term sustainability, ensuring that renovations and improvements can be responsibly maintained for decades to come.

The project includes the following elements on Main Street:

- **Improved sidewalks and implementation of bike facilities:** Separate sidewalks from road with 8-foot tree belt, and protected bike lanes.
- **Re-allocation of City ROW:** Change 50-75% of space between buildings from vehicular access to 60% for non-vehicular purposes.
- **Converting diagonal pull-in parking to parallel:** Convert parking to parallel.
- **Increased and flexible frontage zones:** For bike parking, outdoor café seating, public art.
- **Green infrastructure / low impact development design:** Stormwater improvements.
- **Road Diet and intersection safety improvements:** Roadway space and lane configurations were reduced in the interest of designing the roadway to encourage slower driver speeds. Consistent pedestrian phasing was designed at the signalized intersections.

2.8.3 CityPlace Burlington

CityPlace is a development project in Burlington designed to provide new apartments and hotel rooms contained in two hotel buildings in the city. The development will replace the Burlington Town Center Mall and re-establish Pine and St. Paul Street as north-south streets. In addition to restoring the city gird, the development has promised to add wider sidewalks, and advanced stormwater management.

2.8.4 Champlain Parkway

The Champlain Parkway project is the creation of a two-lane, 25 mph road for pedestrians, cyclists, visitors, and residents. It is designed to connect the South End with downtown to alleviate traffic on neighborhood streets. The streetscape will feature stormwater improvements, buried utility lines, and pedestrian actuated signalization. Construction is currently ongoing and expected to be completed by 2026.

2.8.5 Great Streets Project - Bank and Cherry Street

Rebuilding Bank Street and Cherry Street to the Great Streets Standards, including improved sidewalks and crosswalks, incorporating street ecology principles and providing more streetscape amenities. This project will reconstruct he Battery and Cherry Street intersection. Construction is anticipated to start in 2027.

3

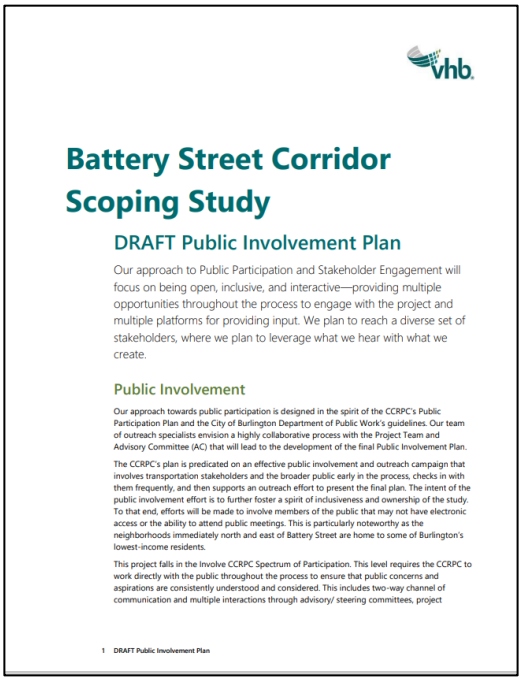
Public Outreach

A robust public outreach process was conducted by engaging a diverse group of stakeholders on the project Advisory Committee and providing ample opportunities for public input over the course of the study's development. A Public Involvement Plan (PIP) was created prior to engagement to guide the project through outreach and ensure the project stayed on track. Three public meetings were held for this project, including an initial Local Concerns Meeting, the Draft Alternatives Presentation, and a Final Public Meeting. Before bringing materials to the public, the Advisory Committee was convened to ensure all necessary components were considered and that the Purpose and Needs of the project were being met. In addition to the public and Advisory Committee meetings, the project team solicited input through a survey and at tabling events

3.1 Public Involvement Plan

The Public Involvement Plan (PIP) for the Battery Street project prioritized an open, inclusive, and interactive approach to public participation and stakeholder engagement. It emphasized providing multiple opportunities and platforms for community involvement, aligning with the guidelines of the CCRPC and the City of Burlington's Department of Public Works. The PIP was a dynamic document that adapted to the needs of the project and provided an overview of what the project outreach would include. Key aspects included frequent engagement with transportation stakeholders and the broader public, using various tools such as online surveys, pop-up events, and targeted outreach to traditionally underserved groups. Public meetings were scheduled at critical project milestones to gather and incorporate community feedback, fostering a sense of ownership and inclusiveness. Advisory Committee meetings corresponded to major project phases, ensuring continuous collaboration and input from diverse community representatives. The plan aimed to reach a wide range of residents, including newcomers, immigrants, seniors, young people, and business owners, ensuring that public concerns and aspirations were consistently understood and considered throughout the project's development.

Figure 11 Public Involvement Plan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Battery Street Corridor Scoping Study

DRAFT Public Involvement Plan

Our approach to Public Participation and Stakeholder Engagement will focus on being open, inclusive, and interactive—providing multiple opportunities throughout the process to engage with the project and multiple platforms for providing input. We plan to reach a diverse set of stakeholders, where we plan to leverage what we hear with what we create.

Public Involvement

Our approach towards public participation is designed in the spirit of the CCRPC's Public Participation Plan and the City of Burlington Department of Public Work's guidelines. Our team of outreach specialists envision a highly collaborative process with the Project Team and Advisory Committee (AC) that will lead to the development of the final Public Involvement Plan.

The CCRPC's plan is predicated on an effective public involvement and outreach campaign that involves transportation stakeholders and the broader public early in the process, checks in with them frequently, and then supports an outreach effort to present the final plan. The intent of the public involvement effort is to further foster a spirit of inclusiveness and ownership of the study. To that end, efforts will be made to involve members of the public that may not have electronic access or the ability to attend public meetings. This is particularly noteworthy as the neighborhoods immediately north and east of Battery Street are home to some of Burlington's lowest-income residents.

This project falls in the Involve CCRPC Spectrum of Participation. This level requires the CCRPC to work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. This includes two-way channel of communication and multiple interactions through advisory/ steering committees, project

1 DRAFT Public Involvement Plan

Source: VHB.

3.2 Project Advisory Committee

The Project Advisory Committee was composed of a diverse group of stakeholders, including representatives from the following organizations and groups:

- **Burlington Department of Public Works (DPW)** | Laura Wheelock, Norm Baldwin
- **Burlington Parks, Recreation & Waterfront** | Sophie Sauvé
- **Burlington City Councilor Ward 2** | Gene Bergman
- **Burlington City Councilor Ward 6** | Karen Paul
- **Burlington Office of Racial Equity, Inclusion, and Belonging** | Phet Keomanyvanh
- **Burlington Office of City Planning** | Charles Dillard
- **Burlington Walk Bike Council** | Jonathon Weber
- **Burlington Ward 3 NPA** | Barbara Alsop and Ali Hamedani
- **Burlington Ward 5 NPA** | Terry Rivers
- **Burlington Business Association** | Kelly Devine
- **Green Mountain Transit** | Chris Damiani, Jamie Smith
- **Burlington DPW Commission** | Brendan Hogan

This committee served as an advisory body throughout the project, responsible for reviewing materials and concepts prior to their presentation to the public for review and comment. The Advisory Committee provided input and ultimately finalized the Purpose and Need statement, which formed the basis for all alternative concepts and evaluations. Additionally, the Advisory Committee contributed to the creation of a new alternative and recommended a preferred alternative for the corridor.

All meeting materials for the Advisory Committee meetings is provided in Appendix C.

3.2.1 Advisory Committee Meeting #1

The first Advisory Committee meeting was held on March 8, 2023. This meeting focused on introducing the project to the committee, explaining the role and responsibilities of the committee, providing an overview of the project scope, and offering an opportunity for a visioning exercise.

During the vision and goals portion of the meeting, participants discussed aspirations and challenges for the Battery Street corridor. The key concerns included speeding and unsafe conditions for pedestrians, particularly at the Main Street intersection, and the need for a more pedestrian and bike-friendly environment. Interest was expressed in rebalancing traffic space with pedestrians and bicyclists and enhancing public transit interfaces. There was also a vision of transforming the corridor into a boulevard-like street with safe green spaces and addressing neighborhood impacts, environmental justice, and connectivity to future developments. The goal was to create a safer, more inviting corridor that integrates various community uses and accommodates future growth.

3.2.2 Advisory Committee Meeting #2

The second Advisory Committee meeting was held on July 27, 2023. This meeting focused on an update of the Public Involvement Plan, an overview of the project StoryMap, a review of the draft Purpose and Need Statement, a discussion about the public input received, and a design charrette.

The team reviewed the public input received through various platforms, identifying key themes such as improved safety, enhanced pedestrian and bicycle facilities, and better community connectivity. These insights are shaping the project's direction, emphasizing the need for diverse user-friendly streetscape and transit accommodations.

A discussion on the draft Purpose and Need Statement involved making sure the statement supports safe, equitable, and accessible transportation, enhancing resilience and connectivity between downtown Burlington and the waterfront. This statement guides the development of alternatives for corridor improvements.

The meeting concluded with a mini design charrette where attendees brainstormed and conceptualized potential designs for the corridor. Key considerations included the incorporation of separated bike lanes, pedestrian-focused elements like median islands and diagonal crossings, and addressing accessibility features. The meeting underscored the importance of balancing transportation modes and integrating user-friendly, sustainable infrastructure while maintaining engagement with the community through ongoing public meetings and feedback sessions.

3.2.3 Advisory Committee Meeting #3

The third Advisory Committee meeting was held on April 24th, 2024. This meeting focused on draft alternatives and an overview of the public input received to date. It provided the opportunity to present the two alternatives to the committee to understand which would be more desirable to the community and meet the project's purpose and needs.

Following an overview of the alternatives, several refinements to each alternative were discussed. The committee shared their opinions on favorable and unfavorable elements of each alternative. The project team noted these items and shared that each alternative was open for refinement in pursuit of consensus around a preferred alternative.

At the conclusion of the meeting, the Advisory Committee was polled on which alternative they preferred. The poll resulted in a split vote and no clear consensus on a preferred alternative.

Through discussion, it was determined that a third alternative should be considered, which combines elements of both previous alternatives and transitions south of Main Street. The intention of the development of a third alternative was to explore whether a hybrid of the two developed alternatives would result in consensus around a single alternative.

3.2.4 Advisory Committee Meeting #4

The fourth and final Advisory Committee meeting was held on September 26th, 2024. This was an additional meeting to present the new alternative option and expand upon the refinements made to alternatives 1 and 2. The meeting sentiments reflected a mix of concerns mainly around bike facilities, safety, and parking options. Discussions leaned toward maintaining parallel parking on both sides of the street (Alternatives 2 and 3), with safety and traffic flow considerations. Safety enhancements at intersections, especially for bikers and pedestrians turning, were emphasized. Pedestrian-exclusive phases and their impact on congestion were discussed, with support for no right turn on red at signals noted. Speed limit enforcement and future growth capacity favored Alternative 2 over Alternative 1.

Following an overview of the newly developed Alternative 3 and the refinements made the Alternatives 1 and 2, the Advisory Committee voted in support of Alternative 2, with one vote being cast for Alternative 1. Overall, the Committee favored prioritizing safety, connectivity, and future-proofing the designs.

All Alternatives (also referred to as “Options”) can be found on the project website, linked here: https://www.ccrpcvt.org/our-work/transportation/current-projects/corridors-circulation/battery-street-corridor-scoping-study/

3.3 Local Concerns Meeting

A Local Concerns Meeting was held on May 2nd, 2023, to engage with the public at the onset of the project, introduce the project's objectives, and understand the corridor from the perspective of all users. The meeting began with a two-hour open house, during which members of the project team were available to answer questions and collect input from the community. Several informational boards displayed data and posed questions about the Battery Street corridor. Following the open house, the project team gave a brief presentation that provided an overview of the existing conditions along the corridor and concluded with questions aimed at gathering input from the community on desired improvements and how they would like to use the corridor. The meeting concluded with an hour-long public input session, during which attendees had the opportunity to ask the project team questions and provide feedback on the boards.

This input included:

- Desire for reduced traffic speeds
- Desire for the reduction of travel lanes
- Retaining existing parking to the best degree possible
- Feeling unsafe crossing Battery Street (as a pedestrian)
- Desire for protected bike facilities

The meeting agenda, presentations, and minutes can be found in Appendix C.

Figure 12 Engagement at the Local Concerns Meeting



Source: VHB.

3.4 Draft Alternatives Meeting

The Draft Alternatives Presentation was held on March 13, 2024. This meeting reviewed the project's progress to date, the project Purpose and Need statement, and provided an overview of Alternative 1 and Alternative 2. The attendees were provided with a brief presentation and the opportunity to engage with the project team and discuss the two different alternatives. Large prints of the two alternatives were placed on tables, allowing attendees to place post-it notes detailing what they liked or disliked about each alternative.

Figure 13 Engagement at the Draft Alternatives Meeting



Source: VHB.

This input included:

- General: Concerns about loss of parking
- General: Concerns about lane reduction
- General: Questions about bus stops and turning radii
- Alternative 1: Concerns of bicyclists going in the wrong direction
- Alternative 2: Concerns of the difference in speeds of bicyclists traveling downhill

The meeting agenda, presentations, and minutes can be found in Appendix C.

3.5 Burlington Transportation, Energy and Utilities Committee (TEUC)

The project team presented the study findings and recommended preferred alternative to the TEUC on January 28, 2025. Several comments were made by members of the public and TEUC members. Where necessary, the project team followed up with commenters after the meeting to discuss their concerns or requested revisions.

Any revisions made to the recommended preferred alternative based on comments made and subsequent discussions have been summarized in Section 5.1.2.

3.6 ArcGIS StoryMap and Public Surveys

In addition to in person engagement, a StoryMap was created to aid this study as public-facing tool to enhance community engagement and transparency throughout the planning process. The StoryMap provided a platform for stakeholders to explore project objectives and scope, review mapped data, including traffic, crash statistics, and zoning information. It also featured an interactive dashboard that provided users the opportunity to explore the results from the survey and input from the local concerns meeting summarizing public input and highlighting key takeaways.

The primary purpose of this tool was to inform and engage the public during the initial stages of project development, fostering early awareness and input before the release of this public-facing report.

Figure 14 StoryMap Cover Page



Source: VHB

In April 2023, a public survey was shared to gather input on potential improvements to the Battery Street corridor. Participants identified specific locations along the corridor where they observed issues or opportunities for improvement and their related mode of travel.

Feedback from this survey, along with input from the Local Concerns Meeting, was reviewed and synthesized into common themes. Respondents frequently emphasized the need for safety and accessibility improvements along the corridor. The distribution of comments by travel mode was as follows: 33% related to walking, 8% to crossing points, 31% to biking, 19% to driving, and 10% to other modes.

Key recurring themes included:

- Improved safety throughout the corridor and intersections
- Enhanced pedestrian accommodations
- Dedicated bicycle facilities

Additional survey data was provided by the City of Burlington, which included 125 responses to three open-ended questions on the topic of Battery Street issues and opportunities, echoed similar sentiments. These responses aligned with input gathered through the other engagement efforts.

The identified themes, combined with a detailed review of individual responses, informed the development of study recommendations.

Following the Draft Alternatives presentation, the City of Burlington published a survey to poll the general public on their preference for an alternative. The survey asked respondents to determine if they prefer Alternative 1, Alternative 2, both equally, or neither. 166 people responded and the results are listed below.

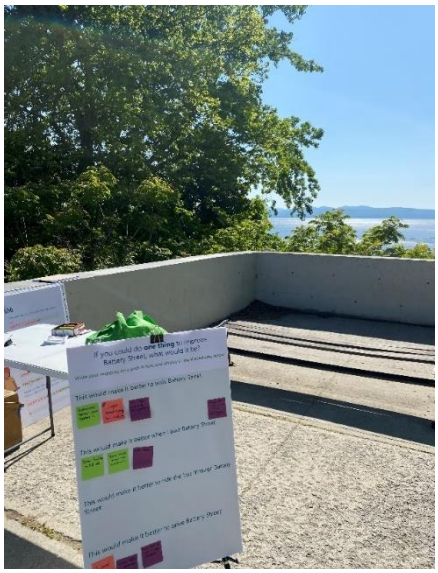
- Alternative 1: 50
- Alternative 2: 75
- Both Equally: 31
- Neither: 10

Additionally, there was a section to provide a short response to explain the reasoning behind their answer. Many respondents favored the two-way separated bike lanes on the west side of Battery Street for its safety and predictability for both cyclists and motorists, integration with the existing bike path, and simpler traffic flow. Cyclists preferred a straightforward route that avoids frequent stops and intersections, while drivers would appreciate knowing where to expect cyclists. This option was seen as a more efficient use of space and would potentially preserve green areas and on-street parking. However, some respondents favored bike lanes on both sides for better access to businesses, easier right turns, and this alternative being more “typical” (in terms of bike lane placement). Despite differing opinions, the consensus of the project team leaned toward Alternative 2 for increased safety and better traffic management.

It should be noted that this survey was released prior to the addition of Alternative 3.

3.7 Targeted Outreach

Figure 15 Tabling at Cherry Street



Source: VHB.

To ensure an inclusive and comprehensive approach to community engagement, the project team implemented targeted outreach strategies specifically designed to engage people who did not attend the public meetings and/or groups that may not typically participate in public meetings or complete surveys. In addition, there was outreach to particularly affected parcels. The events below detail the additional efforts made to connect with a diverse range of stakeholders. These outreach activities were aimed at maximizing community involvement and fostering an equitable engagement process:

- King Street Laundry Tabling – May 21, 2023
- Battery Street & Cherry Street Tabling – May 26, 2023
- Burlington Business Association – May 31, 2023
- WVMT Radio Interview – June 8, 2023
- Trusted Voices Community Group – July 25, 2023
- Study Options Review with April Cornell – January 23, 2024 (expanded upon below)
- Study Options Review with Burlington Bay – January 26, 2024 (expanded upon below)
- Burlington City & Lake Semester Students – February 20, 2024
- Burlington Business Association's Waterfront Action Group – March 14, 2024
- CCRPC Equity Advisory Committee presentation of alternatives – March 27, 2024

The input from community members during the tabling events reflected similar sentiments as the public meetings. There was a desire for separated bicycle facilities and reduction of vehicular lanes. The Burlington Business Association shared concerns around the loss of parking along the corridor which was heard during the public meetings as well as during the advisory committee meetings.

3.7.1 One-on-One Meeting with April Cornell – January 23, 2024

Members of the project team met with the owners of April Cornell at their store on January 23, 2024. Both Alternative 1 and 2 were reviewed in detail as they relate to April Cornell's storefront along Battery Street.

April Cornell expressed concerns over the loss of the angled parking in front of the store and the layout of Alternative 2, which had the two-way separated bike lanes close to their front door with little storefront activation space. The project team shared that as part of the originally drafted alternatives, space was included for on-street parallel parking in front of April Cornell in both alternatives. Additionally, as a result of this meeting, the project team revised Alternative 2 to include more sidewalk and frontage space for storefront activation in this block.

The current angled parking configuration is within the City right-of-way but has been maintained and stewarded by April Cornell since at least 2010. It has nine (9) striped angled parking spaces for customer parking and an additional four (4) unmarked spaces in the northern section. The unmarked spaces are typically used by staff for parking their vehicles parallel to Battery Street,

and bumper-to-bumper. The proposed parking in Alternatives 1 and 2 both have 8 on-street parallel parking spaces.

3.7.2 One-on-One Meeting with Burlington Bay – January 26, 2024

The project team also met with the owner of Burlington Bay at their restaurant on January 26, 2024 to review the alternatives. Their major concern with both alternatives was that only one curb cut was shown on Battery Street for their parking lot. The project team discussed the safety benefits of reducing the number of curb cuts, especially for people walking and biking and also possible reconfigurations of their parking lot to either gain additional parking spaces with one curb cut closed, or to increase the pedestrian realm near the ice cream windows as lines often extend into the parking lot.

Burlington Bay feels very strongly about keeping both curb cuts in the future regardless of the alternative chosen. This is reflected in the revised Alternative 2.

4

Alternatives Analysis

Following the preliminary public engagement process and existing conditions analysis, Conceptual Alternatives were developed for Battery Street. Each alternative was developed to meet the project's goals: enhancing safety, accessibility, and connectivity for all users, while supporting a vibrant and cohesive urban corridor linking Burlington's downtown with its waterfront. The alternatives considered various approaches to address the needs identified in the study, including improved pedestrian and bicycle infrastructure, adjustments to traffic flow, and integration of green stormwater practices.

The alternatives were compared based on several key metrics, including safety improvements, impacts on mobility, environmental considerations, and alignment with the project's Purpose & Need statement. This analysis aimed to identify a recommended preferred alternative that balances user needs, aligns with city planning objectives, and ensures long-term viability of the Battery Street corridor as a multimodal transportation route.

4.1 Conceptual Alternatives: Considerations

The following planning and design considerations were consistent throughout all the conceptual alternatives and are reflected in the Project Purpose and Need (please see Section 1.2.2 for more detail). The desire for a road diet (lane reduction), the need for bicycle facilities, safely accommodating pedestrians at intersections, on-street parking, and increasing green space all required consideration.

4.1.1 Road Diet

At the kickoff of the project – and extensively emphasized throughout early public engagement – it was clear that a road diet, i.e. reduction in motor vehicle lanes, was desired along Battery Street. While the southern end of the corridor, between Maple Street and Main Street, has a two-lane cross-section, the remainder includes a minimum of three-lanes, with four lanes from Main Street north to Pearl Street.

Figure 16 Four-Lane Cross-Section between College and Cherry Street



Source: VHB

The project team completed a phased analysis of traffic conditions along the project corridor, beginning with the existing conditions (summarized in Chapter 2.4), followed by evaluating the road diet inclusive of other corridor improvements proposed within each alternative, summarized in further detail in the following sections.

4.1.2 Bicycle Facilities

In its current state, Battery Street has one two-block segment of a conventional bike lane northbound between Pearl Street and Sherman Street. The corridor otherwise lacks bicycle facilities even though it functions as a key north-south route for daily users and visitors alike. In line with the goal of evolving Battery Street into a more complete and multimodal street, it was determined early on that end-to-end bicycle facilities were needed.

The project team reviewed the existing traffic conditions of the corridor and utilized the FHWA Bikeway Selection Guide (2020) to determine the appropriate bicycle facility type. Referencing Figure 9 of the Guide (included below), Battery Street meets the criteria for "Separated Bike Lanes or Shared Use Path" as the appropriate facility type given it's AADT is well in excess of 6,000, and speeds are at or above 30mph, on average.

Figure 17 FHWA Bikeway Selection Guide

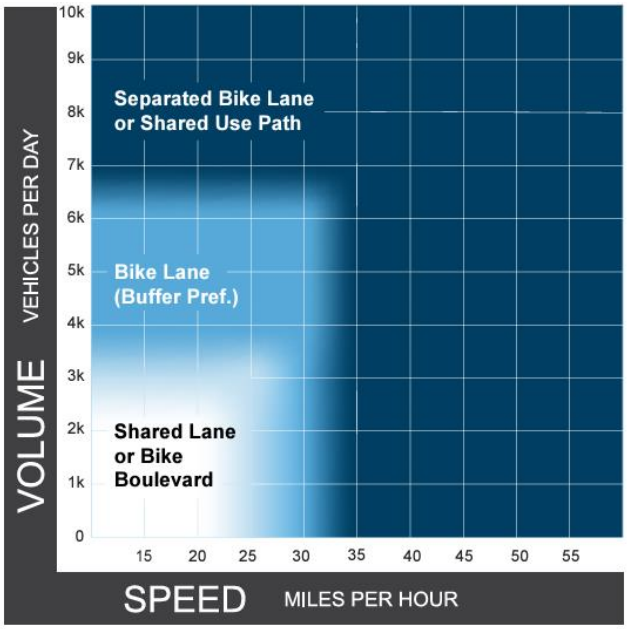


Figure 17 is from the FHWA Bikeway Selection Guide, providing facility type selection guidance.

Figure 18 Two-Way Separated Bike Lane



The two-way separated bike lanes that were installed temporarily along Battery Street between Maple and Main to serve as a detour route.

In addition to the team's review of existing conditions and guidance, there was overwhelming support from the general public and Advisory Committee for a separated bicycle facility along Battery Street. For this reason, this was the bicycle facility type considered across all conceptual alternatives.

4.1.3 Pedestrian Accommodations at Intersections

While there are end-to-end pedestrian facilities along Battery Street, the street's existing lane configuration, intersection geometries, and inconsistent signalization all pose challenges for pedestrians navigating its intersections.

The project team sought to evaluate and analyze mitigations to these challenges across all considered alternatives, while referencing guidance provide in the Great Streets standards, the Stop and Signalized Intersection Design Vehicle Guide, and national best practices.

Figure 19 Maple Street Intersection



Long wait times for pedestrians at intersections was a commonly shared issue by the public

Figure 20 College Street Intersection



Crossing length, traffic volumes, and approach grade all create uncomfortable conditions for pedestrians crossing at Battery & College

Lane reductions (in terms of both number and width), consistent curb radii (while being sensitive to the design vehicle), curb extensions that daylighted pedestrians where on-street parking was present, and a consistent approach to signalization for pedestrians (inclusive of an extended leading pedestrian interval) were all considered and evaluated.

4.1.4 On-Street Parking

On-Street parking is present along Battery Street in the two southernmost blocks; between Maple Street and Main Street. Additionally, there is off-street parking within the public ROW along the west side of Battery Street between Main Street and College Street in front of April Cornell.

Figure 21 Number of Existing On-Street Parking Spaces between Maple and Main Street



Given the presence of businesses and private residences along the street in these blocks, reducing impacts to this parking was a key element of the conceptual alternatives. The need for this parking was emphasized during the public engagement process, as well as by the Burlington Business Association (BBA) via their position on the Advisory Committee. As a result, each alternative was sensitive to any impacts on parking while considering the other critical elements of design.

4.1.5 Traffic

Traffic operations were evaluated for each alternative using a simulation method. For each alternative, the average delay for each intersection, the average delay across the whole network, and the end-to-end travel times between Sherman Street and Maple Street were determined.

Traffic volumes were based on counts collected on April 13, 2023, and were adjust to Design Hour Volume (DHV). DHV is defined as the 30th-highest hour in a year. Averaging the three nearest VTrans count stations, the DHV for 2023 was 8% higher than the peak hour on the count date. As a result, traffic volumes, including vehicles, bicycles, and pedestrian crossings, were increased 8% to establish volumes for simulation.

The study area overlaps with the Main Street Great Streets project at Battery and Main Streets. Traffic projections for Great Streets included detailed adjustments for new development, infrastructure projects, and background growth. At Battery and Main Streets, Great Streets projected a design hour entering volume of 1,961 in 2037. For comparison, the recently collected and adjusted volumes came out to 1,911 entering vehicles. After reviewing the assumptions and adjustments made, it was determined the 8% increase in 2023 count volumes for this study was conservative (overestimating traffic impacts). Therefore, a future analysis year for this study was not analyzed. As a result, no additional adjustments were made to the Battery Street volumes.

4.1.6 Traffic Analysis

The existing lane configuration ("No Build") has more lane capacity than any other alternative, and as a result has the best Level of Service (LOS). The remaining alternatives all have the same reduced lane configuration for motor vehicles; however, the differing bicycle facilities, and resulting traffic signal operations, result in varying traffic performance.

In Alternatives 1-3, the pedestrian cycles were adjusted to concurrent phasing, with a leading pedestrian interval (LPI) of 7+ seconds. This sets consistent pedestrian expectations and allows the cycle time to be used more efficiently. Pedestrian phases would operate on recall, meaning that the walk sign appears whether the pedestrian button is used or not.

Bicycle signals are proposed as part of each alternative wherever motor vehicle turning movements across the separated bike lane exceed these thresholds:

- **One-Way Separated Bike Lanes***
  - 100 conflicting left turns across one lane; 50 left turns across two lanes
  - 150 conflicting right turns
- **Two-Way Separated Bike Lanes***
  - 50 conflicting left turns across one lane; Any left turns across two lanes
  - 100 conflicting right turns

** These thresholds are provided by the AASHTO Bike Guide, 5th Edition (2024)*

4.1.7 Streetscape & Stormwater Management

Battery Street should be reconstructed as a gateway street in compliance with Great Street standards within the downtown area. This would include transition and/or gateway treatments entering downtown at the intersection with Pearl Street.

The project team was also tasked with considering opportunities to improve stormwater management along Battery Street in the interest of improving treatment adjacent to Lake Champlain and lessening the burden on the City's combined storm/sewer system. The road diet – described above and a crucial element of all alternatives – provides a significant reduction of impervious surface along Battery Street, replacing paved surfaces with green space. This significant expansion of green space provides ample opportunities for proven green infrastructure stormwater treatment practices, i.e. stormwater curb extensions, green gutters, rain gardens, tree pit stormwater planters, etc.

4.2 Alternative 1: One-Way Separated Bike Lanes

4.2.1 Active Transportation & Parking

Alternative 1 for the Battery Street corridor incorporates several key elements aimed at enhancing safety, accessibility, and connectivity. This alternative includes the road diet described in Section 4.1.1, pedestrian-focused intersection improvements outlined in Section 4.1.3, and the on-street parking considerations detailed in Section 4.1.4. The defining feature of Alternative 1 is the incorporation of a pair of one-way separated bike lanes on each side of Battery Street, traveling parallel to the flow of motor vehicle traffic. These bike lanes are designed to provide dedicated and protected space for cyclists, significantly improving safety and comfort for bicyclists of all ages and abilities.

Separated bike lanes offer substantial safety benefits compared to standard bike lanes. By physically separating cyclists from motor vehicle traffic, these facilities minimize conflicts between modes. Research consistently shows that separated bike lanes reduce the likelihood of crashes involving cyclists by creating a more predictable and controlled environment. Additionally, this design enhances user comfort and encourages more people to choose bicycling as a viable mode of transportation, supporting Burlington's goals for active transportation and sustainability.

While Alternative 1 maximizes safety and accessibility benefits, it does so with notable impacts to on-street parking. Between Maple Street and Main Street, this alternative would result in reducing the number of parking spaces from 42 to 13. These changes reflect a tradeoff necessary to accommodate the separated bike lanes while maintaining green space and mature trees to the highest degree possible. Public feedback during the engagement process underscored mixed opinions on this impact, with some residents and stakeholders expressing concerns about parking availability for businesses and visitors. Mitigation strategies, such as enhancing wayfinding for nearby parking options or reallocating parking in adjacent areas, could help address these concerns.

4.2.2 Traffic Analysis

In Alternative 1, bicycle signals are used at all intersections except Sherman Street and Cherry Street, stopping motor vehicle traffic during an exclusive bicycle phase and increasing delay for all modes. As a result, Alternative 1 has the highest delay and end-to-end travel times of any alternative. Compared to existing conditions, the average end-to-end travel time nearly doubles, adding an additional 135 seconds (southbound) and 168 seconds (northbound). This is a 98% increase in travel time delay for northbound and a 94% increase for southbound end-to-end.

Congestion is the worst in the southern half of the corridor, with two intersections (College Street and Main Street) at LOS E and King Street at LOS F.

Like all the alternatives, LPIs are proposed at all intersections except Sherman Street (where pedestrians have a conflict-free concurrent crossing). Except at Sherman Street and Cherry Street, the volume of right turn conflicts is high enough to demand separating bike and vehicle movements. Bike phasing overlaps with the north/south LPIs, which are extended to 15 seconds to allow bicycles to clear the intersection. Bikes may make left turns during their phase (yielding to oncoming bikes and pedestrians in crosswalk).

As a result of the above proposed changes, less cycle time is available for vehicle movements and Alternative 1 generates the most congestion of any alternative. With less lane capacity, storage length becomes an issue at peak times, with queues occasionally spilling back to the next block. In part, this is mitigated by new protected left-turns at Maple Street (for eastbound vehicles) and College Street (southbound and eastbound). For compatibility with LPIs, the protected left-turns must be lagging.

Signal coordination favors the northbound direction, which has higher traffic in the PM peak hour. On shorter blocks – such as between Pearl and Cherry – stopped vehicles can block upstream traffic from advancing on their green. This effect creates long queues on side streets including Pearl Street, Main Street, and King Street.

Table 2 Alternative 1 Traffic Analysis

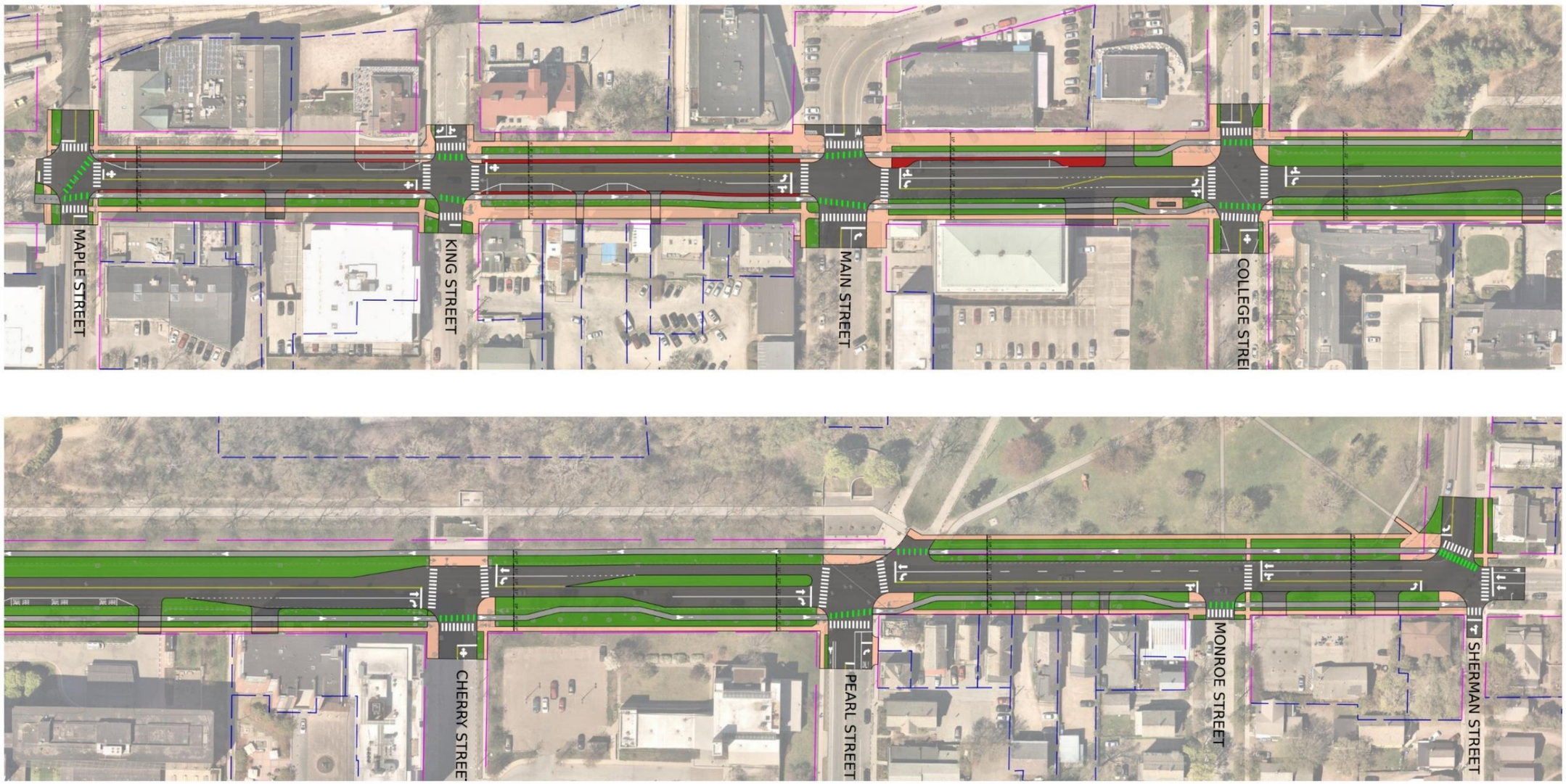
Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St	27.8
Battery St & Pearl St	41.7
Battery St & Cherry St	54.2
Battery St & College St	66.2
Battery St & Main St	78.3
Battery St & King St	89.3
Battery St & Maple St	27.8
Corridor End to End	
Network Delay (min, s)	3 min, 15.6 s
Average Network Speed (mph)	7
End-to-End Travel Time, NB (min:s)	5:40
End-to-End Travel Time, SB (min:s)	4:39

4.2.3 Alternative 1 Summary

A full, 50-scale layout plan of Alternative 1 is provided on the next page.

In summary, Alternative 1 prioritizes safety and multimodal accessibility by introducing separated bike lanes and pedestrian enhancements, consistent with the project's Purpose and Need Statement. However, its significant impact on acceptable motor vehicle traffic operations and parking requires careful consideration to balance the needs of all corridor users and ensure community support.

Figure 22 50-Scale Layout Plan of Alternative 1



Battery Street Scoping Study

Alternative 1

4.3 Alternative 2: Two-Way Separated Bike Lanes

4.3.1 Active Transportation & Parking

Alternative 2 for the Battery Street corridor proposes a two-way separated bike lane along the west side of the corridor, creating a dedicated space for cyclists traveling in both directions. This approach consolidates bicycle activity on one side of the corridor, aligning with the road diet described in Section 4.1.1, pedestrian improvements outlined in Section 4.1.3, and on-street parking considerations detailed in Section 4.1.4.

The two-way separated bike lane enhances connectivity by aligning directly with destinations on the west side of Battery Street, such as Battery Park and the Waterfront. North of College Street, the design benefits from reduced motor vehicle conflicts, as Cherry Street, Pearl Street, and Monroe Street terminate at Battery Street from the east. This configuration offers a more comfortable and low-stress travel route for cyclists without impacting traffic operations. However, at intersections where the two-way bike lane crosses through traffic, careful design will be essential to address potential conflicts, particularly where cyclists traveling against the flow of adjacent motor vehicles may be unexpected.

Parking impacts are a key differentiator between Alternatives 1 and 2. Alternative 2's design retains sufficient width between King Street and Main Street to preserve parking on both sides of Battery Street within that segment. As a result, the space reallocation between Maple Street and Main Street ends up reducing the number of parking spaces from 42 to 27, a reduction of 15 spaces. This represents a smaller reduction than in Alternative 1 (which would reduce parking by 29 spaces). Maintaining more on-street parking aligns with feedback received during public outreach, particularly from residents and businesses concerned about parking availability in the area.

4.3.2 Traffic Analysis

In Alternative 2, two-way separated bike lanes run along the west side of Battery Street for the full corridor length. Because the two-way separated bike lanes run along the west side, turning conflicts are minimized and a dedicated bicycle phase is needed only at the College Street intersection. Alternative 2 has a LOS D at College Street, but a LOS C or better at all other intersections. Compared to existing conditions, the end-to-end travel time increases by less than a minute in each direction – only 57 seconds (southbound) and 32 seconds (northbound). This is a 19% increase in travel time delay for northbound and a 40% increase for southbound end-to-end.

Alternative 2 places bicycles on the west side of the corridor, where turning conflicts only reach the threshold for separated movements at College Street. With fewer phases to divide cycle time between, the signals operate more efficiently at the other intersections. Even at College Street, with all bicycle traffic on the west side of Battery Street, northbound traffic can advance during the bike phase. This special phasing would require new signal equipment to be installed. Northbound left-turns would be controlled by a red arrow (during the bike phase) and permissive flashing yellow arrow (after the bike phase is complete). The bike phase would begin

with the LPI (7 seconds) and extend an additional 8 seconds to allow for the 15 second exclusive bike phase. Southbound traffic would be held (red) during the bike phase.

Were the design to include a southbound right turn lane at College Street, that lane alone could be held while thru traffic advances. However, with those movements consolidated to a single lane, the entire southbound approach must be held. Along the corridor, thru bicyclists would experience less delay than in Alternative 1, with the disadvantage that bicycle turns across Battery St (northbound right or southbound left) would become two-stage movements. Overall, Alternative 2 is a moderate increase in delay over existing conditions of 5 to 13 seconds, with slightly more delay at College Street.

Simulation results are shown in Table 3.

Table 3 Alternative 2 Traffic Analysis

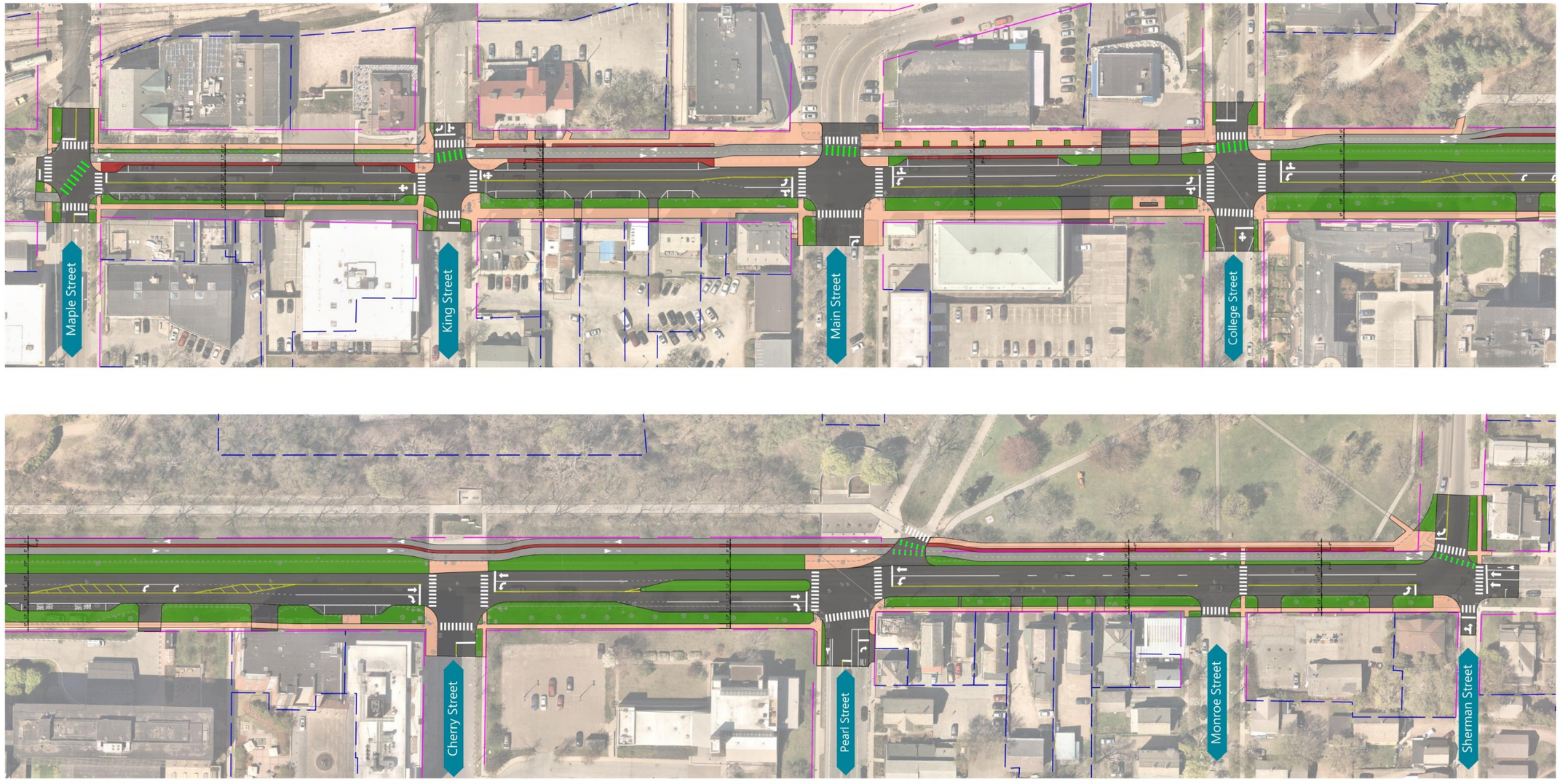
Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St	17.1
Battery St & Pearl St	20.1
Battery St & Cherry St	25.0
Battery St & College St	54.9
Battery St & Main St	27.0
Battery St & King St	17.4
Battery St & Maple St	11.8
Corridor End to End	
Network Delay (s)	99.7
Average Network Speed (mph)	12
End-to-End Travel Time, NB (min:s)	3:24
End-to-End Travel Time, SB (min:s)	3:21

4.3.3 Alternative 2 Summary

A full, 50-scale layout plan of Alternative 2 is provided on the next page.

In summary, Alternative 2 represents a balanced approach to enhancing safety, connectivity, and multimodal accessibility while minimizing impacts to on-street parking and providing more favorable traffic operations when compared to Alternative 1. Its design addresses critical gaps in the cycling network and strengthens links to key community destinations, advancing Burlington's vision for an equitable, multimodal, and sustainable transportation system.

Figure 23 50-Scale Layout Plan of Alternative 2



4.4 Alternative 3: A Hybrid Option – Two-Way Separated Bike Lanes (Maple Street to Main Street) and One-Way Separated Bike Lanes (Main Street to Sherman Street)

4.4.1 Active Transportation & Parking

Summarized in Section 3.2.3, the Advisory Committee was not able to reach consensus on a Preferred Alternative during AC Meeting #3. As a result, the request was made to refine each alternative and create a third, hybrid alternative that sought to combine desirable elements of Alternatives 1 and 2. The project team developed and analyzed Alternative 3.

Alternative 3 includes two-way separated bike lanes for the two southernmost blocks of the corridor – Maple Street to Main Street – and then transitions to the one-way separated bike lanes cross-section north from Main Street to Sherman Street. For the most part, the considerations for Alternative 3 represents a balance of those explained for Alternatives 1 and 2 with a few nuanced differences.

The connectivity considerations for Alternative 3 are largely the same as the first two alternatives, however, the project team saw the creation of a new alternative as an opportunity to evaluate a few revisions to the original designs, particularly in the southern, two-way separated bike lanes section. For Alternative 3, the project team shifted the two-way separated bike lanes from the west side of the street to the east. The primary rationale here is to visualize the future connection to the Railyard Enterprise Project given the current concept plan for that effort includes a shared-use path along the east side of the roadway up to Maple Street. Consideration of the two-way separated bike lanes along the east side of Battery Street would allow for a seamless connection to that facility. The two-way separated bike lanes transition to the one-way paired separated bike lanes at Main Street so the side of the street they are on at the Main Street intersection does not have a measurable impact on the evaluation of the alternative.

In addition to the connectivity considerations, the project team used the development of Alternative 3 as an opportunity to evaluate maintaining more on-street parking between Maple Street and Main Street. To maintain as many on-street parking spaces as possible, the two-way separated bike lanes and its buffers would need to be design to absolute minimums. Additionally, all green space would need to be removed from the street scape to accommodate the necessary width. With these changes in place, Alternative 3 would maintain as many as 39 of the existing 42 on-street parking spaces in this segment. It's important to note that if the above modifications were considered for Alternative 2, that alternative could also maintain 39 spaces.

4.4.2 Traffic Analysis

As expanded upon above, Alternative 3 represents a hybrid alternative, inclusive of two-way separated bike lanes along the east side from Maple Street to Main Street, and one-way separated bike lanes on both sides of Battery Street north of Main Street to Sherman Street. At Main, southbound bicyclists make a two-stage crossing along the west and south legs to reach the two-way separated bike lanes. Special phasing – overlapping with the southbound left and

westbound right while other movements, including southbound thru, are held – allows this crossing to be completed at once. Alternative 3 has one intersection at LOS E (King), two at LOS D (College, Main), and the remainder at LOS C or better. Compared to existing conditions, the end-to-end travel time increases by 21 seconds (southbound) and 105 seconds (northbound). This is a 61% increase in travel time delay for northbound and a 15% increase for southbound end-to-end.

As a hybrid option, Alternative 3 has performance in between Alternatives 1 and 2. Congestion is greatest on the southern end of the corridor, particularly in the northbound direction. Cyclists experience more delay at the southern intersections due to the separation of bicycle and vehicle movements. Placing the cycle track on the east side means significant turning conflicts at King and at Maple. The bicycle phase must be brief to accommodate all necessary phases, meaning cyclists will usually arrive on red. Generally speaking, through bicycle movements that are compatible with concurrent motor vehicle movements (i.e. are at or below the thresholds identified in Section 4.1.6) allow for longer green times.

Table 4 Alternative 3 Traffic Analysis

Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St	17.0
Battery St & Pearl St	14.7
Battery St & Cherry St	15.6
Battery St & College St	36.6
Battery St & Main St	45.4
Battery St & King St	66.9
Battery St & Maple St	16.8

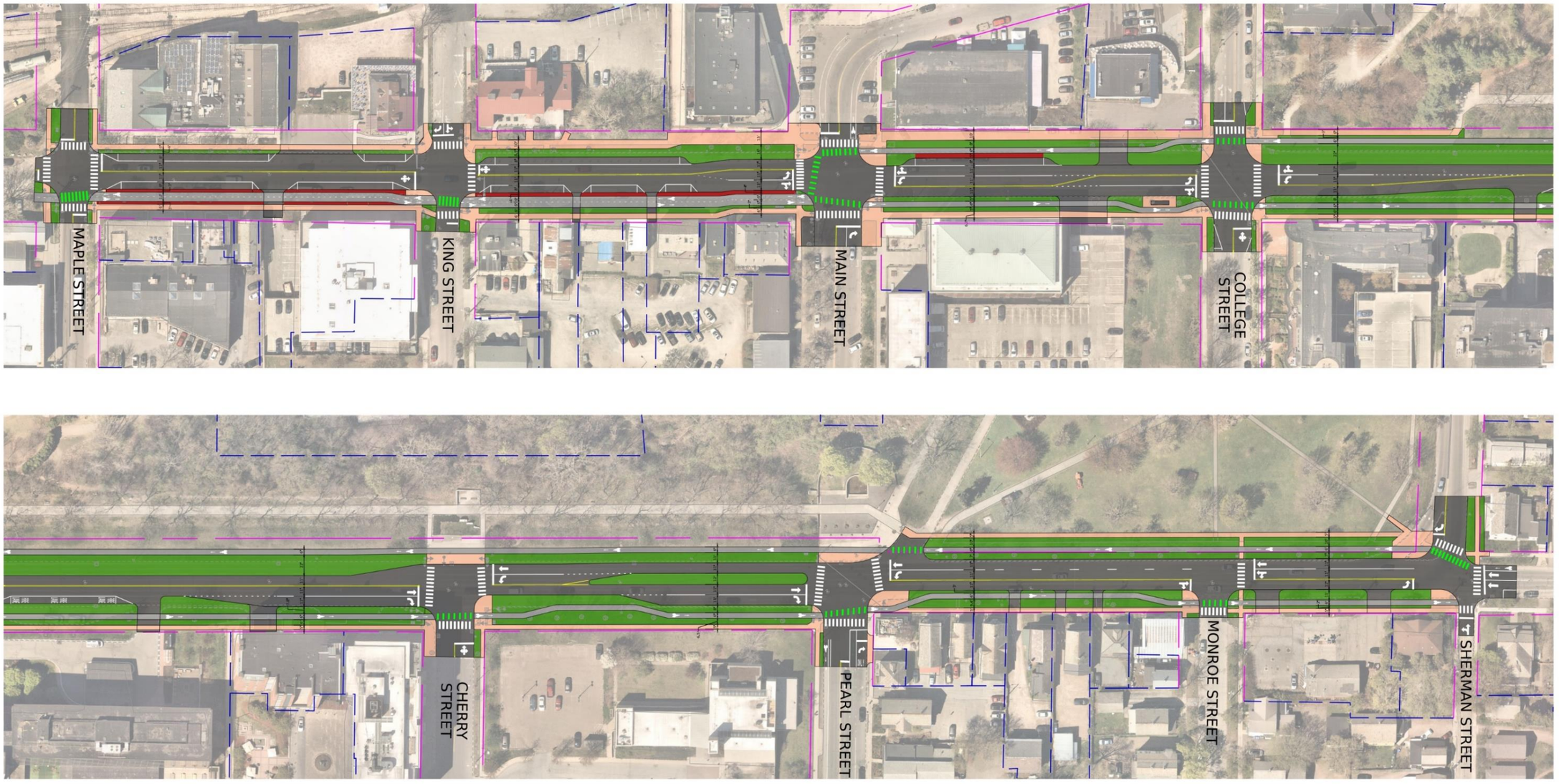
Corridor End to End	
Network Delay (s)	106.2
Average Network Speed (mph)	11
End-to-End Travel Time, NB (min:s)	4:37
End-to-End Travel Time, SB (min:s)	2:45

4.4.1 Alternative 3 Summary

A full, 50-scale layout plan of Alternative 3 is provided on the next page.

Alternative 3 combines elements of Alternatives 1 and 2 to create a hybrid approach aimed at balancing connectivity, safety, and accessibility with minimal impacts to parking and traffic operations. This alternative features two-way separated bike lanes along the east side of Battery Street between Maple Street and Main Street, transitioning to one-way separated bike lanes on both sides of the corridor north of Main Street. The east-side alignment of the two-way bike lanes is intended to create a seamless connection to the planned shared-use path associated with the Railyard Enterprise Project. While maintaining most of the existing parking spaces (up to 39 of 42 between Maple and Main Streets), the design requires reducing green space and configuring bike lane buffers to minimum widths. Overall, Alternative 3 offers a balanced solution that preserves more parking than Alternative 1 while providing greater connectivity than Alternative 2, though it introduces additional complexity at intersections requiring thoughtful design to manage turning conflicts and delays effectively.

Figure 24 50-Scale Layout Plan of Alternative 3



Battery Street Scoping Study

Alternative 3

4.5 Conceptual Cost Estimates

Conceptual Cost Estimates were developed for each alternative using bid history unit pricing, research of similar project, and order of magnitude quantity takeoffs. The conceptual cost estimates were then projected for a construction year of 2030 but taking the order of magnitude current year costs and compounding a 5% estimated annual increase in pricing. The provided cost estimates are inclusive of engineering and design, permitting, and construction.

The conceptual cost estimate for each alternative is as follows:

- Alternative 1: $31,700,000
- Alternative 2: $31,400,000
- Alternative 3: $31,000,000

The detailed cost estimate spreadsheets are provided in Appendix G.

4.6 Alternatives Evaluation Matrix

Table 5 Alternatives Evaluation Matrix

	Corridor Alternatives**			
	No Build	**Alternative 1**	**Alternative 2**	**Alternative 3**
Projected 2030 Cost	$0	$31.7M	$31.4M	$31.0M
Constructability		Very Challenging	Challenging	Very Challenging
Purpose & Need				
Improve corridor & intersection safety for all users	No	Yes	**Yes**	Yes
Enhance comfort and accessibility for pedestrians	No	**Yes**	**Yes**	**Yes**
Provide end-to-end bicycle facilities and connections	No	**Yes**	**Yes**	**Yes**
Integrate street ecology into Battery Street's overall design	No	**Yes**	**Yes**	**Yes**
Provide acceptable mobility for all modes of transportation	No	Yes/No*	**Yes**	Yes

** While Alternative 1 dramatically improves mobility for bicyclists and pedestrians, the overall increased delay for motorists is not considered to meet this particular need.*

*** For a better understanding of the differences between each alternative, please review **Section 4.2 (Alternative 1)**, **Section 4.3 (Alternative 2)** and **Section 4.4 (Alternative 3).***

5

Recommended Preferred Alternative & Implementation Plan

The selection of the Preferred Alternative for Battery Street integrated findings from extensive public engagement, input from the Project Advisory Committee, and a detailed alternatives analysis, all described in detail in the previous sections. Public engagement provided critical insights into community priorities, including safety, connectivity, and minimizing impacts to parking. Advisory group meetings allowed stakeholders to review and refine the alternatives, confirming they aligned with the project's Purpose and Need(s). Finally, the alternatives analysis evaluated each option based on metrics such as overall safety, traffic operations, multimodal accessibility, and parking impacts, enabling an objective comparison of tradeoffs. This collaborative and data-driven process led to the recommendation of an alternative that balances safety, mobility, and community priorities while addressing the long-term functionality of the corridor.

5.1 Recommended Preferred Alternative

At the conclusion of public engagement, stakeholder / advisory committee engagement, and the finalization of the alternatives analysis, Alternative 2 was recommended as the preferred alternative for the Battery Street corridor. Alternative 2 garnered the most support from the public, as well as the advisory committee and project team. Moreover, it best met the needs of the project defined in the project's purpose and need(s) statement.

Following feedback provided by the Advisory Committee at their third meeting, the team refined Alternative 2 to improve the overall concept for Battery Street. These refinements included:

- More separation for the two-way bike travel along the "Battery Park Extension" section of Battery Street – This refinement was included based on a request to re-evaluate the safety of bike travel in opposite directions along a segment with significant grade that would result in measurably different bicyclist speeds.

  The project team also further considered the overall safety implications of each alternative relative to bicyclist safety. In addition to the above safety concern, the project team evaluated two other considerations, 1) the potential for the most common crash types involving bicyclists, i.e. "right hook" and "left cross" crashes for each alternative, and 2) the potential for non-compliance from bicyclists given long wait times for separate phases. Overall, the potential for the crash types between alternatives is fairly similar, but the concern over non-compliance given bicyclist wait times is greater for Alternative 1.
- On-street parking in the south end of the corridor – As described previously, the project team evaluated the feasibility of maintaining more parking between Maple Street and Main Street and determined that this is feasible if width reductions are made to several elements of the originally proposed cross-section.
- Removal of the southbound right-turn lane at College Street – In the original version of Alternative 2, a southbound right-turn lane was included at the College Street intersection. This was due to the high right-turn and left-turn volumes at this location and the need to phase-separate those movements from the two-way separated bike lanes. The advisory committee expressed concern over the fact that with the inclusion of the southbound right-turn lane, the pedestrian crossing – which is known to have some of the highest pedestrian volumes in the area – is not shortened from its existing length. Acknowledging this consideration, the project team revised the cross-section and signal operations at the intersection. While this resulted in poorer overall traffic operations, the results were well within the acceptable range, while enabling a shorter pedestrian crossing.
- Reducing impacts to Battery Park – This was another request made by the advisory committee. To accommodate this, the project team modified the cross-section of the two-way separated bike lanes and shifted it closer to Battery Street.
- The final refinement made to Battery Street was in the block between Main Street and College Street, along the west side. There was a request to increase the frontage space in front of the April Cornell building. Similar to other refinements, to accommodate this request, the project team revised the cross-section along the west side of the street to include a narrower two-way separated bike facility and narrower buffers. The refined widths still meet minimum requirements, while also accommodating the request to increase business frontage space.

5.1.1 Presentation to the Transportation, Energy, and Utilities Committee (TEUC) and Subsequent Revisions

On January 28, 2025, the project team presented the study and the recommended preferred alternative to the TEUC. Based on comments heard and follow-up discussions with the necessary parties, the following revisions have been made to the recommended preferred alternative:

- Maintaining parking on both sides of Battery Street between Maple Street and Main Street. The original recommended preferred alternative maintained parking on one side of the street between Maple Street and King Street, while maintaining parking on both sides of the street between King Street and Main Street.

  This modification retains parking on both sides of the street, resulting in 39 parking spaces (compared to the existing 42 spaces). This revision is feasible by reducing the amount of green space and removing several trees on the east side of Battery Street between Maple Street and King Street. This modification creates a narrower cross-section for all users and results in more "friction" but does maintain on-street parking to the greatest extent possible.

- Left-turn pockets for hotel access. Based on comments from City Councilors, left-turn pockets have been added to the preferred alternative to provide improved access for southbound traveling motorists to Hotel Champlain.

- Maintaining the loading zone in front of the Courtyard Marriott (Burlington Harbor). This was a correction to the layout plan to maintain the on-street loading zone for the Courtyard Marriot (Burlington Harbor) hotel.

A 50-scale layout plan of the Recommended Preferred Alternative is provided on Page 46.

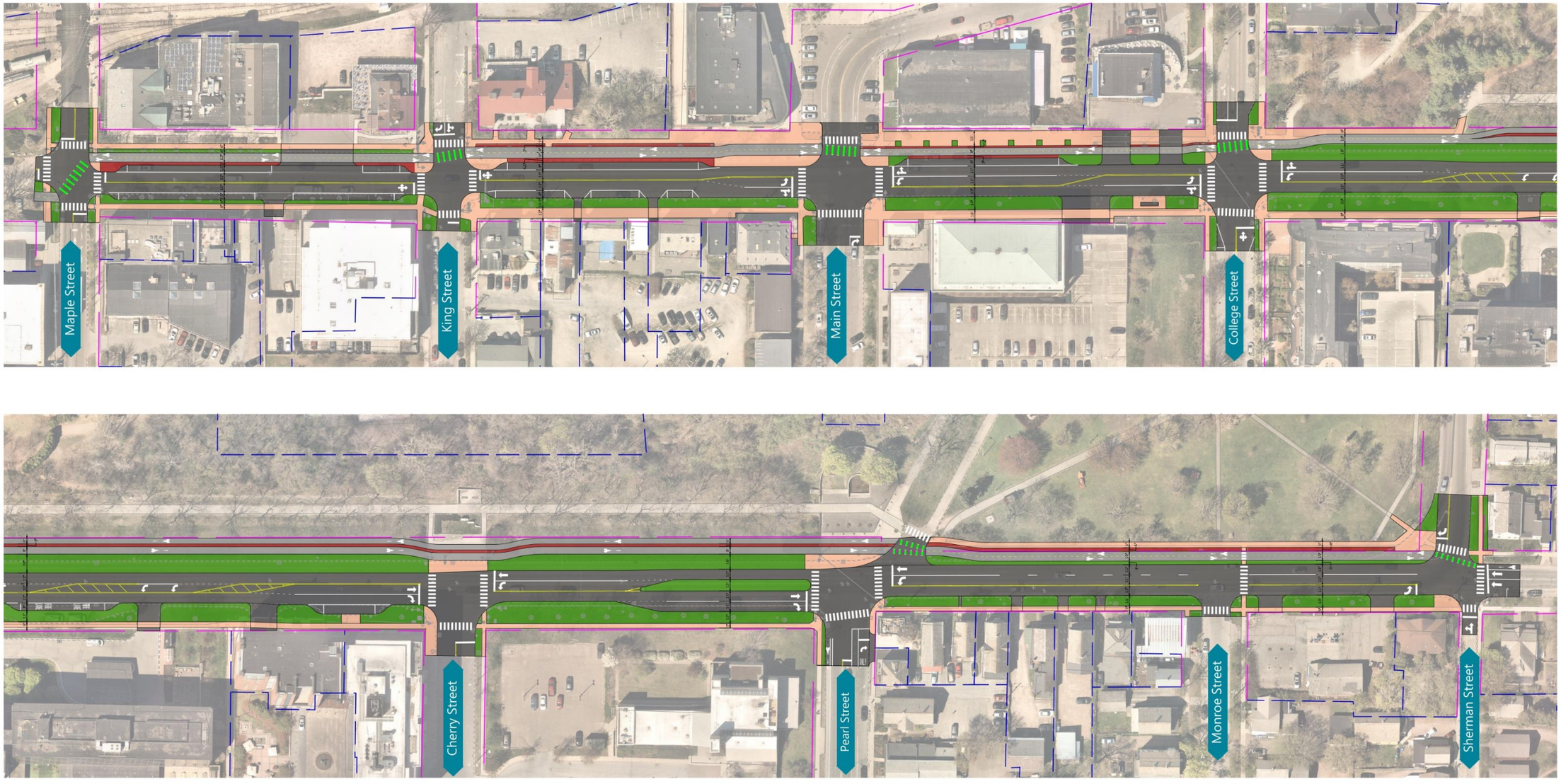
5.1.2 Additional Considerations

The following comments were received from two Advisory Committee members following the committee's vote on a recommended preferred alternative:

- **Traffic Analysis of Park Street/Sherman Street:** To examine the feasibility of reducing the number of southbound lanes between Pearl Street and Sherman Street, conduct a traffic study to evaluate the impact of a lane reduction on Park Street north of the Sherman Street intersection.
- **Midblock crossing at Monroe Street:** Consider installing a raised crosswalk at Monroe Street across Park Street. While this location already features a crosswalk and RRFB, a raised crosswalk could be evaluated as an additional measure to enhance pedestrian safety.

Please note that these recommended additional considerations were not reviewed by the entire Advisory Committee.

Figure 25 50-Scale Layout Plan of the Recommended Preferred Alternative



5.2 Implementation Plan & Funding Opportunities

The recommended improvements for the Battery Street corridor could be implemented in phases, depending on the availability of funding. The following section provides a potential implementation plan for the corridor, along with details about potential funding options.

Although there is potential to secure separate grants for bicycle and pedestrian infrastructure, the significant grade changes between the sidewalk and travel lanes pose challenges for separating these improvements from the broader vehicular roadway construction. While much of the planned bicycle infrastructure will be constructed outside the current travel lanes, these grade differentials could complicate phasing and require careful coordination.

In considering an opportunity for nearer term implementation of the recommended preferred alternative, the proposed road diet (i.e. reduction in travel lanes) between Main Street and Pearl Street could be implemented leveraging the City's Quick Build Design + Materials Standards. Through utilizing this guide, along with pavement markings, signing, and modifications to the traffic signals, the road diet could be implemented while other steps in the project development process are being taken to move the project toward engineering design.

Additionally, given the existing curb-to-curb width from Main Street to Pearl Street is approximately 48-feet, the recommended bicycle facility type – two-way separated bike lanes along the west side – could also be implemented using pavement markings and quick build materials. If a standard 11-foot width is used for the motor vehicle travel lanes, approximately 15-feet of width would be available to implement the two-way separated bike lanes.

Lastly, in the longer term, for the southern segment of the project – Maple Street to Main Street – the City should seek out opportunities for a joint implementation between these blocks and the construction of the Railyard Enterprise Project (REP), and eventual construction of the westernmost blocks of the Great Streets Main Street project. Pending the timing of these ongoing projects, it could be worth considering a phased approach to implementing the preferred alternative with improvements beginning at Main Street and moving north prior to implementing improvements from Main Street to the south.

5.2.1 Proposed Implementation Timeline

Short-Term Recommendations – Within 5-Years:

- **Initiate preliminary design**
  - Develop the engineering design to anticipate grade differentials between the roadway, sidewalk, and separated bike lanes and their implications on construction phasing.
- **Implement the road diet and two-way separated bike lanes with signing, pavement markings and signal modifications between Main Street and Pearl Street**
  - Incorporate the road diet and separated bike lanes into planned updates to pavement markings or repaving, providing an opportunity to initiate improvements while design work continues.
  - Leverage the City's Quick Build Design + Materials Standard Guide
- **Finalize engineering design**

Long-Term Recommendations – Within 10-Years:

› **Secure funding & begin construction**

This phased approach provides a framework for advancing the Battery Street improvements in a way that aligns with funding availability, minimizes community disruption, and ensures a cohesive connection to broader transportation initiatives.

5.2.2 Funding Opportunities

The next step to realizing the infrastructure improvements outlined above is securing funding to support project design and construction. Given the opportunity to incrementally implement smaller scale projects through the recommended phasing outlined above, applying for funding opportunities through competitive grant programs is recommended.

State or Local Grants

The VTrans Bicycle and Pedestrian Program is a grant program to provide funding for projects that implement safe and convenient facilities for Vermonters who desire alternative transportation opportunities. It is available for the scoping, design, and construction of bike and pedestrian facilities, sidewalks, bicycle lanes, crosswalks, and shared use paths. This is a competitive grant that requires a 50% local match for state-funded small-scale construction and a 20% match for construction that is federally funded.

The VTrans Transportation Alternative Program (TAP) provides a maximum grant award of $300,000 with a 20% match for construction, planning, and design of on-road and off-road trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation. This includes sidewalks, bicycle infrastructure, pedestrian and bicycle signals, traffic calming, lighting, and other safety-related infrastructure.

Lastly, the Vermont Agency of Commerce and Community Development (ACCD) provides the Downtown Transportation Fund that provides up to $200,000 for projects that improve multi-modal and resilient transportation in designated downtown areas.

Federal Grants

A potential funding source for implementing improvements is to apply for FHWA's Safe Streets for All (SS4A) Implementation Grants. If Battery Street is identified as part of the High-Injury Network in the planBTV Walk Bike Safety Action Plan, it would qualify for project-level design and development activities. By redesigning the High-Injury Network into a "Complete Street" that enhances safety, separates users, and manages speed, Battery Street would become eligible for these grants.

Additionally, FHWA's Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant program would be another recommended grant to pursue. The City of Burlington was successfully awarded $22.3 million from the RAISE Grant to rebuild St. Paul and Pine Streets through the site of the former mall, and to revitalize eight existing City blocks on Cherry Street and Bank Street between the Church Street Marketplace and the Waterfront. Based on previous projects that have been awarded RAISE grants, Battery Street would be a strong candidate due to the significant local impact it would have.

It should be noted that both federal grants mentioned are currently only eligible until 2026 and it is uncertain if these grants will be available in the future.



DRAFT

Battery Street Scoping Study

Executive Summary

Burlington, Vermont

PREPARED FOR

Chittenden County RPC
Communities Planning Together

110 West Canal Street
Suite 202
Winooski, VT 05404
802.846.4494

PREPARED BY

vhb

40 IDX Drive
Building 100, Suite 200
South Burlington, Vermont 05403
802.497.6100

JANUARY 2025

Executive Summary

The Battery Street Scoping Study examined the Battery Street corridor from Maple Street to Sherman Street to identify and prioritize a suite of short- and long-term transportation improvements that provide equitable, safe, low-stress, accessible transportation for all road users along this important north-south route that doubles as a gateway between the downtown and waterfront districts. Recognized in planBTV's Walk Bike Master Plan as a priority location for transportation improvements, Battery Street was previously reported as one of the top five streets in the city that survey respondents felt the least safe to walk or bike on. The recommendations identified in this study were arrived at through an extensive public and stakeholder engagement process, combined with an in-depth evaluation of relevant planning and design considerations of Battery Street.

Project Purpose

The purpose of the Battery Street Scoping Study is to identify and prioritize short- and long-term improvements that provide equitable, safe, low-stress, and accessible transportation for all along and across Battery Street, regardless of age, ability, or mode of travel.

Project Needs

The needs for this project are driven by deficiencies in Battery Street's current transportation infrastructure and by a need for comprehensive corridor planning. These requirements are further articulated below:

- **Improve corridor and intersection safety for all users:** Over the five-year period from 2018 to 2022, there were 216 crashes along the Battery Street corridor, with over 80% of these crashes occurring at intersections. Along Battery Street's four-lane section, the most common crash type was rear-ending incidents. There were nine injury-related crashes involving vulnerable users, with five involving pedestrians and four involving bicyclists. Among several factors, Battery Street's wide cross-section leads to high speeds, and its variable lane configurations lead to driver confusion at the areas of highest consequence – intersections.
- **Enhance comfort and accessibility for pedestrians along Battery Street:** Battery Street represents the downtown core's western boundary and functions as a barrier between the waterfront and downtown for pedestrians traveling between these popular destinations. The street's four-lane cross-section creates lengthy crossings for people on foot and/or using mobility-aid devices. Published in 2016, Burlington's Great Streets Standards establish a Modal Hierarchy to guide the design of downtown's streets, with pedestrian travel taking priority over all other modes.
- **Provide end-to-end bicycle facilities and connections:** Currently, Battery Street contains one two-block-long striped bike lane between Pearl Street and Sherman Street northbound only. In Burlington's Walk Bike Master Plan, "planBTV Walk Bike", Battery Street was identified by City residents as a top 5 "worst" street for walking and biking. In addition, planBTV Walk Bike identified Battery Street as a corridor in need of protected (separated) bike lanes. Moreover, there are several designs ongoing or completed designs that include bicycle facilities that will connect into or across Battery Street. These efforts include a shared-

use path proposed by the Railyard Enterprise Project and separated bike lanes designed for Main Street and North Champlain Street.

- **Integrate street ecology into Battery Street's overall design:** Battery Street's proximity to Lake Champlain and steep topography emphasize the need for critical street ecology improvements. Additionally, like most of the downtown core, Battery Street is in Burlington's Combined Sewer Area. In its current condition, Battery Street lacks any stormwater management practices. Additionally, it has large areas of impervious surfaces within the right-of-way, but outside of the motor vehicle travel way, like the wide sidewalks that abut building fronts. In line with the City's goals of easing the burden on the combined system, and to be in line with Burlington's Great Streets standards, Battery Street needs to better integrate sustainable street ecology and stormwater management practices.
- **Provide acceptable mobility for all modes of transportation along Battery Street:** While Battery Street represents a critical north-south commuter route for motorists, the use of its transportation right-of-way disproportionately favors the driving population. Along the full length of the project corridor, over one-half of this right-of-way – and in some cases more than two-thirds – is occupied by paved surfaces that exclusively serve drivers and motor vehicle use. While the existing sidewalks stretch the full length of the corridor, they are, for the most part, designed to the minimum standard, and in some locations share lengths of spaces with motor vehicles. Additionally, there is only one short stretch of striped bike lane along the full corridor. There is a need to provide a more equitable use of space for walkers and bikers, while not significantly compromising Battery Street as a commuter route.

Stakeholder and Public Engagement

Project Advisory Committee

The Project Advisory Committee served as a key stakeholder group throughout the project, offering input at every stage of the study. Comprising representatives from city departments (Public Works; Parks, Recreation & Waterfront; City Planning; Racial Equity, Inclusion & Belonging), Burlington City Council, Green Mountain Transit, the Burlington Walk Bike Council, the Burlington Business Association, DPW Commission, and NPA representatives, the committee provided valuable insights to be sure the study reflected community priorities.

Visioning and Needs Identification

Early meetings focused on identifying challenges along Battery Street and establishing the Purpose and Need Statement. Discussions emphasized speeding, safety concerns at intersections, and the lack of multimodal infrastructure. Committee members highlighted the corridor's potential to become a safer, more vibrant public space.

Alternatives Development

The committee played an active role in reviewing and refining the alternatives. Members provided feedback on the design and layout of bicycle and pedestrian facilities, parking configurations, and connections to adjacent projects like the Railyard Enterprise Project.

Consensus Building

During later meetings, the committee reviewed the detailed alternatives analysis, which included metrics such as safety, connectivity, and traffic operations. Although opinions were initially divided, the committee eventually supported Alternative 2 as their recommended preferred alternative, citing its balance of multimodal benefits, reduced parking impacts, and improved traffic flow.

The committee's iterative feedback was instrumental in shaping the study's final recommendations, ensuring that the project aligned with Burlington's transportation and community goals.

Recommended Preferred Alternative Presentation

The fourth Advisory Committee meeting in September 2024 presented Alternative 3 (a hybrid option) alongside refinements to Alternatives 1 and 2. Committee input emphasized the importance of connectivity to adjacent projects, such as the Railyard Enterprise Project, and maintaining parking availability.

Public Engagement

The public engagement process was robust, inclusive, and designed to ensure diverse community representation. Engagement activities included public meetings, surveys, tabling events, and targeted outreach. The feedback gathered informed every stage of the study, from identifying challenges to recommending the preferred alternative.

Local Concerns Meeting

Held in May 2023, this meeting introduced the project to the public and solicited input on existing conditions and desired improvements. Attendees participated in an open house, where they reviewed corridor data and provided feedback on challenges such as unsafe crossings, speeding, and the lack of bicycle facilities. Key themes included:

- The need for safer pedestrian crossings, particularly at College and Main Streets.
- A desire for protected bike lanes along the entire corridor.
- Concerns about maintaining parking for businesses and residents.

Draft Alternatives Meeting

In March 2024, the Draft Alternatives Presentation showcased two initial design concepts (Alternatives 1 and 2) and gathered public input through interactive sessions. Attendees placed comments on large maps of the alternatives, highlighting preferences and concerns. Key feedback included:

- Strong support for separated bike lanes, with mixed opinions on one-way versus two-way configurations.
- Concerns about the loss of parking spaces, particularly between Maple and Main Streets.
- General support for traffic calming measures, including the proposed road diet.
- Via a straw poll of those in attendance, Alternative 2 received the most support, particularly for its balance of multimodal benefits and reduced parking impacts.

Targeted Outreach

To ensure an equitable process, the project team conducted targeted outreach to traditionally underserved groups and stakeholders unable to attend public meetings. Efforts included tabling events at local businesses, a radio interview, engagement with students, meetings with the CCRPC Equity Advisory Committee, Burlington's Trusted Community Voices, and presentations to community organizations. This outreach reinforced the importance of safety, accessibility, and connectivity in the corridor's redesign.

Public Surveys

In April 2023, a public survey was shared to gather input on potential improvements to the Battery Street corridor. Participants identified specific locations along the corridor where they observed issues or opportunities for improvement and their related mode of travel.

Feedback from this survey, along with input from the Local Concerns Meeting, was reviewed and synthesized into common themes. Respondents frequently emphasized the need for safety and accessibility improvements along the corridor. The distribution of comments by travel mode was as follows: 33% related to walking, 8% to crossing points, 31% to biking, 19% to driving, and 10% to other modes.

Following the Draft Alternatives presentation in March 2024, the city shared a survey to poll the general public on their preference for an alternative. The survey asked respondents to determine if they prefer Alternative 1, Alternative 2, both equally, or neither. 166 people responded and the results are listed below.

- Alternative 1: 50
- Alternative 2: 75
- Both Equally: 31
- Neither: 10

Transportation, Energy, and Utilities Committee (TEUC) Presentation

The project team is scheduled to present the findings of the scoping study as well as the recommended preferred alternative to the TEUC on Tuesday, January 28, 2025. This executive summary will be updated with the outcome of that meeting following its completion.

Alternatives Analysis

Following the preliminary public engagement process and existing conditions analysis, conceptual alternatives were developed for Battery Street. Each alternative was developed to meet the project's needs: enhancing safety, accessibility, and connectivity for all users, while supporting a vibrant and cohesive urban corridor linking Burlington's downtown with its waterfront. The alternatives consider various approaches to address the needs identified in the study, including improved pedestrian and bicycle infrastructure, adjustments to traffic flow, and integration of green stormwater practices.

The alternatives were compared based on several key metrics, including safety improvements, impacts on mobility, environmental considerations, and alignment with the project's Purpose & Need(s) statement. This analysis aimed to recommend a preferred alternative that balances user

needs, aligns with city planning objectives, and ensures long-term viability of the Battery Street corridor as a multimodal transportation route.

Corridor Alternatives: Considerations

The development of conceptual alternatives for the Battery Street corridor centered on five key considerations to address the project's Purpose and Need:

- Road Diet: Public input and technical analysis highlighted the feasibility of reducing the corridor's lane configuration to calm traffic and create space for multimodal infrastructure.
- Bicycle Facilities: The study determined that separated bike lanes are essential for user safety and meeting needs. The selected designs align with national guidance, including the FHWA Bikeway Selection Guide.
- Pedestrian Accommodations: Alternatives incorporated measures such as curb extensions, consistent curb radii, and extended leading pedestrian intervals (advanced walk time for pedestrians) to improve crossing safety and reduce pedestrian wait times.
- Parking: Maintaining on-street parking, particularly between Maple and Main Streets, was a critical priority identified through public and stakeholder input.
- Traffic: Each alternative was evaluated using traffic simulations to balance multimodal safety with acceptable levels of service for vehicles.

These considerations shaped the three alternatives described below that reflect distinct approaches to achieving the project's goals.

Alternative 1: One-Way Separated Bike Lanes

Alternative 1 includes one-way separated bike lanes on both sides of Battery Street, offering high levels of safety and comfort for cyclists by physically separating them from vehicular traffic. This design aligns with the road diet and incorporates pedestrian-focused improvements to intersections. However, this alternative results in significant tradeoffs, including the loss of 29 parking spaces between Maple and Main Streets and the highest levels of traffic congestion among the alternatives. End-to-end there is a 98% increase in travel time delay for northbound and a 94% increase for southbound traffic.

While Alternative 1 increases cyclist safety, its impacts on parking and traffic delay generated mixed reactions from the public and stakeholders. The design requires careful consideration to balance the needs of all users while ensuring community support for the corridor's transformation.

Alternative 2: Two-Way Separated Bike Lanes

Alternative 2 proposes two-way separated bike lanes along the west side of Battery Street, enhancing connectivity to key destinations such as Battery Park and the Waterfront. This design minimizes crossing conflicts for cyclists and reduces parking impacts compared to Alternative 1, preserving 27 of 42 spaces in the southern segment (with the ability to maintain 39 of the spaces, similar to Alternative 3, discussed in the next section).

Traffic operations under Alternative 2 are more favorable, with lower congestion levels and shorter travel times than Alternative 1. End-to-end there is a 19% increase in travel time delay for northbound and a 40% increase for southbound traffic. The west-side alignment simplifies signal

phasing, allowing more efficient traffic flow while maintaining safety. As a result, Alternative 2 offers a balanced approach that prioritizes multimodal connectivity while addressing parking and traffic concerns.

Alternative 3: Hybrid of Alternatives 1 & 2

Alternative 3 combines elements of the first two alternatives, featuring two-way separated bike lanes south of Main Street and one-way bike lanes north of Main Street. This design aligns the southern segment with the proposed shared-use path from the Railyard Enterprise Project while preserving up to 39 parking spaces in the southern segment through width reductions and the removal of green space.

Although Alternative 3 maintains greater parking than Alternative 1 and improved connectivity in the southern blocks, it introduces complexity at intersections and requires additional signal adjustments to manage turning conflicts effectively. End-to-end there is a 61% increase in travel time delay for northbound and a 15% increase for southbound traffic. This hybrid solution offers a flexible approach, addressing multiple priorities while balancing tradeoffs in connectivity, parking, and traffic performance.

Preferred Alternative

Alternative 2 was recommended as the preferred alternative for the Battery Street corridor after an extensive evaluation process incorporating public input, technical analysis, and stakeholder collaboration. This design provides enhanced connectivity to critical destinations, including Battery Park and the Waterfront, while minimizing conflicts and improving safety for all users.

Key advantages of Alternative 2 include:

- Safety and Accessibility: The two-way separated bike lane provides a low-stress environment for cyclists while maintaining consistent pedestrian accommodations and enhancing crossing safety with extended leading pedestrian intervals (advanced walk time for pedestrians).
- Traffic Operations: The design balances multimodal improvements with efficient traffic flow, resulting in lower congestion levels and shorter travel times compared to other alternatives.
- Parking Preservation: Alternative 2 retains more on-street parking than Alternative 1, reducing impacts to residents, businesses, and visitors by maintaining 27 of 42 spaces in the southern segment.

The recommended preferred alternative was refined based on Advisory Committee and public feedback, including adjustments to bike lane buffers, intersection configurations, and green space to further enhance safety and functionality. Specific refinements included:

- Adding more separation the two-way bike lanes near Battery Park to address concerns about varying cyclist speeds on grades.
- Removing the southbound right-turn lane at College Street to shorten pedestrian crossing distances.
- Modifying the cross-section near businesses, such as the April Cornell building, to increase frontage while maintaining minimum bike lane requirements.

Alternative 2 represents a balanced solution that addresses the corridor's safety, accessibility, and connectivity challenges while aligning with Burlington's long-term vision for sustainable transportation.

The following page includes a layout plan of the recommended preferred alternative.

Implementation

The recommended improvements for the Battery Street corridor could be implemented in phases, depending on the availability of funding. The following represents a potential short-term and long-term implementation plan for the corridor.

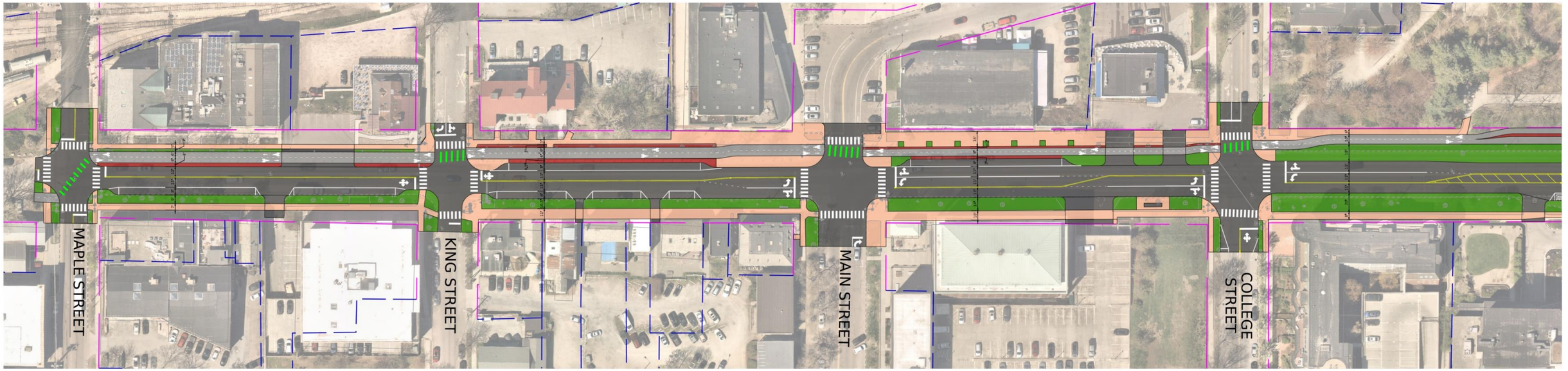
Short-Term Recommendations – Within 5-Years:

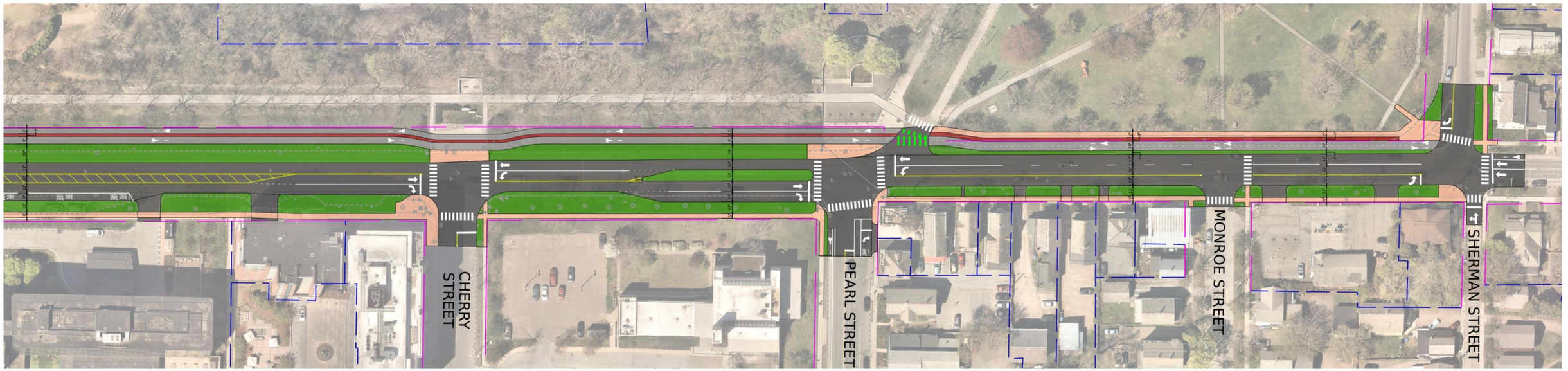
- **Initiate preliminary design**
  - Develop the three-dimensional engineering design to better anticipate grade differentials between the roadway, sidewalk, and separated bike lanes and their implications on construction phasing.
- **Implement the road diet and two-way separated bike lanes with signing, pavement markings and signal modifications between Main Street and Pearl Street**
  - Incorporate the road diet and separated bike lanes into planned updates to pavement markings or repaving, providing an opportunity to initiate improvements while design work continues.
  - Leverage the City's Quick Build Design + Materials Standard Guide
- **Finalize engineering design**

Long-Term Recommendations – Within 10-Years:

- **Secure funding**
- **Begin construction**

This phased approach provides a framework for advancing the Battery Street improvements in a way that aligns with funding availability, minimizes community disruption, and ensures a cohesive connection to broader transportation initiatives.





Battery Street Scoping Study

Preferred Alternative (Refined Alternative 2)

Appendices

A. Traffic Volume Data
B. Crash Data
C. Public Meeting Materials
D. Traffic Analysis
E. Conceptual Alternatives
F. Conceptual Cost Estimates
G. Recommended Preferred Alternative Layout Plan

Appendix A

Traffic Volume Data

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**1**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Park St & Sherman St**		

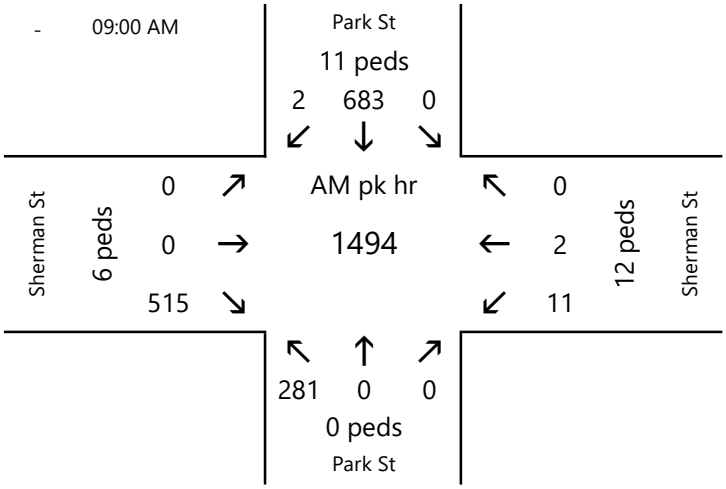
Intersection:	Park St & Sherman St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Park St				Sherman St				Park St				Sherman St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	2	683	0	11	0	2	11	12	0	0	281	0	515	0	0	6	1494
PM pk hr	3	334	0	37	0	2	5	30	0	0	685	0	558	0	0	25	1587

AM Peak Hour

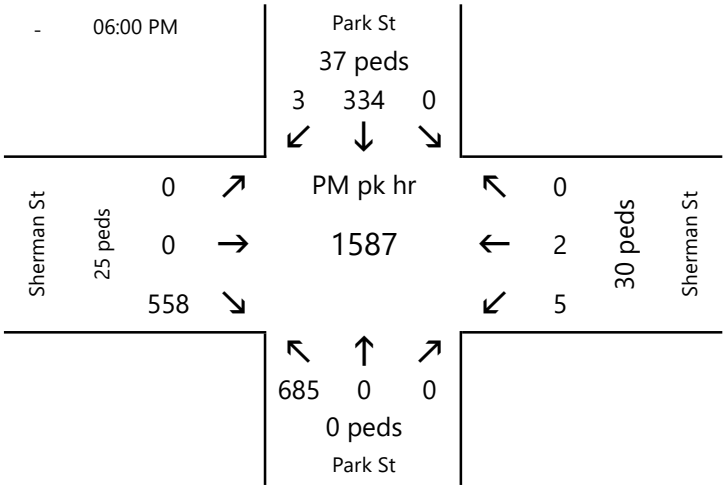
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	99%	100%	91%	97%
heavy	1%	0%	9%	3%
% trucks	3% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	97%	100%	99%	98%
heavy	3%	0%	1%	2%
% trucks	2% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**2**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Park St & Monroe St**		

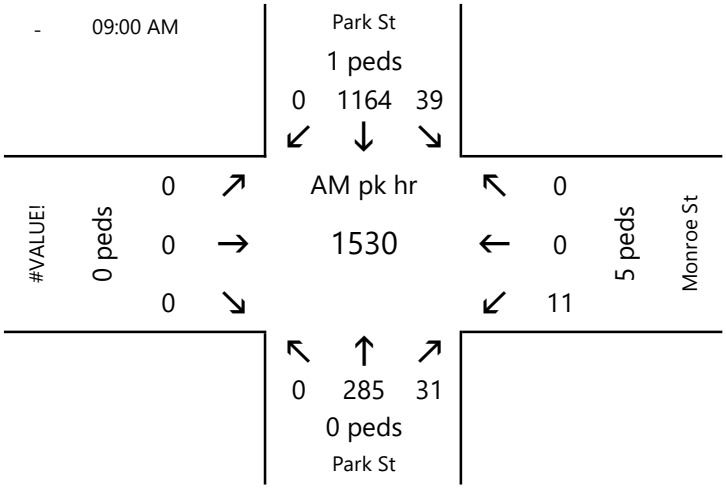
Intersection:	Park St & Monroe St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Park St				Monroe St				Park St				#VALUE!				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	1164	39	1	0	0	11	5	31	285	0	0	0	0	0	0	1530
PM pk hr	0	855	27	9	4	0	10	31	102	680	0	2	0	0	0	0	1678

AM Peak Hour

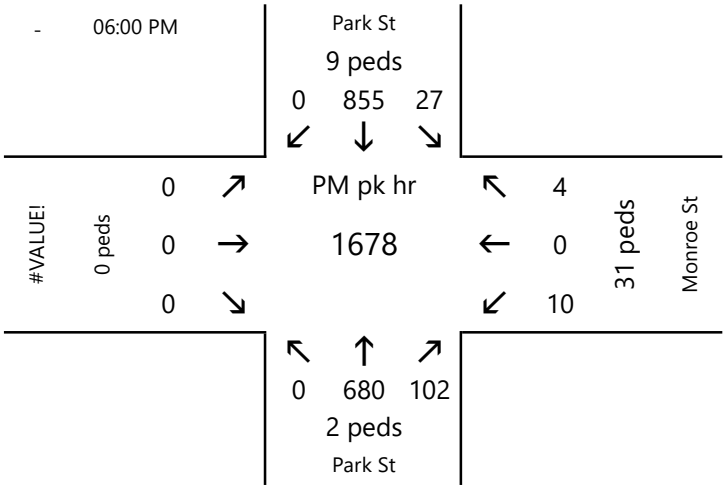
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	99%	91%	97%	#####
heavy	1%	9%	3%	#####
% trucks	2% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	98%	93%	99%	#####
heavy	2%	7%	1%	#####
% trucks	2% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**3**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & Pearl St**		

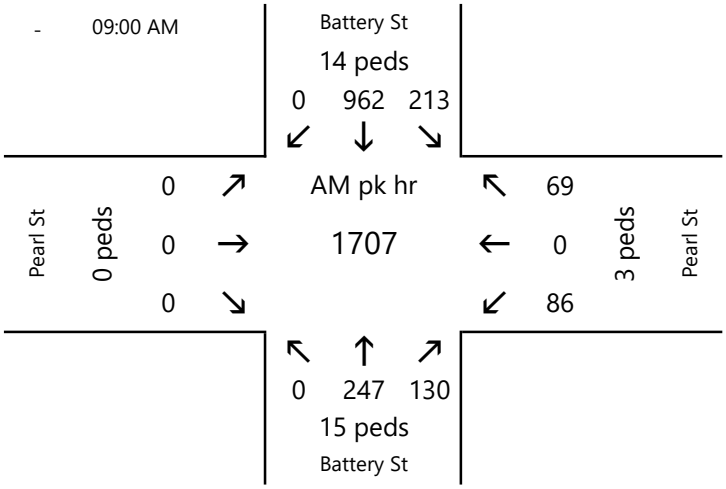
Intersection:	Battery St & Pearl St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				Pearl St				Battery St				Pearl St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	962	213	14	69	0	86	3	130	247	0	15	0	0	0	0	1707
PM pk hr	0	679	186	50	193	0	127	11	378	587	0	49	0	0	0	0	2150

AM Peak Hour

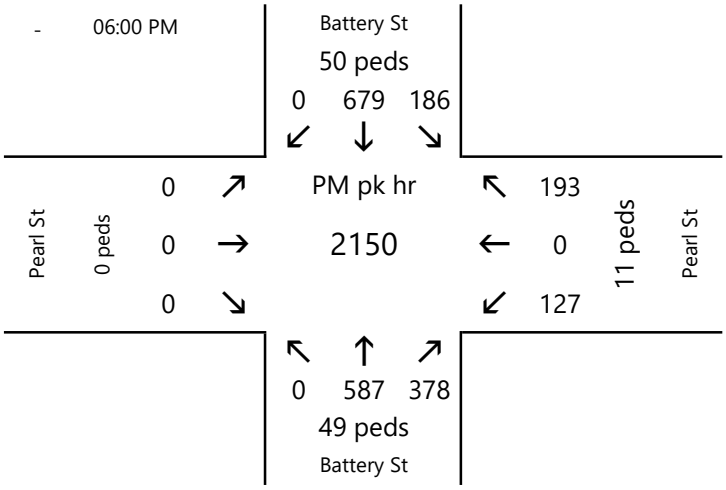
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	98%	92%	97%	#####
heavy	2%	8%	3%	#####
% trucks	3% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	98%	97%	98%	#####
heavy	2%	3%	2%	#####
% trucks	2% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**4**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & Cherry St**		

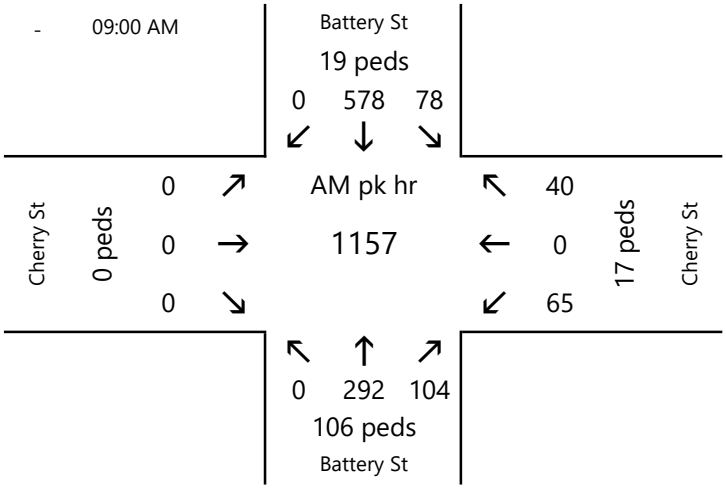
Intersection:	Battery St & Cherry St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				Cherry St				Battery St				Cherry St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	0	578	78	19	40	0	65	17	104	292	0	106	0	0	0	0	1157
PM pk hr	0	744	48	37	55	0	78	24	80	913	0	52	0	0	0	0	1918

AM Peak Hour

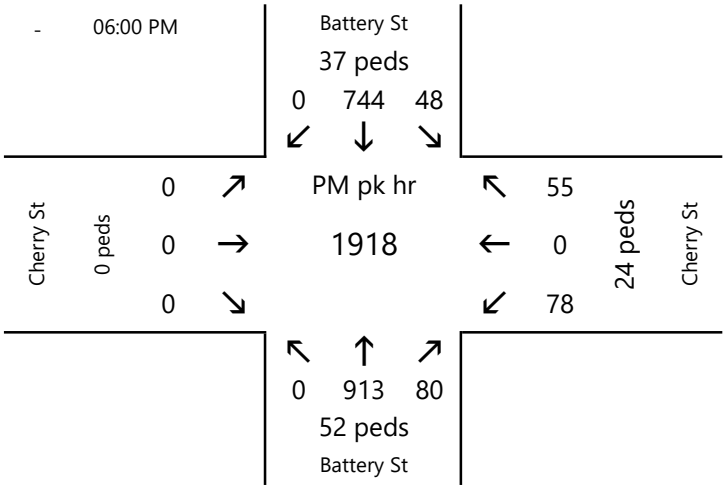
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	96%	92%	93%	#####
heavy	4%	8%	7%	#####
% trucks	5% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	97%	93%	97%	#####
heavy	3%	7%	3%	#####
% trucks	3% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**5**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & College St**		

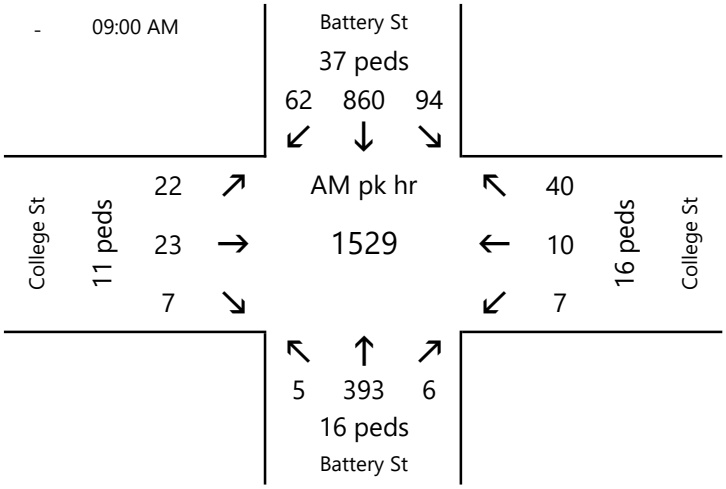
Intersection:	Battery St & College St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				College St				Battery St				College St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	62	860	94	37	40	10	7	16	6	393	5	16	7	23	22	11	1529
PM pk hr	130	632	87	214	169	76	14	51	25	725	37	143	31	74	90	56	2090

AM Peak Hour

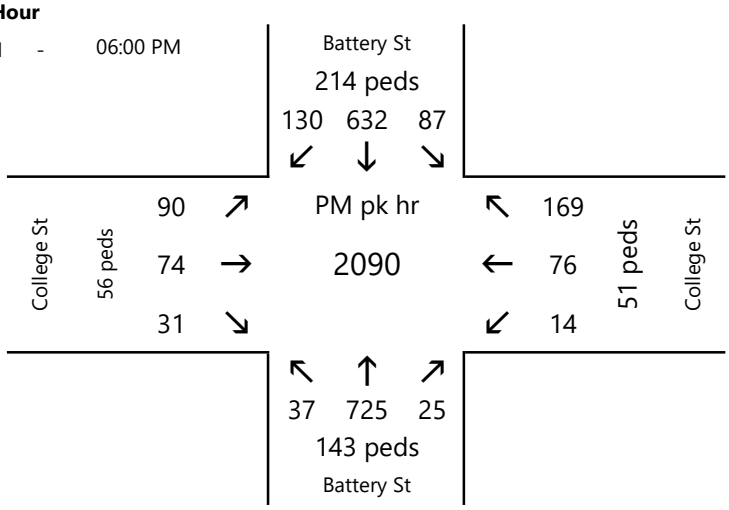
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	96%	91%	92%	87%
heavy	4%	9%	8%	13%
% trucks	6% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	98%	100%	97%	98%
heavy	2%	0%	3%	2%
% trucks	2% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**6**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & Main St**		

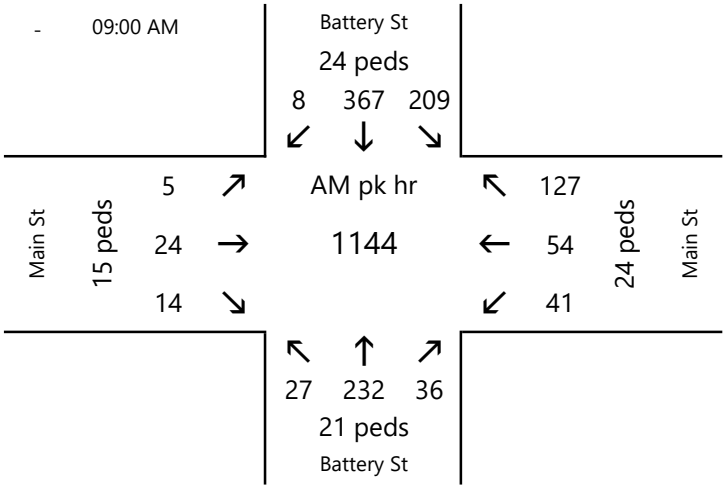
Intersection:	Battery St & Main St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				Main St				Battery St				Main St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	8	367	209	24	127	54	41	24	36	232	27	21	14	24	5	15	1144
PM pk hr	18	418	245	62	301	79	21	16	27	473	41	53	49	81	18	49	1771

AM Peak Hour

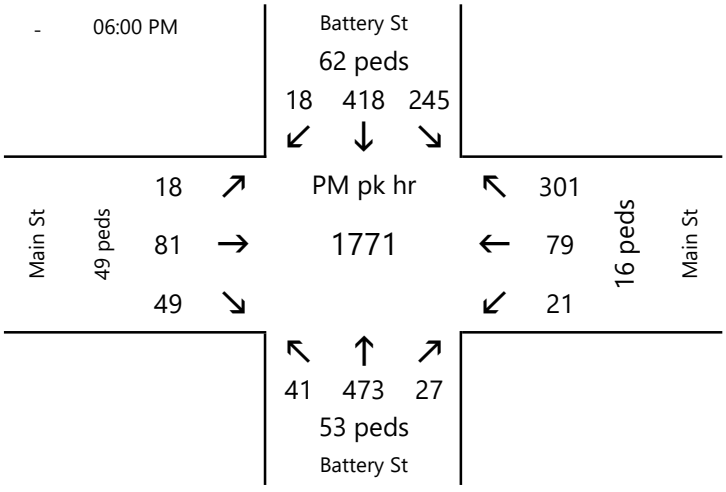
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	96%	86%	94%	98%
heavy	4%	14%	6%	2%
% trucks	6% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	97%	95%	99%	99%
heavy	3%	5%	1%	1%
% trucks	3% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**7**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & King St**		

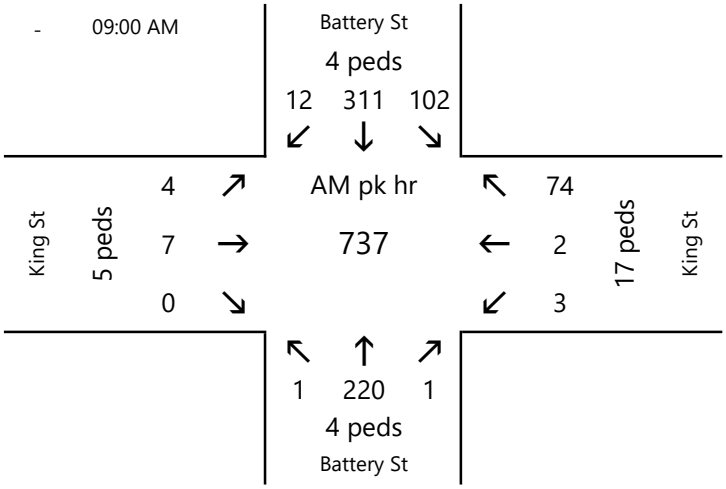
Intersection:	Battery St & King St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				King St				Battery St				King St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	12	311	102	4	74	2	3	17	1	220	1	4	0	7	4	5	737
PM pk hr	18	330	156	19	292	13	17	15	9	236	3	9	8	16	17	36	1115

AM Peak Hour

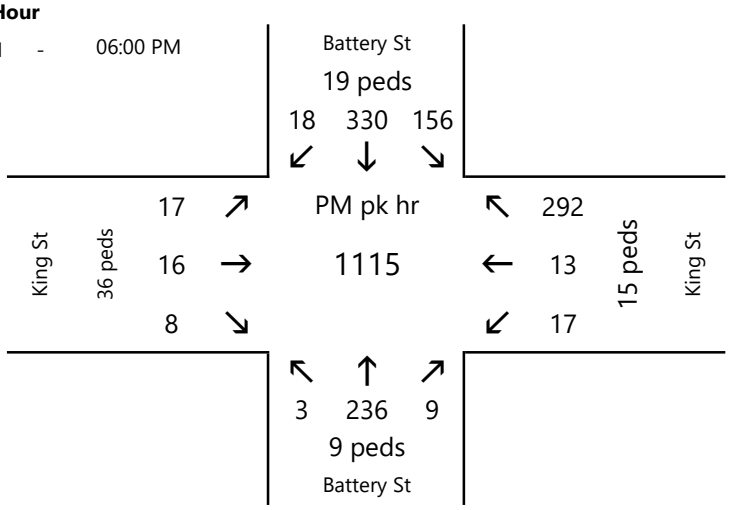
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	96%	97%	91%	100%
heavy	4%	3%	9%	0%
% trucks	5% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	99%	100%	97%	98%
heavy	1%	0%	3%	2%
% trucks	1% (Overall)			

Computations - Traffic Volumes

Project:	**Battery Street Scoping**	**Project #:**	**58644.11**
Location:	**Burlington, VT**	**Sheet:**	**8**
Calculated by:	**EPH**	**Date:**	**5/30/24**
Checked by:		**Date:**	
Title:	**Traffic Data Calculations**		
Intersection:	**Battery St & Maple St**		

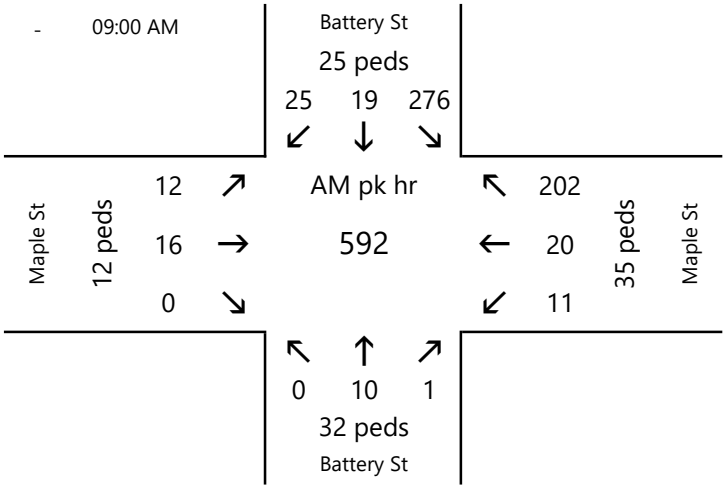
Intersection:	Battery St & Maple St	Town:	Burlington, VT
Count Date(s):	4/13/2023	Counter:	Peak Periods, 7-10 am and 3-6 pm

Peak Hour Volumes

	SB				WB				NB				EB				Total
	Battery St				Maple St				Battery St				Maple St				
	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	RT	Thru	LT	Ped	
AM pk hr	25	19	276	25	202	20	11	35	1	10	0	32	0	16	12	12	592
PM pk hr	22	3	285	41	358	42	10	6	9	11	2	72	1	55	26	20	824

AM Peak Hour

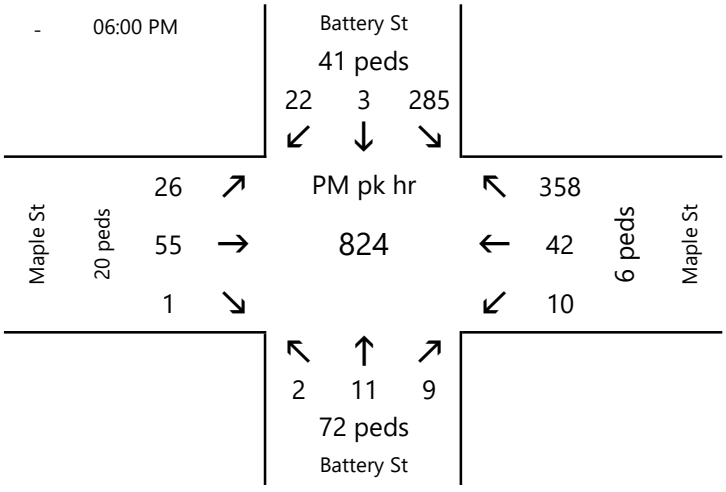
8:00 AM - 09:00 AM



%	SB	WB	NB	EB
auto	96%	97%	18%	100%
heavy	4%	3%	82%	0%
% trucks	5% (Overall)			

PM Peak Hour

5:00 PM - 06:00 PM



%	SB	WB	NB	EB
auto	99%	98%	100%	99%
heavy	1%	2%	0%	1%
% trucks	2% (Overall)			

Appendix B

Crash Data

2018-2022 Crash Data

Crash_Date	City_Town	Address	AOT_Route	Crash_Type	Collision_Direction	Weather	Road_Group	Report_Number	Reporting_Agency	Road_Group_ID	AOT_Actual_Milepoint	Animal	Time_of_Day	Intersection_With	Impairment	Involving	Non_Reportable_Address	Reporting_Agency_ID	Road_Characteristics	Road_Condition	Street_Address	Surface_Condition	AOT_Road_ID	Coordinates	Coordinates_X	Coordinates_Y
1/4/18 3:10 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU001209	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
1/4/18 3:12 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	No Turns, Thru moves only, Broadside */-	Freezing Precipitation	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU000259	Burlington PD	2	0.23	None/Other	Night	Main St	None	None		VT0040100	Four-way Intersection	None	Battery St	Snow	US008	44.475726143185511, -73.21867465508332	-73.21867466	44.475726143185511
1/4/18 5:13 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction - Sideswipe	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU000628	Burlington PD	2	0.15	None/Other	Day	King St	None	None		VT0040100	Not at a Junction	None	Battery St	Slush	US008	44.47452105742125, -73.21859345655626	-73.21859346	44.47452105742125
1/10/18 7:26 AM	Burlington	125 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU000657	Burlington PD	2	0.29	None/Other	Night	College St	None	None		VT0040100			125 Battery St		US008	44.47657641310104, -73.21874525540363	-73.21874526	44.47657641310401
1/14/18 3:21 AM	Burlington	College St	COLLEGE ST	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU000247	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			College St		0	44.47686902437842, -73.21877431035433	-73.21877431	44.47686902437842
1/15/18 9:44 AM	Burlington	Sherman St	SHERMAN ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU001707	Burlington PD	2	0.01	None/Other	Day	Park St	None	None		VT0040100	Not at a Junction	None	Sherman St	Dry	US048	44.48203053726083, -73.21933455102824	-73.21933451	44.48203053726083
1/17/18 8:52 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU000155	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
1/19/18 4:07 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU000957	Burlington PD	2	0.31	None/Other	Night	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
1/24/18 6:46 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU002416	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
2/2/18 7:11 AM	Burlington	Maple St	MAPLE ST. BURLINGTON	Injury	Rear End	Wind	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU001424	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	Maple St	Snow	US066	44.47349082535904, -73.21850781289815	-73.21850781	44.47349082539043
2/9/18 8:57 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU009200	Burlington PD	2	0.55	None/Other	Night	Pearl St	None	None		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
3/8/18 3:57 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU023823	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
3/21/18 11:41 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU004438	Burlington PD	2	0.4	None/Other	Day	Cherry St	None	None		VT0040100			60 Battery St		US008	44.47613588997531, -73.21885864492918	-73.21885864	44.47613588997513
3/30/18 5:30 AM	Burlington	Battery St	MAIN ST.	Property Damage Only	Single Vehicle Crash	Freezing Precipitation	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU026476	Burlington PD	2	0	None/Other	Night	Main St	Alcohol	None		VT0040100	Four-way Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	Battery St	Snow	US022	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
4/25/18 11:54 AM	Burlington	Battery St		Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU021446	Burlington PD	2	0.08	None/Other	Night	Maple St	None	None		VT0040100			Battery St		US008	44.47546753128882, -73.21850505289346	-73.21850505	44.47546753128819
5/4/18 8:39 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Freezing Precipitation	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU000248	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100	Four-way Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	Battery St	Snow	US008	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
5/29/18 12:17 PM	Burlington	Battery St	BATTERY ST	Property Damage Only	Other - Explain in Narrative	Clear	Other Public Roadway (Rest Areas, Shopping Center - anything open to public)	18BU001007	Burlington PD	9	999.99000000000009	None/Other	Day	Railyard/Hypothecary Parking Lot	None	None		VT0040100	Not at a Junction	Road Surface Condition (wet, icy, snow, slush, etc)	Battery St	Snow	0	44.47969347886331, -73.21897173173804	-73.21897173	44.47969347886311
6/5/18 7:49 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU001412	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
6/8/18 2:32 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction - Sideswipe	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU017740	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
7/13/18 3:57 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU008465	Burlington PD	2	0.01	None/Other	Day	Pearl St	None	None		VT0040100			Park St		US036	44.48041052229963, -73.21903533211263	-73.21903533	44.48041052229928
7/15/18 8:33 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU001051	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	T - Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	Pearl St	Ice	US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
7/20/18 4:29 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU002978	Burlington PD	2	0	None/Other	Night	Pearl St	None	None		VT0040100			Park St		US036	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
7/31/18 3:14 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU003933	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
8/2/18 2:03 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Right Turn and Thru, Same Direction Sideswipe/Angle Crash */--	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU018087	Burlington PD	2	0.07	None/Other	Day	Maple St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47331751774036, -73.21848395248425	-73.21848395	44.47331751774062
8/6/18 1:23 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU018184	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
8/10/18 9:08 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU015491	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	Heavy Truck		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
8/11/18 8:55 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU016993	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
8/12/18 8:30 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Freezing Precipitation	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU004931	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	Not at a Junction	Road Surface Condition (wet, icy, snow, slush, etc)	Battery St	Wet	US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
8/13/18 4:07 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU006804	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
8/14/18 7:59 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019562	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
8/21/18 11:05 AM	Burlington	Maple St	MAPLE ST	Property Damage Only			Street or Town Highways in FA Urban Area	18BU005868	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			Maple St		0	44.47705445879102, -73.21850728289346	-73.21850728	44.47705445879122
8/22/18 8:49 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU012276	Burlington PD	2	0.3	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47671816195556, -73.21879629693102	-73.21876563	44.47671816195559
8/24/18 3:53 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU011320	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
8/24/18 8:29 AM	Burlington	Pearl St	PEARL ST.	Injury	Rear End	Cloudy	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU011970	Burlington PD	2	0.01	None/Other	Day	Battery St	None	None		VT0040100	T - Intersection	None	Pearl St	Dry	US038	44.480262366915966, -73.21881191857113	-73.21881192	44.480266036569077
8/25/18 5:27 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU000683	Burlington PD	2	0	None/Other	Night	Battery St	None	None		VT0040100			Main St		US022	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
8/28/18 8:34 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU001362	Burlington PD	2	0.4	None/Other	Day	Cherry St	None	None		VT0040100			60 Battery St		US008	44.47613588997531, -73.21885864492918	-73.21885864	44.47613588997513
8/27/18 11:57 AM	Burlington	Sherman St	SHERMAN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU000465	Burlington PD	2	0	None/Other	Night	Park St	None	None		VT0040100			Sherman St		US048	44.48203534652725, -73.21916126696405	-73.21916227	44.48203534652725
8/29/18 1:44 AM	Burlington	Main St	MAIN ST.	Property Damage Only	Opp Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU000229	Burlington PD	2	0	None/Other	Day	Battery St	None	Heavy Truck		VT0040100	Four-way Intersection	None	Main St	Dry	US022	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
9/15/18 9:37 AM	Burlington	73 King St	KING ST	Property Damage Only	Other - Explain in Narrative	Clear	Street or Town Highways in FA Urban Area	18BU027741	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	Heavy Truck		VT0040100	Not at a Junction	None	73 King St	Dry	0	44.47452105742125, -73.21859345655626	-73.21859346	44.47452268997499
9/18/18 12:27 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU026367	Burlington PD	2	0.15	None/Other	Day	King St	None	Heavy Truck		VT0040100			Battery St		US008	44.47452105742125, -73.21859345655626	-73.21859346	44.47452105742125
9/25/18 10:15 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU022408	Burlington PD	2	0.55	None/Other	Night	Pearl St	None	None		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
10/12/18 11:38 AM	Burlington	Park St	PARK ST.	Property Damage Only	Same Direction Sideswipe	Rain	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU024708	Burlington PD	2	0.07	None/Other	Day	Monroe St	None	None		VT0040100	Not at a Junction	None	Park St	Wet	US036	44.481402503766879, -73.21909951492289	-73.21909951	44.481402503766879
10/19/18 5:15 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU024401	Burlington PD	2	0	None/Other	Day	Park St	None	None		VT0040100			Pearl St		US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
10/23/18 1:34 AM	Burlington	North Ave	SHERMAN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU023673	Burlington PD	2	0	None/Other	Day	Park St	None	None		VT0040100			North Ave		US048	44.48203534652725, -73.21916126696405	-73.21916227	44.48203534652725
11/14/18 3:50 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU015656	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
11/16/18 1:03 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU027019	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
11/24/18 11:03 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019519	Burlington PD	2	0.55	None/Other	Night	Pearl St	None	None		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
12/4/18 7:54 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019773	Burlington PD	2	0	None/Other	Day	Pearl St	None	None		VT0040100			Park St		US036	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
1/4/19 12:54 PM	Burlington	Battery St	BATTERY ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU019421	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
1/8/19 5:46 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019000	Burlington PD	2	0.21	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47542471353517, -73.21866049330945	-73.21866049	44.47542471353169
1/10/19 5:32 AM	Burlington	College St	COLLEGE ST.	Injury	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019335	Burlington PD	2	0	None/Other	Day	Battery St	None	Bicycle		VT0040100	Four-way Intersection	None	College St	Dry	US068	44.47687425729511, -73.21876640677115	-73.21876641	44.47687425724610
1/14/19 6:01 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU018344	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
1/20/19 9:24 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU019291	Burlington PD	2	0	None/Other	Day	Battery St	None	Heavy Truck		VT0040100			Pearl St		US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
1/21/19 10:08 AM	Burlington	45 Cherry St	CHERRY ST	Property Damage Only			Street or Town Highways in FA Urban Area	18BU019105	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			45 Cherry St		0	44.47912349899179, -73.21893451305309	-73.21893451	44.47912349899196
1/22/19 1:00 AM	Burlington	40 College St	COLLEGE ST	Property Damage Only			Other Public Roadway (Rest Areas, Shopping Center - anything open to public)	18BU017506	Burlington PD	9	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			40 College St		0	44.47686902437842, -73.21877431035433	-73.21877431	44.47686902437842
2/2/19 12:43 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU018298	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
2/24/19 9:18 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction Sideswipe	Cloudy	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU018372	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
3/3/19 5:02 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only	Right Turn and Thru, Angle Broadside --/--	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU017169	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Not at a Junction	None	Pearl St	Dry	US038	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
3/4/19 2:16 AM	Burlington	198 Battery St	BATTERY ST	Property Damage Only			Other Public Roadway (Rest Areas, Shopping Center - anything open to public)	19BU005486	Burlington PD	9	999.99000000000009	None/Other	Day	King St	None	None		VT0040100			198 Battery St		0	44.47458264897469, -73.21859350097766	-73.21859501	44.47458264897490
3/8/19 8:04 AM	Burlington	3 Main St	MAIN ST	Property Damage Only			Street or Town Highways in FA Urban Area	19BU007183	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			3 Main St		0	44.47572315361725, -73.21866785054272	-73.21866761	44.47572315367125
3/15/19 3:17 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU005583	Burlington PD	2	0.55	None/Other	Night	Pearl St	None	None		VT0040100			Battery St		US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
3/18/19 10:12 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU004732	Burlington PD	2	0.23	None/Other	Night	Main St	None	None		VT0040100			Battery St		US008	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
3/19/19 1:31 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Single Vehicle Crash	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU004382	Burlington PD	2	0.55	None/Other	Night	Pearl St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
3/20/19 6:07 AM	Burlington	Park St	PARK ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU006747	Burlington PD	2	0.08	None/Other	Day	Monroe St	None	None		VT0040100	Not at a Junction	None	Park St	Dry	US036	44.48123948758555, -73.21908830699979	-73.21908838	44.48123948758455
3/28/19 3:31 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU005389	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Main St		US022	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
4/5/19 7:38 AM	Burlington	Cherry St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU005205	Burlington PD	2	0.47	None/Other	Day	Battery St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
4/6/19 8:52 AM	Burlington	Sherman St	SHERMAN ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU001514	Burlington PD	2	0	None/Other	Day	Park St	None	None		VT0040100	T - Intersection	None	Sherman St	Wet	US048	44.48203534652725, -73.21916126696405	-73.21916227	44.48203534652725
4/12/19 11:06 AM	Burlington	45 Cherry St	CHERRY ST	Property Damage Only	Other - Explain in Narrative	Cloudy	Street or Town Highways in FA Urban Area	19BU002333	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100	T - Intersection	None	45 Cherry St	Dry	0	44.47912349899179, -73.21893451305309	-73.21893451	44.47912349899196
5/2/19 1:13 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU008611	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893280613341	-73.21893281	44.47912460513919
5/3/19 5:01 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU008899	Burlington PD	2	0.08	None/Other	Day	Maple St	None	None		VT0040100			Battery St		US008	44.47546753128882, -73.21850505289346	-73.21850505	44.47546753128819
5/17/19 5:12 AM	Burlington	College St	COLLEGE ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU009827	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Dry	US068	44.47687425729511, -73.21876640677115	-73.21876641	44.47687425724610
5/22/19 7:50 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU010174	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.480262366915966, -73.21901082725766	-73.21901083	44.480262366915966
5/28/19 12:55 PM	Burlington	Maple St	MAPLE ST. BURLINGTON	Property Damage Only	Other - Explain in Narrative	Rain	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU010693	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	Maple St	Wet	US066	44.47349082535904, -73.21850781289815	-73.21850781	44.47349082539043
6/7/19 1:55 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU012912	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
6/17/19 7:45 AM	Burlington	King St	KING ST	Property Damage Only			Street or Town Highways in FA Urban Area	19BU014712	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			King St		0	44.47452368997499, -73.21859350097766	-73.21859501	44.47452368997490
6/23/19 5:31 AM	Burlington	College St	COLLEGE ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU011534	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			College St		US068	44.47687425729511, -73.21876640677115	-73.21876641	44.47687425724610
6/24/19 12:34 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only	No Turns, Thru moves only, Broadside */-	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	18BU012943	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
7/3/19 12:13 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU015413	Burlington PD	2	0.45	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47864452753314, -73.21891868671701	-73.21891681	44.47864452753314
7/12/19 1:24 AM	Burlington	College St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside --/--	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU014886	Burlington PD	2	0.31	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584
7/14/19 5:30 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU012433	Burlington PD	2	0.23	None/Other	Night	Main St	None	None		VT0040100			Battery St		US008	44.475726143185511, -73.21867465508332	-73.21867464	44.475726143185511
7/20/19 4:23 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU013852	Burlington PD	2	0.08	None/Other	Day	Maple St	None	None		VT0040100			Battery St		US008	44.47546753128882, -73.21850505289346	-73.21850505	44.47546753128819
7/29/19 4:17 AM	Burlington	Park St	PARK ST.	Property Damage Only	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU016234	Burlington PD	2	0.11	None/Other	Day	Sherman St	None	Bicycle		VT0040100	Four-way Intersection	None	Park St	Dry	US036	44.48203534652725, -73.21916126696405	-73.21916227	44.48203534652725
7/30/19 1:30 AM	Burlington	Battery St	BATTERY ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU016431	Burlington PD	2	0.3	None/Other	Day	College St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.47671816195556, -73.21879629693102	-73.21876563	44.47671816195559
8/1/19 12:00 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TFHA and 3 TH's only)	19BU016162	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.476859073277584, -73.21876553420681	-73.21876553	44.476859073277584

2018-2022 Crash Data

Crash_Date	City_Town	Address	AOT_Route	Crash_Type	Collision_Direction	Weather	Road_Group	Report_Number	Reporting_Agency	Road_Group_ID	AOT_Actual_Milepoint	Animal	Time_of_Day	Intersection_With	Impairment	Involving	Non_Reportable_Address	Reporting_Agency_ID	Road_Characteristics	Road_Condition	Street_Address	Surface_Condition	AOT_Road_ID	Coordinates	Coordinates_X	Coordinates_Y
8/14/19 1:24 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU017629	Burlington PD	2	0	None/Other	Day	Battery St - South Side Of April Cornell	None	None		VT0040100			Main St		US022	44.4757261413855,-73.21867465508332	-73.21867466	44.47572614185511
8/18/19 11:41 AM	Burlington	King St	KING ST	Property Damage Only			Street or Town Highways in FA Urban Area	19BU018311	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			King St		0	44.47458264899749,-73.21859501	-73.21859501	44.47458264897490
8/19/19 2:02 AM	Burlington	College St	COLLEGE ST.	Injury	Opp Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU017842	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Dry	US068	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
8/20/19 4:18 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU018016	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St	Dry	US008	44.47655997327584,-73.21876553420681	-73.21876553	44.47655997327584
8/25/19 2:37 AM	Burlington	Battery St	BATTERY ST.	Injury	No Turns, Thru moves only, Broadside *+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU018582	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	Bicycle		VT0040100	Driveway	None	Battery St	Dry	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
8/28/19 6:48 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU018817	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
8/28/19 11:33 AM	Burlington	42 Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU018892	Burlington PD	2	0.08	None/Other	Day	North St	None	None		VT0040100			42 Park St		US036	44.48196550059371,-73.21911005	-73.21911005	44.48156550059371
8/29/19 7:03 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU018867	Burlington PD	2	0	None/Other	Day	Battery St	Alcohol	Heavy Truck		VT0040100	T - Intersection	None	Pearl St	Dry	US038	44.48026236691066,-73.21901083	-73.21901083	44.48026236691066
9/6/19 8:56 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU019646	Burlington PD	2	0.39	None/Other	Day	Hilton	None	None		VT0040100			60 Battery St		US008	44.47799414574003,-73.21884868	-73.21884868	44.47799414574027
10/10/19 8:24 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU022550	Burlington PD	2	0	None/Other	Night	Battery St	None	None		VT0040100			Pearl St		US038	44.48026236691066,-73.21901083	-73.21901083	44.48026236691066
10/17/19 6:06 AM	Burlington	Park St	PARK ST.	Injury	Left Turn and Thru, Angle Broadside -->+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU023118	Burlington PD	2	0	None/Other	Night	Pearl St	None	Bicycle		VT0040100	T - Intersection	None	Park St	Dry	US036	44.48026236691066,-73.21901083	-73.21901083	44.48026236691066
10/18/19 7:44 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU023043	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Main St		US022	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
10/30/19 3:20 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Other - Explain in Narrative	Rain	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU024143	Burlington PD	2	0.31	None/Other	Night	College St	None	Pedestrian		VT0040100	Four-way Intersection	None	Battery St	Wet	US008	44.47685997327584,-73.21876553	-73.21876553	44.47685997327584
10/31/19 6:18 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU024041	Burlington PD	2	0.02	None/Other	Day	Battery St	None	None		VT0040100			Park St		US036	44.48058748505328,-73.219047	-73.219047	44.48058748505328
11/6/19 11:25 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Other - Explain in Narrative	Freezing Precipitation	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU024769	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100	Not at a Junction	Road Surface Condition (wet, icy, snow, slush, etc)	Battery St	Snow	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
11/8/19 5:57 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU024617	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
11/20/19 9:16 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU025612	Burlington PD	2	0.4	None/Other	Day	Cherry St	None	None		VT0040100			60 Battery St		US008	44.47913588997511,-73.21885964	-73.21885964	44.47813588997513
11/20/19 9:16 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU025612	Burlington PD	2	0.4	None/Other	Day	Cherry St	None	None		VT0040100			60 Battery St		US008	44.47913588997511,-73.21885964	-73.21885964	44.47813588997513
12/14/19 12:29 PM	Burlington	49 Cherry St	CHERRY ST	Property Damage Only			Street or Town Highways in FA Urban Area	19BU027354	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			49 Cherry St		0	44.47912349899179,-73.21893451305309	-73.21893451	44.47912349891790
12/22/19 2:43 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Right Turn and Thru, Same Direction Sideswipe/Angle Crash ~*<	Cloudy	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	19BU027870	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47685997327584,-73.21876553420681	-73.21876553	44.47685997327584
1/8/20 8:25 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU000692	Burlington PD	2	0.23	None/Other	Night	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
1/10/20 7:10 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU000547	Burlington PD	2	0	None/Other	Night	Battery St	None	None		VT0040100			Main St		US022	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
1/22/20 1:26 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU001604	Burlington PD	2	0.158	None/Other	Day	King St	None	None		VT0040100			Battery St		US008	44.47645153187443,-73.21860269	-73.21860269	44.47645153187443
1/23/20 4:28 AM	Burlington	Pearl St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU001517	Burlington PD	2	0.265	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US038	44.48022266832746,-73.21871767	-73.21871767	44.47622204802746
1/26/20 11:59 AM	Burlington	125 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU001827	Burlington PD	2	0.316	None/Other	Day	College St	None	None		VT0040100			125 Battery St		US008	44.47694560415752,-73.21877185	-73.21877185	44.47694560415718
1/27/20 8:48 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU001879	Burlington PD	2	0.01	None/Other	Day	Battery St	None	None		VT0040100			Main St		US022	44.47572640515266,-73.21849063	-73.21849063	44.47572640515266
1/31/20 10:20 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU002202	Burlington PD	2	0.229	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47571186673865,-73.21867430268605	-73.2186743	44.47571186736650
2/6/20 11:40 AM	Burlington	Main St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Same Direction Sideswipe/Angle Crash ~<-	Freezing Precipitation	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU002642	Burlington PD	2	0.233	None/Other	Day	Battery St	Alcohol	Heavy Truck		VT0040100	Four-way Intersection	None	Main St	Snow	US008	44.47576862036914,-73.21867894292384	-73.21867894	44.47576862036914
2/14/20 4:13 AM	Burlington	45 Cherry St	CHERRY ST	Property Damage Only	Other - Explain in Narrative	Clear	Street or Town Highways in FA Urban Area	20BU003221	Burlington PD	5	999.99000000000009	None/Other	Night	Battery St	None	None		VT0040100	Parking Lot	None	45 Cherry St	Dry	0	44.47912349899179,-73.21893451305309	-73.21893451	44.47912349891790
2/14/20 8:27 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU003206	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
2/23/20 11:30 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU003843	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
3/3/20 9:47 AM	Burlington	College St	COLLEGE ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU004450	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	T - Intersection	None	College St	Dry	US068	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
3/5/20 2:18 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU004643	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
3/15/20 8:03 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU008827	Burlington PD	2	0.311	None/Other	Night	College St	None	None		VT0040100			Battery St		US008	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
3/16/20 7:02 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU008781	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
5/27/20 4:12 AM	Burlington	Main St	MAIN ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU009690	Burlington PD	2	0.004	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	Main St	Dry	US022	44.47572640771906,-73.21866103412388	-73.21866103	44.47572647719088
6/6/20 5:28 AM	Burlington	Lake St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU010400	Burlington PD	2	0.315	None/Other	Day	College St	None	None		VT0040100			Lake St		US008	44.47693086417465,-73.21877686346301	-73.2187768	44.47693086417465
6/22/20 8:06 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU011893	Burlington PD	2	0.112	None/Other	Day	Sherman st	None	None		VT0040100			Park St		US036	44.48208204769872,-73.21916537	-73.21916537	44.48208204769729
6/27/20 3:47 AM	Burlington	King St	KING ST	Property Damage Only	Opp Direction Sideswipe	Clear	Street or Town Highways in FA Urban Area	20BU011475	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	Work zone (construction / maintenance / utility)	King St	Dry	0	44.47458264899749,-73.21859501	-73.21859501	44.47458264897490
7/12/20 6:34 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU013002	Burlington PD	2	0.231	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
7/15/20 1:49 AM	Burlington	Battery St	BATTERY ST.	Injury	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU013178	Burlington PD	2	0.534	None/Other	Night	Pearl St	None	Pedestrian		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.48003526270888,-73.21900459	-73.21900459	44.48003526270888
7/16/20 12:03 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU013295	Burlington PD	2	0.321	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47701592284797,-73.21877691	-73.21877691	44.47701592284797
7/27/20 5:05 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU014091	Burlington PD	2	0.311	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
8/10/20 12:50 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU015065	Burlington PD	2	0.472	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47915654716445,-73.21893578	-73.21893578	44.47915654716445
9/16/20 3:53 AM	Burlington	Park St	PARK ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU017789	Burlington PD	2	0.009	None/Other	Day	Pearl St	None	None		VT0040100	Not at a Junction	None	Park St	Dry	US036	44.48041052729963,-73.21903533	-73.21903533	44.48041052729628
9/19/20 6:11 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU017935	Burlington PD	2	0.304	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47677487522912,-73.21876035	-73.21876035	44.47677487522925
10/6/20 2:01 AM	Burlington	College	COLLEGE ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU019048	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College	Dry	US068	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
10/13/20 3:09 AM	Burlington	College St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU022231	Burlington PD	2	0.326	None/Other	Day	Battery St	None	None		VT0040100			College St		US008	44.47708805549691,-73.21876216297424	-73.21876216	44.47708805549803
10/16/20 8:01 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU000586	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867466	44.47572614185511
11/2/20 7:18 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU000312	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584,-73.21876553420681	-73.21876553	44.47685997327584
11/9/20 12:58 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU020908	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
11/7/20 1:51 AM	Burlington	College St	COLLEGE ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU020993	Burlington PD	2	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			College St		0	44.47688924378422,-73.21877431835433	-73.21877431	44.47688924378423
11/14/20 9:58 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside -->+	Cloudy	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU019531	Burlington PD	2	0.311	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47687425726811,-73.21876406775	-73.21876641	44.47687425726109
12/1/20 12:09 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU002428	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867464	44.47572614185511
12/21/20 2:08 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU010023	Burlington PD	2	0.01	None/Other	Day	Battery St	None	None		VT0040100			Main St		US022	44.47572640515266,-73.21849063	-73.21849063	44.47572640515266
12/23/20 10:40 AM	Burlington	College St	COLLEGE ST	Property Damage Only			Street or Town Highways in FA Urban Area	21BU009035	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100			College St		0	44.47688924378422,-73.21877431835433	-73.21877431	44.47688924378423
1/8/21 3:59 AM	Burlington	Sherman St	SHERMAN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU004678	Burlington PD	2	0	None/Other	Day	Park St	None	None		VT0040100			Sherman St		US048	44.48205534505275,-73.21916526698495	-73.21916527	44.48205534505729
2/26/21 3:58 AM	Burlington	College St	COLLEGE ST.	Property Damage Only	No Turns, Thru moves only, Broadside *+	Rain	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU022249	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Wet	US068	44.47687425724611,-73.21876406775	-73.21876641	44.47687425726109
3/1/21 4:04 AM	Burlington	Maple St	MAPLE ST. BURLINGTON	Property Damage Only	Single Vehicle Crash	Rain	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU005981	Burlington PD	2	0	None/Other	Day	Battery St	None	Heavy Truck		VT0040100	Four-way Intersection	None	Maple St	Wet	US066	44.47549825359064,-73.21850781	-73.21850781	44.47549825359043
3/15/21 8:11 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU020852	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	Not at a Junction	None	Battery St	Dry	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
3/18/21 3:00 AM	Burlington	Battery St	BATTERY ST.	Injury	No Turns, Thru moves only, Broadside *+	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU014154	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.47912465513302,-73.21893281	-73.21893281	44.47912465139319
3/22/21 4:39 AM	Burlington	42 Park St	PARK ST.	Injury	Other - Explain in Narrative	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU019727	Burlington PD	2	0.071	None/Other	Night	Sherman St	None	Pedestrian		VT0040100	Other - Explain in Narrative	None	42 Park St	Wet	US036	44.48141880302842,-73.21910657	-73.21910657	44.48141880302849
3/30/21 8:08 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU007393	Burlington PD	2	0.4	None/Other	Day	60 Battery St	None	None		VT0040100			60 Battery St		US008	44.47913588997511,-73.21885964	-73.21885964	44.47813588997513
4/1/21 12:45 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU000810	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47685997327584,-73.21876553420681	-73.21876553	44.47685997327584
5/5/21 3:12 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU021395	Burlington PD	2	0.326	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47708805549691,-73.21876216297424	-73.21876216	44.47708805549803
6/10/21 3:30 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU021550	Burlington PD	2	0.478	None/Other	Day	Lake St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.47924153945514,-73.21894369	-73.21894369	44.47924153945434
6/12/21 4:54 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20BU020683	Burlington PD	2	0.214	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47548496970905,-73.21866485	-73.21866485	44.47548496970949
6/17/21 2:33 AM	Burlington	125 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU011935	Burlington PD	2	0.29	None/Other	Day	125 Battery St	None	None		VT0040100			125 Battery St		US008	44.47657641391104,-73.21874525540363	-73.21874526	44.47657641391604
6/19/21 2:37 AM	Burlington	College St	COLLEGE ST.	Property Damage Only	Single Vehicle Crash	Freezing Precipitation	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU002793	Burlington PD	2	0	None/Other	Night	Battery St	None	None		VT0040100	Four-way Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	College St	Ice	US068	44.47685997327584,-73.21876406775	-73.21876641	44.47687425726109
6/29/21 2:55 AM	Burlington	Park St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU003550	Burlington PD	2	0.51	None/Other	Day	Sherman St	None	None		VT0040100			Park St		US008	44.47959491644383,-73.21898328796	-73.21898328	44.47959491644382
7/23/21 8:46 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU009710	Burlington PD	2	0.15	None/Other	Day	King St	None	None		VT0040100			Battery St		US008	44.47452105742256,-73.21859346	-73.21859346	44.47452105742256
7/27/21 12:51 PM	Burlington	42 Park St	PARK ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU015453	Burlington PD	2	0.09	None/Other	Day	Monroe St	None	None		VT0040100	Other - Explain in Narrative	None	42 Park St	Dry	US036	44.48172845754784,-73.21912154	-73.21912154	44.48172845754784
7/28/21 11:54 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU017047	Burlington PD	2	0.49	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47941152938838,-73.21895513284	-73.21895513	44.47941152938839
7/31/21 12:41 PM	Burlington	Park St	PARK ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU013065	Burlington PD	2	0.07	None/Other	Day	Monroe St	None	None		VT0040100	Not at a Junction	None	Park St	Dry	US036	44.48140250376698,-73.21909951	-73.21909951	44.48140250376679
8/16/21 12:40 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU014000	Burlington PD	2	0.15	None/Other	Day	King St	None	None		VT0040100			Battery St		US008	44.47452105742256,-73.21859346	-73.21859346	44.47452105742256
8/17/21 12:00 PM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU020538	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100			Battery St		US008	44.47572614318551,-73.21867465508332	-73.21867466	44.47572614185511
8/19/21 10:26 AM	Burlington	Main St	MAIN ST.	Property Damage Only	Right Turn and Thru, Broadside *+<	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU011352	Burlington PD	2	0	None/Other	Day	Battery St	None	Heavy Truck		VT0040100	Four-way Intersection	Obstruction in roadway	Main St	Dry	US022	44.47572614318551,-73.21867465508332	-73.21867466	44.47572614185511
8/30/21 11:06 AM	Burlington	Main St	MAIN ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU017703	Burlington PD	2	0	None/Other	Night	Battery St	None	None		VT0040100			Main St		US022	44.47572614318551,-73.21867465508332	-73.21867466	44.47572614185513
9/1/21 7:42 AM	Burlington	Park st	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU010763	Burlington PD	2	0.11	None/Other	Day	Sherman st	None	None		VT0040100			Park st		US036	44.48205534505275,-73.21916526698495	-73.21916527	44.48205534505729
9/7/21 2:42 AM	Burlington	Cherry St	CHERRY ST	Injury	Single Vehicle Crash	Clear	Street or Town Highways in FA Urban Area	21BU011706	Burlington PD	5	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100	Not at a Junction	None	Cherry St	Dry	0	44.47912349899179,-73.21893451305309	-73.21893451	44.47912349891790
9/17/21 6:51 AM	Burlington	Park St	PARK ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU015704	Burlington PD	2	0.11	None/Other	Day	Sherman St	None	None		VT0040100	Four-way Intersection	None	Park St	Dry	US036	44.48205534505275,-73.21916526698495	-73.21916527	44.48205534505729
9/21/21 8:08 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU013098	Burlington PD	2	0.3	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47673816195556,-73.21875626683102	-73.2187563	44.47673816195559
9/25/21 4:23 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU008933	Burlington PD	2	0.11	None/Other	Day	Sherman St	None	None		VT0040100			Park St		US036	44.48205534505275,-73.21916526698495	-73.21916527	44.48205534505729
10/10/21 2:47 AM	Burlington	Battery St	BATTERY ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU004027	Burlington PD	2	0.15	None/Other	Night	King St	None	None		VT0040100	Not at a Junction	Non-highway work	Battery St	Dry	US008	44.47452105742256,-73.21859346	-73.21859346	44.47452105742256
10/19/21 6:14 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU003377	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100			Battery St		US008	44.48026236691066,-73.21901083	-73.21901083	44.48026236691066
10/29/21 11:57 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU011656	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584,-73.

2018-2022 Crash Data

Crash_Date	City_Town	Address	AOT_Route	Crash_Type	Collision_Direction	Weather	Road_Group	Report_Number	Reporting_Agency	Road_Group_ID	AOT_Actual_Milepoint	Animal	Time_of_Day	Intersection_With	Impairment	Involving	Non_Reportable_Address	Reporting_Agency_ID	Road_Characteristics	Road_Condition	Street_Address	Surface_Condition	AOT_Road_ID	Coordinates	Coordinates_X	Coordinates_Y
2/1/22 6:06 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU001484	Burlington PD	2	0.11	None/Other	Night	Sherman St	None	None		VT0040100			Park St		US036	44.482053436529725, -73.21916327	-73.21916327	44.482053436529725
2/3/22 8:34 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Left Turn and Thru, Angle Broadside ->v-	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU001494	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection	None	Battery St	Wet	US008	44.47912460513302, -73.21893281	-73.21893281	44.479124605139319
2/5/22 3:44 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU004096	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584, -73.21876553	-73.21876553	44.476859972277584
2/16/22 3:48 AM	Burlington	Pearl St	PEARL ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU002689	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US038	44.480262366915966, -73.21901083	-73.21901083	44.480262366915966
2/19/22 8:00 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU001699	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584, -73.21876553	-73.21876553	44.476859972277584
2/25/22 12:14 PM	Burlington	College St	COLLEGE ST.	Property Damage Only	Rear End	Freezing Precipitation	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU020365	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	Road Surface Condition (wet, icy, snow, slush, etc)	College St	Snow	US068	44.476874257246111, -73.21876641	-73.21876641	44.476874257246109
2/27/22 8:02 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU002434	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893281	-73.21893281	44.479124605139319
3/15/22 8:40 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU016644	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584, -73.21876553	-73.21876553	44.476859972277584
3/22/22 8:42 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU014632	Burlington PD	2	0.31	None/Other	Day	College St	None	None		VT0040100			Battery St		US008	44.47685997327584, -73.21876553	-73.21876553	44.476859972277584
3/25/22 12:52 PM	Burlington	College St	COLLEGE ST.	Property Damage Only	Left Turn and Thru, Angle Broadside ->v-	Rain	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU013268	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Wet	US068	44.476874257246111, -73.21876641	-73.21876641	44.476874257246109
4/29/22 2:27 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU018275	Burlington PD	2	0.07	None/Other	Day	Maple St	None	None		VT0040100			Battery St		US008	44.473317517740362	-73.21848395	44.473317517740362
5/18/22 4:40 AM	Burlington	Skin Bliss	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	20228U013876	Burlington PD	2	0.17	None/Other	Day	Battery St	None	None		VT0040100	Not at a Junction		Skin Bliss		0	44.47482225829113304, -73.21861626	-73.21861626	44.47482225829113304
6/2/22 2:56 AM	Burlington	117-149 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU018427	Burlington PD	2	0.234	None/Other	Day	Battery St	None	None		VT0040100	Not at a Junction		117-149 Battery St		0	44.47578277977362, -73.21868038	-73.21868038	44.47578277977322
6/7/22 4:45 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU017687	Burlington PD	2	0.107	None/Other	Day	Sherman St	None	None		VT0040100	T - Intersection		Park St		0	44.48200476308264, -73.21915879	-73.21915879	44.48200476308267
6/20/22 3:40 AM	Burlington	Park St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU011422	Burlington PD	2	0.11	None/Other	Day	Sherman St	None	None		VT0040100			Park St		US036	44.482053436529725, -73.21916327	-73.21916327	44.482053436529725
6/29/22 10:59 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU011756	Burlington PD	2	0.31	None/Other	Night	College St	None	None		VT0040100			Battery St		US008	44.47685997327584, -73.21876553	-73.21876553	44.476859972277584
7/6/22 3:32 AM	Burlington	Battery St	BATTERY ST.	Injury	Left Turn and Thru, Angle Broadside ->v-	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU008878	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	US008	44.47912460513302, -73.21893281	-73.21893281	44.479124605139319
7/10/22 7:52 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU008478	Burlington PD	2	0.47	None/Other	Day	Cherry St	None	None		VT0040100			Battery St		US008	44.47912460513302, -73.21893281	-73.21893281	44.479124605139319
8/8/22 10:39 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only	Same Direction Sideswipe	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU003839	Burlington PD	2	0.4	None/Other	Day	Battery St	None	Heavy Truck		VT0040100	Not at a Junction		60 Battery St	Dry	US008	44.47813588997513, -73.21885864	-73.21885864	44.47813588997513
8/10/22 1:47 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU006101	Burlington PD	2	0.23	None/Other	Day	Main St	None	None		VT0040100	Four-way Intersection	None	Battery St	Dry	US008	44.47572614318551, -73.21867456	-73.21867456	44.475726143185511
8/10/22 7:26 AM	Burlington	Park St	PARK ST.	Injury	Single Vehicle Crash	Rain	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU018414	Burlington PD	2	0.06	None/Other	Night	Monroe St	None	Pedestrian		VT0040100	Not at a Junction	Other - Explain in Narrative	Park St	Wet	US036	44.48123948758455, -73.21908938	-73.21908938	44.481239487585455
8/11/22 11:58 AM	Burlington	36-44 Park St	PARK ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU020061	Burlington PD	2	0.072	None/Other	Day	Park St	None	None		VT0040100	Not at a Junction		36-44 Park St		0	44.48143510228801, -73.21910162	-73.21910162	44.48143510228801
8/16/22 5:50 AM	Burlington	117-149 Battery St	BATTERY ST	Injury	Left Turn and Thru, Angle Broadside ->v-	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU019463	Burlington PD	2	0.309	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	117-149 Battery St	Dry	0	44.47684579049572, -73.21876467	-73.21876467	44.476845790495723
8/22/22 8:52 AM	Burlington	Battery St	BATTERY ST.	Property Damage Only	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU015541	Burlington PD	2	0.47	None/Other	Night	Cherry St	None	None		VT0040100	T - Intersection	None	Battery St	Dry	0	44.47912460513302, -73.21893281	-73.21893281	44.479124605139319
8/26/22 1:51 AM	Burlington	2-34 Park St	PARK ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU014527	Burlington PD	2	0	None/Other	Night	Battery St/Pearl St	None	None		VT0040100	T - Intersection		2-34 Park St		0	44.480262366915966, -73.21901083	-73.21901083	44.480262366915966
8/26/22 6:54 AM	Burlington	College St	COLLEGE ST.	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU014489	Burlington PD	2	0	None/Other	Day	Battery St	None	None		VT0040100	Four-way Intersection	None	College St	Dry	US068	44.476874257246111, -73.21876641	-73.21876641	44.476874257246109
9/15/22 2:11 AM	Burlington	Pearl St	PARK ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU014266	Burlington PD	2	0.001	None/Other	Day	Battery St	None	None		VT0040100			Pearl St		US036	44.480262366915966, -73.21901083	-73.21901083	44.480262366915966
9/23/22 1:17 AM	Burlington	180 Battery St / Nu Chocolat	BATTERY ST	Property Damage Only	Single Vehicle Crash	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU023301	Burlington PD	2	0.139	None/Other	Night	King St	None	None		VT0040100	Four-way Intersection	None	180 Battery St / Nu Chocolat	Dry	0	44.47435541488992, -73.21858054	-73.21858054	44.47435541488921
9/24/22 4:58 AM	Burlington	1-31 Park St	PARK ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU015015	Burlington PD	2	0.55	None/Other	Day	Pearl St	None	None		VT0040100	Not at a Junction		1-31 Park St		0	44.48026830942102, -73.21903874	-73.21903874	44.48026830942102
10/8/22 1:33 AM	Burlington	34-58 Battery St	BATTERY ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU014588	Burlington PD	2	999.99000000000009	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection		34-58 Battery St		0	44.47920709398785, -73.21893771	-73.21893771	44.479207069288785
10/17/22 5:02 AM	Burlington	Battery St	BATTERY ST	Injury	Left Turn and Thru, Angle Broadside ->v-	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU023634	Burlington PD	2	0.465	None/Other	Day	Cherry St	None	Pedestrian		VT0040100	T - Intersection	None	Battery St	Dry	0	44.47905729791055, -73.21892696	-73.21892696	44.479057297919047
10/20/22 3:32 AM	Burlington	42 Park St	PARK ST	Injury	Rear End	Cloudy	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU020640	Burlington PD	2	0.085	None/Other	Day	Sherman St	None	None		VT0040100	Y - Intersection	None	42 Park St	Dry	0	44.48164699965065, -73.21911531	-73.21911531	44.48164699965650
10/21/22 4:39 AM	Burlington	34-58 Battery St	BATTERY ST	Injury	Left Turn and Thru, Angle Broadside ->v-	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU015903	Burlington PD	2	999.99000000000009	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection	None	34-58 Battery St	Dry	0	44.47918001299764S, -73.21893738	-73.21893738	44.479180012987645
10/21/22 5:29 AM	Burlington	Park St	PARK ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU023868	Burlington PD	2	0	None/Other	Day	Sherman st	None	None		VT0040100	Four-way Intersection		Park St		0	44.48262366915966, -73.21901083	-73.21901083	44.48262366915966
10/26/22 10:23 AM	Burlington	1 North Ave	PARK ST	Property Damage Only			Other Public Roadway (Rest Areas, Shopping Center - anything open to public)	22BU018334	Burlington PD	9	999.99000000000009	None/Other	Day	South Parking Lot	None	None		VT0040100	Parking Lot		1 North Ave		0	44.48206711176428, -73.21921168	-73.21921168	44.48206711176428
11/21/22 2:05 AM	Burlington	Battery St	BATTERY ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU022479	Burlington PD	2	0.231	None/Other	Day	Main St	None	None		VT0040100	Not at a Junction		Battery St		0	44.47572614318551, -73.21867456	-73.21867456	44.475726143185511
11/26/22 8:33 AM	Burlington	60 Battery St	BATTERY ST.	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	21BU022749	Burlington PD	2	0.422	None/Other	Day	Hilton - Burlington Parking Garage	None	None		VT0040100	Parking Lot		60 Battery St		US008	44.47844773088813, -73.21888404	-73.21888404	44.478447730888128
12/3/22 9:44 AM	Burlington	12-38 College St	COLLEGE ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU020266	Burlington PD	2	999.99000000000009	None/Other	Day	Battery St	None	None		VT0040100	T - Intersection		12-38 College St		0	44.47693495939438S, -73.21880877	-73.21880877	44.476934959394386
12/9/22 8:00 AM	Burlington	111-115 Battery St	BATTERY ST	Property Damage Only			Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU020348	Burlington PD	2	999.99000000000009	None/Other	Day	College St	None	None		VT0040100	Four-way Intersection		111-115 Battery St		0	44.47690411636512, -73.21878374	-73.21878374	44.476904116361197
12/13/22 7:06 AM	Burlington	34-58 Battery St	BATTERY ST	Property Damage Only			Unknown	22BU020345	Burlington PD	0	999.99000000000009	None/Other	Day	Cherry St	None	None		VT0040100	T - Intersection		34-58 Battery St		0	44.47913501917876, -73.21893683	-73.21893683	44.479135019178777
12/22/22 7:16 AM	Burlington	Ridin' High	PARK ST	Injury	Rear End	Clear	Federal Aid Urban System (Class 2 TH's and 3 TH's only)	22BU024460	Burlington PD	2	0.002	None/Other	Night	Battery St	None	None		VT0040100	Not at a Junction	None	Ridin' High	Dry	0	44.48029477483106, -73.21901618	-73.21901618	44.48029477483106

Appendix C

Public Meeting Materials

Battery Street Corridor Scoping Study

Public Involvement Plan

Our approach to Public Participation and Stakeholder Engagement will focus on being open, inclusive, and interactive—providing multiple opportunities throughout the process to engage with the project and multiple platforms for providing input. We plan to reach a diverse set of stakeholders, where we plan to leverage what we hear with what we create.

Public Involvement

Our approach towards public participation is designed in the spirit of the CCRPC's Public Participation Plan and the City of Burlington Department of Public Work's guidelines. Our team of outreach specialists envision a highly collaborative process with the Project Team and Advisory Committee (AC) that will lead to the development of the final Public Involvement Plan.

The CCRPC's plan is predicated on an effective public involvement and outreach campaign that involves transportation stakeholders and the broader public early in the process, checks in with them frequently, and then supports an outreach effort to present the final plan. The intent of the public involvement effort is to further foster a spirit of inclusiveness and ownership of the study. To that end, efforts will be made to involve members of the public that may not have electronic access, the ability to attend public meetings, or require other accommodations such as translation services. This is particularly noteworthy as the neighborhoods immediately north and east of Battery Street are home to some of Burlington's lowest-income residents.

This project falls in the Involve level of the CCRPC's Spectrum of Participation. This level requires the CCRPC to work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. This includes two-way channel of communication and multiple interactions through advisory/ steering committees,

project meetings, workshops, etc. Additionally, at the Involve level, the staff will complete the Equity Impact Worksheet.

A variety of public engagement tools will be used to inform the community of public meetings and stakeholder interviews. Engagement needs to be sensitive to and accommodate the most common languages other than English along this corridor. Burlington's Racial Equity Toolkit shall be consulted. Potential public outreach ideas include:

- Consider multiple ways to alert the public that the project is starting and where to find additional information.
- Target businesses and business advocacy organizations, religious organizations, the public at large, traditionally underrepresented groups and their advocacy organizations.
- Engage the full range of residents, including newcomers, long-time residents, immigrants, people of color, seniors, young people, young families, people of all income levels, young leaders (teens and 20-somethings), business owners, and elected officials.
- Use both traditional and non-traditional outreach tools such as:
  - Online surveys
  - Wiki map
  - Vary meeting structure as appropriate (pop-up meeting, corridor tour, workshop, small groups, open house, etc.)
  - Project update newsletter/e-news
  - Interactive texting/keypad polling
  - Postcards, fliers, door hangers
  - Online calendars
  - Front Porch Forum
  - City's social media channels
  - Advisory Committee networks

VHB will engage the public and community stakeholders as outlined above and offers the following additional detail:

- To communicate to the public that the project is starting, we will spread the word through existing email listservs and networks—reaching people through existing community touchpoints. In addition, the City or CCRPC will attend community events, such as Neighborhood Planning Assemblies (NPA) Meetings for Ward 5 and Wards 2 and 3 to spread the word and find out more about best ways to reach community members in these specific neighborhoods. To reach more residents and visitors, VHB will consider a table in the park on a day when weather permits and/or gather input at bus stops or other areas along the corridor where folks congregate.
  - Ward 5 NPA meets on the third Thursday of every month at 6:45 PM on Zoom and in person at DPW
  - Wards 2 and 3 NPA meets on the second Thursday of every month at 6:30 PM on Zoom and in person at the Old North End Community Center
- Linguistically isolated communities constitute one of the traditionally underserved demographics that deserve consideration. For the purposes of this scope, VHB has assumed that CCRPC and the City will identify and interpret for these communities. The

City will leverage coordination with the REIB office to identify these communities and effective methods of engagement regarding the project within these communities. In addition, instructions for connecting with at the ready translation services will be made available at public meetings and engagement opportunities through the City of Burlington.

Stakeholder Engagement or Focus Group Meetings

VHB understands targeted meetings with specific populations may be required if the public engagement is not reaching these groups. We have included an allotment of time to provide materials for these targeted stakeholder meetings (also referred to as "Focus Group Meetings") to reach these populations. VHB understands the CCRPC and City will organize and host these Focus Group Meetings.

Advisory Committee

The Advisory Committee will be comprised of representatives of agencies and organizations identified by the City and the CCRPC. Advisory Committee meetings are expected to correspond to major project milestones. VHB will participate in four (4) working meetings with the project Advisory Committee which can be remote or in-person meetings. The Advisory Committee will include the following representatives:

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Norm Baldwin | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- Karen Paul | City Councilor
- Sophie Sauvé | Burlington Parks, Rec, & Waterfront
- Jamie Smith | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

Key stakeholder groups not serving on the Advisory Committee will be contacted via targeted outreach and project information will be shared with them throughout the project. Other stakeholder groups include: Emergency Services, CarShare Vermont, Vermont Department of Health, Chittenden Area Transportation Management Association (CATMA), CEDO, AARP, Cathedral Square, BBA, Walk Bike Council, Trusted Voices, and others as appropriate.

Public Meetings

Public meetings will be held at key project milestones and in formats designed to efficiently convey project information and solicit public input. Standalone public meetings will include:

- Local Concerns meeting
- Draft Alternatives Presentation
- Presentation to City Council
- Up to 2 updates (total) to City bodies such as the Transportation, Energy, and Utilities Committee (TEUC) and Department of Public Works Commission
- VHB will prepare to present the final recommended alternative for the Battery Street corridor at either a TEUC or City Council meeting

We anticipate that at least one component of the Local Concerns Meeting and Draft Alternatives Presentation will include in-person engagement. VHB will prepare presentation materials for public meetings according to the pre-determined nature of the meeting – either in-person or remote.

Schedule

Advisory Committee Meeting #1 | March 8th, 2023

At this meeting, VHB reviewed the project scope of work, timeline, and deliverables. The preliminary project goals and objectives were discussed, as well as hearing from the committee about background information and data that is relevant to undertaking the Study. The role of the Advisory Committee will be defined.

- **Deliverables**: VHB to provide meeting materials
- **Target date**: March 2023
- **Approval of Meeting Materials:** One Week Prior
- **VHB Responsibilities:** Meeting materials including presentation
- **City Responsibilities:** Meeting notes and AC communications
- **CCRPC Responsibilities**: Zoom link

Coordination with REIB | April - May 2023

The project team met with members from the REIB office to discuss the engagement plan with a specific focus on public meeting #1 and engagement beyond the public meeting event regarding local concerns for the project.

Adjustments to planned engagement as follows:

- One page translation instructions for accessing interpretive services
- Outreach to Richard Kemp Center, Trusted Community Voices, AALV, BSD, and VNAAC.

Public Meeting #1 | May 2nd, 2023

VHB lead the local concerns meeting including discussion of a shared vision, corridor issues and opportunities, and high-level priorities, as well understanding existing corridor conditions. Emphasis for this early engagement is on collection of data from members of the community. The meeting was advertised on city platforms, flyers, front porch forum, with assistance from the advisory committee.

- **Target Audience:** General public with focus on attendance and participation from targeted stakeholder outreach groups
- **Outreach:** Advertise meeting broadly on FPF, advertise at NPA meetings, post on City Calendar, post flyers at City Hall, Church Street Marketplace, near Waterfront area, potential flyer distribution to adjacent neighborhoods.
- **Objectives:** Craft Community Driven Vision, Identify Issues and Opportunities, Identify High-Level Priorities
- **Format**: Open House with small, focused workshop tables around specific topic areas; brief presentation with Q&A session
- **Target date**: May
- **VHB Responsibilities:** VHB to provide meeting materials (summary meeting notes, interactive materials, maps, boards). VHB to provide up to two people for the public meeting.
- **City Responsibilities:** CCRPC and/or City Staff responsible for meeting notification
- **CCRPC Responsibilities**: CCRPC and/or City Staff responsible for meeting notification
- **Approval of Meeting Materials:** Two weeks prior
- **Final Meeting Materials:** One week prior
- **Review:** Did we reach intended audience? Are there perspectives or voices missing from initial discussions? Adjust stakeholder interviews accordingly.

Reflections on Public Meeting #1

- The meeting was well publicized. In addition to the planned outreach, members of the project team were also interviewed by local news outlets WCAX and WPTZ/NBC5.
    - https://www.wcax.com/2023/05/02/building-better-battery-st-bikers-pedestrians/
    - https://www.mynbc5.com/article/battery-street-improvements-discussed-at-open-house/43774158#
- The open house format worked well as some business owners were able to stop by towards the beginning, speak with the project team, and leave prior to the 6:00 presentation.
- The recording equipment for posting to the project website didn't work as well as intended and will be modified for the second public meeting.
- Do we have official attendance numbers? If not, let's be sure to keep better track of that next time around.Discussion with the REIB office about the limitations and barriers to a formal public meeting and particularly one hosted at City Hall helped to adapt and broaden the stakeholder engagement plan to reach a broader and more diverse representation of the community.

Stakeholder Engagement | 2023

Stakeholder engagement will gather feedback regarding existing condition issues, perceptions of traveling along Battery Street, and desired needs for improved safety and connectivity. VHB supports CCRPC and City Staff in the Stakeholder engagement effort by providing materials.

- **Target Audience:** various targeted stakeholder groups, with emphasis on those historically underserved, overburdened, and/or underrepresented in transportation and

transportation decision making – may be groups of newcomers, long-time residents, immigrants, people of color, seniors, young people, young families, people of all income levels, young leaders (teens and 20-somethings), business owners, etc.

- **Target dates**: During the Local Concerns Engagement period and again during the Alternatives Evaluation Engagement period
- **VHB Responsibilities:** VHB to provide meeting materials
- **City Responsibilities:** City and/or CCRPC responsible for interview coordination and in person facilitation with stakeholder groups
- **CCRPC Responsibilities**: City and/or CCRPC responsible for interview coordination and in person facilitation with stakeholder groups
- **Review:** Did we reach the intended audience? Are there perspectives or voices missing from these discussions?

Local Concerns Engagement | May- July

Engagement surrounding the Local Concerns meeting began in May 2023 and is ongoing through July 2023. The project team recognized the importance of engaging with a diverse range of community members, including those who may not typically participate in public meetings or events. To reach a wider audience, the project team met with the City's REIB office to better understand the communities to engage, the trusted community liaisons in those communities, and how to promote the project and encourage participation from a broader range of stakeholders.

Pop-up style tabling events were held in various locations throughout the community, such as King Street Laundry and on the corner of Battery Street and Cherry Street, to provide easy access for residents to learn about the project and provide feedback. The meetings with the Burlington Business Association and Trusted Voices allowed for targeted engagement with specific groups, such as local business owners and community leaders.

To ensure that language barriers did not prevent community members from participating, the project team made translation services available on demand through printed, translated instructions to connect with the City's at the ready translation services at each of the public engagement events. This provides the opportunity for non-English speaking residents to fully participate in the process and share valuable input.

Overall, the project team recognized the need to engage a broader and more diverse range of community members and worked to adapt this plan accordingly. By utilizing various methods and resources, the team was able to successfully engage with a diverse group of residents and gather valuable feedback for the project.

Engagement Events included:

- King Street Laundry Tabling – May 21, 2023
- Battery Street & Cherry Street Tabling – May 26, 2023
- Burlington Business Association Annual Meeting – May 31, 2023
- WVMT Radio Interview – June 8, 2023

Upcoming:

- Trusted Voices Community Group – July 25
- Cathedral Square Assisted Living – TBD

Reflection on Engagement Events and Targeted Communities

- Efforts were made to speak directly with AALV, Richard Kemp Center, King Street Center, and Burlington High School.
    - Burlington High School is transitioning to a new Principal and a new contact to engage students is needed.
    - CCRPC staff met with AALV and King Street Center to begin to establish a relationship, mentioning the Battery Street project to assess interest in involvement. King Street Center expressed a distrust in the process, a fear of Battery Street improvements leading to gentrification of the King Street neighborhood, and that they are overloaded with more pressing concerns. AALV shared that their communities rarely use the Battery Street space, and shared the sentiment of having more pressing concerns within their communities, such as housing, childcare, and employment. Despite their already full plate, organizational representatives were able to complete our online survey and offer some high level feedback on Battery Street.
    - CCRPC staff is in communication with the Richard Kemp Center around facilitating an event/focus group.

Advisory Committee Meeting #2 | July 2023

The purpose of this meeting is to discuss the outcomes of the local concerns engagement period including the first public meeting and other engagement events and strategies, existing and future conditions, corridor issues, and present the draft Purpose and Need Statement. Additionally, the Advisory Committee will help promote the upcoming public meeting to their organizations.

- **Deliverables**: VHB to provide meeting materials
- **Target date**: July 2023
- **Approval of Meeting Materials:** One Week Prior
- **VHB Responsibilities:** Meeting materials including presentation
- **City Responsibilities:** Meeting notes and AC communications
- **CCRPC Responsibilities**: Zoom link

Public Meeting #2 | September 2023

Public Meeting #2 will be a Draft Alternatives presentation. Advertise meeting on city platforms, flyers, front porch forum, advisory committee assistance.

- **Target Audience:** General public with focus on attendance and participation from targeted stakeholder outreach groups
- **Outreach:** Advertise meeting broadly on FPF, post flyers at City Hall, Church Street Marketplace, near Waterfront area.
- **Objectives:** Present draft alternatives for the corridor and gather community feedback
- **Format**: Presentation style meeting
- **Target date**: September 2023

- **VHB Responsibilities:** VHB to provide meeting materials (presentation, summary meeting notes, interactive materials, maps, boards). VHB to provide up to two people for the public meeting.
- **City Responsibilities:** CCRPC and/or City Staff responsible for meeting notification
- **CCRPC Responsibilities**: CCRPC and/or City Staff responsible for meeting notification
- **Approval of Meeting Materials:** Two weeks prior
- **Final Meeting Materials:** One week prior
- **Review:** Did we reach intended audience? Did we capture feedback and input from the advisory committee, public meeting #1, stakeholder interviews, other engagement touchpoints on alternatives?

Advisory Committee Meeting #3 | September 2023

The purpose of this meeting is to discuss the draft alternatives, as well as discuss the feedback and comments from the second public meeting.

- **Deliverables**: VHB to provide meeting materials
- **Target date**: September 2023
- **Approval of Meeting Materials:** One Week Prior
- **VHB Responsibilities:** Meeting materials including presentation
- **City Responsibilities:** Meeting notes and AC communications
- **CCRPC Responsibilities**: Zoom link

Advisory Committee Meeting #4 | November 2023

The purpose of this meeting is to discuss the draft preferred alternative with the Advisory Committee for their consideration.

- **Deliverables**: VHB to provide meeting materials (presentation, agenda, meeting summary notes, etc.)
- **Target date**: November 2023
- **Approval of Meeting Materials:** One Week Prior

TEUC and/or DPW Meetings | 2024

- **Target Audience:** TEUC and DPW members, general public
- **Outreach:** Advertise on City website under normal channels
- **Objectives:** Present final preferred alternative
- **Format**: Presentation style meeting
- **Target date**: TBD 2024
- **VHB Responsibilities:** VHB to provide meeting materials (presentation, summary meeting notes). VHB to provide up to two people for the public meeting.
- **City Responsibilities:** CCRPC and/or City Staff responsible for meeting notification
- **CCRPC Responsibilities**: CCRPC and/or City Staff responsible for meeting notification
- **Approval of Meeting Materials:** Two weeks prior
- **Final Meeting Materials:** One week prior

Public Meeting #3 | March/April 2024

Public meeting #3 will present final preferred alternative(s) to City Council to seek endorsement of the recommended alternative(s).

- **Target Audience:** City Council members, general public, and engaged entities
- **Outreach:** Advertise on City website under normal channels
- **Objectives:** Present final alternatives to seek endorsement
- **Format**: Presentation style meeting
- **Target date**: March/April 2024
- **VHB Responsibilities:** VHB to provide meeting materials (presentation, summary meeting notes). VHB to provide up to two people for the public meeting.
- **City Responsibilities:** CCRPC and/or City Staff responsible for meeting notification
- **CCRPC Responsibilities**: CCRPC and/or City Staff responsible for meeting notification
- **Approval of Meeting Materials:** Two weeks prior
- **Final Meeting Materials:** One week prior
- **Review:** Has the preferred alternative identified by the public, engaged entities, and the advisory committee gained endorsement from City Council? Did we reach the engaged entities from earlier in the process with messaging regarding the endorsed, preferred alternative and process next steps? Is there other feedback and input on the process?



Battery Street Corridor Scoping Study

Advisory Committee Meeting #1
March 8, 2023

CHITTENDEN COUNTY RPC
Communities Planning Together

BURLINGTON, VT PUBLIC WORKS

vhb

Agenda

- Welcome + Introductions
- Public Comment Period
- Battery Street Corridor Scoping Study Overview
- Role of Advisory Committee
- Vision + Goals
- Next Steps



01|| Introductions

Project Team

vhb

- Drew Gingras
- Jenn Conley
- Karen Sentoff

Chittenden County RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

Burlington, VT Public Works

- Dayton Crites
- Ravi Venkataraman

Advisory Committee

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Norm Baldwin | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- Karen Paul | City Councilor
- Sophie Sauve | Burlington Parks, Rec, & Waterfront
- Jamie Smith | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

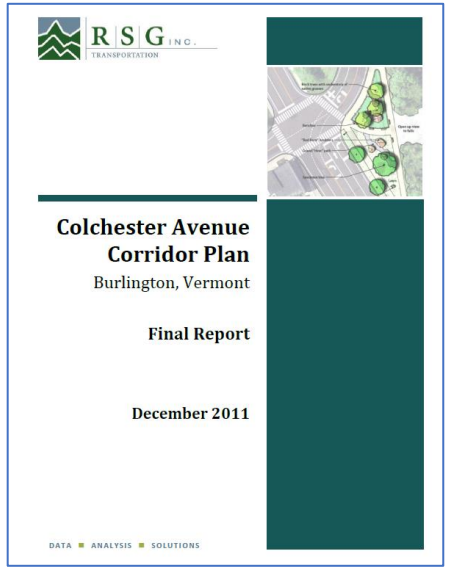
02|| Public Comment Period



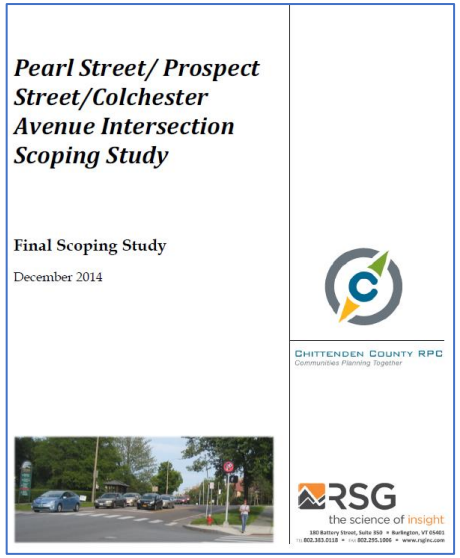
03|| Study Overview

What is a "Corridor Scoping Study"?

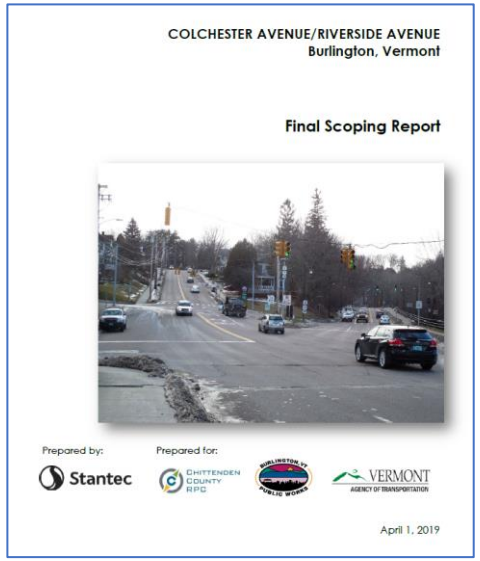
- Develops detailed alternatives for the corridor and key intersections
- Some intersections will require further study



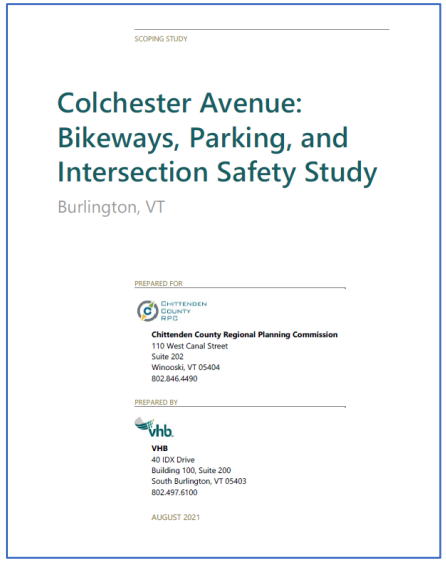
2011



2014

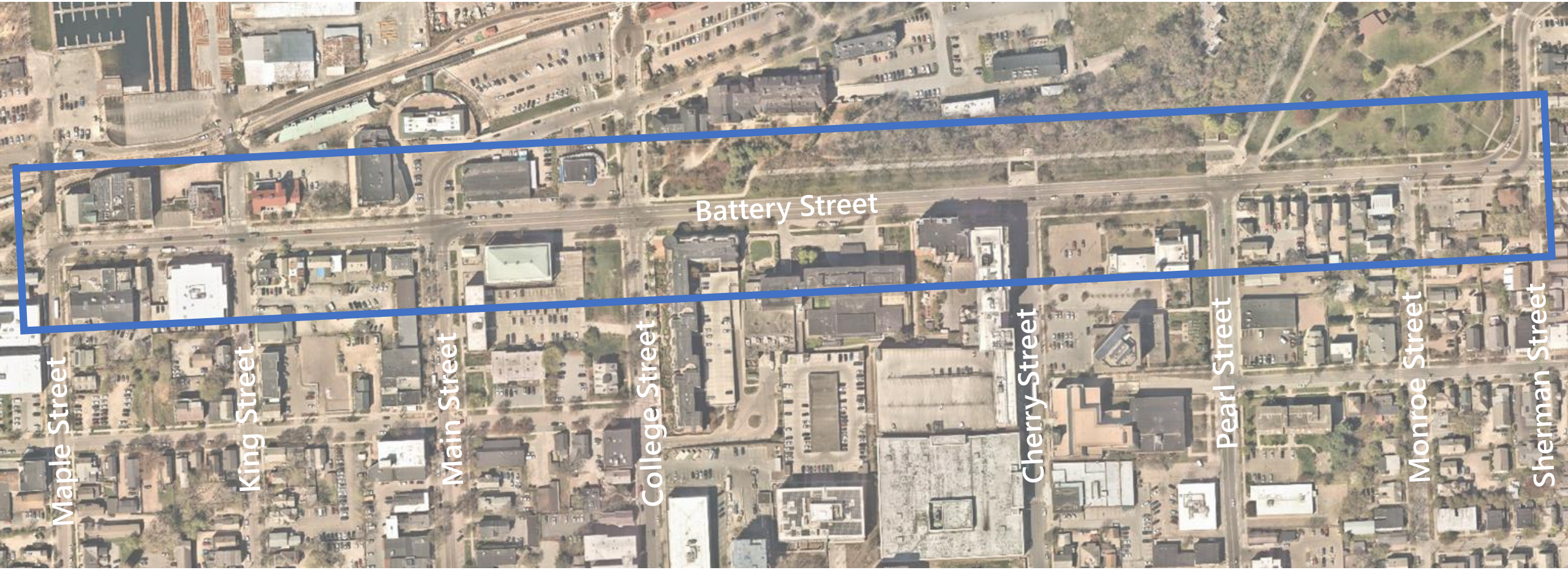


2019

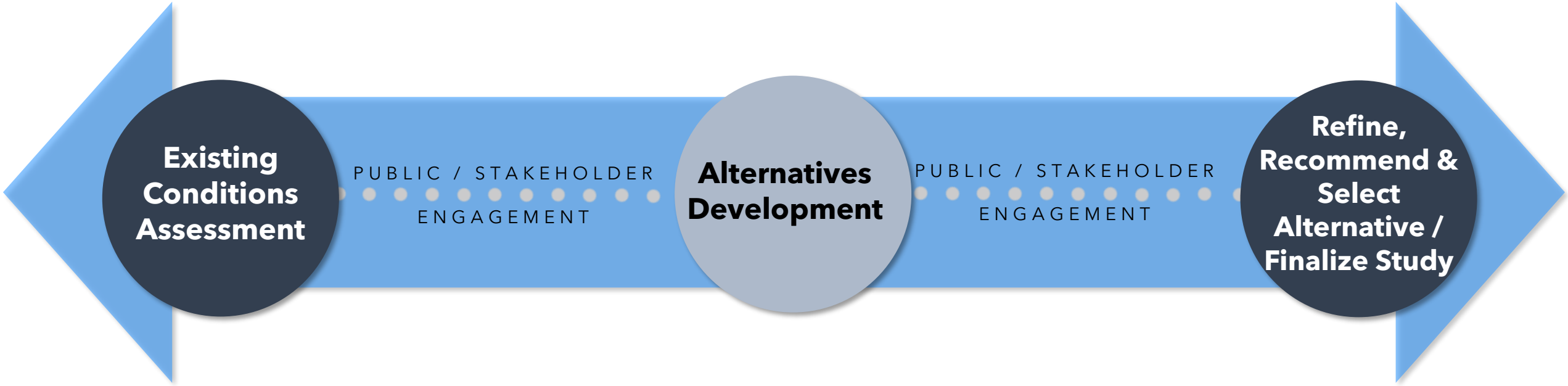


2021

Project Area



Scope of Work



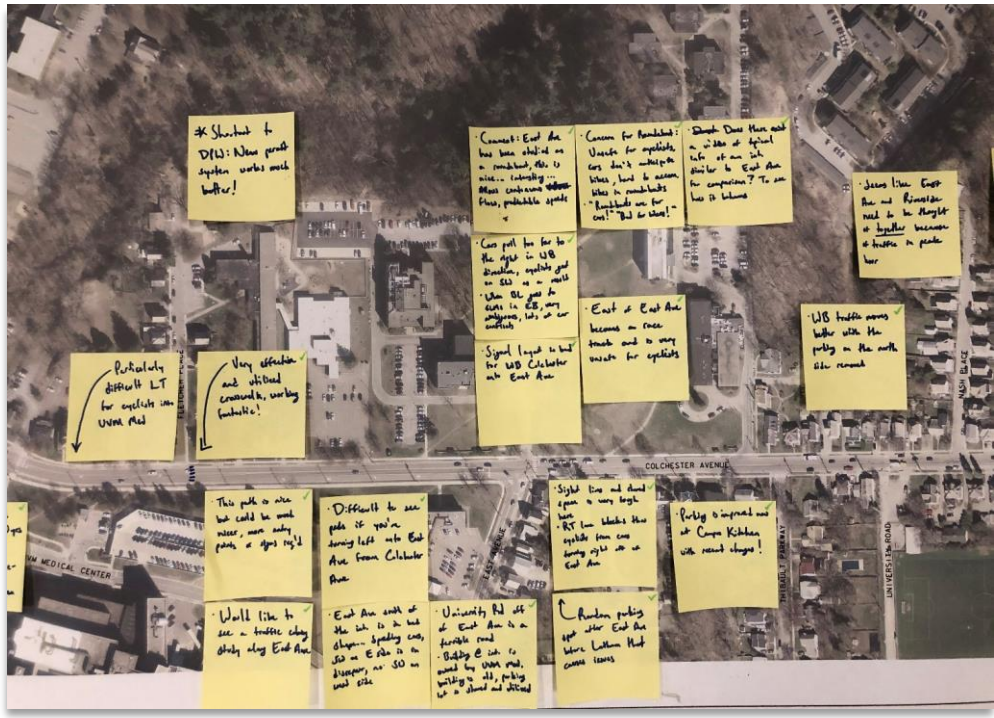
- Inventory of Roadway & Traffic Conditions
- Data Collection
- Traffic Analysis

- Develop Scoping & Feasibility Alternatives for Specific Project Locations
- Develop Full Corridor Alternatives
- Analyze / Assess Alternatives

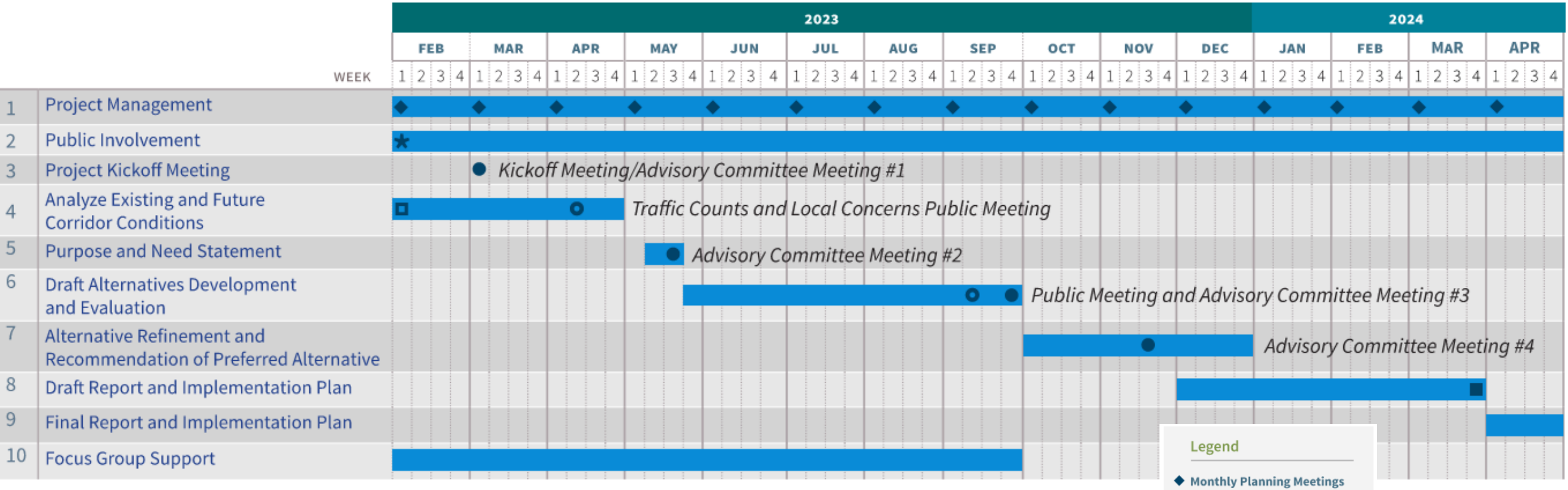
- Refine & Recommend Preferred Alternative
- Select Preferred Alternative
- Finalize Scoping Study

Community Engagement

- Advisory Committee
- Stakeholder Interviews
- Public Meetings
- Online Survey and Mapping Tool



Project Schedule





04|| Role of the Advisory Committee

Role of the Advisory Committee

Attend & participate in 4 AC meetings

Extra credit: attend public meetings as well!

Review and comment on materials

Provide guidance, insight, and *respectful* feedback throughout

Update representing entities on study progress

Bring views/opinions back to AC

Indicate preferences for improvements

Strive to achieve consensus



05|| Vision + Goals

Vision + Goals

What is your vision for the future of Battery Street?

What do you see as the biggest challenges facing Battery Street?

What do you hope this Study achieves?



06|| Next Steps

Next Steps

- Existing Conditions Collection & Analysis
- Prepare Materials for (and host) Public Meeting #1, the Local Concerns Meeting
- **Schedule Next Advisory Committee Meeting**

Contact Us

Jason Charest
Senior Transportation Planning Engineer

Chittenden County Regional Planning Commission
110 West Canal Street, Suite 202
Winooski, VT 05404

802-861-0127
jcharest@ccrpcvt.org

Drew Gingras, PE
Project Manager

40 IDX Drive, Bldg 100, Ste 200
South Burlington, VT 05403

802-391-5569
dgingras@vhb.com

Meeting Notes

Date:	March 8, 2023	Notes Taken By:	Elisabeth Sundberg
Place:	Teams/ CCRPC	Re:	Battery Street Scoping Study Advisory Committee Meeting #1
Project No.:	58644.10		

Drew Gingras, VHB
Karen Sentoff, VHB
Jenn Conley, VHB
Jason Charest, CCRPC
Ravi Venkataraman, Burlington DPW
Dayton Crites, Burlington DPW
Barbara Alsop, Ward 3
Ali Hamedani, Ward 3
Terry Rivers, Ward 5
Norm Baldwin, City Engineer
Gene Bergman, City Council
Phet Keomanyvanh, Office of Racial Equity, inclusion and belonging
Sophie Sauvé, Burlington Parks, Rec, and Waterfront

Welcome and Introductions

Drew welcomed the group and went over the agenda for the project. This included the scoping study overview, role of the advisory committee, vision and goals exercise and next steps

Drew Gingras from VHB introduced himself as the Project Manager.

Jenn Conley from VHB introduced herself as project advisor.

Karen Sentoff from VHB introduced herself as a transportation engineer and shared she will be providing the public engagement services throughout the project.

Jason Charset introduced himself as the project manager from CCRPC and shared that Eleni Churchill will be assisting with this project.

Ravi from the City of Burlington DPW introduced himself and shared that he will providing supporting assistance to Jason and Eleni.

Barbie Alsop introduced herself as a representative of Ward 3.

Terry Rivers introduced herself as a representative from Ward 5.

Norm Baldwin introduced himself as the City of Burlington Engineer.

Phet Keomanyvanh introduced herself as the REIB economic analyst for the City of Burlington.

Gene Bergman introduced himself as a City Council member.

Sophie Sauvé introduced herself as a planner with parks, rec, and waterfront department for the City of Burlington.

Phet shared that she recommends closed caption as a best practice for hybrid and virtual meetings.

Drew shared that they are in the process of scheduling the first public meeting, local concerns meeting, distributing a meeting notice for an April meeting.

Jason opened for general public comment

Gene asked if this was supposed to be publicized?

Jason shared that this was publicized on city calendar.

Gene added that if we wanted folks to join that we need to encourage them to join and make more effort to get the information out.

Jason shared that they are required to have notice that the general public to be able to share their input, but it is not the intent to invite the public to the meeting. We will be getting the website up and running for the meeting materials to be posted. It is not something that is geared for public input.

Jason provided an introduction of what a scoping study is, trying to combine a corridor and scoping study together. The project area includes Maple Street to Sherman Street, and the project will be working to develop corridor alternatives at key intersections. There will be scoping and feasibility level detail with the idea that we can get good consensus on those alternatives. The city could then proceed with implementing and fund those alternatives.

Jason added that higher level evaluation at some intersections and will require some future study. Subsequent efforts that will follow this study. Similar to the process that Colchester Avenue went through that will keep building upon previous work done. This project will lay the groundwork for a lot of future things and some that will be implemented out of this study.

Drew went over the study area, Battery Street from Maple Street to Sherman Street. He shared that there are a lot of projects going on along the corridor currently. Railyard Enterprise, Main Street, Amtrak connections study, recent bike/ped improvements at Sherman, two-way block facility on Champlain Street, Bank and Cherry Street are in design. It is a very active corridor, and it is a critical north - south corridor.

Sophie added as a reminder that Battery Park is along that corridor, and the city is slated to do a comprehensive plan and noted that those connections to use are very important.

Scope of Work

Drew went over the general scope of work that starts with an assessment of the corridor as it currently stands, are there data needs? The first public meeting will be a local concern meeting to understand the concerns and ideas that public has and use those to build alternatives to make sure that it is meeting the needs of the community. Drew shared the goal is to create a complete transportation system. Throughout the duration of the project, we will be meeting with the AC as well we will refine those alternative and recommend a future Battery Street. Hopefully can move to funding acquisition design.

It was asked if there was a way to connect to the Champlain Parkway Project?

Drew shared that with the forecasting done for the Champlain Parkway project will be implemented in traffic. Obtaining that study and will be factoring into future.

Karen went over the community engagement plan and shared they will be leaning on advisory committee to guide and shepherd this project. She added that the advisory committee is more connected to this area on a day-to-day basis than the project team. She added that targeted stakeholder outreach will be a tandem effort with VHB supporting to reach out to folks that haven't been engaged in the past and interact with Battery Street on a regular basis. Recognize that Battery Street can serve as a barrier and make sure people are at the table, and what is facing the corridor and what the envision for the future. She shared that there will be three public meetings and additional forums with TEUC and City Council and DPW commission. She added that spreading the message and ideas that have come up through the process to get collective buy in when finalizing alternatives is imperative. She shared that the project team will be casting the broader net to get input by utilizing an online survey and mapping tool to point out issues and opportunities throughout the corridor to comment on what is happening along the corridor. A lot of different issues and opportunities where folks can interact throughout the process.

Drew continued to share the project schedule and shared that the local concerns meeting happening in mid-April and the project team is currently working through the analysis of the future corridor conditions. After local concerns meeting, we will define the purpose and need. Nail down what we are working towards with this effort. As we get into the fall, we will meet with the public for a second time after we have our alternatives and then an implementation plan.

Sophie asked if there are plans for accommodations for translation services?

Drew shared that they will be working with the city to provide those services throughout the public engagement process.

Anne added that they have a couple translators that the RPC uses regularly.

Jenn asked if there are particular stakeholder groups to tap into because that information is always helpful.

Sophie shared she does not have any insights, but it is something they work on every comprehensive plan.

Norm added we need new ways to get at those groups that are underrepresented such as time of day and how often we offer touch points.

Jenn to follow up with Norm on the work they did for other nearby projects.

Phet added that outreach and interpreters doesn't mean we are going to get the people there. In past we have gone to the specific organizations, and she shared there are several different ambassadors who share out our meeting information. There is a lot of discussion around and she feels that the project is behind on where it needs to be for this level of engagement.

Jenn shared that there is outreach set aside from the public meetings and try to do a focused outreach.

Gene asked if an openness is there to have more than one meeting. It is insufficient to just have one meeting. Consider perhaps doing extra be able to reach that many people over extended and unable to attend a traditional meeting.

Kenn shared the idea of a multiple hour open house, and we are in place that we can engage in a rolling phase. Trying to create a different approach than a traditional public meeting.

It was shared that in April people are not yet into worrying about what is going on during the summertime.

Jenn shared that they think we understand tourism use and what we are getting at is to understand the people who are using it day to day because they must be and capturing those peoples. Some of that we know those answers between tourism and recreation connections.

Role of the Advisory Committee

Jenn asked if there are any community events in mind and if we can figure out how to get them? She added they are hoping to set up a table at the laundromat.

Norm shared he likes the idea having a project website for people to provide comments and give project updates. Some people don't like to come to meetings that can be available from that site.

Drew added that they can set up a constant open stream for public comment and mentioned that that is always available, so people know that is an open forum

Jenn added that we can create QR code to scan for information.

Phet shared that the social media campaign for the census was successful during the data collection. She said we should provide a number they can call for a question for interpreter,

Norm shared that they have that at public works website.

Jason went over the role of the advisory committee which includes attendance of these meetings, sending materials for you to review and provide comment on. Some of those would be bringing them to the meetings and ask that we be respectful of others' opinions and be welcoming of other perspectives. You represent different entities and prompting this project asked if you get feedback and questions that you bring it back to this group. At the end we hopefully get consensus on the final alternative

It was added that if you are not able to make a meeting you are allowed to have someone to sit in for you

Jenn added that your ongoing involvement and ability to share information about the project will improve the outcomes.

Vision and Goals

Drew shared as we do background data analysis and study, they want to understand the following:

What is your vision for the future of Battery?
What do you see as the biggest challenges facing Battery Street?
What do you hope this study achieves?

Barbie shared that she is here as a pedestrian I do not want to park, my problem with Battery Street is that is a racetrack people drive fast, run stoplights, unpleasant experience of the day. She shared that her friends view Battery Street as the most unsafe Street in Burlington

Terry added like Williston Road, how do we make it more walk or bike friendly.

Drew asked where along Battery Street do you feel unsafe?

Terry normally crosses at Main Street (lives on St. Paul and Main). Motorists coming up from Maple Street area aren't really a problem at the point, more that motorists coming down the hill are the problem.

Drew added that the lane configuration is confusing.

Terry shared that as a pedestrian you must stop and make sure people are stopping. Better chance going up to College or up to Sherman or Pearl Street.

Jenn asked if you are sharing south of Main is not as bad with speeding.

Terry agreed yes because most turns are left turns it creates more friction and it is not a comfortable place for pedestrian.
Maple to Main is not as bad given it's one lane in each direction. Coming down Maple and turning onto Battery and people are trying to turn right on red there, i.e. dangerous for pedestrians…

It was added that the crossing at Main Street feels unsafe.

Ali joined the meeting late and shared that he lives in Old North End, and he works in healthcare and drives for work to do home visits. He agrees with the speeds that people drive through Battery Street are too fast. He added that he bikes for enjoyment and commuting when he can, he also walks. He praised the temporary separated bike lanes that were along Battery during the Burlington Greenway detour. Hopefully something we can discuss. He added that he knows some teachers at Burlington High School, and shared that a student was recently hit by a car at Cherry Street on their way to the high school.

Phet added where the double lanes are, she has seen many times people turning when people are walking. Flashing signs should be added. In addition, it would be good to make things social for walkers. Something like rain gardens for people to sit and enjoy.

Norm added he is interested on others' opinions, effectively this treats four lanes of traffic. Would like to rebalance the space, figure out how this will interface with other streets and how this will be interfaced with public transit. Have heard for years for people using College Street to access the waterfront.

Sophie shared that Ali is the first time hearing positive feedback on bike lane change. She added that she is disheartened to hear someone was hit crossing. Connective part that is missing, that ability to safely cross a green space that is right there for all those students and people working downtown. Does feel like the corridor is so wide it is an opportunity to create a boulevard like Street. Really looking forward to the improvements we can envision for Battery Street.

Drew added that the crossing of Battery Street at the northern section is difficult. He added that the Burlington bike path in the tree canopy and how separated you can feel so close by. He asked if that is an inspiration we could pull from? Replicate that feeling to streetscape to make the whole Street feel more inviting.

Gene added the reason it is pleasant is because no one is walking there at night. You cross the berm and gravel area. Coming from the north you got the traffic coming and it merges with park Street, backs up a lot. Building of these lanes are out of line with the size of cars. The connections with the railroad district mean that turns off of Battery into the neighborhoods we have to figure that stuff out to avoid negative impacts to the King Street neighborhood. Challenges for the neighborhood for environmental racism and classism.

Gene added that as we develop Main Street there will be more development near Lake Champlain, more development around the ferry, the connections with the Marina and Perkins Pier and the use of that becomes important. Would love to be able to ride my bike up Battery Street. Planning for what will be infill and future development. Pay attention to the TIF districts.

Barbie shared she is concerned about more housing in the future.

Jenn added that they will look at what expect growth to look like, and how will that impact vehicle volumes.

Karen added that the TIF piece is important to pay attention to.

Gene added that Main Street TIF district those connections will be important.

Ali added to work around the Main Street project coordination and have it less segmented with closures.

Drew added that VHB is the consulting engineers on the Main Street project.

Drew shared the project team is looking at the existing condition, but both of those projects will be complete before this project would be done.

Barbie added that Main Street will be even more utilized in the future and she gave up biking in Burlington because she didn't feel safe along streets like Battery Street.

Next steps

Drew shared that next steps include finalizing the existing conditions and analysis and scheduled traffic counts. Build out a traffic model to assess the corridor. Prepare for the first public meeting, local concerns meeting. Follow up with scheduling our next check point which will be after the first public meeting.

Meeting Agenda

Battery Street Corridor Scoping Study
First Public Meeting (Local Concerns Meeting)
May 2, 2023, 4:00 – 7:30 PM
Contois Auditorium, 149 Church Street, Burlington, VT 05401

- **4:00pm – 6:00pm: Open House**
  - *Informational boards will be on display in the meeting room, and members of the project team will be available to answer questions and solicit input from the community.*
- **6:00pm – 6:30pm: Project Presentation**
  - *The Project Team will give a brief presentation on the existing conditions along the Battery Street corridor. Topics will include traffic, safety, parking, and walking / biking facilities.*
- **6:30pm – 7:30pm: Q & A, and Closing Open House**
  - *The project team will answer questions at the conclusion of the presentation. The open house will then resume until close.*

More Information:

- **Web: https://ccrpcvt.org/battery-street**

Questions/Comments:

- **Jason Charest**, Project Manager, jcharest@ccrpcvt.org

In accordance with provisions of the Americans with Disabilities Act (ADA) of 1990, as amended, the CCRPC will ensure public meetings are accessible to all people. Requests for free interpretive or translation services, assistive devices, or other requested reasonable accommodations, should be made to Emma Vaughn, CCRPC Title VI Coordinator, at 802-846-4490 ext. 121 or evaughn@ccrpcvt.org at least 3 business days prior to the meeting for which services are requested.



Battery Street Planning Study

Local Concerns Meeting
May 2nd, 2023

Chittenden County RPC
Communities Planning Together

Burlington, VT Public Works

vhb

Agenda

- Welcome + Project Team Introductions
- Project Schedule
- What are the outcomes of this Study?
- Corridor Overview
- Next Steps
- Discussion of Issues & Opportunities



01|| Project Team

Project Team

vhb

- Drew Gingras
- Karen Sentoff

Chittenden County RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

Burlington, VT Public Works

- Dayton Crites
- Ravi Venkataraman

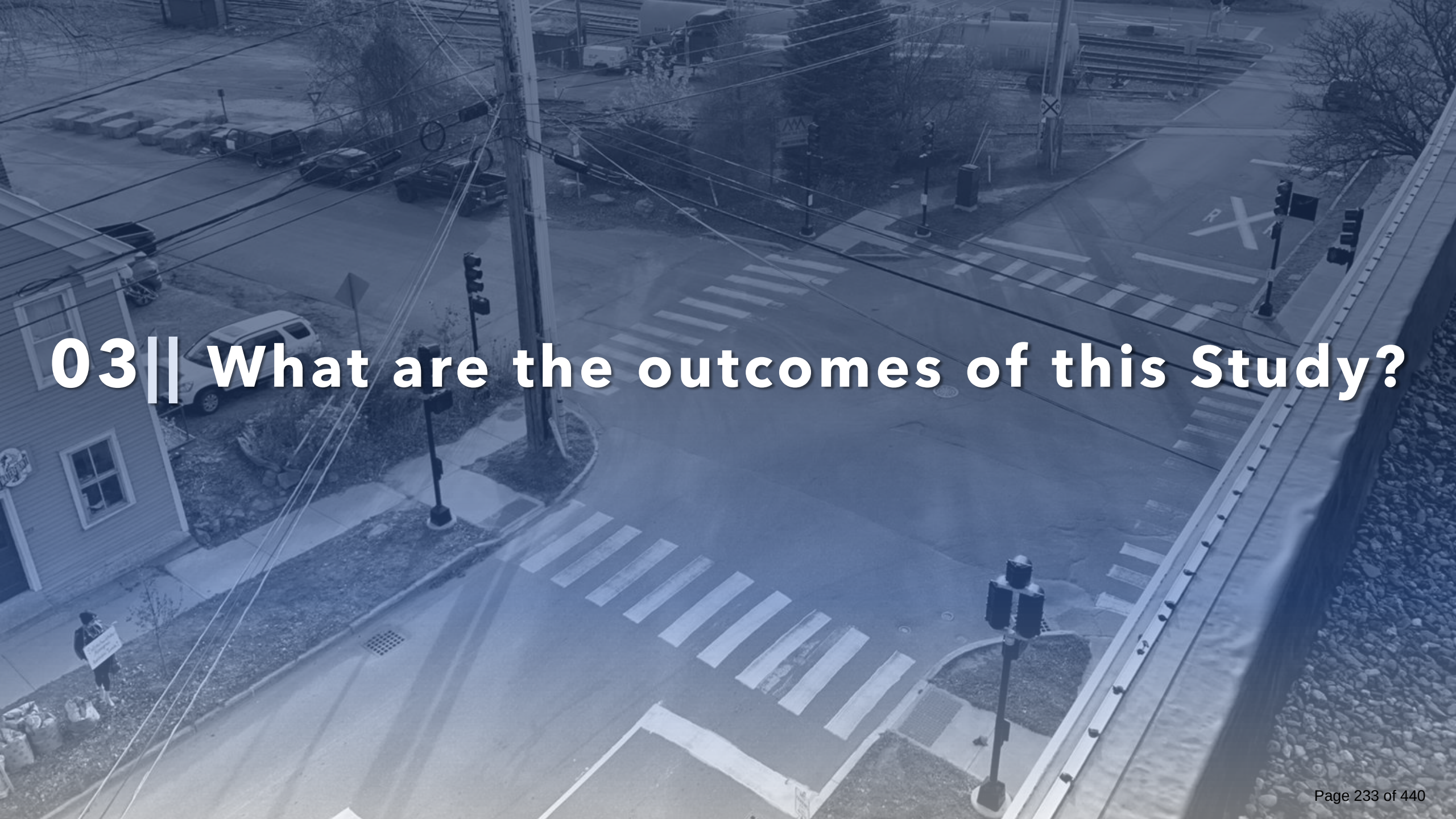
Advisory Committee

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Norm Baldwin | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- Karen Paul | City Councilor
- Sophie Sauve | Burlington Parks, Rec, & Waterfront
- Jamie Smith | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

02|| Project Schedule

Project Schedule

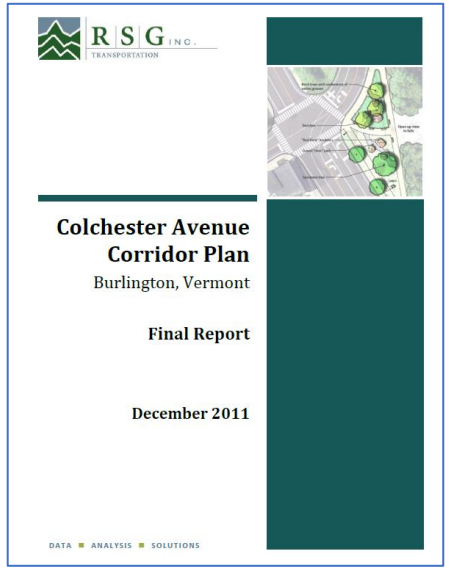
Local Concerns Meeting	***Today***
Focus Group Meetings	*Throughout project*
Existing Conditions Analysis	*In progress*
Alternative Development / Assessment	May – September 2023
Alternatives Presentation Meeting	September 2023
Advisory Committee Meetings	May / September / November 2023
City Council Presentation	March 2024
Final Scoping Report	April 2024



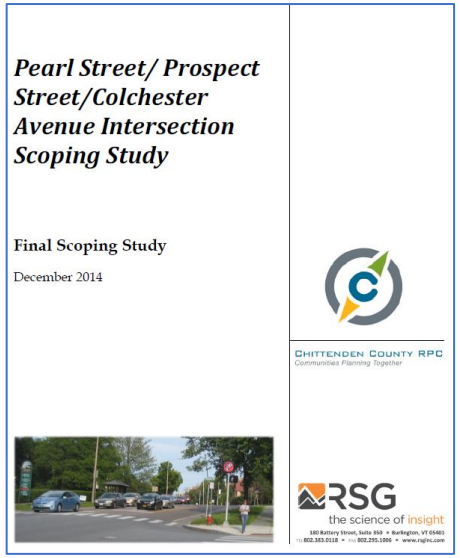
03|| What are the outcomes of this Study?

What are the outcomes of this Study?

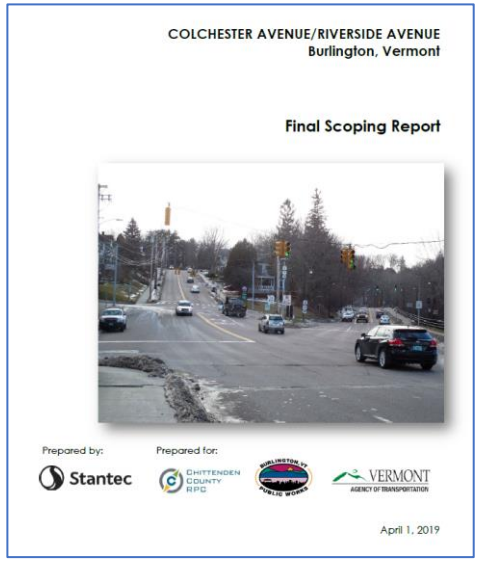
- Develops detailed alternatives for the corridor and key intersections
- Some intersections will require further study



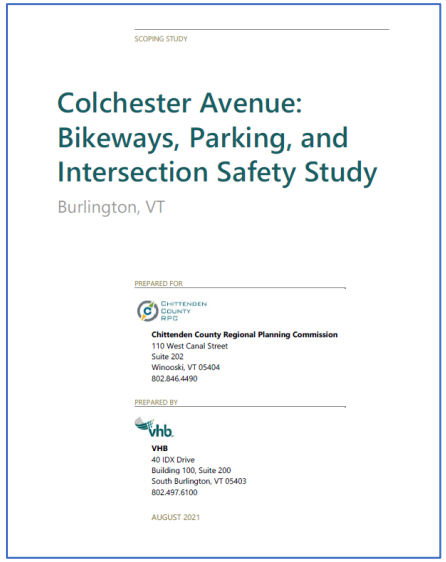
2011



2014

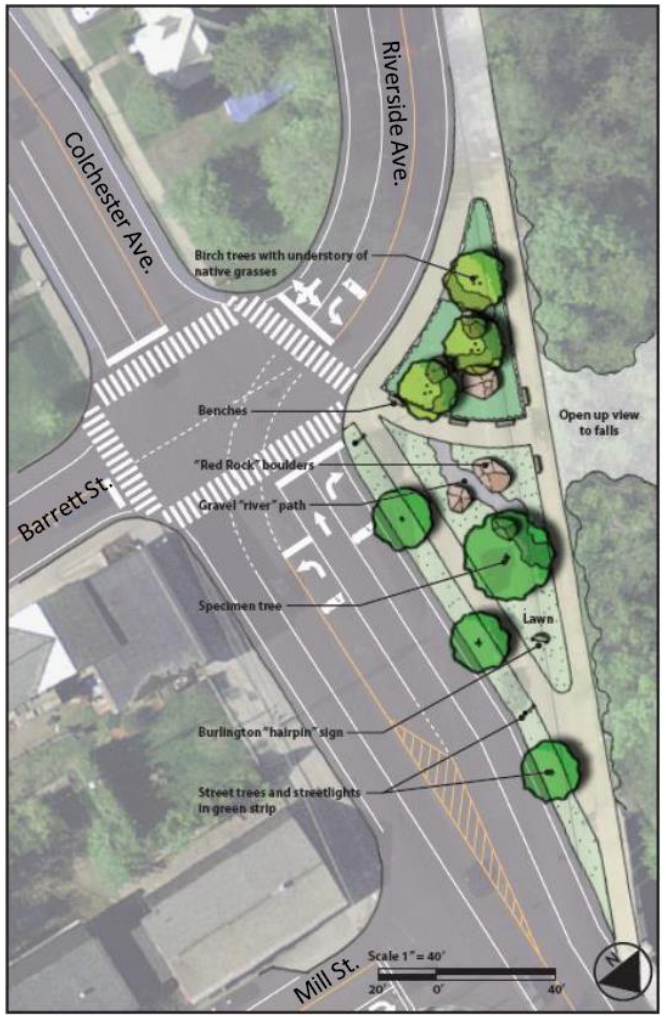


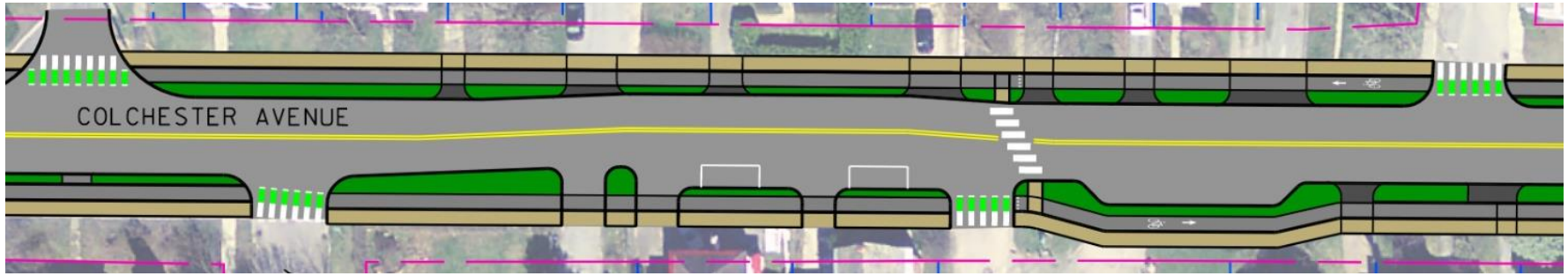
2019



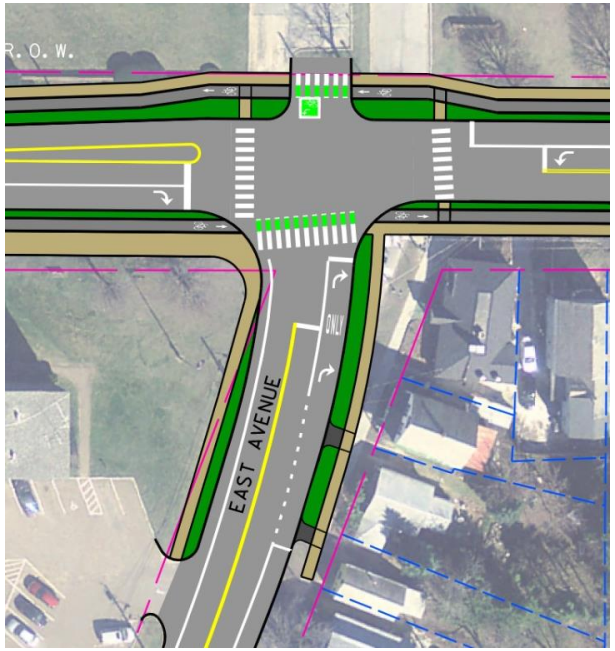
2021

What are the outcomes of this study?









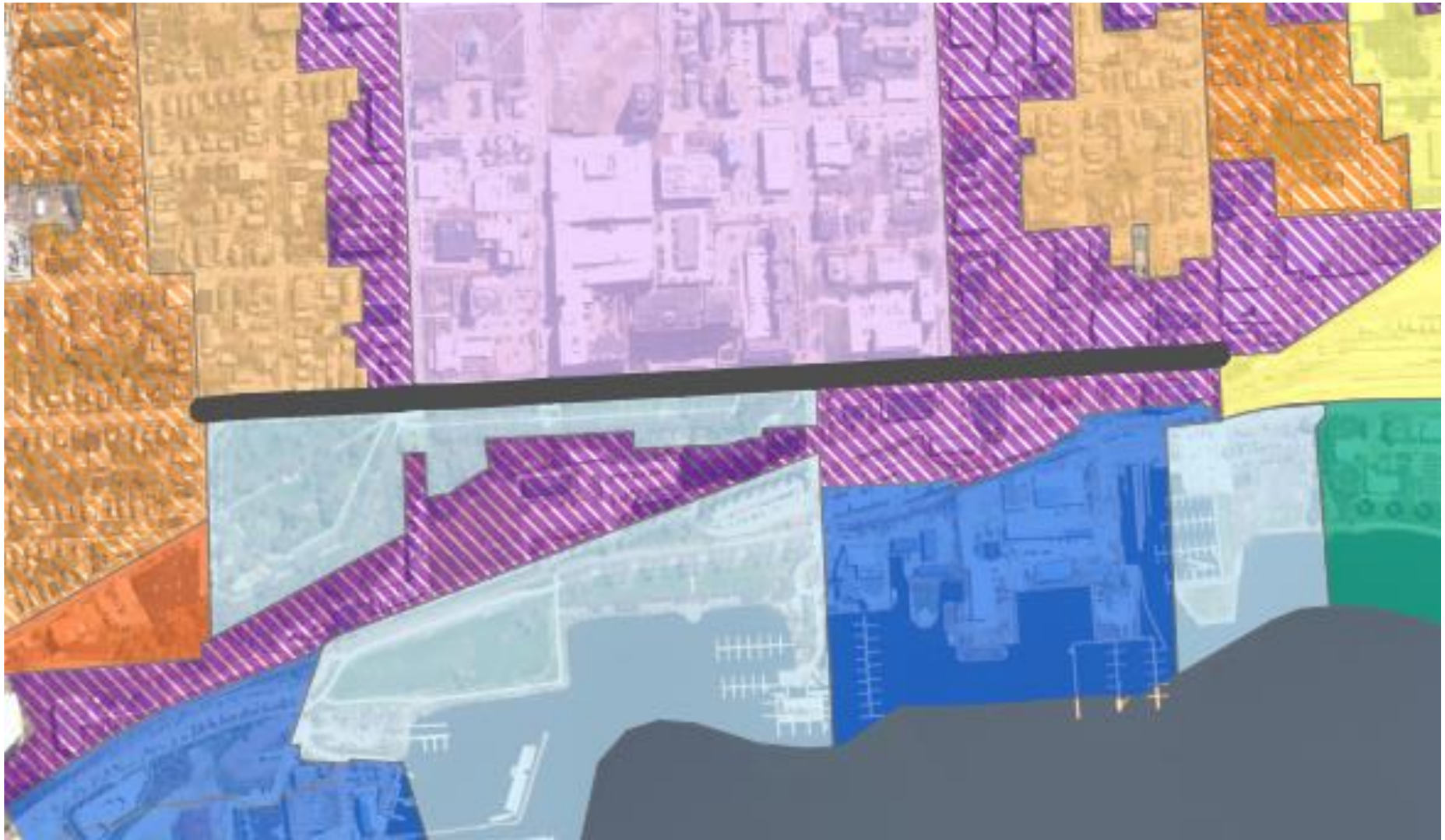


04|| Corridor Overview

Corridor Overview - Project Area



Corridor Overview - Land Uses



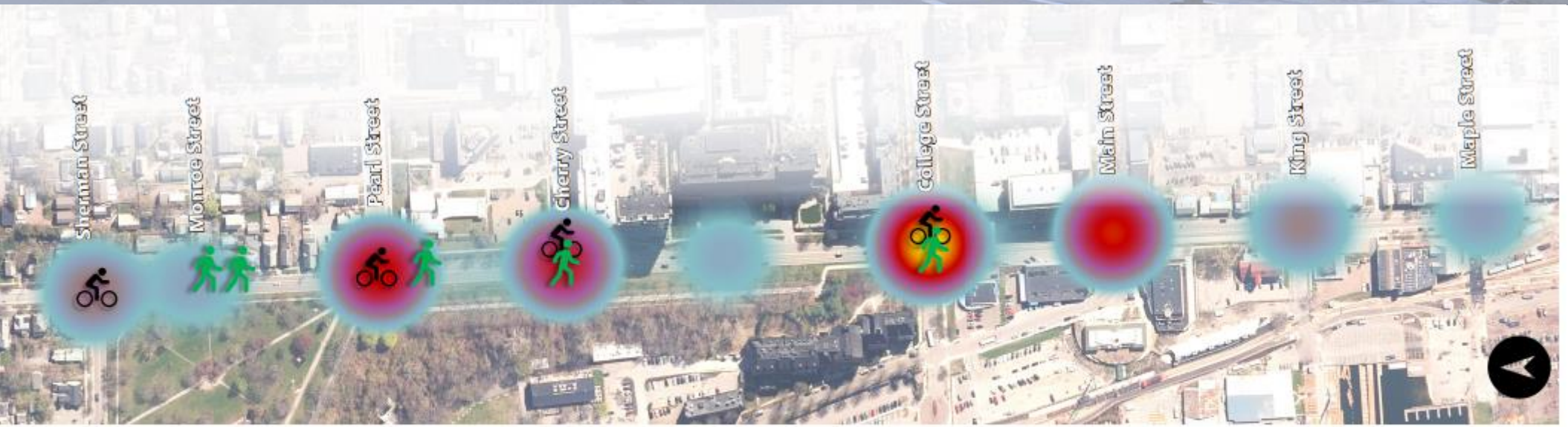
Legend

- Battery Street

Burlington Zoning DISTRICT

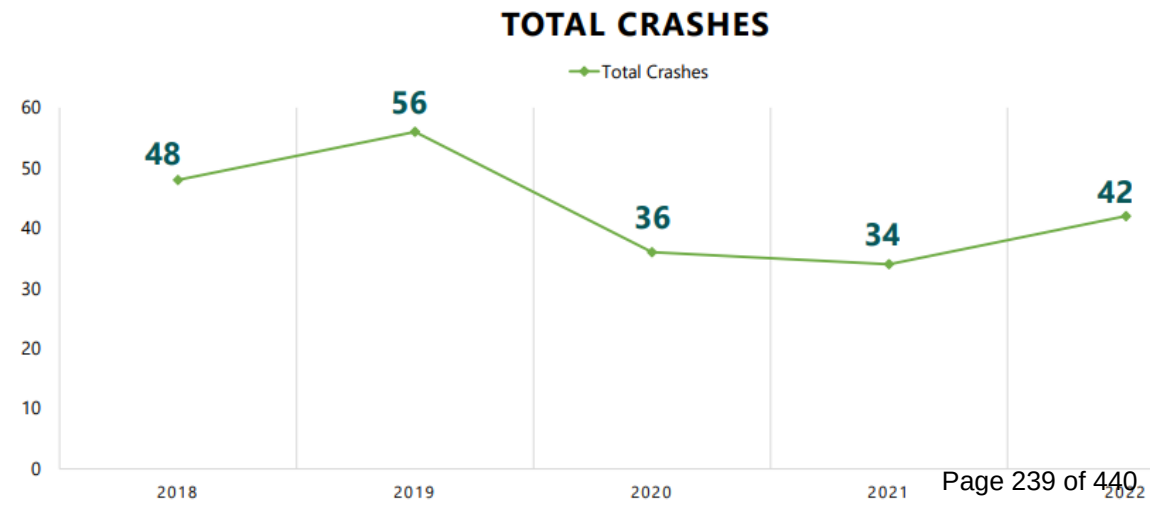
- Civic Spaces
- Downtown Waterfront - Public Trust
- FD5 Downtown Center
- FD6 Downtown Core
- Enterprise - Light Manufacturing
- RCO - Recreation/ Greenspace
- Residential - Medium Density
- Residential - High Density
- Waterfront Residential - Medium Density

Corridor Overview - Crash Data



2018-2022 Crash Data

Crash Involving:	Crashes from 2018-2022
Vehicle Only	197
Heavy Truck	10
Pedestrian	5
Bicyclist	4
Total	216

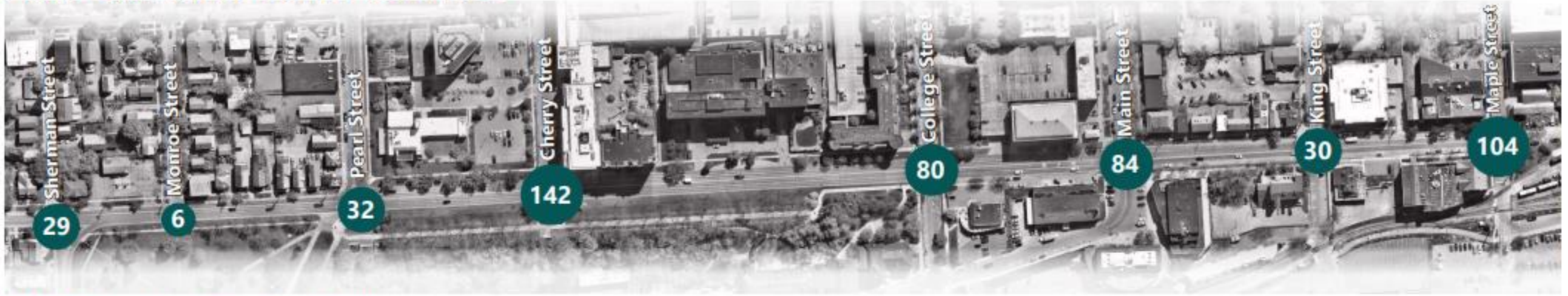


2023 AM Peak Count Data

AM Vehicle Traffic Volumes



AM Pedestrian Traffic Volumes



AM Bicyclist Traffic Volumes



2023 AM Peak Count Data

PM Vehicle Traffic Volumes



PM Pedestrian Traffic Volumes

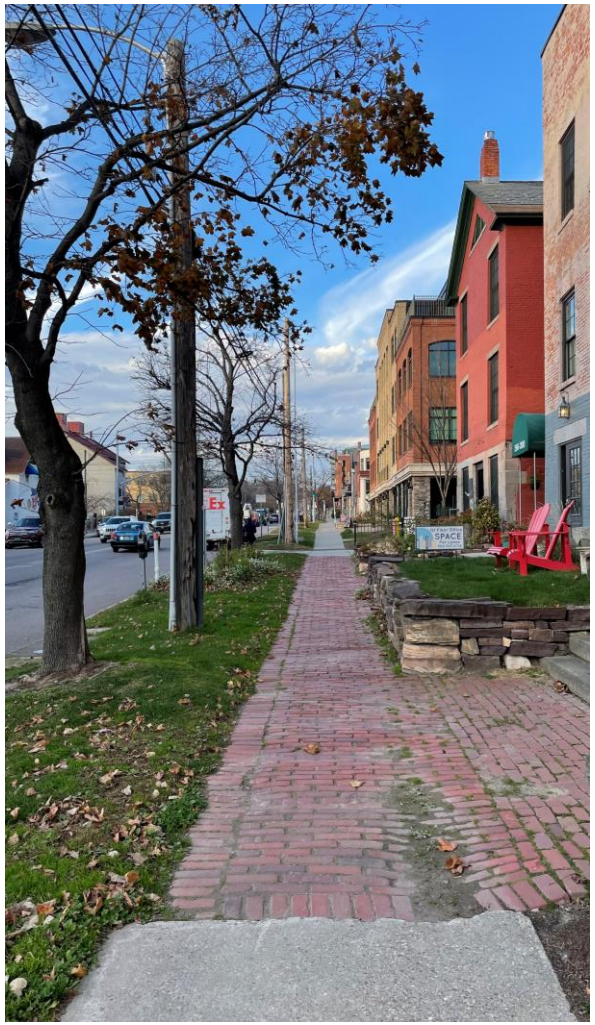


PM Bicyclist Traffic Volumes



Corridor Overview – Pedestrian Facilities









Corridor Overview – Bicycle Facilities

- Battery Street a northbound bike lane between Pearl Street and Sherman Street
- Temporary two-way separated bike lanes were installed between Maple Street and Main Street in 2022
  - Feedback from bicyclists was



2011 Burlington Transportation Plan » "Battery Street needs to be upgraded to a **Complete Street**"



» Battery Street needs **Protected Bike Lanes**

Corridor Overview – Parking and Transit



Bus Stop

Bus Shelter

On-Street Parking



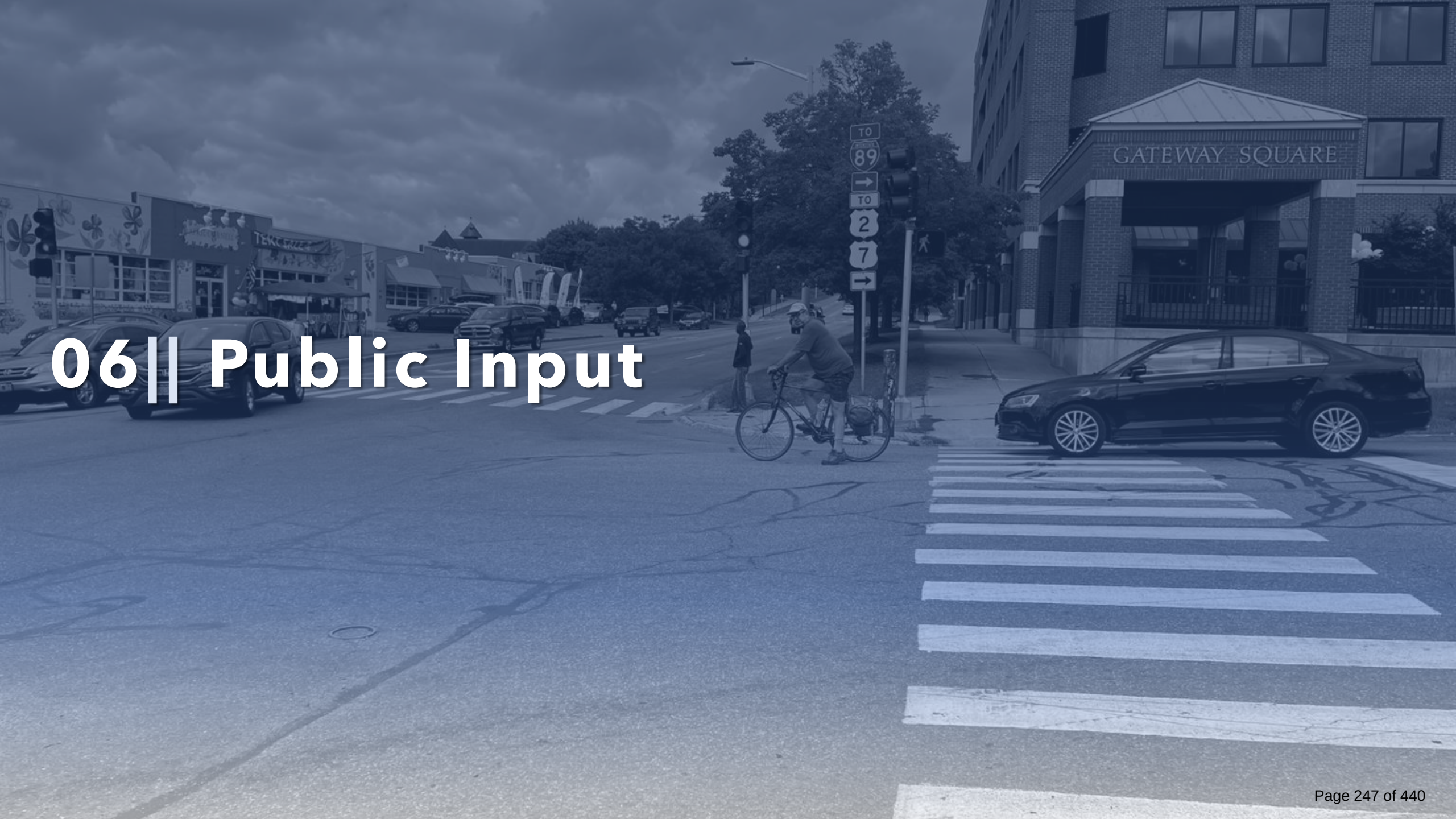
05|| Next Steps

Next Steps

- Draft Purpose & Need Statement
- Future Conditions Analysis
- Advisory Committee Meeting #2
- Develop Conceptual Alternatives
- Public Meeting #2 – Alternatives Presentation



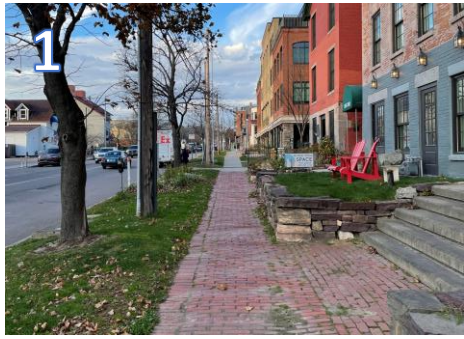


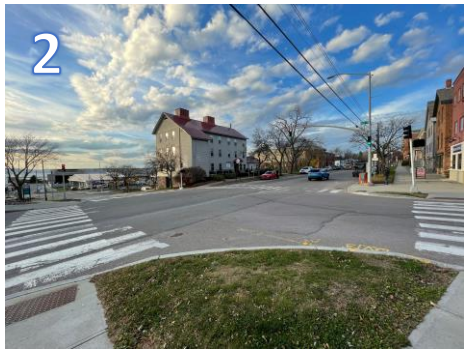


06|| Public Input

Public Input - Southern Section









Public Input - Hill Section







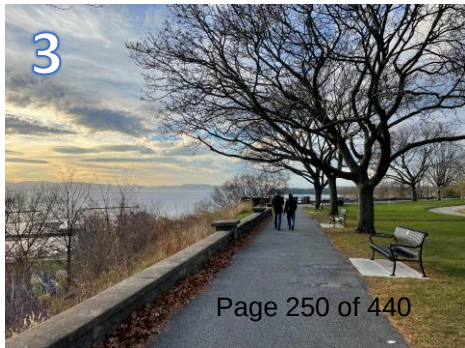


Public Input – Northern Section









Contact Us

Jason Charest
Senior Transportation Planning Engineer

802-861-0127
jcharest@ccrpcvt.org

Drew Gingras, PE
Project Manager

802-391-5569
dgingras@vhb.com

Thinking about your recent experiences on Battery Street, what are your one or two **biggest issues or concerns**?

Write your response on a post-it note and display in the shaded area below

When Walking?

- Dangerous crosswalk (x3)
    - Cars going during pedestrian phase (x2).
    - Not enough time.
- Lack of curb at crossings makes it feel too close to the road.
- To much distance between crosswalks (x3).
- Vehicles speed (x2).

When Biking?

- Speed of vehicles (x3).
- inconvenience of crossing or turning from or to Downtown (x2).
- Pearl/Battery intersection is scary traveling west on Pearl for both directions. (Cars have a right turn lane, the road is uneven and cars cut you off to turn right).
- Lack of dedicated bike infrastructure.
- Conflict with pedestrians using shared, limited space sidewalks.
- Vehicles too close (x3)
- Poor surface drainage makes it unstable.

When Taking Transit?

- Do not repeat North Ave mistake. (Cars overtake bus when its stopped, bus has to wait to merge back into traffic.) Bus priority needed (x3).
- Lack of way-finding to destinations like Amtrak, Downtown (x2).
- Lack of shelters for weather (x2).
- Better transit routes for getting North to South.

When Driving?

- People running red lights.
- Narrow travel lanes.
- Bottlenecks at southbound left turns (x2).
- High speeds (x2)
- Dangerous lane changes.
- Challenges turning left in either direction.
- Going straight when in left turn at Main Street.

If you could do **one thing** to improve Battery Street, what would it be?

Write your response on a post-it note and display in the shaded area below

This would make it better to walk Battery Street:

- More friendly crosswalks with no turning traffic on walk signal.
- Wider sidewalks, separation between curbs and roadway at pedestrian crossing (x3).
- Shorter crossing distances and reduce vehicle speeds.
- Trim/ clean bank to the west of shared use path to allow view of the Lake.
- More trees/ shade (less noise. Especially between College and Maple.
- Better access to waterfront/ bike path from Battery Park.

This would make it better when I bike Battery Street:

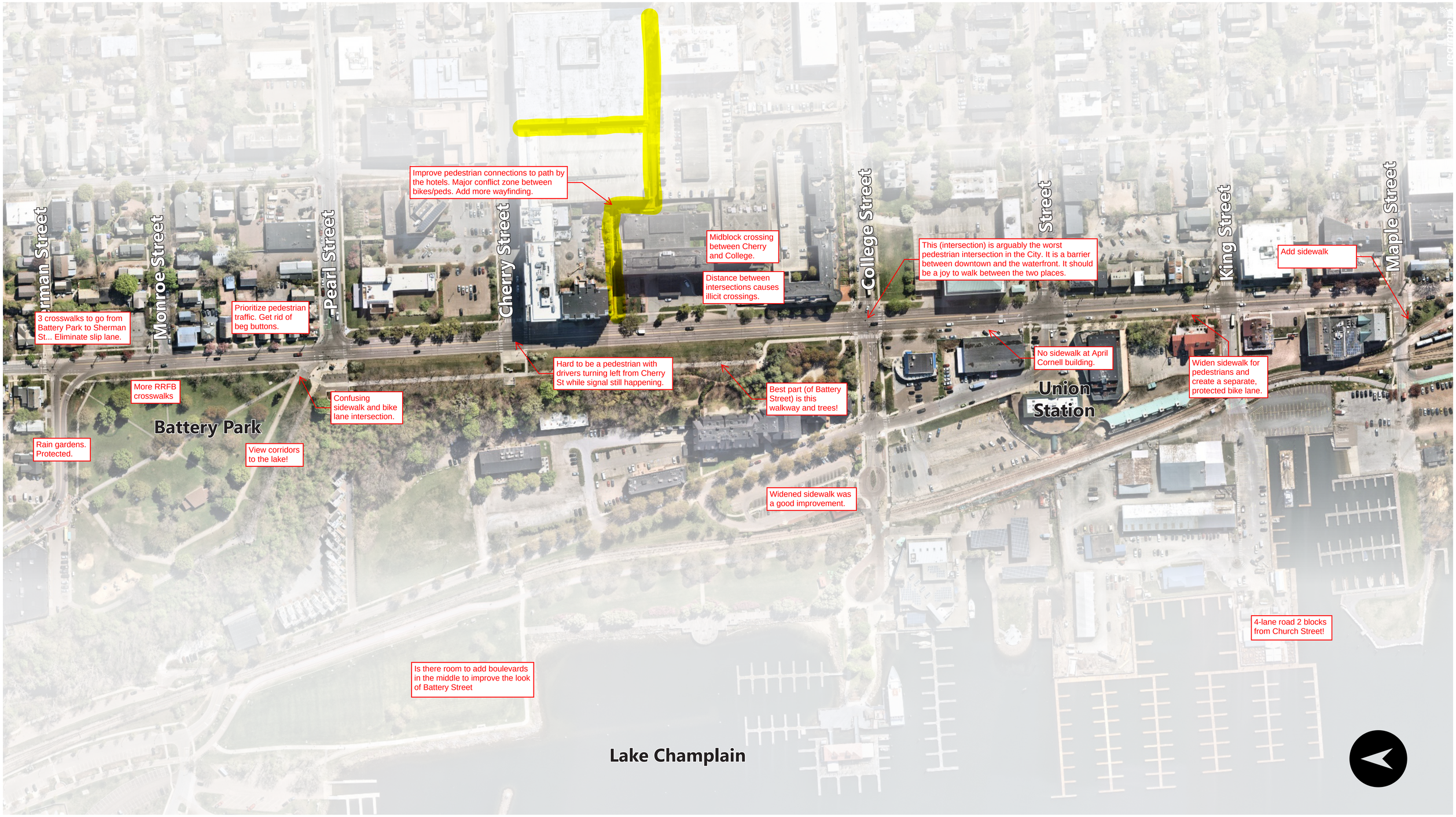
- Dedicated, protected, bike space (x5)
- Protected lanes (connected to existing network i.e. cut through by Hotels).
- Reduce number of car lanes.
- Bike boxes for intersections.

This would make it better to ride the bus through Battery Street:

- Bus only travel lanes (x2).
- Bus shelters.
- Bus rapid transit.
- Better connections for North and South ends of town.
- Park and rides at North and South ends of town.
- Better routes (serve more people).

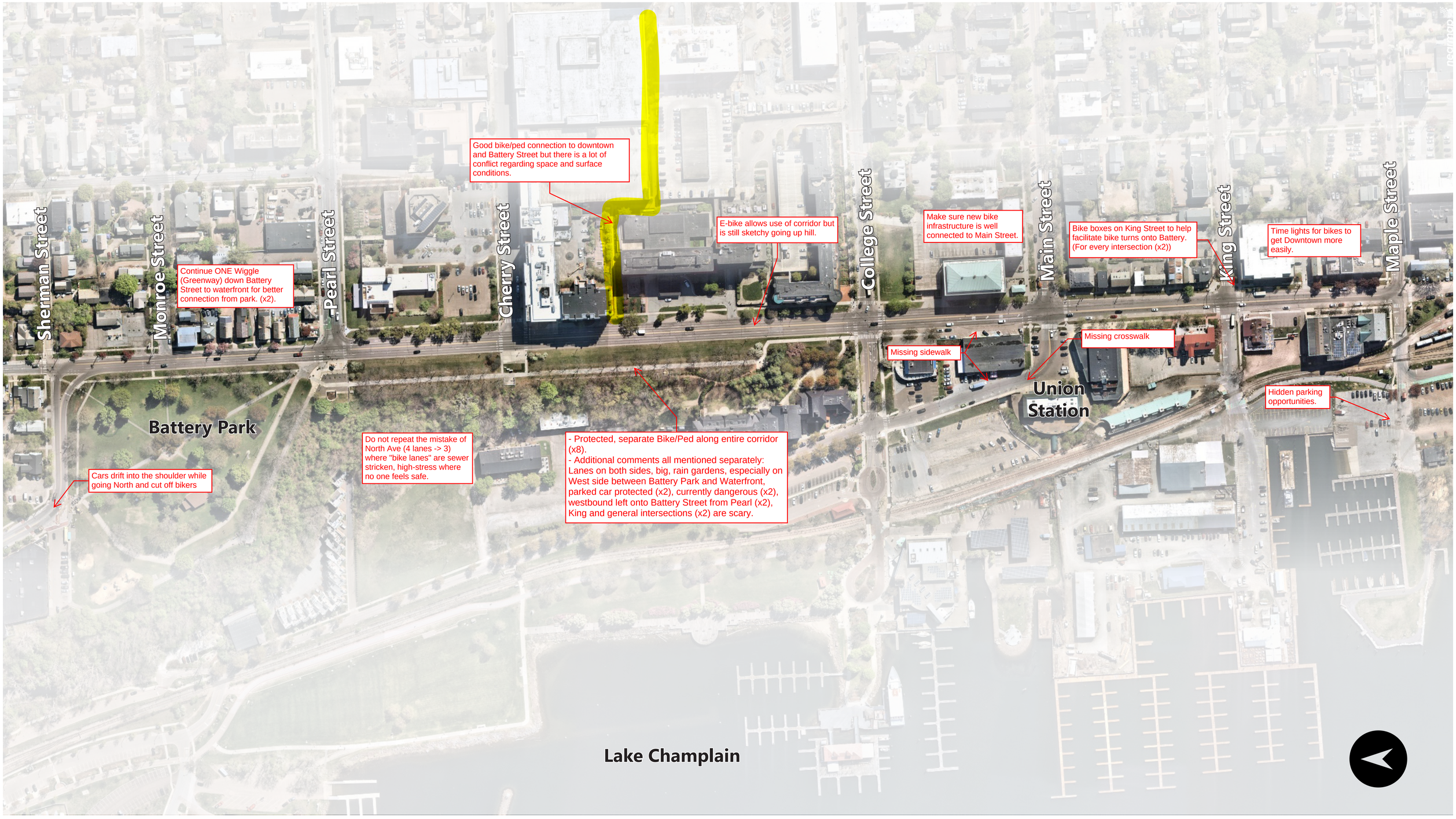
This would make it better to drive Battery Street:

- Single lane each direction to prevent aggressive passing.
- Traffic calming (x2).
- 3 lanes (1 for turning).
- Its already designed for the cars...



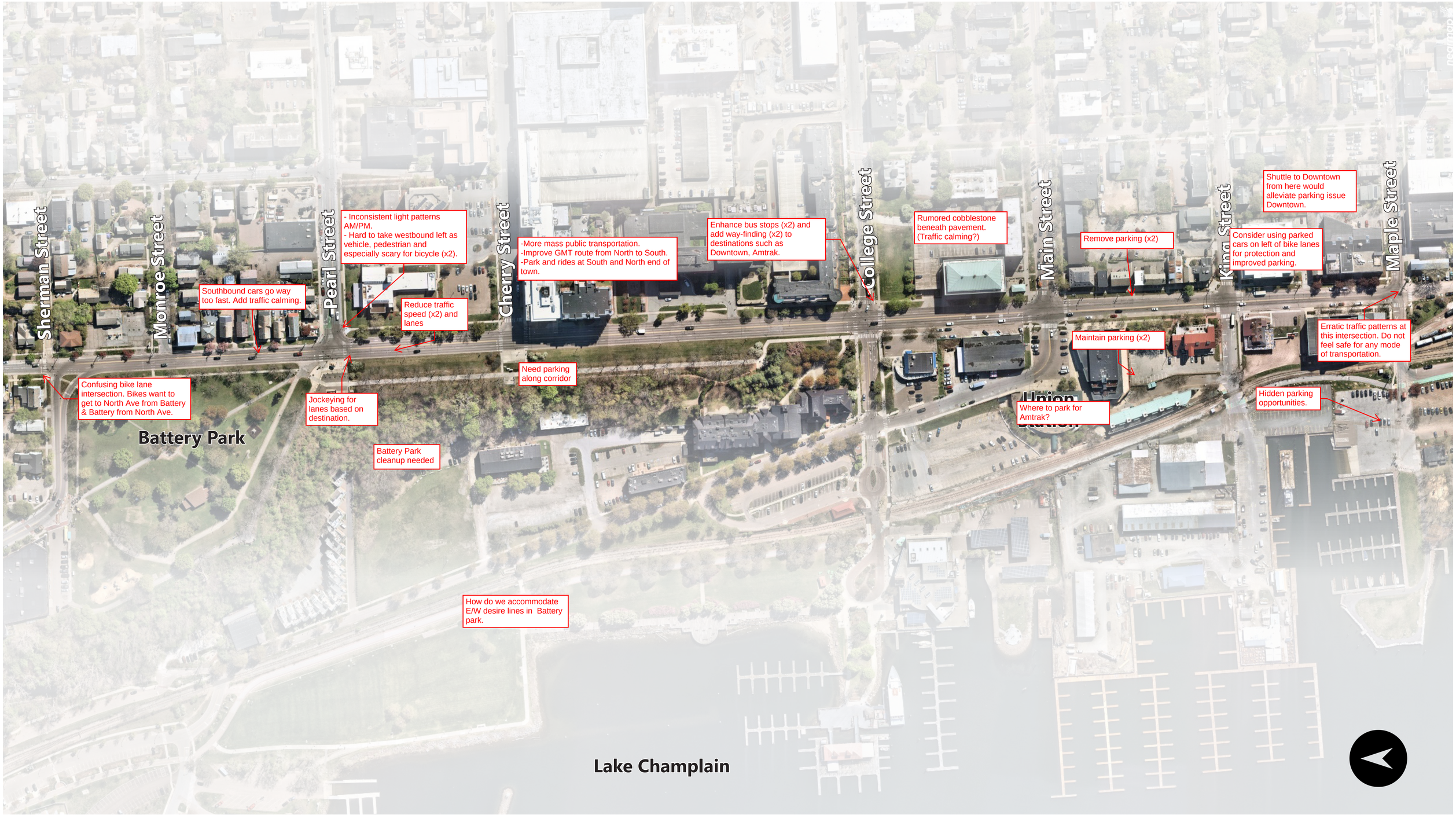
Issues & Opportunities

Walking



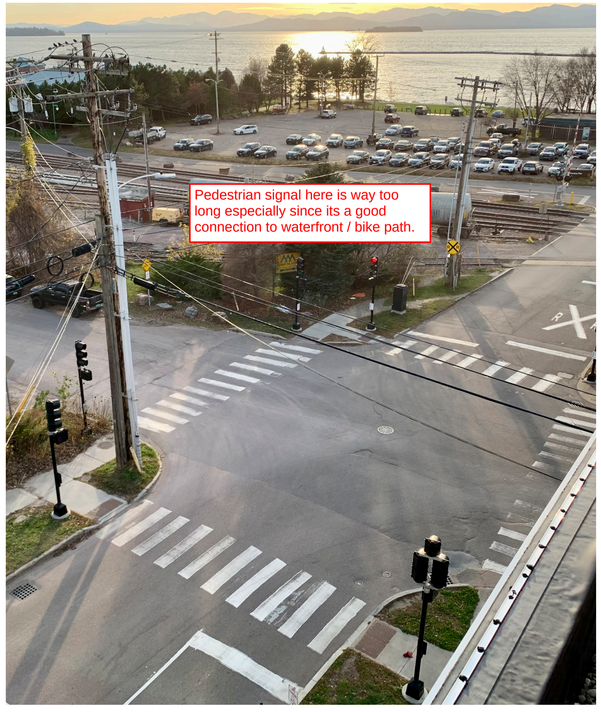
Issues & Opportunities

Biking

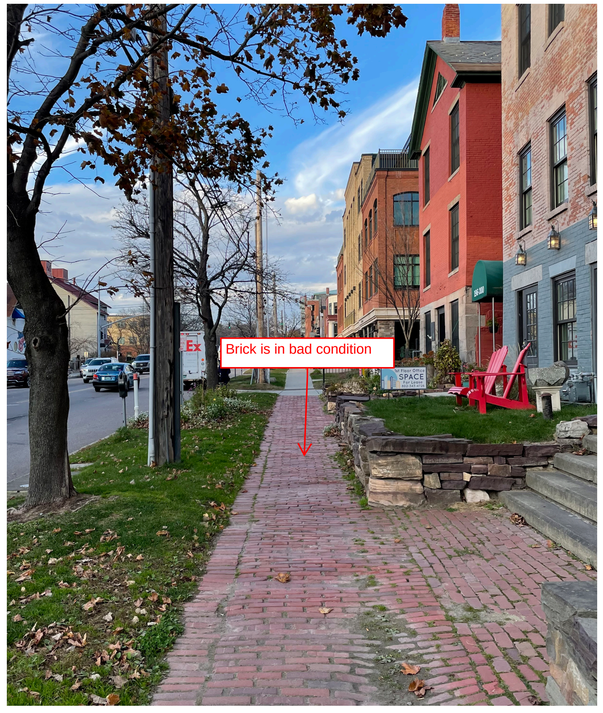


Issues & Opportunities

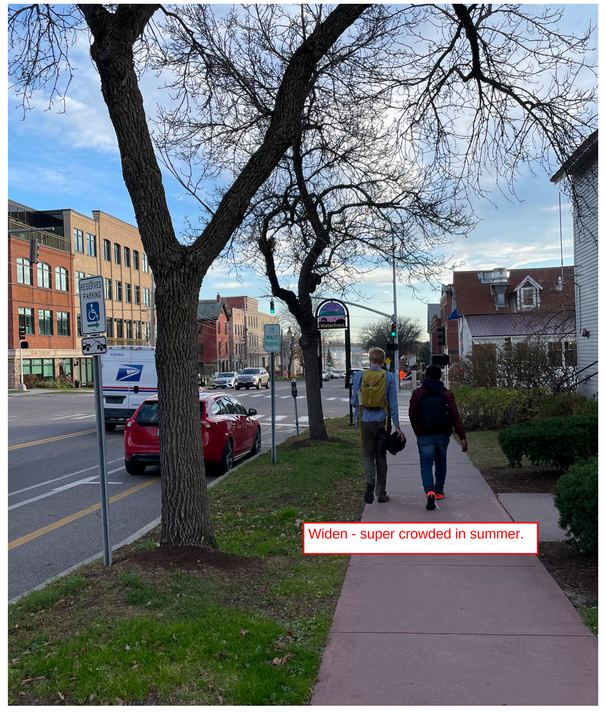
Driving, Parking, & Transit



Maple Street and Battery Street



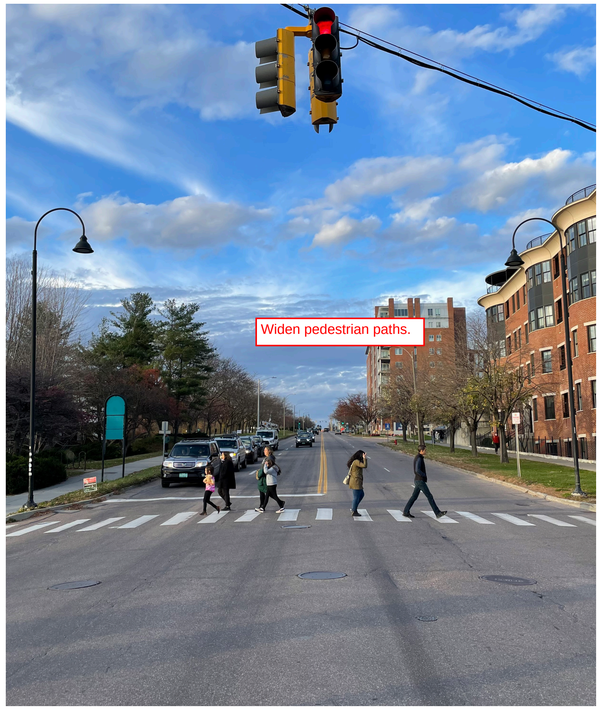
Sidewalk on eastern side between Maple and King Street



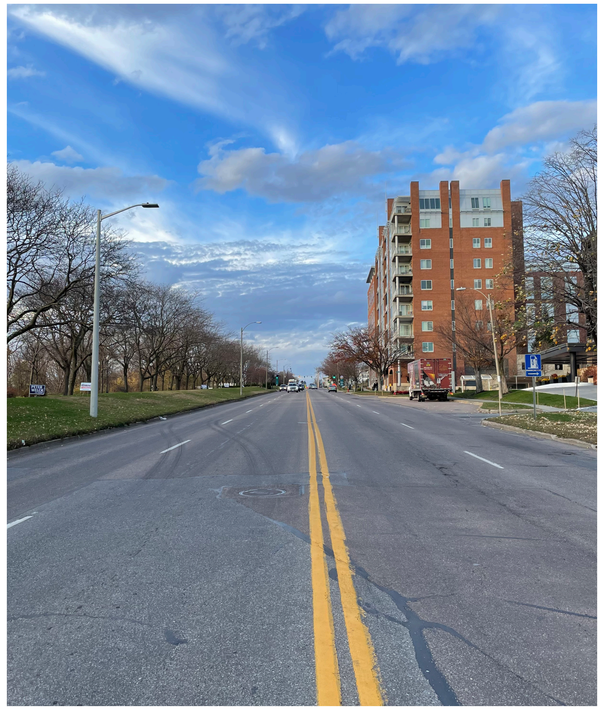
Sidewalk on western side between King and Main Street



Crossing Battery Street at King Street



Crossing Battery Street at College Street



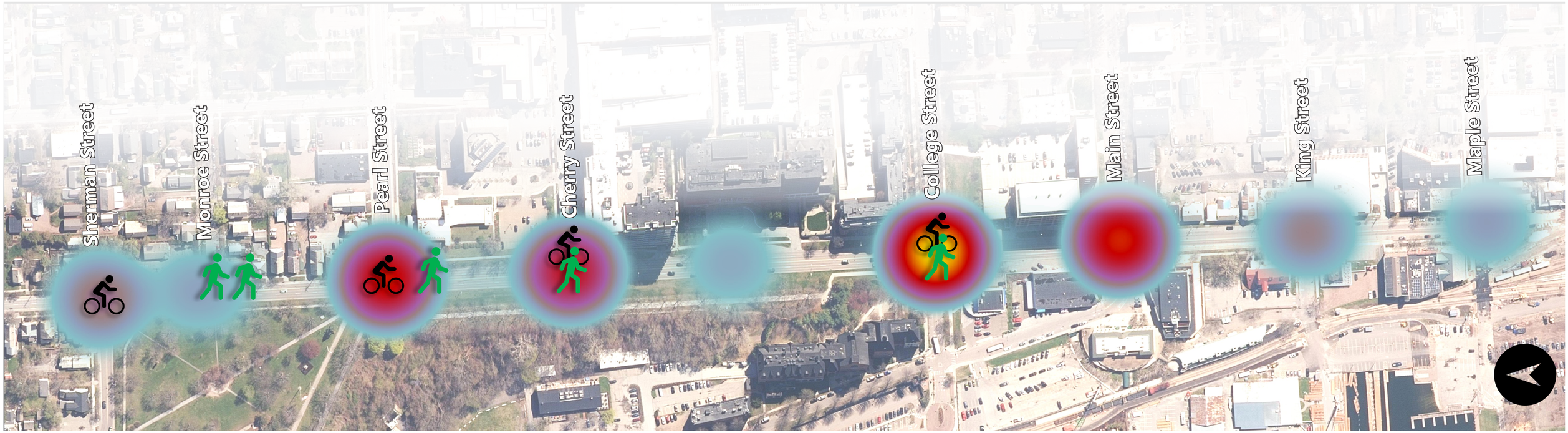
Battery Street south of the Hilton



Shared use path on western side



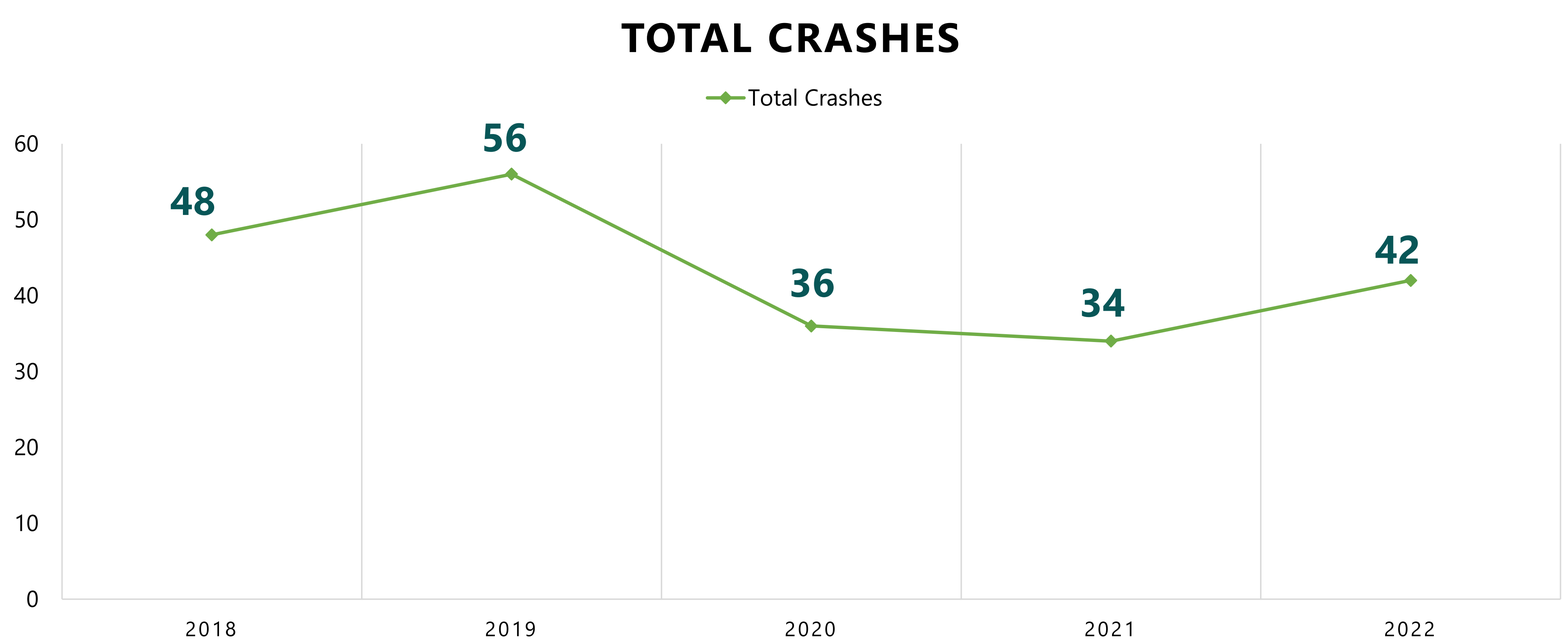
Corner of Battery and Pearl Street



2018-2022 Crash Data

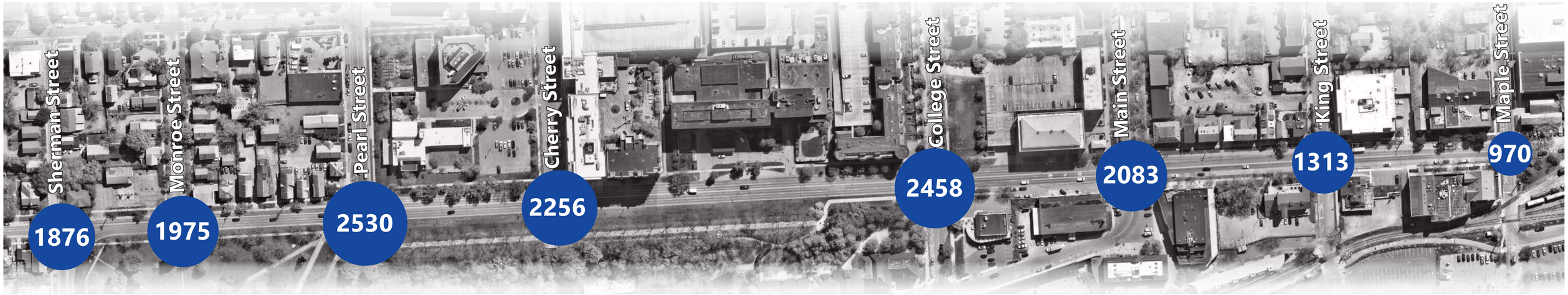
Bicyclist Pedestrian Sparse Dense Vehicle Crashes Heat Map

Crash Involving:	Crashes from 2018-2022
Vehicle Only	197
Heavy Truck	10
Pedestrian	5
Bicyclist	4
Total	216



2023 PM Peak Count Data

PM Vehicle Traffic Volumes



PM Pedestrian Traffic Volumes

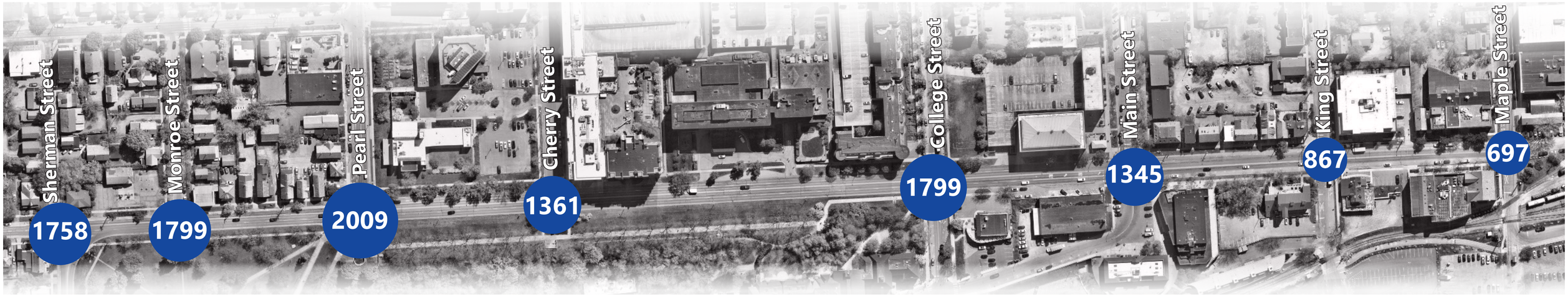


PM Bicyclist Traffic Volumes

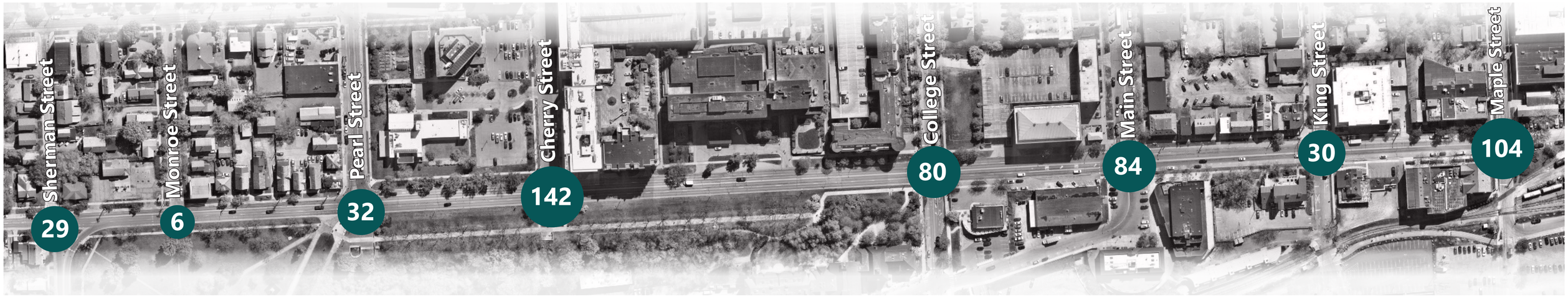


2023 AM Peak Count Data

AM Vehicle Traffic Volumes



AM Pedestrian Traffic Volumes



AM Bicyclist Traffic Volumes



Public Input Survey 1: Where do you see an issue or opportunity for improvement along Battery Street?

Timestamp	How are you moving when you encounter this issue or opportunity?	How would you describe the issue or opportunity?
4/6/2023 21:23	Walking	Remove this road into Battery Park?
4/13/2023 12:11	Biking	It is a challenge to bike anywhere on Battery Street. I avoid it when I can.
4/13/2023 12:15	Driving	The biggest issue is interest groups throttling one of the last North South corridors in town
4/13/2023 12:16	other	Leave Battery Street Alone!!!!!
4/13/2023 13:55	Walking	I feel so uncomfortable as a pedestrian here. Cars are blasting through red lights, rolling into the crosswalks during their red lights, cars seem offended when I'm simply walking during the designated pedestrian phase, right-turn on red makes me constantly check over my shoulder, and cars are using the Burlington Bay Market parking lot to turn around and idle - a single car is able to disrupt a couple dozen people while they wait in line for creemees. Burlington Bay Market isn't enjoyable because there's an onslaught of loud cars and motorcycles circling the building like a death spiral. College St from Battery to Lake St could close to cars instead of routing cars through heavy pedestrian traffic. Cars can still use Lake St to access the parking. At the very least we deserve raised crosswalks here to deter reckless driving.
4/13/2023 14:00	Walking	Raised crosswalks. Car drivers treat pedestrians like they are a pest.
4/13/2023 14:58	Walking	Drug dealing/use, individuals camping out, public urination/defecation, graffiti, heckling. Something needs to be done to maintain Battery Park and make this beautiful public area feel safe.
4/13/2023 16:13	Walking	Street crossing is too wide. Should be two travel lanes, with lower college st closed to cars so turn lanes are unnecessary
4/13/2023 16:13	Biking	There are no protected bike lanes.
4/13/2023 17:06	Walking	create a pathway to the waterfront in this area - either stairs or a funicular!
4/13/2023 17:08	Walking	not clean/safe place to cross as a pedestrian. kind of a no man's land. feels unkempt.
4/13/2023 17:09	Biking	sometimes nervous about speeding down hill on bike, moving traffic, dips in pavement.
4/14/2023 13:56	Biking	This transition from the one-way Park to the two-way two-lane Park st is very treacherous for bikers. Cars are moving fast and there are no shoulders. A left turn to Pearl is very nerve-wracking. This area could use a single lane with bike facilities on both sides.
4/14/2023 13:57	Walking	Cars can unexpectedly turn right on red here. Signage should be added so both pedestrians and vehicles know what to expect for this slip lane.
4/15/2023 11:33	Biking	The section of Battery Street between Pearl Street and College Street is particularly hazardous for
4/18/2023 20:52	Crossing	cars whip around this corner from battery street and do not take into account pedestrians
4/18/2023 20:52	Crossing	cars often turn onto this street quickly and without looking. especially cars coming from the north.
4/18/2023 21:31	Walking	How about a set of stairs or enhanced ramp access to get down to the Lake St. businesses and waterfront features more easily?
4/18/2023 21:44	Driving	Turn left is unsafe.
4/19/2023 0:59	Walking	The stretch of park land from Pearl St to College St has so much potential but is tremendously
4/19/2023 1:23	Walking	I feel unsafe when crossing here because of the nature of the driving conditions. Southbound drivers move through the sliplane often with their focus on oncoming traffic from the north (Park St) without always watching for pedestrians coming from the south. This corner often feels like an onramp in the sense that drivers are either starting to speed up (for their journey north) or starting to slow down (from their journey from the north). Instead of a large radius sliplane and crossing island, could the southbound radius be lessened and the island removed? The new bumpout just to the west near the Police Station / Front St deadend has helped slow southbound traffic a little and has made crossing there feel much safer.
4/19/2023 1:27	Biking	I don't know enough about the traffic volume, especially at commuter times, but I'm curious if a road diet would be possible to reduce the 4-lane section. This could allow for bike lanes, which would greatly improve the on-road biking experience heading both north and south.
4/19/2023 1:29	Biking	The drainage grates on the western side are incredibly dangerous for those biking south on Battery.
4/19/2023 1:37	Walking	The sloped sidewalk at the corner can get tricky to navigate at busy times of the day. Pedestrians and bikers who are trying to move down the hill, move up the hill, or are just waiting to cross all come together in a relatively small, uneven spot. Then add southbound drivers and northbound drivers turning west onto College and you get more danger. If possible, it would be great to have more sidewalk extending south a little to accommodate those modes and a smaller turning radius for southbound drivers heading west.
4/19/2023 1:41	Walking	Can planters or other types of small barriers be placed at the edge of the large sidewalk area here, parallel to the roadway? When approaching the two crosswalks, it feels very exposed, especially when I have my young kids with me.
4/19/2023 1:42	Walking	Can planters or other types of small barriers be placed at the edge of the large sidewalk area here, parallel to the roadway? When approaching the two crosswalks, it feels very exposed, especially when I have my young kids with me.
4/19/2023 1:49	Walking	This stretch in front of April Cornell feels very exposed for pedestrians and bikers because there isn't a proper sidewalk and instead you travel through a parking lot parallel to a busy street. Would it be possible to turn the parking from angled parking next to the building to instead parallel parking next to the roadway with a protected mixed use sidewalk/bikeway next to the building?
4/19/2023 13:36	Driving	Needs re-paving
4/19/2023 14:45	Biking	Fast moving cars and tall buildings create a wall of noise which worsens everyone's experience of the lakefront and effectively divides the city from the lake to pedestrians.
4/19/2023 14:46	Walking	High volume and fast moving traffic significantly reduces the quality of Battery Park.
4/19/2023 18:02	Biking	Nasty fountain. (Last I walked by there was a dead squirrel in it.) Could that space be turned into a garden/resting space? Offer a better entrance to the sidewalk corridor that goes from Battery Park to College Street? Be educational (via signage)?
4/19/2023 18:43	Biking	Two lanes each side - this looks like I-89!
4/20/2023 10:58	Walking	There is insufficient trash cans so hotel guests from the Marriott Courtyard, Hotel Vermont and Hilton
4/21/2023 17:43	Walking	Feel unsafe at crossing. Too long a wait to get the pedestrian crossing light. Cars on Pearl turning right

Public Input Survey 1: Where do you see an issue or opportunity for improvement along Battery Street?

Timestamp	How are you moving when you encounter this issue or opportunity?	How would you describe the issue or opportunity?
4/22/2023 18:00	Biking	Riding east on College from the waterfront on the painted bike lane, making a left onto the west side of Battery to ride the side walk/bike lane there is a risk of cars making a quick turn from Battery onto College heading to the waterfront. Always a bit scary at that intersection.
4/23/2023 18:15	Walking	Stairway and funicular down to lake level. Tunnel from east side of intersection that starts downslope to lake and allows crossing of Battery. Tunnel could also be at the walk path on South side of Westlake Condos between their and Hilton/Hotel Champlain to tie easier into that path and give another way to ease parking for lakefront event (use City garages)
4/29/2023 23:53	Walking	Drivers taking right-hand turns from Main St. to Battery St. while persons are crossing Battery St.
4/29/2023 23:56	Biking	Exposure to rear-end impact from drivers traveling south and straight through intersection with Pearl St. while one is on a bike taking a left-hand turn on Pearl St.
4/30/2023 0:01	Walking	Discontinuation of sidewalk and no marked crosswalk for the thousands of pedestrians drawn to the waterfront from Main St., not to mention this is now the location of an active rail passenger station and LocalMotion.
4/30/2023 0:07	other	Four lanes of traffic next to a linear park and premier hotels, effectively serving as a deterrent to crossing pedestrians and through-travelling bicyclists. Four lanes could only be justified as a means for managing vehicle queue lengths. Given the low intensity of traffic entering and leaving this short corridor, such a justification does not hold.
5/2/2023 15:13	Walking	Unsafe crossing College St. Northbound. Drivers making a right speed and cant see pedestrians. vehicles turning left from battery to college also speed and don't notice the pedestrians crossing here.
5/2/2023 20:14	Biking	There is an excessive amount of speeding and red light running at this intersection that is regularly used by people on bikes and walking to cross into the waterfront parks.
5/2/2023 20:15	Biking	This area is very confusing about how it should be used on a bicycle coming in to downtown from North Ave. Sherman St is marked as a bike corridor, but how are people supposed to access it?
5/5/2023 13:20	Walking	The Alleyway connecting Battery Street to the trellises and parking area behind the block between Main Street and King Street (in particular, this one being the one that bisects the block, almost directly in the middle), between 156 Battery Street and 166 Battery Street.
5/5/2023 13:24	Walking	The pedestrianized walkway between The Hilton Battery Street and the apartments next to it, leading to the parking lots behind it, could incorporate more Green Infrastructure/ a Green Alley, to reduce erosion and pollutants that runoff spill into Lake Champlain, while reducing the urban heat island effect and carbon emissions.
5/5/2023 13:25	Walking	The pathway between The Courtyard Marriott and the Hilton on Battery Street Lake Champlain could incorporate more Green Infrastructure or even be converted into a Green Alley that has grayscale permeable pavers that filter pollutants out of the water supply and recharge the city aquifer, while making the path a more pedestrian friendly and desirable pathway that connects between the hotels behind the parking lots to the main right of way on the sidewalk of Battery Street, and potentially beyond.
6/4/2023 23:02	other	I would love to have the maple/battery intersection be a stop sign instead of a traffic light. I often have to wait at this intersection as a driver, as a biker, and as a pedestrian. There was a brief moment when the new lights were put in that they were not programed yet and they operated as a stop sign and it was great. Every body moved through the intersection much more efficiently
6/4/2023 23:04	Walking	it would be super awesome to have a stair case here from cherry st down to the waterfront
6/4/2023 23:08	Walking	this staircase and the landing is a wonderful place but it doesn't feel activated and can be kind of creepy.
6/4/2023 23:12	Biking	So there was a great bike lane added to pearl st and there is kind of a bike lane situation coming from north ave and sherman. I think it would be awesome to link them together. I think a great way to do that is to widen the side walk that is on the perimeter of the park and make it into a mixed use path. That way you make the connections without impacting the park or the street all that much
6/4/2023 23:14	Driving	this is not a suggestion, I just wanted to say I love the new intersection at pearl. It makes so much more sense now coming up battery
6/4/2023 23:21	other	I don't drive battery during rush hour so I'm not sure how helpful it is but two lanes in either direction is just not ideal. It makes the road feel faster and more dangerous in all modes. It would be great to have 1 lane in each direction and then turning lanes at the intersections. We could then use the extra space for some on street parking and/or a mixed use path. I put the pin on the block where I think a change like that would have the most benefit.
6/8/2023 22:27	Walking	Crossing at Simon's to BatteryyyPark is very dangerous!



Battery Street Corridor Scoping Study

Advisory Committee Meeting #2
July 27, 2023

CHITTENDEN COUNTY RPC
Communities Planning Together

BURLINGTON, VT PUBLIC WORKS

vhb

Agenda

- Welcome + Re-Introductions
- Public Comment Period
- Public Involvement Plan Update
- Project StoryMap
  - Community Engagement Summary
  - Draft Purpose + Need Statement
- Mini Design Charrette
- Next Steps



01|| Re-Introductions

Project Team

vhb

- Drew Gingras
- Karen Sentoff

Chittenden County RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

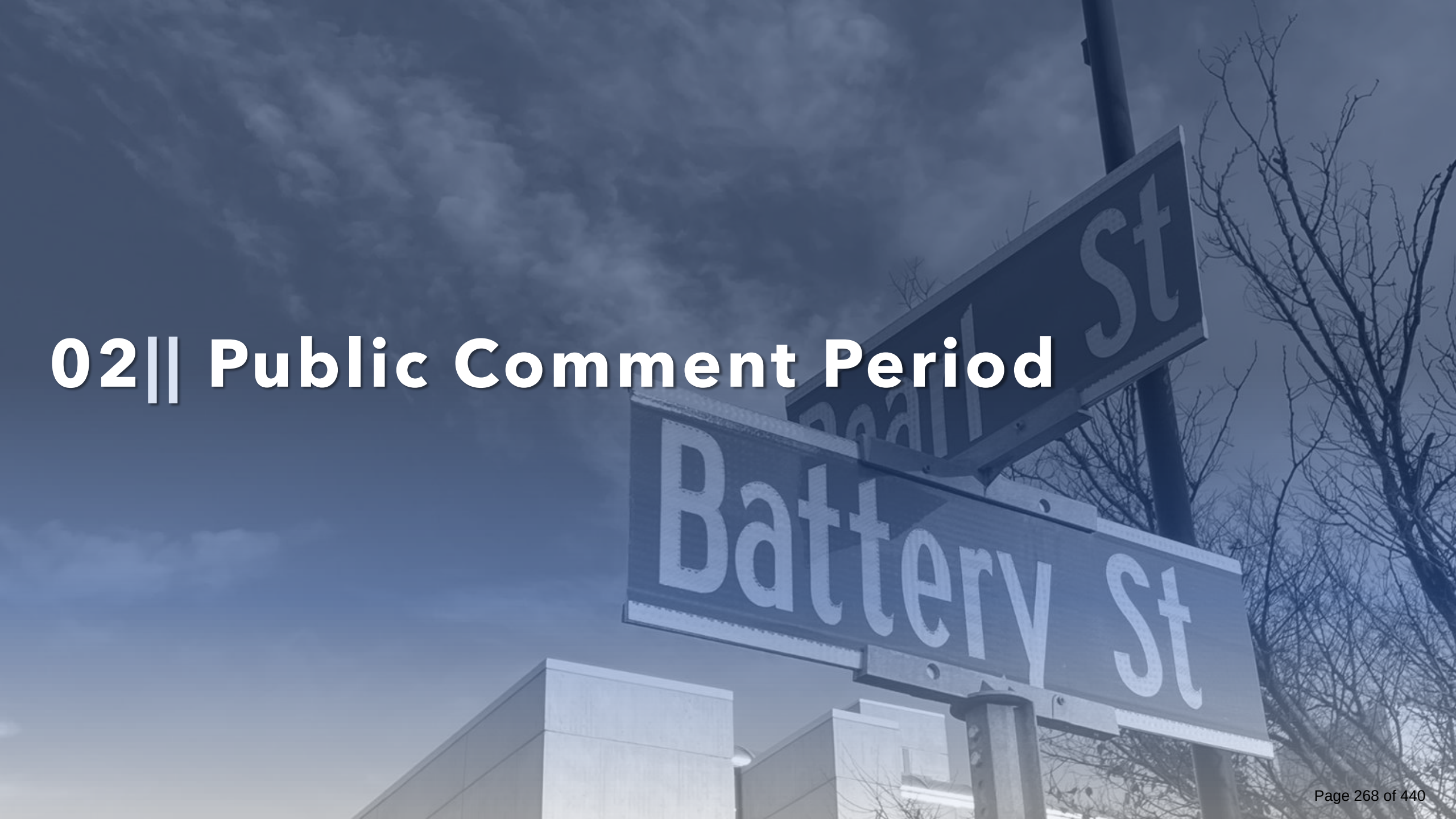
Burlington, VT Public Works

- Dayton Crites
- Ravi Venkataraman

Advisory Committee

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Norm Baldwin | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- Karen Paul | City Councilor
- Sophie Sauve | Burlington Parks, Rec, & Waterfront
- Jamie Smith | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

02|| Public Comment Period

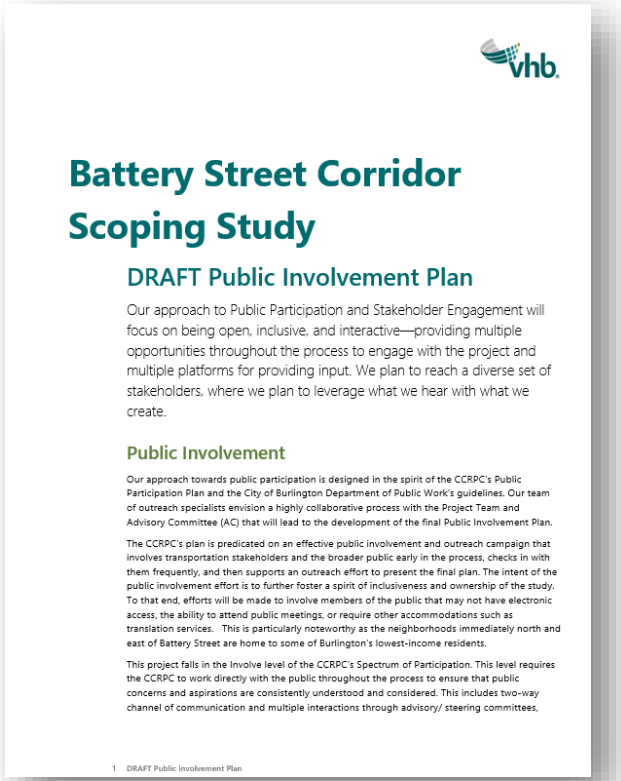




03|| Public Involvement Plan Update

Public Involvement Plan Update

- **Public Involvement Plan is designed to be an evolving document as the project progresses**
- Updates that have been made:
  - Coordination with REIB
  - Reflections on Public Meeting #1
  - Summary of Local Concerns Engagement
    - Pop-Up Style and Targeted Engagement
    - Survey
    - Translation Services
  - Reflections on Engagement Events and Targeted Community Conversations



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Battery Street Corridor Scoping Study

DRAFT Public Involvement Plan

Our approach to Public Participation and Stakeholder Engagement will focus on being open, inclusive, and interactive—providing multiple opportunities throughout the process to engage with the project and multiple platforms for providing input. We plan to reach a diverse set of stakeholders, where we plan to leverage what we hear with what we create.

Public Involvement

Our approach towards public participation is designed in the spirit of the CCRPC's Public Participation Plan and the City of Burlington Department of Public Work's guidelines. Our team of outreach specialists envision a highly collaborative process with the Project Team and Advisory Committee (AC) that will lead to the development of the final Public Involvement Plan.

The CCRPC's plan is predicated on an effective public involvement and outreach campaign that involves transportation stakeholders and the broader public early in the process, checks in with them frequently, and then supports an outreach effort to present the final plan. The intent of the public involvement effort is to further foster a spirit of inclusiveness and ownership of the study. To that end, efforts will be made to involve members of the public that may not have electronic access, the ability to attend public meetings, or require other accommodations such as translation services. This is particularly noteworthy as the neighborhoods immediately north and east of Battery Street are home to some of Burlington's lowest-income residents.

This project falls in the Involve level of the CCRPC's Spectrum of Participation. This level requires the CCRPC to work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered. This includes two-way channel of communication and multiple interactions through advisory/ steering committees.

1 DRAFT Public Involvement Plan

vhb



04|| Project StoryMap

Story Map

Project StoryMap

- Existing Conditions
- Community Engagement
- Draft Purpose + Need Statement



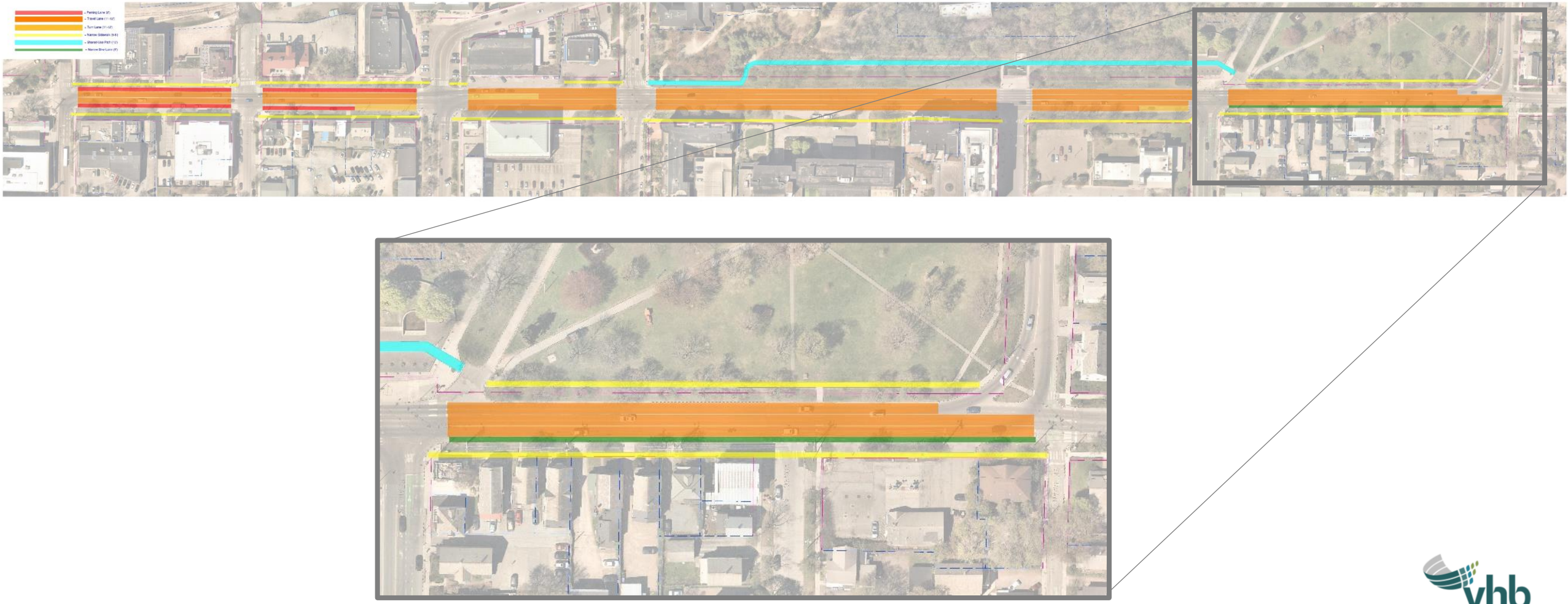
Battery Street Corridor Scoping Study

Chittenden County Regional Planning Commission (CCRPC)



05|| Mini Design Charrette

Mini Design Charrette





06|| Next Steps

Next Steps

- Finalize Purpose & Need Statement
- Develop & Evaluate Conceptual Alternatives
- Public Meeting #2 & Continued Engagement Re: Conceptual Alternatives
- Advisory Committee Meeting #3
- Alternative Refinement
- Advisory Committee Meeting #4
- Recommendation of Preferred Alternative
- Draft Report and Implementation Plan
- TEUC / City Council Meetings

Contact Us

Jason Charest
Senior Transportation Planning Engineer

Chittenden County Regional Planning Commission
110 West Canal Street, Suite 202
Winooski, VT 05404

802-861-0127
jcharest@ccrpcvt.org

Drew Gingras, PE
Project Manager

40 IDX Drive, Bldg 100, Ste 200
South Burlington, VT 05403

802-391-5569
dgingras@vhb.com

Meeting Notes

Date:	July 27, 2023	Notes Taken By:	VHB
Place:	CCRPC Office	Re:	Battery Street Planning Study Advisory Committee Meeting #2
Project No.:	58644.11		

ATTENDEES:

VHB Staff: Drew Gingras, Karen Sentoff, Elisabeth Sundberg
CCRPC Staff: Jason Charest, Eleni Churchill
City of Burlington DPW Staff: Ravi Venkataraman
Advisory Committee Members: Phet Keomanyvanh (City of Burlington REIB), Peggy O'Neill (DPW Commission), Sophie Sauve (BPRW), Jonathon Weber (Local Motion)

Meeting Notes:

Jason Charest introduced the project and group.
Meeting Purpose: Summary of public input to date, discussion of key takeaways and Draft Purpose & Need Statement, mini design charrette to start answering the question – What do we want to conceptualize for the corridor?

Introductions

All present attendees introduced themselves and their affiliation.

Public Comment Period

No members of the general public were present.

Public Involvement Plan (PIP) Update

Karen Sentoff provided an update on the PIP –
We're continually building out an evolving document. Plan on paper on how to engage the public. Intended to be a document that is landing place for the collective thoughts from the team on how the public outreach is going as it progresses. Have updated the document with some of things that have happened since the last time we met. Coordination with REIB occurred, evolved into reaching out to other community entities (Trusted Community Voices). Incorporated REIB's comments to improve how we are engaging with the numerous communities that live near and engage with Battery Street.
Reflections on public meeting #1 –
Are we reaching the intended audience? Used reflection to guide some of other targeted engagement styles. Pop up events. Targeted engagement conversations with different community groups, survey during local concerns. Translation services. Reflections and review of how we are doing to inform the next phase of the project.

Sophie asked to see the document. VHB will make it sharable for the group.

Project StoryMap

Drew shared the story map. This is a tool to create a more accessible project information 'site'. It includes existing conditions, community engagement summary with key takeaways, and a draft purpose and needs statement. It is not currently publicly available but will be in the future. A working version was put together for this meeting.

Public Input Summary Map

The public input map was discussed. Online survey, online public map, focus group community engagement were discussed. The tool summarizes all the comments. Some comments were duplicates so they were combined into one comment (noted as multiple entries).

Key themes from public input to date:

- Improved corridor and intersection safety top to bottom
- Enhanced pedestrian accommodations
- Dedicated bicycle facilities
- And more… Better Community Connectivity

Jason added that the severe rutting northbound on Battery Street was recently fixed via repaving.

It was added that the sidewalks are very steep along Battery Street.

Enhanced pedestrian accommodations:

- Consider how to improve crossings and safety.
- People want better crossings.
- People do not feel safe in the crosswalks.

Pearl Street bump out to shorten crossing was installed four years ago.

Desire for better connections across Battery Street between Downtown and the Waterfront.

Better wayfinding, intersection geometry improvements.

Need to better prioritize pedestrians at signalized intersections:

- Unreasonable wait times
- Pedestrians are coming second to motorists

Dedicated bike facilities

- Temporary two-way bike lanes on Battery Street (for Bike Path detour) were popular among walkers and bikers
- Spoke to public input around that people want facilities like this along the corridor
- Connections to bike path, new north end, south end, etc.
- Safe bicycle accommodations at intersections
    - Bike boxes
    - Protected intersections
- Main St and Maple St intersections
    - Major projects happening at those intersections
    - Railyard enterprises
    - Main street great streets

Other takeaways from public engagement:

- Better community connectivity
    - Need to consider the neighborhoods that Battery Street connects
    - Not just an arterial for commuters, but it's a neighborhood connector
- Improved transit accommodations
    - Bus stop shelters
    - Need to continually engage with GMT and other transit agencies
- Improve streetscape elements of Battery Street
    - Character
    - Sustainable stormwater practices
    - Recommendations for sustainable and resilient practices

Jonathon – Consider other intersection types, not just improving signals/operations

Peggy shared that some of that outreach include more information to educate the general public about what possibilities could be. Recognizing that the public may not know what something like a bike box is.

Phet added that we need to be sure we're always considering accessibility features for all users – Mobility aid device access, accessible signing and infrastructure for hearing and visually impaired communities. Consider longer street crossing times.

Drew responded with APS signals, growing innovation for improving signalized. Mobility aid devices, those details in engineering. Ample standards. Includes making sure there are pedestrians considered in all aspects of design. Auditory, count down phases, detectable warning surfaces. Those elements engineering design mandated and required along the road.

Jason shared that the people from trusted community voices meeting, reminded how confusing the corridor can be for someone not local. Sherman Street intersection is confusing for most people. Island for pedestrians is difficult to navigate.

Phet shared that during Main Street planning focus group newer communities don't go downtown or waterfront.

Routing to local neighbor use and accessibility, discussion for battery street.

Sophie asked if there was a request for dedicated bicycle signalization. Advancing bikes before cars.

Drew shared no mentions of bicycle signalization, but it will be considered in alternatives development.

Peggy asked if there was any work at all with Burlington school district or semester program – Thinking about how they travel before they have driver's license. These (youth) perspectives are incredibly important. Net Zero Walk Bike Master Plan.

Jason shared that the project team directly tried to meet with BHS, but the principal was in transition. Engaged with some students during Battery St & Cherry St tabling event. Will continue to engage with BHS when school year resumes.

Drew added that during the alternatives process it would be great to show high school students something to react to.

Draft Purpose and Need Statement

Drew went over the draft purpose and needs statement and how it drives the development of alternatives and overall vision for the project. He added that we want to make sure we are creating alternatives that keep the purpose and needs in mind.

Draft Project Purpose: The purpose of the Battery Street Corridor Scoping Study is to identify and prioritize short- and long-term improvements that provide equitable, safe, and accessible transportation for all, regardless of age, ability, or mode of travel, while enhancing resilience and connection along Battery Street and between downtown Burlington and the Waterfront.

Draft Project Need

- Improve corridor & intersection safety for all users.
- Enhance comfort and accessibility for walkers along Battery Street.
- Provide end-to-end separated bicycle facilities and connections.
- Identify streetscape improvements that:
    - Establish Battery Street as an attractive gateway between the waterfront and downtown.
    - Focus on sustainability and resiliency to keep Battery Street functional for years to come.

Drew added that the team can circulate this for review after the meeting to think about it and respond.

Phet shared that the battery street corridor is a major throughfare for living/working on North Ave. Too much emphasis "downtown". Important to think about Battery Street as everyday connectivity.

Eleni added that across vs along in purpose needs should be looked at more closely since it is a major connector to the people that live on North Ave.

Drew added that it works for driving commuters currently but doesn't serve walkers and bikers.

Jason added that this isn't the full expanded version of the purpose and needs. Each bullets have more comments to bolster the need.

Sophie added that "separated bike lanes" sounds like a next step, rather than a need. Doesn't fit with the other "needs". Also noted that the word separated is too prescriptive.

Mini Design Charrette

Drew went over the intent of the design charette.

Karen shared that the graphics include the right-of-way (ROW) lines which are almost up to the building faces, in most cases. The other line work is existing sidewalk and is generally to scale.

Jonathon shared that space wise; bike facilities will likely be the widest feature. Also noted the new infrastructure coming as part of the Main Street and Railyard Enterprise (REP) projects. Noted that REP will include a shared-use path on the east side of the roadway and mentioned – We'll need to consider these facilities and how best to either continue them or transition them.

Eleni shared that Main Street will be constructed before REP.

Phet suggested diagonal crossings for pedestrians at intersections. Phet asked if cuts down time for pedestrians? And shared the idea of a median in middle of Battery Street.

Drew responded that a median island is an interesting thought with lane reduction. He explained that exclusive pedestrian crossing, all vehicular movements stop allows pedestrians to cross. College Street comes to mind as potential candidate for that.

Jason shared that currently the crossing Battery Street at College Street there is a 7 second to cross for just pedestrians then cars get green light.

Sophie added that the median in the in the middle would be positive from the climate perspective. Width of the road give break pedestrians if they needed it. Slows turning movements down.

Drew added that it could accommodate turn lane at intersections.

Peggy added that she loves the island median concept. Thinking about Latin America where there are a lot of wide avenues that have big shade trees. Need to be wide enough to be welcoming. Would hope it's not too wide to avoid pedestrians crossing getting stuck in the middle.

Sophie added that a scramble is often confusing for motorists.

Pearl Street and South Winooski Ave intersection is an example of this (exclusive pedestrian phase).

Jason agreed that exclusive pedestrian phasing (including possibly bike phasing) is something we'll consider in the alternatives.

Phet asked if we are going to prioritize pedestrian and bikers. Have hard time changing our model to not focus on cars. Other places have surpassed that and share the road more.

Karen prompted consideration of more/expanded alternatives – If we have a 12 ft median, then what?

Eleni noted that we could do pocket turn lanes.

Drew posed the question – Would the median option preclude acceptable bike facilities? If that's a compromise, will it be worth it?

Eleni asked about the parking need.

Sophie shared that businesses believe there needs to be parking. Accessible parking problem. Sophie shared background information regarding parking from the temporary bike lanes installation in the southern portion of Battery Street.

Jonathon shared that he believes having continuous bike infrastructure is key. Believe reallocation of space – even if parking – should be considered necessary.

Karen asked the group what sort of bike facility should be considered? Jonathon noted separated bike lanes on each side of the road would likely be preferred.

Drew noted that there are best design practices to transition from two-way travel on one side of the way to one way travel on both sides. Of the road.

Phet asked about one lane of parking (instead of both sides). Encourage transit stops and bike lanes on the other side. Different option of transportation modes is a positive.

Jonathon mentioned that accessible parking is important in those spots on the south end of Battery.

Peggy added accessible parking/parking on that street thinking more about prioritizing spots. Loading and unloading zones. Wayfinding for surface parking lots. A lot more movement with uber.

Drew added that it is viable use to implement flexible curbside spaces.

Peggy added what the real needs vs perceived needs are would need to be addressed.

Phet added those parking spaces are essential for business owners, loading and unloading for people and supplies. City should promote parking garages.

Drew pivoted the conversation to the northern end of the corridor (Cherry Street to Sherman Street). How to improve walking comfort and safety. Walking along corridor from key neighborhoods. Infrastructure sufficient?

Drew shared that sidewalk is higher than the road in some areas on the north end of the corridor.

Karen shared that it's the narrowest section of the corridor. Sidewalk is in the park ROW.

Phet added that oftentimes, residents "take ownership" of the greenbelt in front of their homes, and that the City may get push back if they seek to change it. She added she would like to see seating areas, rain gardens, from pearl south. More trees.

Jonathon added that volume of walking necessitates a wider sidewalk. Calming traffic, noise, shade. Get rid of Sherman Street intersection island.

Eleni added that we are not looking at the intersection too closely.

Peggy and Jonathon made a comment about the "need" for three lanes in this section.

Jason added that if the island was moved into corner, would help the comfort and safety for walkers. Look into the history of the island and why it is there.

The design charrette concluded, and the project team briefly summarized Next Steps:

- Finalize Purpose and Need Statement.
- Develop and evaluate conceptual alternatives.
- Public meeting #2 and continued engagement involving conceptual alternatives.



Battery Street Scoping Study

Draft Options Presentation
March 13th, 2024

Chittenden County RPC
Communities Planning Together

Burlington, VT Public Works

vhb

Meeting Agenda

- Welcome
- Project Schedule
- Project Recap
- Purpose and Need
- Draft Options Overview
- Draft Options Evaluation
- Next Steps





01|| Project Team

Project Team

vhb

- Drew Gingras
- Elisabeth Sundberg

Chittenden County RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

Burlington, VT Public Works

- Julia Ursaki
- Laura Wheelock

vhb

02|| Project Schedule

Updated Project Schedule

Local Concerns Meeting	Spring 2023
Focus Group Meetings	*Ongoing*
Existing Conditions Analysis	Complete
Options Development / Assessment	Spring 2023 – Winter 2024
Options Presentation Meeting	**Today**
Preferred Option Selection & Advisory Committee Meetings	Summer 2024
City Council Presentation	Late Summer 2024
Final Scoping Report Submission	Fall 2024



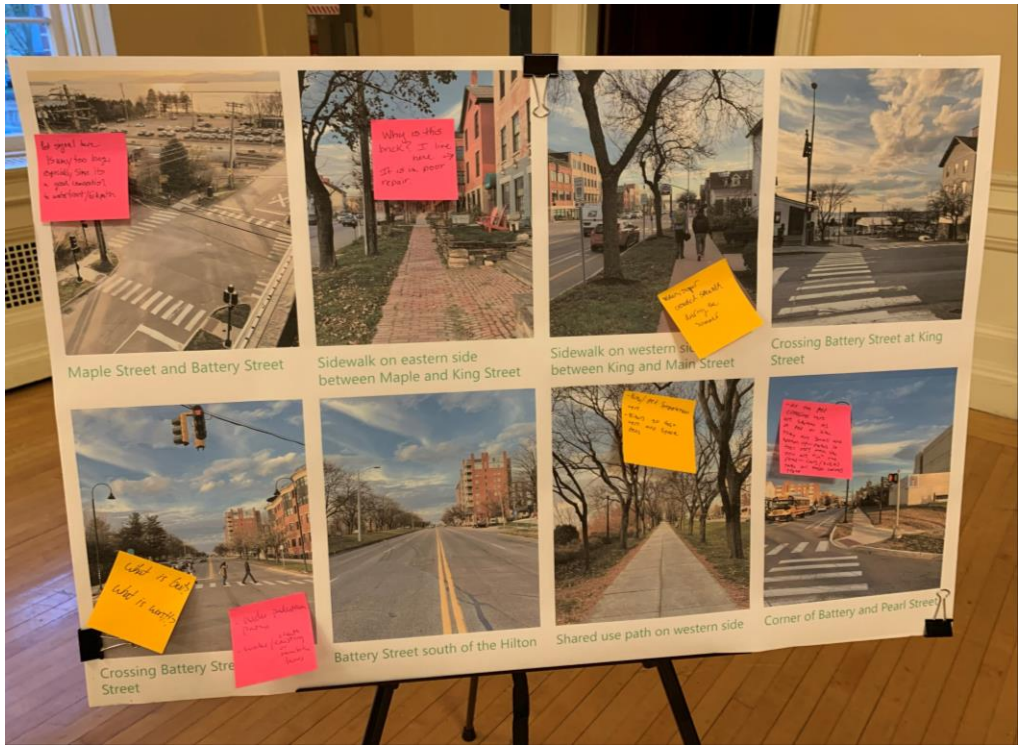
03|| Project Recap (to Date)

Corridor Overview – Project Area



Key Takeaways from Public Input (to Date)

- **Improved Corridor and Intersection Safety "Top to Bottom"**
- **Enhanced Pedestrian Accommodations**
- **Dedicated Bicycle Facilities**
- We also heard desires for…
  - Better community connectivity
  - Improved Transit Accommodations
  - Streetscape improvements





04|| Project Purpose and Need

Project Purpose

The purpose of the Battery Street Scoping Study is to identify and prioritize short- and long-term improvements that provide **equitable, safe, low-stress, and accessible transportation for all** along and across Battery Street, regardless of age, ability, or mode of travel.



Project Need(s)

The need for this project is driven by the deficiencies in the current transportation infrastructure and a need for comprehensive corridor planning. These needs are articulated below:

- **Improve corridor & intersection safety for all users.**
- **Enhance comfort and accessibility for pedestrians along Battery Street.**
- **Provide end-to-end bicycle facilities and connections.**
- **Integrate street ecology into Battery Street's overall design.**
- **Provide acceptable mobility for all modes of transportation along Battery Street.**



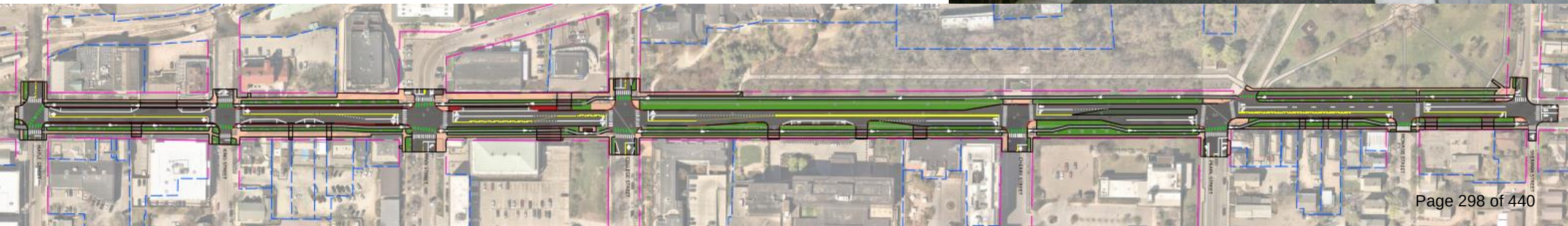


05|| Draft Options Overview

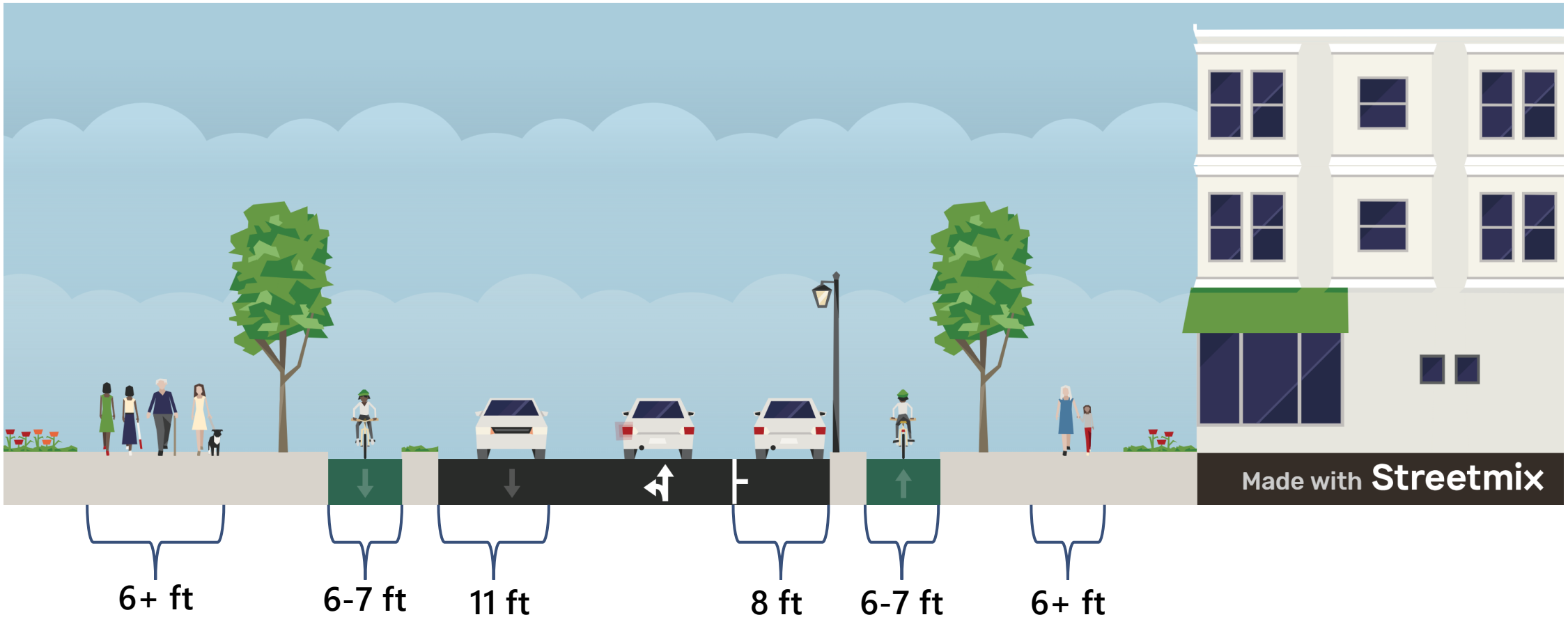
Option 1 Overview

- 6- to 15-foot-wide sidewalks on both sides of Battery Street
- 6- to 7-foot-wide bike lanes on both sides of Battery Street
- 11-foot-wide travel lanes
- Raised Median Island between Cherry Street and Pearl Street

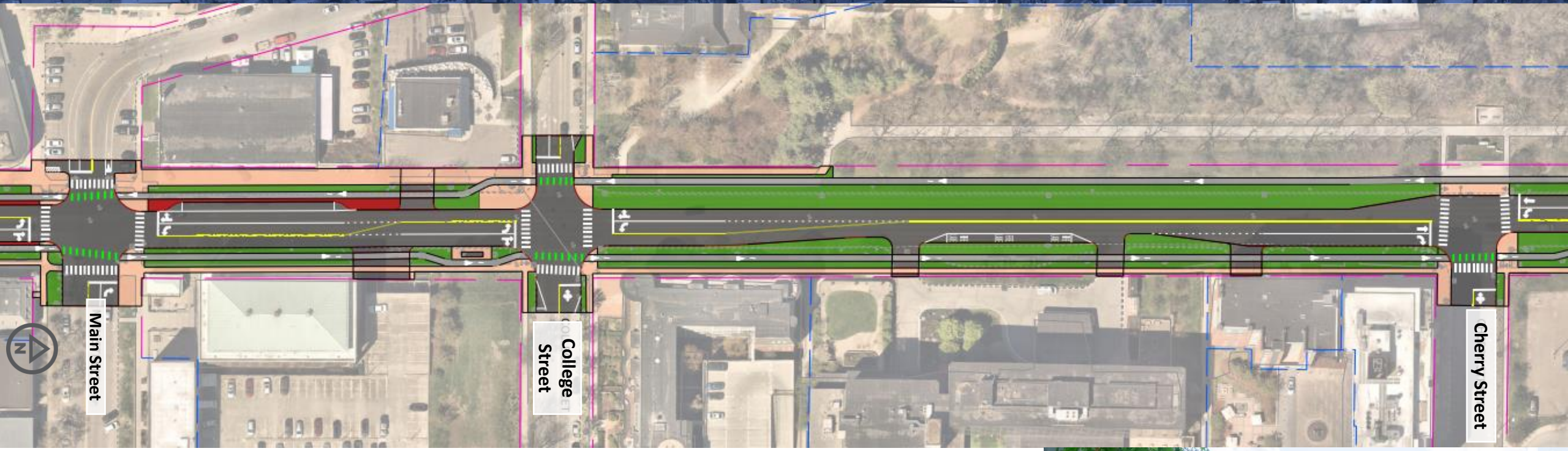




Option 1: Typical Cross Section



Option 1: Main Street to Cherry Street



Option 1 Differentiators

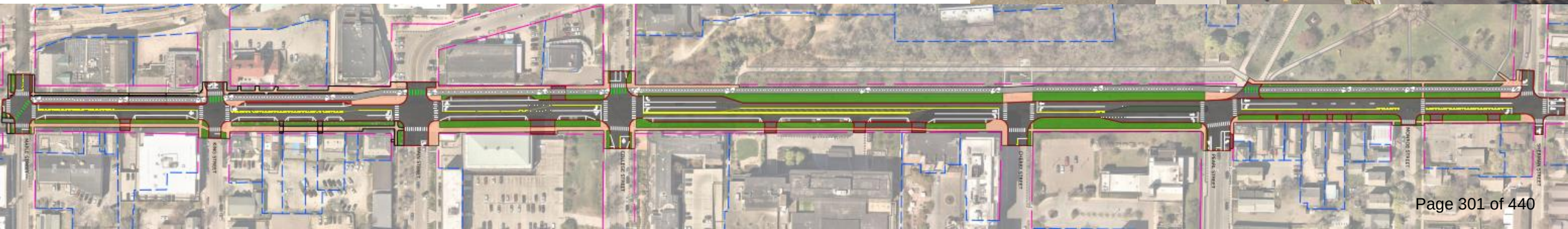
- Increased pedestrian space on the west side of Battery Street
- Similar concept is under construction on Main Street, i.e. one-way sidewalk level separated bike lanes on both sides
- Fewer on-street parking spaces than Option 2



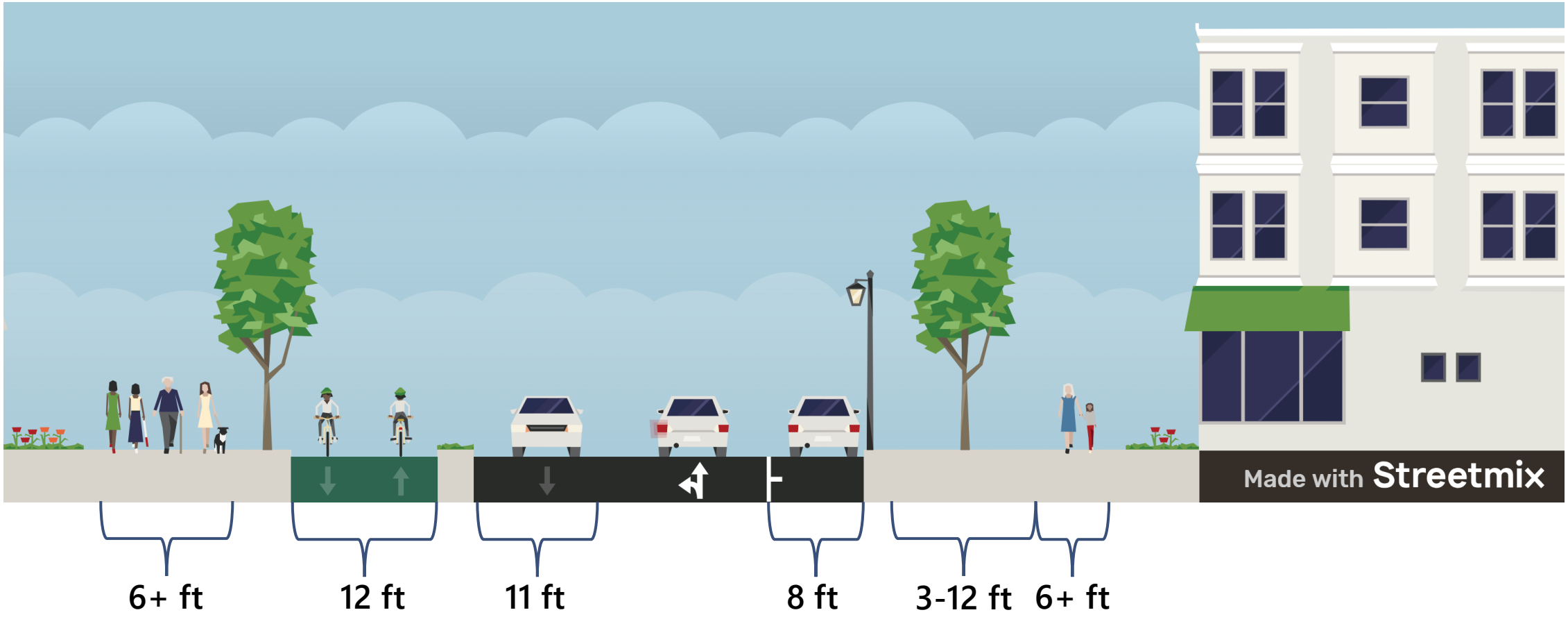
Option 2 Overview

- 12-foot-wide two-way bike lane on western side of the corridor
- 5- to 10-foot-wide sidewalks
- 11-foot-wide travel lanes
- Island between Cherry Street and Pearl Street

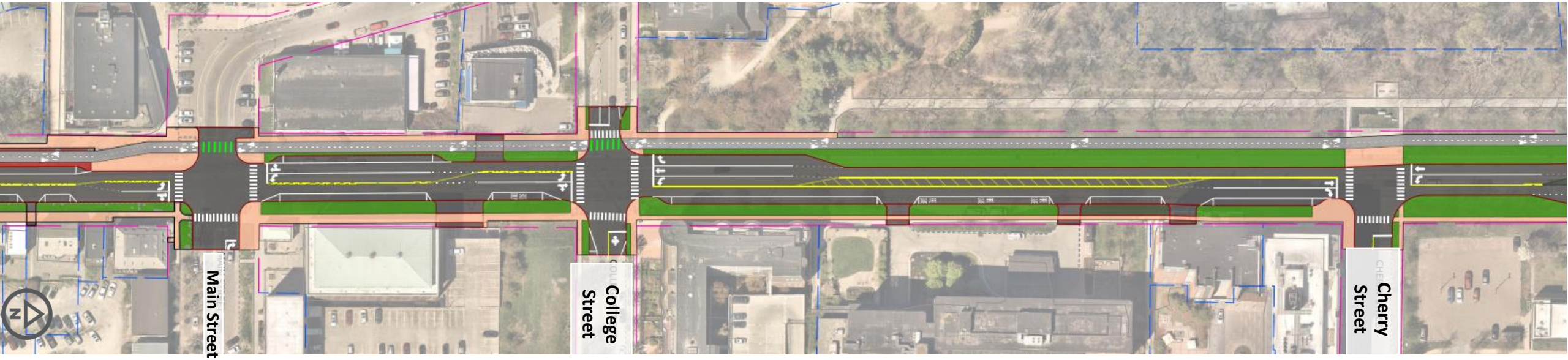




Option 2: Typical Cross Section



Option 2: Main Street to Cherry Street



Option 2 Differentiators:

- Westside two-way bike travel eliminates several potential conflict points
- College Street crosswalk length
- On-Street parking included to Cherry St





Features of Both Options

- Travel lane reduction – Road Diet
- Continuous separated bicycling facilities
- Wider sidewalks & pedestrian crossing “lead time”
- Sherman Street reconfiguration
- Traffic calming island between Cherry and Pearl
- Significant increase in green space





06|| Options Evaluation

Evaluation Matrix Overview

	Corridor Options		
	No Build	**Option 1**	**Option 2**
Project Cost	$0	$$$$	$$$$
Purpose & Need			
Improve corridor & intersection safety for all users	No	Yes	Yes
Enhance comfort and accessibility for pedestrians along Battery Street	No	Yes	Yes
Provide end-to-end bicycle facilities and connections	No	Yes (One-Way, Both Sides)	Yes (Two-Way, Westside)
Integrate street ecology into Battery Street's overall design	Somewhat	Yes	Yes
Provide acceptable mobility for all modes of transportation along Battery Street	No	Yes	Yes

Corridor & Intersection Safety for All Users

Option 1

- Road Diet along full corridor
- Minimizes lane shifts at intersections
- Eliminates slip lane at Sherman Street
- More intuitive lane configurations

(Additional improvement covered in other topics on next slides)

Option 2

- Road Diet along full corridor
  - Additional turn lane required at College Street
- Eliminates lane shifts at intersections
- Eliminates slip lane at Sherman Street
- More intuitive lane configurations

(Additional improvements covered in other topics on next slides)

Pedestrian Safety & Accessibility

Option 1

- All pedestrian crossings are shortened
- Sidewalk width is maintained, widened where feasible
- All pedestrian crossings now have 7 seconds of “lead time”
- Pedestrian queue space might be compromised by separated bike lanes on both sides

Option 2

- All pedestrian crossing are shortened
  - Except the northern leg of College Street
- Option to increase width of sidewalks on eastside (maintain width on westside)
- All pedestrian crossings now have 7 seconds of “lead time”
- Pedestrian queue space compromised on westside, available on eastside

Bicycle Facilities & Connections

Option 1

- One-way separated bike lanes, both sides
- Intuitive / Expected travel patterns for bicyclists
- Higher conflict potential for bicyclists given travel on both sides of the street
- Fully separated from roadway and sidewalks
- Reasonable access to both sides of the road
- Requires more exclusive signal phasing
- Easy connections all along Battery Street

Option 2

- Two-way separated bike lanes, west side
- No conflict potential with motorists north of College Street
- Side by side bicycle riding, fully separated from roadway and sidewalks
- Northbound (uphill) direction is counter-flow to driver direction, i.e. less intuitive
- Seamless connection to west side of street
- Difficult access into and out of the facility

Street Ecology Potential

Option 1

- Maintains most existing trees
- Less impact to Battery Park
- Significant reduction in total area of impervious surfaces
- Provides substantial opportunity for new pervious surfaces / green space / stormwater management practices

Option 2

- Maintains some existing trees
- Increased impact to Battery Park
- Significant reduction in total area of impervious surfaces
- Provides substantial opportunity for new pervious surfaces / green space / stormwater management practices

Acceptable Mobility for All Modes

Option 1

- Removes on-street parking on one side of Battery Street between Maple and Main
- During the most congested hour of the day, the average motor vehicle trip on Battery St. would take 3 minutes longer
- Maintains in-lane bus stop
- Improves pedestrian facilities and conditions
- Provides separated bike facilities

Option 2

- Removes on-street parking on one side of Battery Street between Maple and King
- Adds on-street parking on east side of street between Main and Cherry
- During the most congested hour of the day, the average motor vehicle trip on Battery St. would take 40 seconds longer
- Provides bus pull-off at bus stop
- Improves pedestrian facilities and conditions
- Provides separated bike facilities

Evaluation Matrix Overview

	Corridor Options		
	No Build	**Option 1**	**Option 2**
Project Cost	$0	$$$$	$$$$
Purpose & Need			
Improve corridor & intersection safety for all users	No	Yes	Yes
Enhance comfort and accessibility for pedestrians along Battery Street	No	Yes	Yes
Provide end-to-end bicycle facilities and connections	No	Yes (One-Way, Both Sides)	Yes (Two-Way, Westside)
Integrate street ecology into Battery Street's overall design	Somewhat	Yes	Yes
Provide acceptable mobility for all modes of transportation along Battery Street	No	Yes	Yes



07|| Next Steps

Next Steps

- Advisory Committee Meeting(s)
- Select & Refine Preferred Option
- Develop Draft Scoping Report
- City Council & TEUC Meetings / Presentations
- Final Scoping Report & Implementation Plan Submission



Contact Us

Jason Charest
Senior Transportation Planning Engineer

802-861-0127
jcharest@ccrpcvt.org

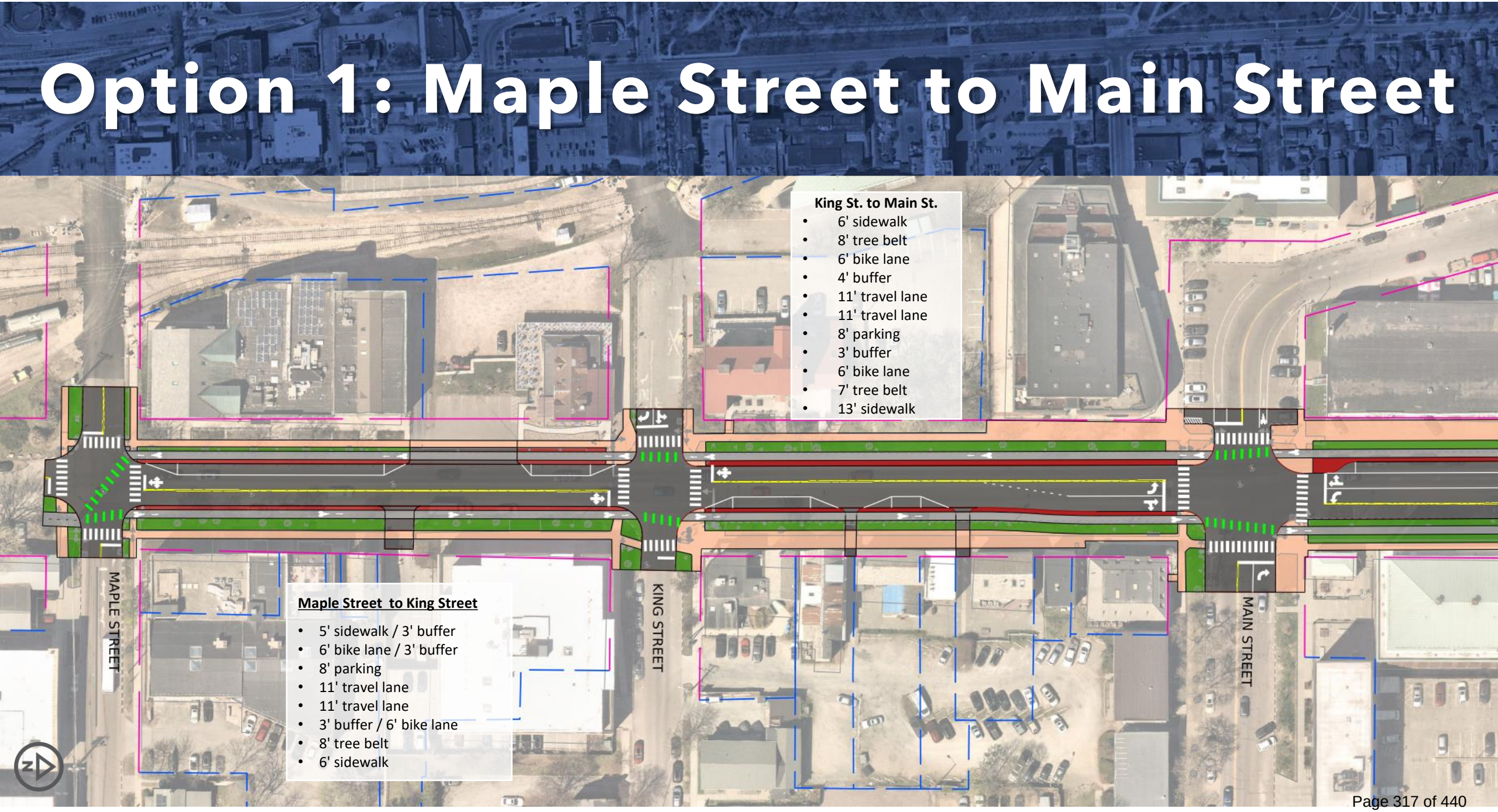
Drew Gingras, PE
Project Manager

802-391-5569
dgingras@vhb.com



08|| Open Discussion

Option 1: Maple Street to Main Street



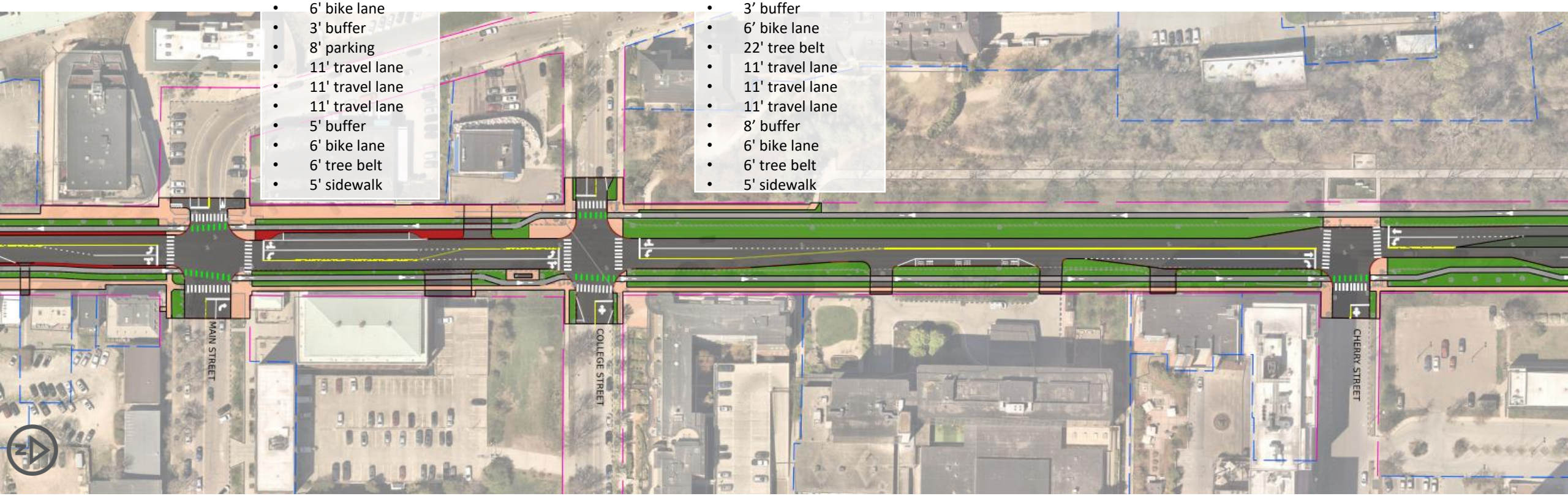
Option 1: Main Street to Cherry Street

Main St. to College St.

- 15' sidewalk
- 6' tree belt
- 6' bike lane
- 3' buffer
- 8' parking
- 11' travel lane
- 11' travel lane
- 11' travel lane
- 5' buffer
- 6' bike lane
- 6' tree belt
- 5' sidewalk

College St. to Cherry St.

- 5’ sidewalk
- 6' bike lane
- 3’ buffer
- 6’ bike lane
- 22' tree belt
- 11' travel lane
- 11' travel lane
- 11' travel lane
- 8’ buffer
- 6' bike lane
- 6' tree belt
- 5' sidewalk



Option 1: Cherry Street to Sherman Street

Cherry St. to Pearl St.

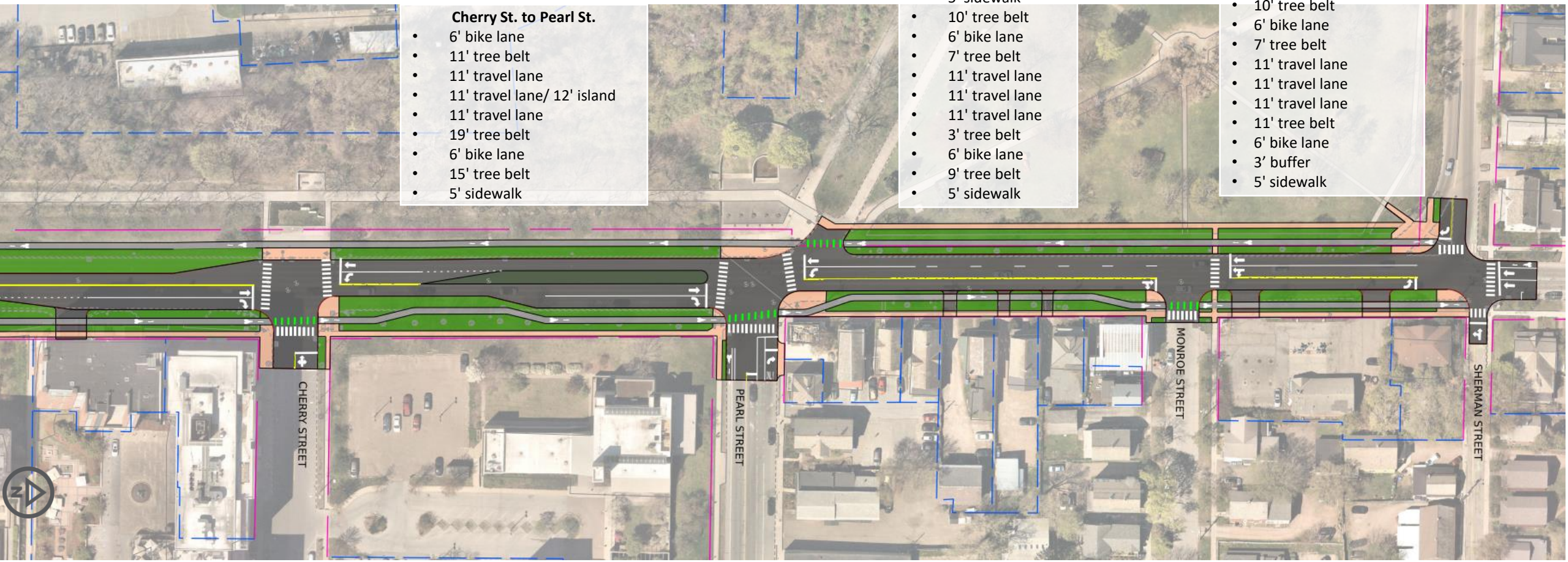
- 6' bike lane
- 11' tree belt
- 11' travel lane
- 11' travel lane/ 12' island
- 11' travel lane
- 19' tree belt
- 6' bike lane
- 15' tree belt
- 5' sidewalk

Pearl St. to Monroe St.

- 5' sidewalk
- 10' tree belt
- 6' bike lane
- 7' tree belt
- 11' travel lane
- 11' travel lane
- 11' travel lane
- 3' tree belt
- 6' bike lane
- 9' tree belt
- 5' sidewalk

Monroe St. to Sherman St.

- 5' sidewalk
- 10' tree belt
- 6' bike lane
- 7' tree belt
- 11' travel lane
- 11' travel lane
- 11' travel lane
- 11' tree belt
- 6' bike lane
- 3’ buffer
- 5' sidewalk



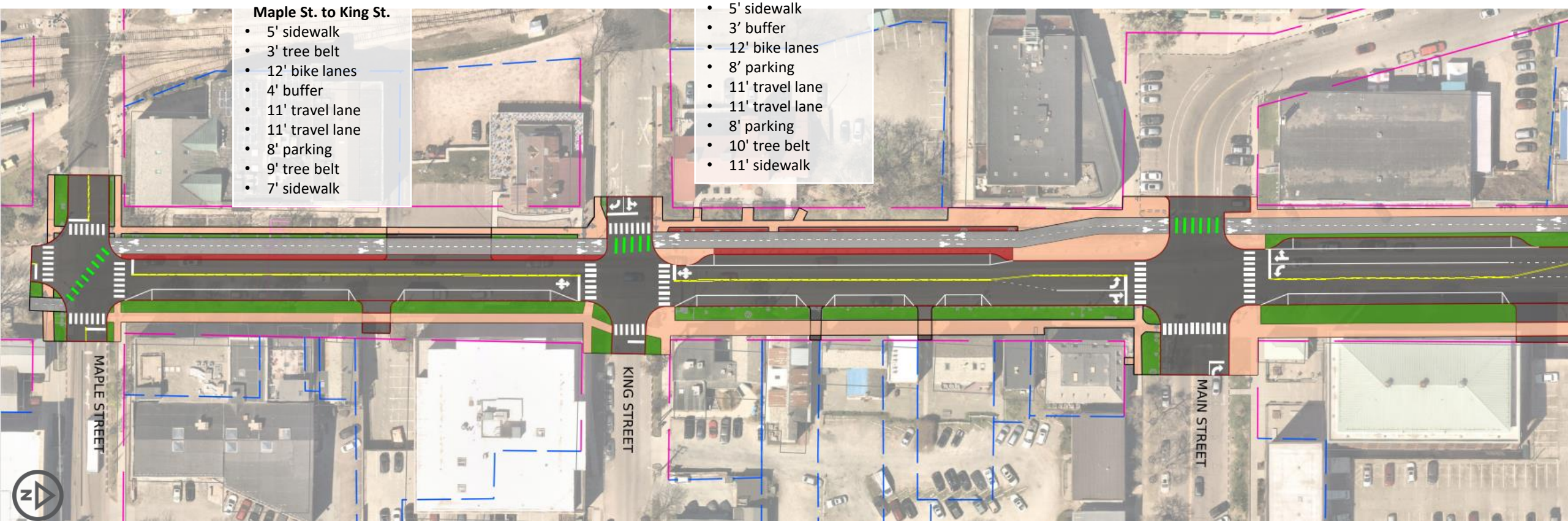
Option 2: Maple Street to Main Street

Maple St. to King St.

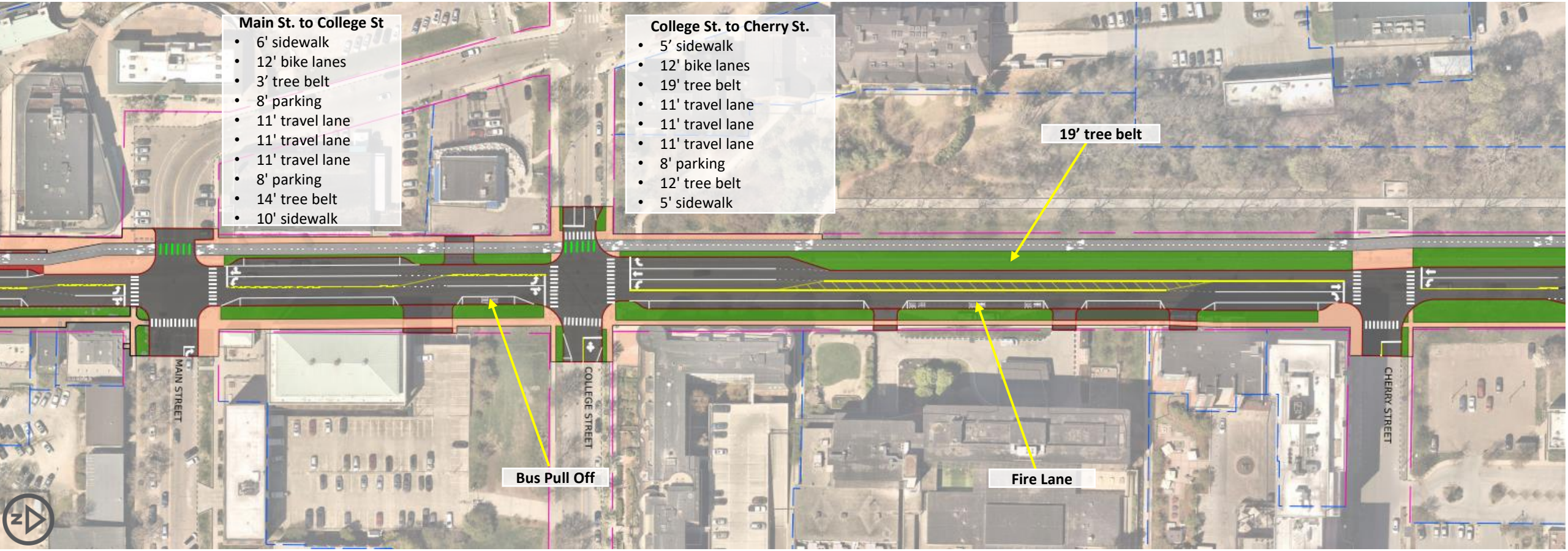
- 5' sidewalk
- 3' tree belt
- 12' bike lanes
- 4' buffer
- 11' travel lane
- 11' travel lane
- 8' parking
- 9' tree belt
- 7' sidewalk

King St. to Main St.

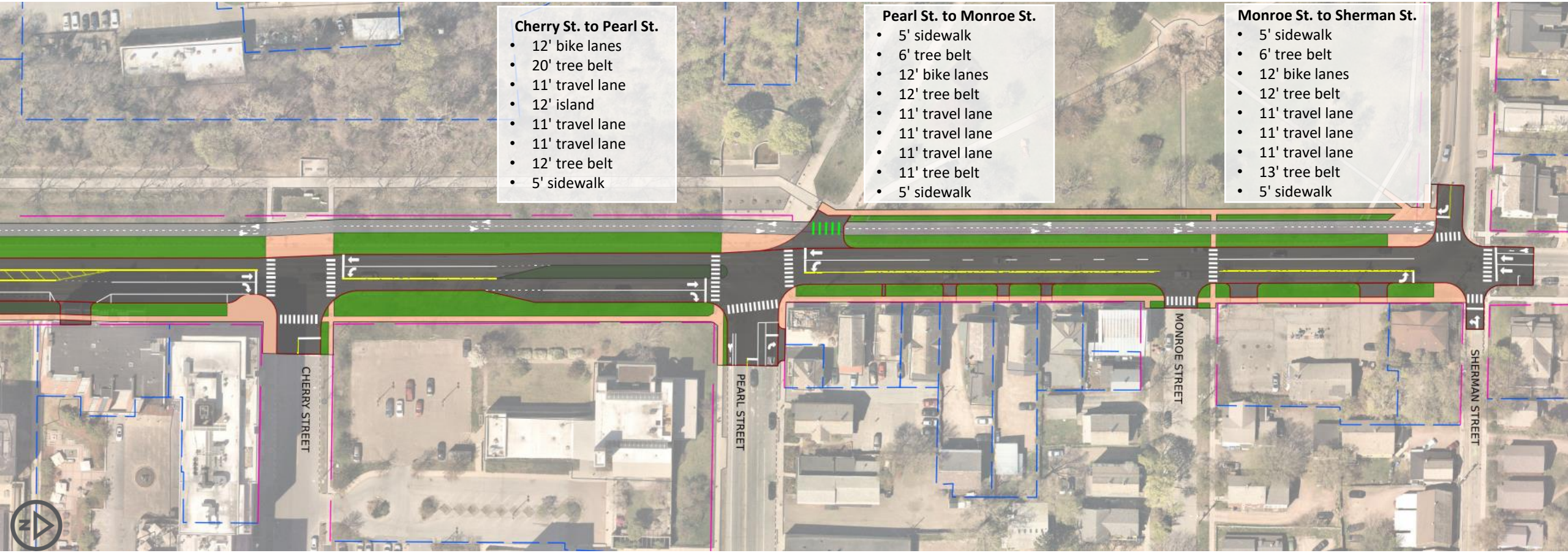
- 5' sidewalk
- 3’ buffer
- 12' bike lanes
- 8’ parking
- 11' travel lane
- 11' travel lane
- 8' parking
- 10' tree belt
- 11' sidewalk



Option 2: Main Street to Cherry Street



Option 2: Cherry Street to Sherman Street



Tell us what you think!



Take our short Online Survey

Visit the Project Website for more information



Call the Project Team

802-863-9094

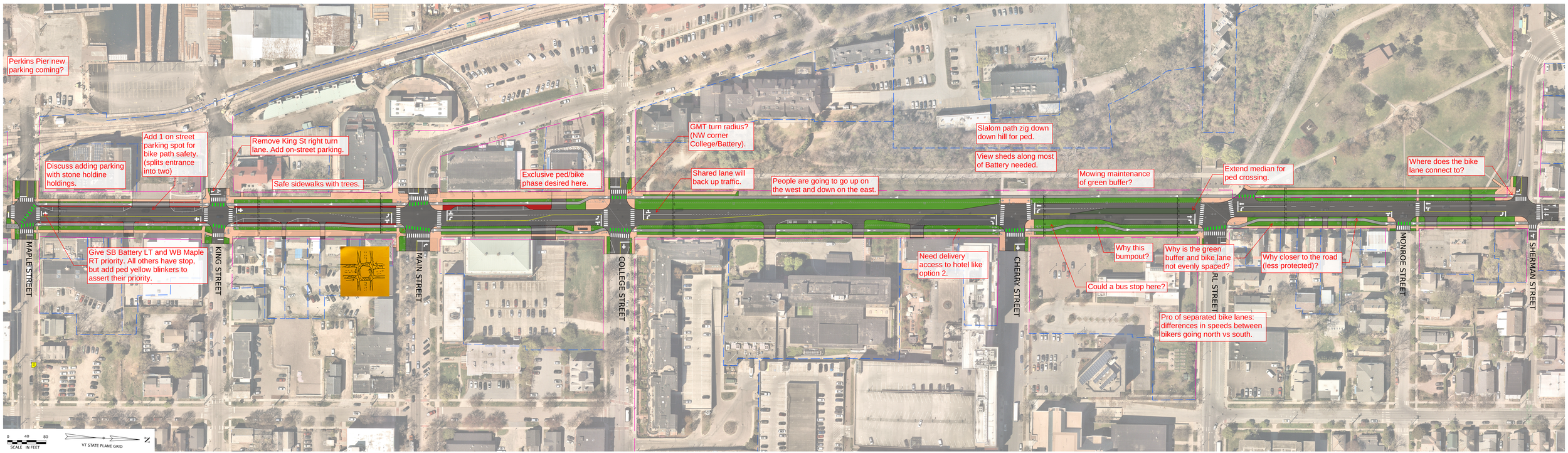
Language services are provided free of charge. **For translation and interpreter services please call 802-863-9094**



Email your thoughts

dpwplanning@burlingtonvt.gov

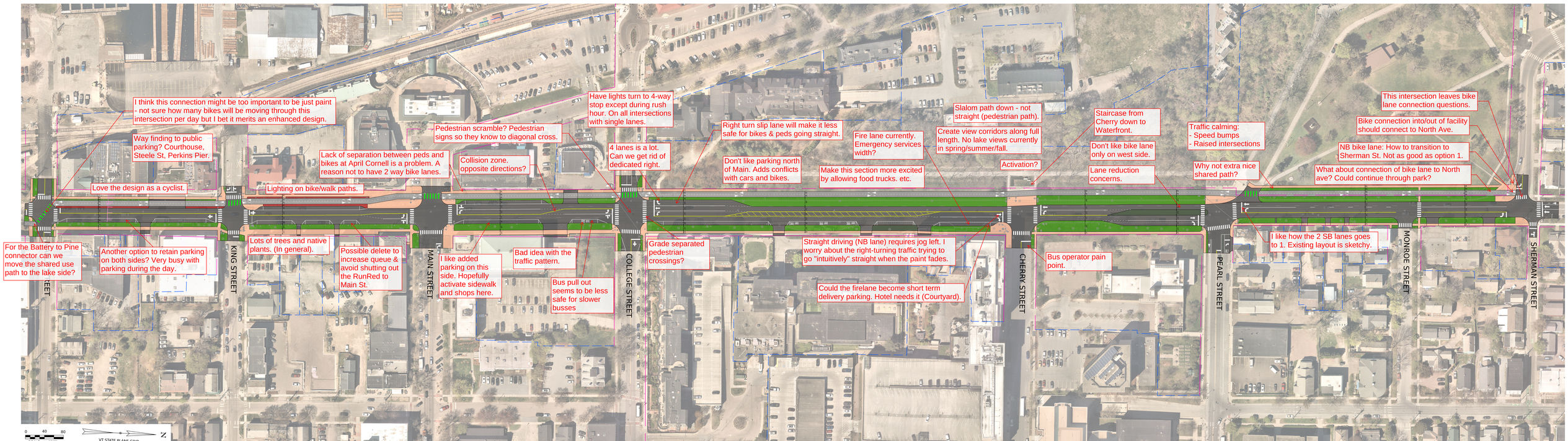
Draft Alternatives Meeting - Public Input Summary
March 13, 2024



Battery Street Scoping Study

Alternative 1

Draft Alternatives Meeting - Public Input Summary
March 13, 2024



Battery Street Scoping Study

Alternative 2

Draft Alternatives Preference Survey Responses

Timestamp	Do you prefer Option 1: one-way bike lanes or Option 2: two-way bike lane?	Briefly tell us why (optional).
3/1/2024 16:49:50	Neither	The street is wide enough.
3/1/2024 16:52:13	Option 1: one-way bike lanes on both sides	Safer for cyclists and cars
3/1/2024 16:53:51	Neither	With a lot more housing coming on line in the next few years, it doesn't seem appropriate to cut battery st to 3 lanes. Cars are being strangled in Burlington, and public transit is not at adequate.
3/1/2024 16:54:19	Option 1: one-way bike lanes on both sides	it is what cars are expecting so might be safer for bikes - but i'm not sure
3/1/2024 16:56:41	Neither	I think we have a bike path and do not need bikes with cars. The bikers are not following road signs and it is unsafe.
3/1/2024 17:01:25	Option 1: one-way bike lanes on both sides	Biggest reason: folks riding downhill (SB) will be traveling fast
3/1/2024 17:03:40	Option 2: two-way bike lane on west side	
3/1/2024 17:04:41	Option 2: two-way bike lane on west side	It seems to allow for parking
3/1/2024 17:04:43	Option 1: one-way bike lanes on both sides	This will be safer for bicyclists and easier for bicyclists to understand. Battery street is wide enough for this.
3/1/2024 17:04:48	Option 2: two-way bike lane on west side	
3/1/2024 17:07:16	Option 1: one-way bike lanes on both sides	Unless the bike lanes are physically separated from car traffic, it is a safer option for bikers.
3/1/2024 17:07:36	Option 1: one-way bike lanes on both sides	
3/1/2024 17:09:16	Option 2: two-way bike lane on west side	Separating bike lanes on opposite sides of the street will only cause confusion, wrong way biking and problems. Option 2 also give three lanes for traffics at College St, which is always a traffic problem area.
3/1/2024 17:09:58	Option 2: two-way bike lane on west side	
3/1/2024 17:16:39	Option 2: two-way bike lane on west side	
3/1/2024 17:22:43	Option 2: two-way bike lane on west side	Bikes together
3/1/2024 17:23:11	Option 2: two-way bike lane on west side	Consistent with greenway
3/1/2024 17:23:12	Neither	You are already hamstring auto traffic all over the city. Not all of us in the city are 20-30 year old bike riders when you get into your 50-80 you don't ride bikes as the falls at that age kills you
3/1/2024 17:24:37	Option 2: two-way bike lane on west side	I support option 2: As someone who regularly travels along this corridor by bike, car, and foot, I strongly support the two-way bike lane on the west side. I support it for the following reasons- as a biker I appreciate the more linear lane of travel achieved by the two-lane bike path, I feel that a two-lane bike path will mean less people traveling the wrong direction on the wrong side of the road, I appreciate how the two lanes allows for faster moving bike traffic to pass slower moving traffic in the other lane. I also feel that by keeping a singular two-lane bike path, the future upkeep will be cheaper and there will be less redundancy in infrastructure. As a car driver, I appreciate how the two-lane path will be better protect cyclists at intersections and along the length of the work area by keeping the infrastructure combined, separate and predictable. I know I'd feel better as a driver having the bulk of cyclists that I'm watching for primarily on one side of me rather than both. To re-emphasize the problems with one-way directional travel of singular bike lanes, I feel that option one would cause a lot of confusion and less predictability for both cyclists and drivers.
3/1/2024 17:47:51	Option 2: two-way bike lane on west side	Better lake view. But, I hope you have fully considered the increased traffic at rush hour from Cambrian Rise. Seems like you could just make a better connection from the existing bike path to North Ave.
3/1/2024 17:56:29	I like both equally	I like separating them because they will have very different speeds and it gives direct access to the addresses on the East side. But having them on the same side avoids people going the wrong way in one because they don't want to cross the street, and it has two fewer intersections than the East side.
3/1/2024 18:00:22	Option 2: two-way bike lane on west side	Actually neither. Bike lanes are too disruptive and dangerous to normal traffic flow especially on a street with so many turn offs
3/1/2024 18:03:14	Option 1: one-way bike lanes on both sides	
3/1/2024 18:10:19	Option 2: two-way bike lane on west side	
3/1/2024 18:11:36	Option 2: two-way bike lane on west side	
3/1/2024 18:16:22	Option 2: two-way bike lane on west side	Since the West side connects right to the bike path, I think it makes sense to have 2 way traffic on that side
3/1/2024 18:18:28	Neither	Roads are made for cars. NOT BIKES!
3/1/2024 18:26:44	Option 1: one-way bike lanes on both sides	Keep the disruption on both sides to a minimum.
3/1/2024 18:27:38	Option 1: one-way bike lanes on both sides	This is the expected alignment of bike lanes. For that reason I think it’s safer for drivers and bikers.
3/1/2024 18:28:21	I like both equally	As someone who had commuted along Battery St both via car and bike, I never felt safe in the road and always preferred to bike along the sidewalk. Anything that gives bikes their own lane is preferred.
3/1/2024 18:46:17	Option 2: two-way bike lane on west side	
3/1/2024 18:58:33	Option 1: one-way bike lanes on both sides	
3/1/2024 19:07:42	Option 2: two-way bike lane on west side	
3/1/2024 19:16:33	Option 2: two-way bike lane on west side	Because when I am biking down battery I am probably going to the waterfront, and want to be able to turn easily. When I am going up the hill I need to keep my momentum so I dont want to have to stop at red lights at every block- I assume if the bike lanes are on the west side, there will be no light necessary, as there aren't left turns between college and pearl
3/1/2024 19:21:16	Option 2: two-way bike lane on west side	Neither does a great job, but option 2 separates the bikes more from cars. A bike lane which is just a painted line is not a bike lane.
3/1/2024 19:36:58	Option 1: one-way bike lanes on both sides	2 lane bike lanes can be confusing to both cyclists and motorists
3/1/2024 19:59:51	Option 2: two-way bike lane on west side	It’s safer and quicker to bike on the side where there are no side streets or driveways
3/1/2024 20:15:00	Option 2: two-way bike lane on west side	Option 2 seems to allow more space in total for pedestrians, while keeping the same amount of space for bicyclists in each direction.
3/1/2024 20:26:40	Option 2: two-way bike lane on west side	Less need to cross roads when on a bike. more like the bike path, I think it's just generally nicer to have a wider space to share with oncoming bikers, vs two one-lanes. better vibes. haha.
3/1/2024 20:46:31	Option 2: two-way bike lane on west side	I think it would be safer for all if drivers needed only to be aware of bicyclists on one side of the road versus both.
3/1/2024 21:47:18	I like both equally	They seem functional. I would want to know more about the advantages and disadvantages to both drivers and bikers
3/1/2024 23:01:55	Option 1: one-way bike lanes on both sides	It is normal for drivers to look for bike riders —esp at intersections flowing same side in direction of traffic. Option 2 is dangerous and no municipality has ever instituted it without inc in auto-bike crashes. With a 9 million dollar deficit, we need neither. Bike count must be 1 per week in the summer.

Draft Alternatives Preference Survey Responses

Timestamp	Do you prefer Option 1: one-way bike lanes or Option 2: two-way bike lane?	Briefly tell us why (optional).
3/1/2024 23:40:33	Neither	There is no information about widening the road for bike lanes. There is too much traffic to accommodate bike lanes as is. As you acknowledge this is a major corridor and there aren't other options to travel. This will not be safe for bike riders or those driving cars.
3/2/2024 0:23:36	Option 1: one-way bike lanes on both sides	
3/2/2024 0:55:35	Option 2: two-way bike lane on west side	Too busy of a street to bike down especially that it is parallel with the already existing bike path. Would hate to lose lanes of traffic to a bike path that may be under utilized.
3/2/2024 1:30:23	Option 2: two-way bike lane on west side	
3/2/2024 6:39:14	Option 1: one-way bike lanes on both sides	
3/2/2024 6:52:44	Option 1: one-way bike lanes on both sides	People should be able to bike on both sides of the street. It is the international standard to have bike lanes on both sides.
3/2/2024 7:03:32	Option 2: two-way bike lane on west side	I am more comfortable biking this way on busy streets. It worked fine when the bikepath construction was underway.
3/2/2024 7:34:27	Option 2: two-way bike lane on west side	
3/2/2024 8:28:43	Option 1: one-way bike lanes on both sides	
3/2/2024 8:48:59	Option 2: two-way bike lane on west side	
3/2/2024 9:48:02	Option 2: two-way bike lane on west side	It feels safer and more efficient to keep bikes together
3/2/2024 9:57:16	Option 2: two-way bike lane on west side	It clearly separates cars from people. I prefer safe, easily identified defined lanes. pedestrians seem safer with wide separate avenues; bikers are safe and have a good sense that they must be cognizant of the rules of the road/lane
3/2/2024 10:24:45	Option 2: two-way bike lane on west side	
3/2/2024 11:07:50	Neither	You can add more bike lanes when you start registering bikes so that they have to pay a fair share of road maintenance.
3/2/2024 11:08:07	Option 2: two-way bike lane on west side	It seems a simpler separation of cars and bikes with a wider area for the bike lane. Additional parking may also be an advantage.
3/2/2024 11:11:58	Option 1: one-way bike lanes on both sides	
3/2/2024 11:27:34	Option 2: two-way bike lane on west side	Fewer conflict points for bicyclists is good. But why do you propose 3 turn lanes at College St? With a 2-way bike lane, you should have a dedicated signal, so no need for a right turn lane on Battery St.
3/2/2024 12:06:46	I like both equally	Either configuration would work, but more important to me is that the bike lane(s) be separated by a safety median from motorized vehicles. Just painting a stripe on an existing roadway (like on North Ave), is not safe enough, IMHO.
3/2/2024 12:17:10	Option 2: two-way bike lane on west side	It's an ambiguous question because the priority is protecting bike lanes from automobile traffic. Whether bike lanes are separated by direction or together is secondary. Will the proposed lanes be protected?
3/2/2024 12:19:19	Option 2: two-way bike lane on west side	A two-way lane promotes a pedestrian culture, keeping dangerous car traffic more easily separated from pedestrians. The most important question is whether the lanes are protected from traffic.
3/2/2024 12:29:35	Option 2: two-way bike lane on west side	Bike riders will be traveling the same direction as vehicular traffic.
3/2/2024 12:39:52	Option 2: two-way bike lane on west side	Takes up less of the road
3/2/2024 14:33:15	Option 2: two-way bike lane on west side	Seems safer - fewer areas for cars to impede on bike lane when turning.
3/2/2024 15:09:50	Neither	There is no need for bike lanes on this stretch of roadway.
3/2/2024 17:53:48	Neither	Turning left on this street is already such a hassle and oftentimes causes traffic backups. Reducing the number of lanes to 3 will only exacerbate the issue. Bikes have the right to use the car lanes and I believe that norm should be maintained.
3/2/2024 18:02:58	Option 1: one-way bike lanes on both sides	Avoid bike collisions. Allow northbound bikes to avoid dealing with vehicle turns toward lakefront.
3/2/2024 19:21:29	Option 1: one-way bike lanes on both sides	Way easier to get to your actual destination as a biker. Plus there's already the wide path on the west side for part of it. But I would much prefer a two lane road with more greenspace rather than a three lane road.
3/3/2024 7:56:59	Neither	bad for environment, bad for traffic flow, just when CPwill dump more traffic.
3/3/2024 8:01:42	Neither	Bike path is below road. No need for a bike lane up on the streets. Not wide enough
3/3/2024 8:26:31	Neither	Which option best preserves more of the beautiful mature trees along Battery St?
3/3/2024 9:37:41	Neither	If I had to choose one it would be option 2. That said I think it is really important to maintain the circulation of traffic. There are current two lanes in each direction where battery street has its greatest slope. Maintaining these will allow cars to move through the space and decrease congestion in our growing city. I really like they additional green space and dedicated bike lane, but I would scarfice the on street parking to maintain more open lanes and left right turn lanes for cars.
3/3/2024 10:56:51	Option 1: one-way bike lanes on both sides	As a cyclist, this integrates better to connecting street bike lanes and due to the hill, it would feel safer to be in a slow climbing lane up one side or a speedier down lane on the other vs. both on the same path. Option 2 doesn't add that many parking spaces.
3/3/2024 11:07:54	Neither	Concerned about safety for either option on Battery Hill. Seems like a better option would be to direct bikes to the sidewalk in this area.
3/3/2024 11:53:56	Neither	Please stop spending our tax money on bike lanes.
3/3/2024 11:56:33	Neither	We have a bike path. Stop wasting money on more bike lanes.
3/3/2024 13:50:57	Option 1: one-way bike lanes on both sides	I could go either way. I prefer the easier access with north bound traffic staying on the east side, but also see the benefit of using the 2-way path to avoid more turning traffic and cross streets. Either way there's no need for a separate right turning lane southbound at College. Also while waiting for funding of this proejct please implement a road diet with standard bike lanes in 2025, at least N of Main St. if not the whole length.
3/3/2024 16:05:23	Option 2: two-way bike lane on west side	
3/3/2024 18:06:08	Option 2: two-way bike lane on west side	
3/3/2024 19:09:36	Option 1: one-way bike lanes on both sides	I think it would be harder for bikes to navigate both cars and other bikes in these various directions
3/3/2024 19:16:07	Option 1: one-way bike lanes on both sides	
3/3/2024 19:16:27	Neither	Stop spending money to fix things that aren't broken. Either don't spend money on this project or put the money for this project towards the high school which the community can't afford.

Draft Alternatives Preference Survey Responses

Timestamp	Do you prefer Option 1: one-way bike lanes or Option 2: two-way bike lane?	Briefly tell us why (optional).
3/3/2024 19:20:30	Option 2: two-way bike lane on west side	Reducing parking without providing adequate mass transit is discriminatory toward the old, the very young, tge ilk, the injured and the disabled. Unless the city is only interested in catering to the young and strong, who rude bikes up hills and through the snow, more people will mean more cars, at least for the foreseeable future. Option 2 is the least worst in this regard, but neither serves the real population of humans in the Burlington area.
3/3/2024 19:44:21	Option 2: two-way bike lane on west side	We like the two-way bike lane better because it offers more protection for bikers and better separates pedestrians from the cars.
3/3/2024 20:20:14	Neither	Spend the money more important things like shelter for the homeless. Fix sidewalks that are crumbling.
3/3/2024 20:34:05	Neither	As a new north end resident, Battery Street is my main artery and entry into downtown, let alone my main method to navigate for ANY trip east or south of Burlington. I struggle to see how these proposed options would reduce traffic and alleviate congestion. I am not fortunate to have a job within Burlington nor Chittenden County - a longer commute means more gas consumed, less time with my family, and a negative impact on my regular weekday time. I strongly support many of the decisions to add bike lanes but vehemently and respectfully oppose both options. I would like there to be clear and statistically significant data driving any decision to change the traffic already exists.
3/3/2024 20:39:48	Neither	There is a bike path FEET away from battery street so there is not a need for increasing bike lanes on Battery street. These projects are unneccesary and costly, and are making traffic more difficult. NO changes to Battery.
3/3/2024 21:05:22	Neither	I don't like losing MORE parking in Burlington at the end of Battery, near Maple street. It's already hard to find a place to park at that end of town and the city bus doesn't service that area.
3/3/2024 21:25:22	Neither	Too much money spent on biking & making our streets look nice instead of fixing them & putting money into what's really needed. instead
3/3/2024 21:25:39	Neither	
3/3/2024 21:54:37	Neither	We don't need this. We need to cut spending
3/3/2024 21:55:48	Neither	Waste of taxpayer money
3/3/2024 22:18:57	Option 2: two-way bike lane on west side	
3/3/2024 22:45:14	Option 2: two-way bike lane on west side	No one will use the one in the east side bc it crosses too many intersecting streets
3/3/2024 23:02:41	Option 2: two-way bike lane on west side	This creates a great bikeway, allows bus pullout, has a much needed turn late off battery at college southbound. The only bummer is removal of existing trees.
3/4/2024 7:50:43	Option 2: two-way bike lane on west side	to keep biking activity on one side of the street seems like it would use space more efficiently
3/4/2024 8:02:53	Option 2: two-way bike lane on west side	
3/4/2024 8:04:58	Option 2: two-way bike lane on west side	It seems easier and safer to keep bikes on one side of the street, especially since many will be accessing the bike path - so have the two lanes on the west side of the street. Having more parking options seems best too.
3/4/2024 11:22:14	Option 2: two-way bike lane on west side	Condenses bike traffic to one side of road - seems safer. More parking is welcome, but not the reason I prefer this.
3/4/2024 12:30:40	Neither	We need a "parkway" to move traffic. Leave it alone
3/4/2024 15:27:59	Option 1: one-way bike lanes on both sides	Having a bike lane each way means better access to right turns onto our other major thouroughfares, it generally feels calmer. There are a few pieces of feedback I do have though. I'd like to see dutch style continous sidewalks over the curb cuts. As someone who has been using the pine street multiuse path frequently it feels weird to constanly shift up and down. Continous Sidewalks are also just demonstrably safer, and not much of an increase in expense. Secondly the junctions seem like they would be high conflict. Maybe doing something like a dutch junction https://en.wikipedia.org/wiki/Protected_intersection would help make them feel safer.
3/4/2024 15:28:46	Option 2: two-way bike lane on west side	
3/4/2024 15:33:25	Option 2: two-way bike lane on west side	For drivers pulling out onto Battery Street, for example from the Hilton Hotel or other residences on the street, this arrangement would be much safer for everyone, since those pulling out may not always able to see an approaching bicyclist. From the west side this would not be nearly as much of a problem, since there are fewer driveways and the lines of visibility are clearer.
3/4/2024 16:13:11	Option 2: two-way bike lane on west side	Two way bike lanes feel safer to me - more protected. Thanks for putting together this survey!
3/4/2024 16:17:01	Option 2: two-way bike lane on west side	Hoping option 2 means a seperate protected path, much like the multi use path on Riverside
3/4/2024 16:17:34	Option 2: two-way bike lane on west side	It feels safer to have both bike lanes adjoining and separated from traffic together.
3/4/2024 16:25:44	Option 1: one-way bike lanes on both sides	
3/4/2024 17:10:02	Option 1: one-way bike lanes on both sides	It seems safer to have bike traffic going in the same direction as other traffic.
3/4/2024 17:13:23	Option 2: two-way bike lane on west side	Option 2 is safer for everyone! Protected bike lanes and parking to narrow the street and slow down cars! The pedestrian crossings at Main, College, and Pearl should be scrambles with no right on red during these times
3/4/2024 17:19:59	Option 1: one-way bike lanes on both sides	With the 2-lane bike lane, one direction will be heading directly into oncoming cars, which will be unpleasant and dangerous at night with blinding headlights.
3/4/2024 17:40:16	Option 2: two-way bike lane on west side	No traffic going in or out on west side, plenty of traffic on east side.
3/4/2024 19:24:07	Neither	This creates infrastructure the city cannot maintain.
3/4/2024 19:24:49	Neither	Burlington Bay Market and Cafe cannot lose one of its entrances
3/4/2024 19:43:20	Option 1: one-way bike lanes on both sides	
3/4/2024 20:23:19	Option 1: one-way bike lanes on both sides	It feels safer! Some people ride really fast and it could be hazardous if they aren't paying attention and are heading straight for you.
3/4/2024 21:47:14	I like both equally	The priority for me is a safe separate bike way. If both are separate from car traffic, they are both ideal!
3/4/2024 22:10:36	Option 2: two-way bike lane on west side	
3/5/2024 0:59:13	Option 2: two-way bike lane on west side	
3/5/2024 5:10:35	Neither	I would suggest one lane on the west side only. We need all of the car lanes that we currently have.
3/5/2024 8:15:19	Option 1: one-way bike lanes on both sides	I've watched folks ride their bikes on both sides. It's more convenient and if they're going to do it anyway, provide safely marked space for them.
3/5/2024 8:33:06	I like both equally	The important parts are good pedestrian and bike facilities

Draft Alternatives Preference Survey Responses

Timestamp	Do you prefer Option 1: one-way bike lanes or Option 2: two-way bike lane?	Briefly tell us why (optional).
3/5/2024 8:47:29	Option 1: one-way bike lanes on both sides	Lanes should be one way given the difference in speed between bikers going up battery st vs those going down. Plus, the one way lanes will be more intuitive and will integrate well into existing infrastructure (NB bike lane north of the pearl intersection and SB path through battery park)
3/5/2024 8:48:31	Option 1: one-way bike lanes on both sides	Would be less confusing for drivers
3/5/2024 8:59:23	Option 1: one-way bike lanes on both sides	I think bike lanes in both directions are more intuitive and will cause fewer conflicts with up hill and downhill riders
3/5/2024 9:59:38	Option 2: two-way bike lane on west side	I like the bike lanes to be separate from the road!
3/5/2024 11:09:38	I like both equally	This may already be considered, but please include traffic flow improvements to the College / Battery St intersection. I work on the waterfront & commute home to Winooski via pearl st. The high volume of pedestrian traffic at that intersection during the warmer months & traffic heading westbound on college makes turning northbound onto battery from the Lake St side difficult, and encourages turning while pedestrians are still in the crosswalk. A dedicated "left turn" signal, or green light that does not overlap with the crosswalk as much would discourage turning while pedestrians are in the walkway
3/5/2024 12:19:07	Option 2: two-way bike lane on west side	I believe it feels safer this way!
3/5/2024 16:01:45	Option 1: one-way bike lanes on both sides	Either works, but I would rather not have a bicyclist turning across my path.
3/5/2024 18:31:17	Neither	This will compromise our business by eliminating parking spaces. There is already a bike path by the railroad tracks. What can you do to support bringing my traffic to local businesses on Battery Street
3/6/2024 11:44:04	Option 1: one-way bike lanes on both sides	Ease of access without having to cross the road
3/6/2024 13:01:24	Option 1: one-way bike lanes on both sides	It's dangerous to have a 2 way bike path on succh a long, steep hil Best solution is A PROTECTED one way lane on either side . Key words PROTECTED by significant barrier!
3/6/2024 15:56:40	Option 2: two-way bike lane on west side	
3/6/2024 15:58:07	Option 1: one-way bike lanes on both sides	I believe it is safer for bikers to be on the same side of the street as cars, too many bikers ALREADY don't follow the rules of safety. I can't imagine what would happen if they were trying to oppose each other. Very reminiscent of the bike path which is now a Danger Zone :/
3/6/2024 18:08:13	Option 2: two-way bike lane on west side	Increased bike safety for both directions of travel
3/7/2024 15:34:36	Option 2: two-way bike lane on west side	Turn for hotel and building entrances on East side dangerous for bikes.
3/7/2024 16:38:08	Option 1: one-way bike lanes on both sides	I *think* I prefer option 1, but it really depends on what is happening on either end. How does this lane continue beyond Battery Street?
3/8/2024 14:37:44	Option 2: two-way bike lane on west side	This is a more streamlined option that improves safety for bikers. With this option, drivers know there should be bikers on only one side of the street. The next question is will there be a system for bikers to turn left onto pearl st safely or will they be expected to simply ride in the left lane and turn with cars? Not a bad option but should be considered as the project continues. Thank you.
3/8/2024 21:40:39	Option 2: two-way bike lane on west side	
3/9/2024 16:57:57	I like both equally	If option 1, I worry right-turning traffic poses risk for bikers, despite potential protective signaling. If option 2, concern is speedy downhill vs oncoming bikers. I would hope for physical barriers between adjacent bike lanes.
3/10/2024 9:37:24	Option 1: one-way bike lanes on both sides	
3/11/2024 7:47:01	Option 2: two-way bike lane on west side	better for pedestrians
3/11/2024 10:09:08	Option 1: one-way bike lanes on both sides	Two lanes next to each other will be confusing
3/11/2024 10:12:48	Option 1: one-way bike lanes on both sides	
3/11/2024 10:12:59	Option 1: one-way bike lanes on both sides	
3/11/2024 10:18:29	Neither	fast lane for mopeds / EV / motorized / even bus lane, one regular lane. So, two lanes, two-way, both sides.
3/11/2024 11:16:18	Option 2: two-way bike lane on west side	Bike lanes should be an extension of a much wider sidewalk (pathway for pedestrians), and not part of the street as has been done throughout the city. My friend recently lost his life due to, in part, a design flaw. I do not allow my girls to use the existing bike lanes in this city. They are unsafe, but there's a simple solution
3/11/2024 16:05:18	Option 1: one-way bike lanes on both sides	It can tie into safer intersection design. HOWEVER—we must actually make the intersections more forward thinking. Both proposals as-is still treat cycling as an afterthought for safety. Intersections are the primary conflict point for cyclists. For an (already dated) primer of what we should be talking about at a bare minimum for a new road scheduled to be constructed in 2032, please watch this video: https://www.youtube.com/watch?v=FlApbxLz6pA
3/11/2024 16:31:35	Option 2: two-way bike lane on west side	I like the idea of biking on the lake side of the street. I'm curious if one design is safer or not. I like the idea of passing by other bikers and the comradery and visibility of larger groups of bikers using the roadway together.
3/11/2024 16:35:28	Option 1: one-way bike lanes on both sides	Kelly from April Cornell - I worry that our store patrons and staff will be thrust into a high speed bike lane when they use our primary entrances, which we hope to activate even more in the future. I would hate to add an unsafe element to our customers and staff. Also, we have used and maintained and cared for the parking directly in front of our property on Battery street for 10+ years - I don't mention that to create any combative communication with the city but that context I think is important, since our business is part of what has reactivated this street and neighborhood. Are there ways to work together to build solutions that are mutually beneficial? With respect, Kelly
3/12/2024 17:56:22	Option 1: one-way bike lanes on both sides	Makes more sense to me than moving all bike traffic to west side. Also in favor of reducing parking on street.
3/13/2024 8:35:41	Option 2: two-way bike lane on west side	I like the two way bike lane because it provides more separation between bikes and cars.
3/13/2024 11:15:30	Option 1: one-way bike lanes on both sides	
3/13/2024 15:10:59	I like both equally	
3/13/2024 22:25:05	Option 2: two-way bike lane on west side	I like wider paths. Either way I will be overjoyed! Thank you for doing this work!
3/13/2024 22:36:21	Option 2: two-way bike lane on west side	This would hopefully include a form of barricades to provide more protection for cyclists.
3/14/2024 6:16:23	Option 2: two-way bike lane on west side	
3/14/2024 7:42:34	Option 1: one-way bike lanes on both sides	See your slide 26. I'm comparing "difficult access…" to "easy connections". If I want to enter the street from the east, bike north, and depart to the east, I would cross vehicle traffic twice under the two-way design and zero times under the one-way design. Thanks!
3/14/2024 9:33:10	Option 2: two-way bike lane on west side	More isolation from cars with the wider lane. Less points of conflict.

Draft Alternatives Preference Survey Responses

Timestamp	Do you prefer Option 1: one-way bike lanes or Option 2: two-way bike lane?	Briefly tell us why (optional).
3/14/2024 9:43:45	Option 1: one-way bike lanes on both sides	I like the idea of the bikes flowing with traffic, esp if I want to turn right as a biker going northbound
3/14/2024 13:11:06	Option 1: one-way bike lanes on both sides	My experience with two way bike lanes is that they are more confusing for both cyclists and drivers in cars, and can increase the likelihood that a driver will not see a cyclist and potentially hit them, because they are coming from an unexpected direction. Keeping the flow of bicycle traffic the same as other vehicular traffic keeps things predictable and uses established norms.
3/14/2024 14:35:53	Option 1: one-way bike lanes on both sides	I think that the two lanes on one side is essentially doubling up with the bike path from a tourism point of view. If you are a commuter though, having the uphill bike lane near the city would be easier. Additionally, having more uniform bike lane design throughout the city is easier for people when getting used to biking.
3/16/2024 10:20:52	I like both equally	
3/19/2024 10:33:50	Option 2: two-way bike lane on west side	
3/21/2024 15:09:56	Option 2: two-way bike lane on west side	
3/22/2024 13:46:37	Option 2: two-way bike lane on west side	



Battery Street Scoping Study

Advisory Committee Meeting #3
April 29th, 2024

Chittenden County RPC
Communities Planning Together

Burlington, VT Public Works

vhb

Meeting Agenda

- Welcome & Re-Introductions
- Public Comment Period
- Alternatives Overview
- Options Evaluation
- Public Input Summary
- Open Discussion
  - Preferred Alternative
  - Flexible Design Elements
- Next Steps





01|| Re-Introductions

Project Team

vhb

- Drew Gingras
- Karen Sentoff
- Elisabeth Sundberg

Chittenden County RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

Burlington, VT Public Works

- Julia Ursaki
- Laura Wheelock

Advisory Committee

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Norm Baldwin | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- Karen Paul | City Councilor
- Sophie Sauve | Burlington Parks, Rec, & Waterfront
- Jamie Smith | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

02|| Public Comment Period

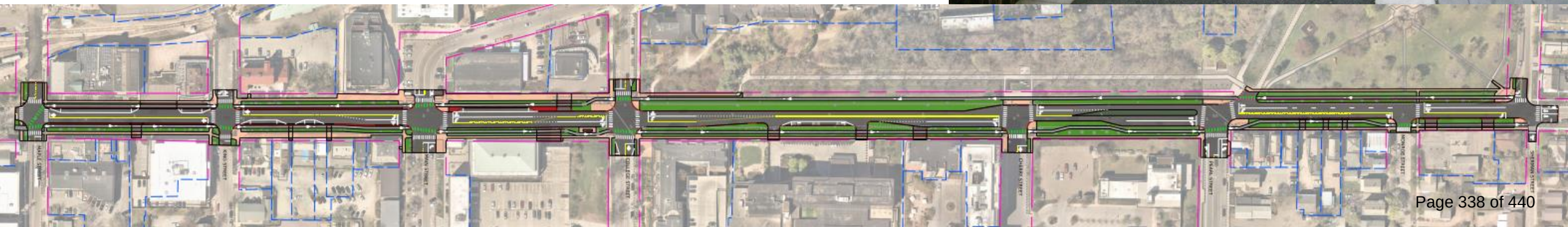


03|| Alternatives Overview

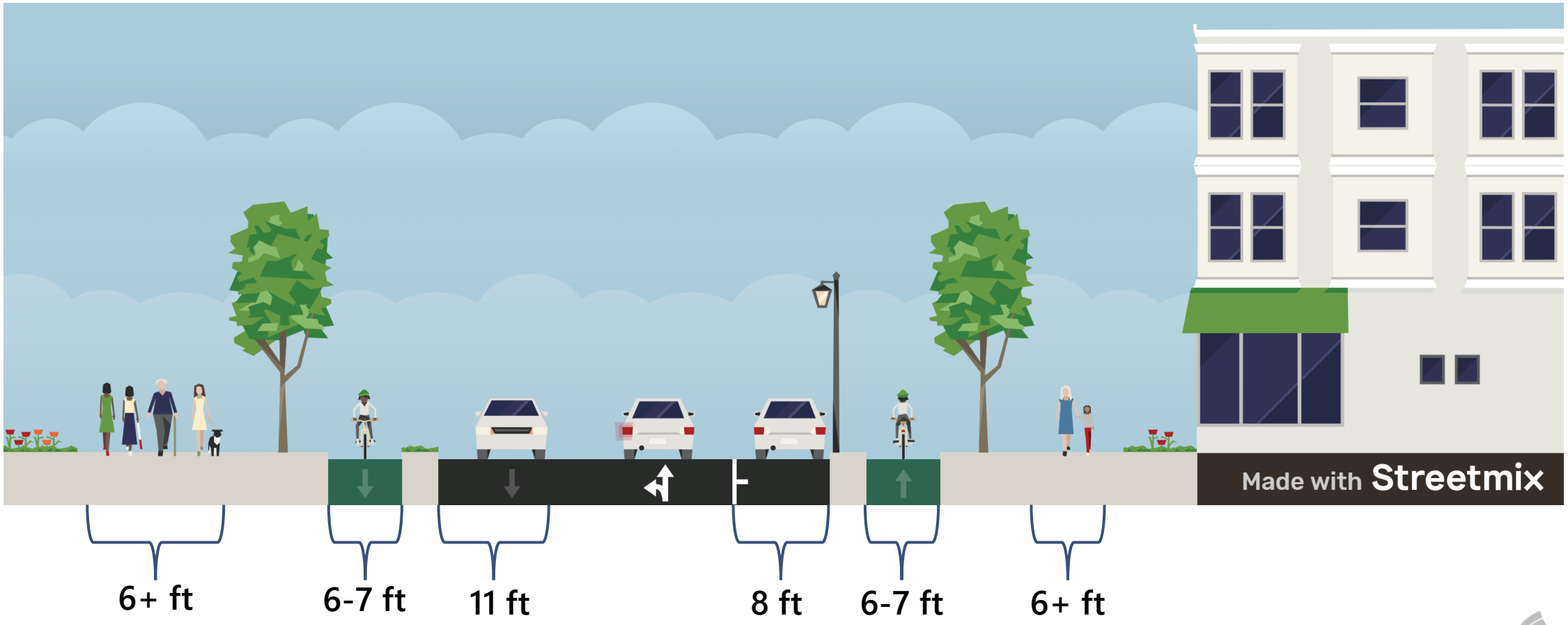
Option 1 Overview

- 6- to 15-foot-wide sidewalks on both sides
- 6- to 7-foot-wide bike lanes on both sides
- Road Diet with 11-foot-wide travel lanes
- Pedestrian signal improvements
- Raised Median Island between Cherry Street and Pearl Street
- Some parking reallocation south of Main St

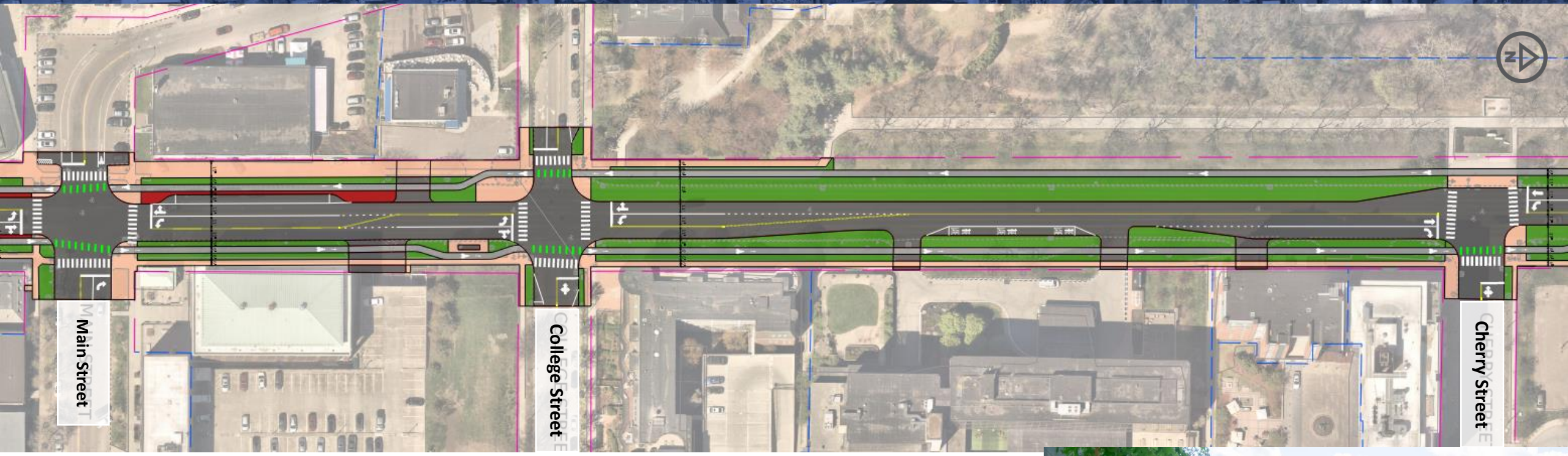




Option 1: Typical Cross Section



Option 1: Main Street to Cherry Street



Option 1 Differentiators

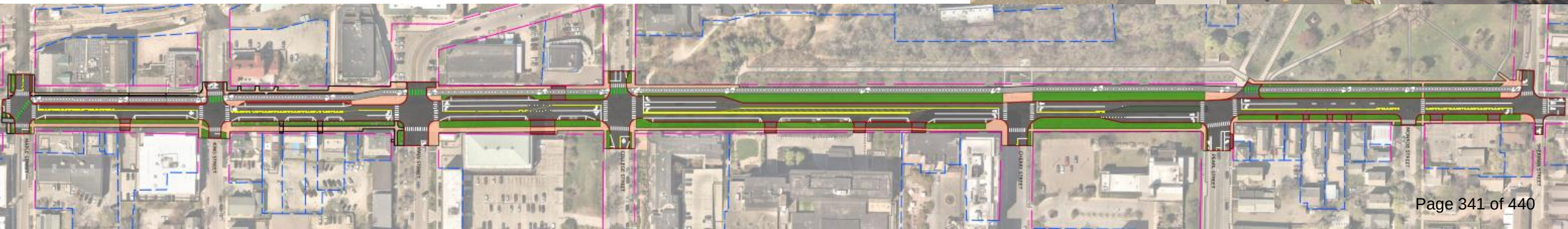
- Increased pedestrian space on the west side of Battery Street
- One-way bike lanes could be considered more intuitive (additionally, similar concept is under construction on Main Street)
- Fewer on-street parking spaces than Option 2



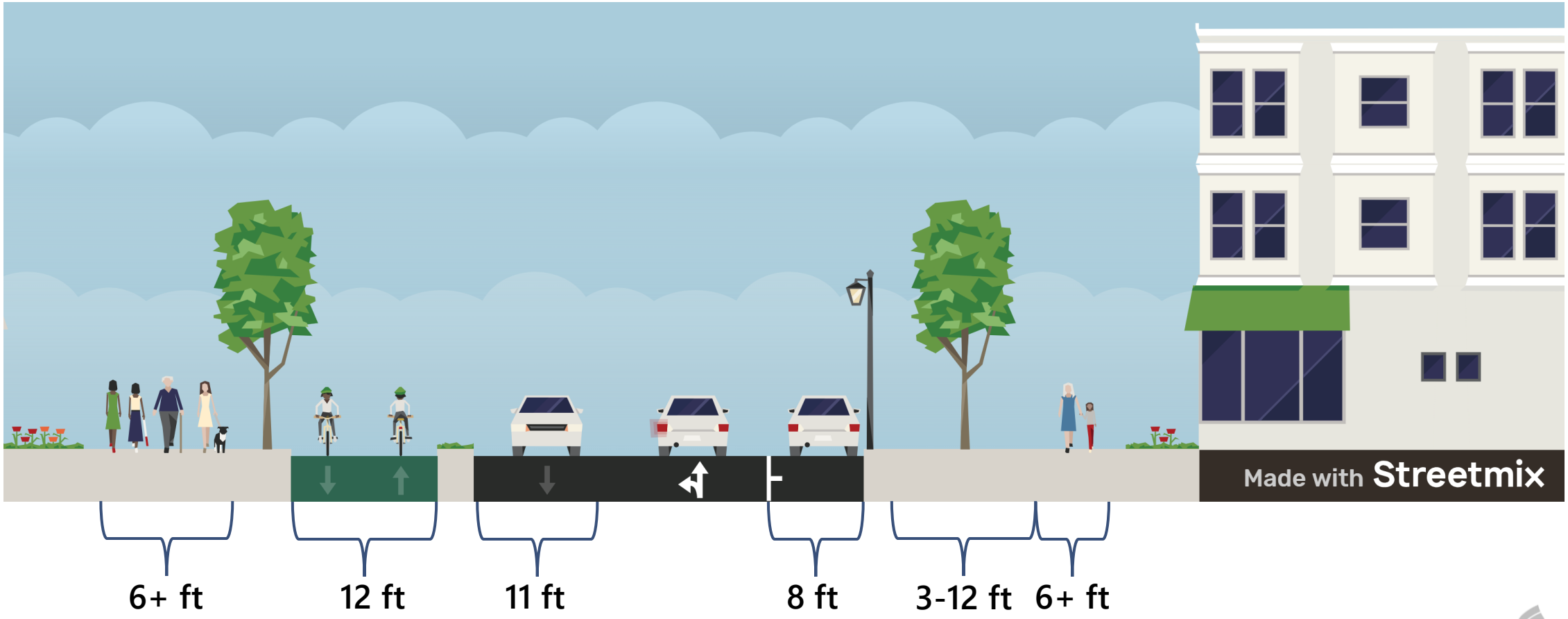
Option 2 Overview

- 12-foot-wide two-way bike lanes on western side of the corridor
- 5- to 10-foot-wide sidewalks
- Road Diet with 11-foot-wide travel lanes
- Pedestrian signal improvements
- Parking included on east side up to Cherry St

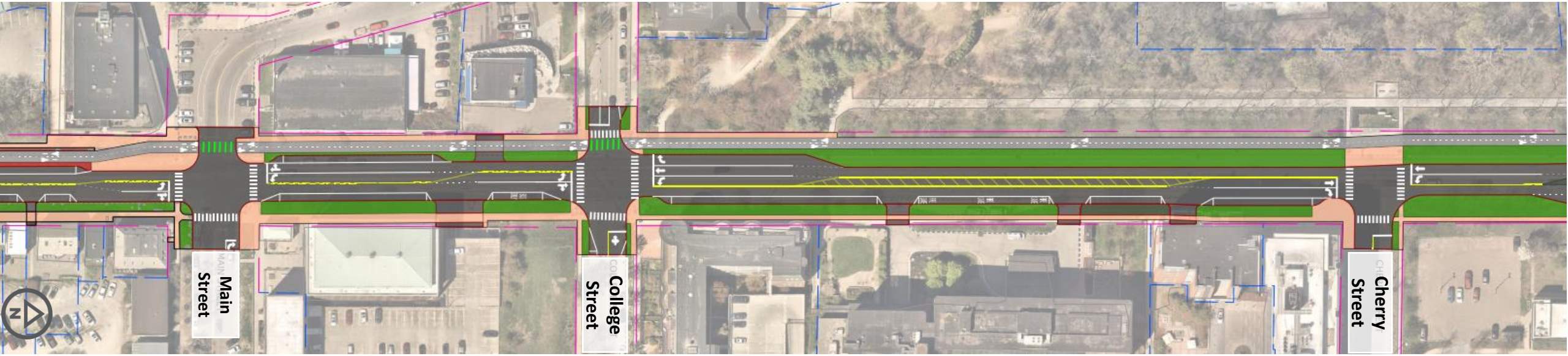




Option 2: Typical Cross Section



Option 2: Main Street to Cherry Street



Option 2 Differentiators:

- Westside two-way bike travel eliminates several potential conflict points
- College Street crosswalk length
- On-Street parking included to Cherry St





Features of Both Options

- Travel lane reduction – Road Diet
- Continuous separated bicycling facilities
- Wider sidewalks & pedestrian crossing “lead time”
- Sherman Street reconfiguration
- Traffic calming island between Cherry and Pearl
- Significant increase in green space





04|| Options Evaluation

Corridor & Intersection Safety for All Users

Option 1

- Road Diet along full corridor
- Minimizes lane shifts at intersections
- Eliminates slip lane at Sherman Street
- More intuitive lane configurations

(Additional improvement covered in other topics on next slides)

Option 2

- Road Diet along full corridor
  - Additional turn lane required at College Street
- Eliminates lane shifts at intersections
- Eliminates slip lane at Sherman Street
- More intuitive lane configurations

(Additional improvements covered in other topics on next slides)

Pedestrian Safety & Accessibility

Option 1

- All pedestrian crossings are shortened
- Sidewalk width is maintained, widened where feasible
- All pedestrian crossings now have 7 seconds of “lead time”
- Pedestrian queue space might be compromised by separated bike lanes on both sides

Option 2

- All pedestrian crossings are shortened
  - Except the northern leg of College Street
- Option to increase width of sidewalks on eastside (maintain width on westside)
- All pedestrian crossings now have 7 seconds of “lead time”
- Pedestrian queue space compromised on westside, available on eastside

Bicycle Facilities & Connections

Option 1

- One-way separated bike lanes, both sides
- Intuitive / Expected travel patterns for bicyclists
- Fully separated from roadway and sidewalks
- Higher conflict potential for bicyclists given travel on both sides of the street
- Reasonable access to both sides of the road
- Requires more exclusive signal phasing
- Easy connections all along Battery Street

Option 2

- Two-way separated bike lanes, west side
- No conflict potential with motorists north of College Street
- Side by side bicycle riding, fully separated from roadway and sidewalks
- Northbound (uphill) direction is counter-flow to driver direction, i.e. less intuitive
- Seamless connection to west side of street
- Difficult access into and out of the facility

Street Ecology Potential

Option 1

- Maintains most existing trees
- Less impact to Battery Park
- Significant reduction in total area of impervious surfaces
- Provides substantial opportunity for new pervious surfaces / green space / stormwater management practices

Option 2

- Maintains some existing trees
- Increased impact to Battery Park
- Significant reduction in total area of impervious surfaces
- Provides substantial opportunity for new pervious surfaces / green space / stormwater management practices

Acceptable Mobility for All Modes

Option 1

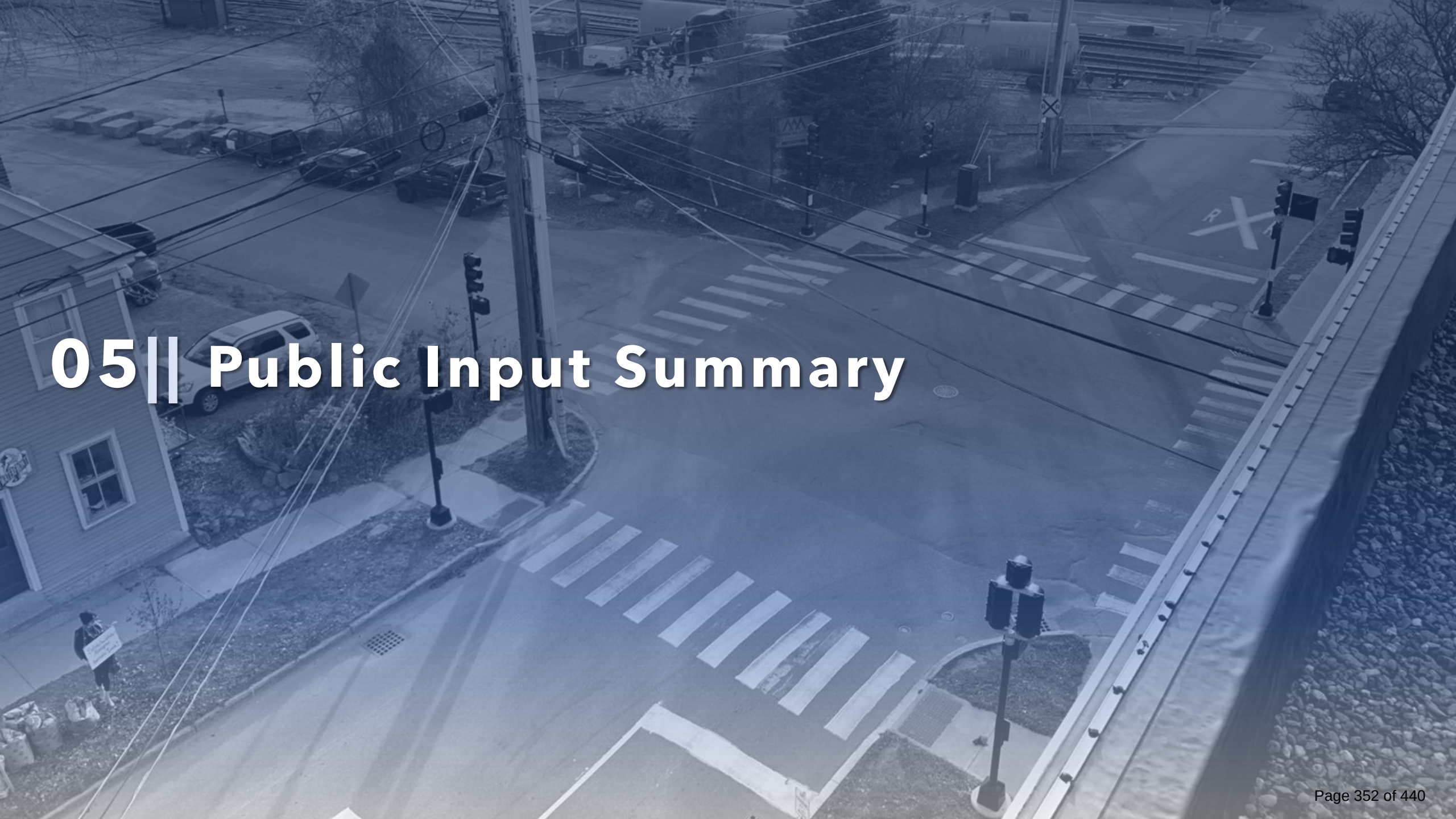
- Removes on-street parking on one side of Battery Street between Maple and Main
- During the most congested hour of the day, the average motor vehicle trip on Battery St. would take 3 minutes longer
- Maintains in-lane bus stop
- Improves pedestrian facilities and conditions
- Provides separated bike facilities

Option 2

- Removes on-street parking on one side of Battery Street between Maple and King
- Adds on-street parking on east side of street between Main and Cherry
- During the most congested hour of the day, the average motor vehicle trip on Battery St. would take 40 seconds longer
- Provides bus pull-off at bus stop
- Improves pedestrian facilities and conditions
- Provides separated bike facilities

Evaluation Matrix Overview

	Corridor Options		
	No Build	**Option 1**	**Option 2**
Project Cost	$0	$$$$	$$$$
Constructability	-	Very Challenging	Challenging
Purpose & Need			
Improve corridor & intersection safety for all users	No	Yes	Yes
Enhance comfort and accessibility for pedestrians along Battery Street	No	Yes	Yes
Provide end-to-end bicycle facilities and connections	No	Yes (One-Way, Both Sides)	Yes (Two-Way, Westside)
Integrate street ecology into Battery Street's overall design	Somewhat	Yes	Yes
Provide acceptable mobility for all modes of transportation along Battery Street	No	Yes AT / Somewhat MV	Yes



05|| Public Input Summary

Public Meeting #2 – Options Presentation

What we heard:

Option 1:

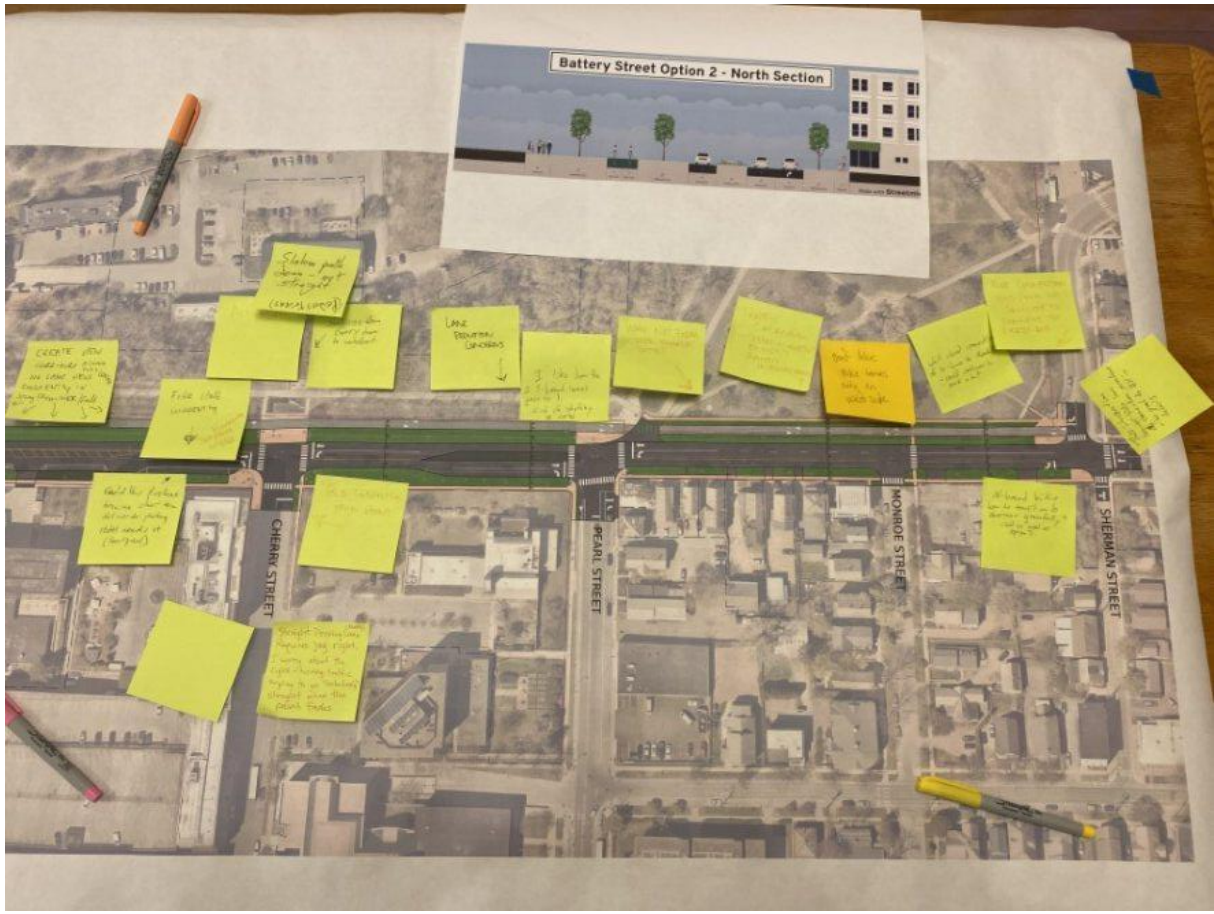
- Concerns people will “salmon” in bike lane
- Better for speed differentials
- Better access to both side of the street

Option 2:

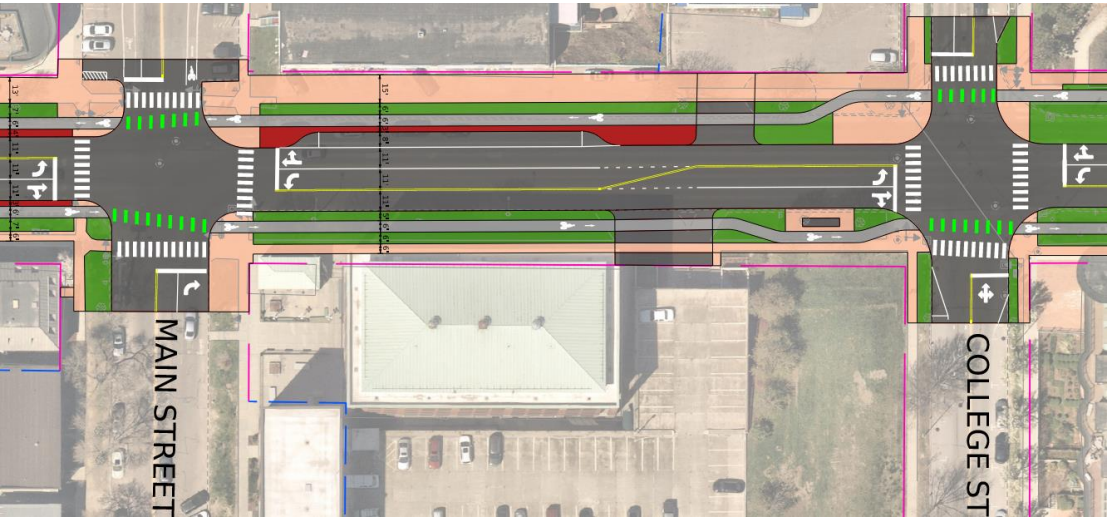
- Concerns about conflicts between up & downhill bicyclists
- Less conflicts with vehicles

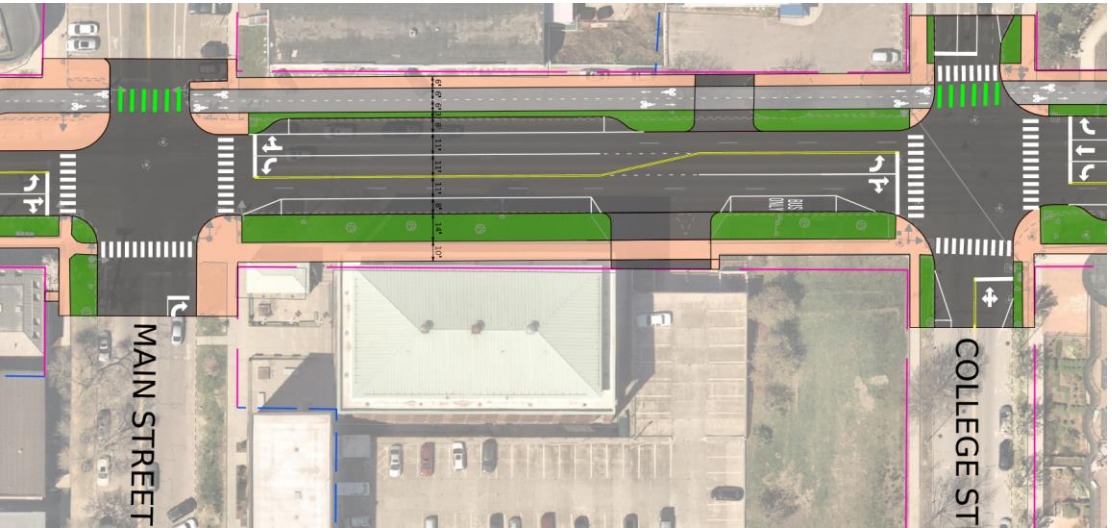
General

- Concern over negative traffic impacts (namely with lane reductions)
- Concern over construction timelines



Survey Results – What we Heard





- **Option 1 – Separated Bike Lanes Both Sides (50 Votes)**
  - Prefer separate uphill/downhill bicyclists
  - More "normal and expected" bike lane layout, feels safer
- **Option 2 – Two-Way Separated Bike Lanes West Side (75 Votes)**
  - Prefer to keep bikes together
  - Fewer conflict points
  - Provides better separation of users, feels safer
- **Preference for Neither Option (31 Votes)**
  - "Unnecessary project"
  - Concerns over traffic capacity and parking changes
- **Like Both Equally (10 Votes)**
  - Concerns over traffic capacity

Focus Group Engagement

Burlington City & Lake Semester

CCRPC Equity Advisory Committee

Burlington Walk Bike Council (BWBC)

- Prefer Option 1
- Feel it provides better intersection accommodations
- Bike lanes on both sides tie into the urban fabric more seamlessly
- If Option 2 was selected, they would like more separation in steep areas (i.e. College to Cherry)

Burlington Business Association (BBA)

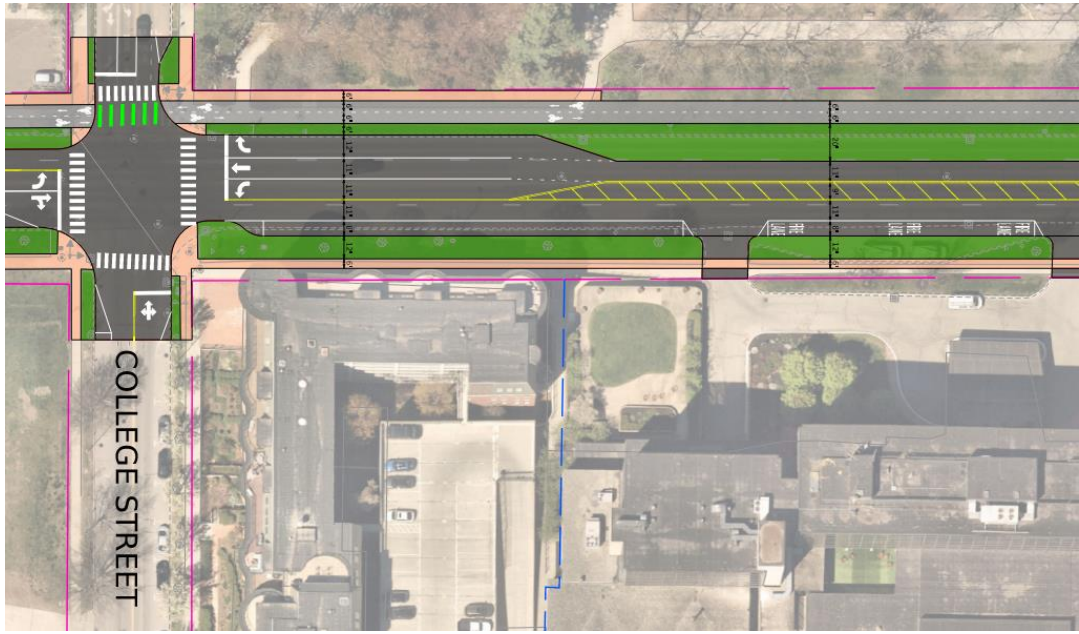
- Prefer Option 2
- Prefer more parking opportunities



06|| Open Discussion

Flexible Elements

- Parking / Curbside Management
  - Number of Spaces / Locations
  - Other uses (Loading, transit, etc.)
- Bike Lane Width / Separation
- Medians
  - Type / Widths / Locations





Recommended Preferred Option

- Do you have a Preferred Option?
- Are you leaning towards one, but an outstanding feature or element is giving you pause?
- Is there a flexible element you would like to see moved from one option to the other?





07|| Next Steps

Next Steps

- Select & Refine Preferred Option
- Develop Draft Scoping Report
- City Council & TEUC Meetings / Presentations
- Final Scoping Report & Implementation Plan



Contact Us

Jason Charest
Senior Transportation Planning Engineer

802-861-0127
jcharest@ccrpcvt.org

Drew Gingras, PE
Project Manager

802-391-5569
dgingras@vhb.com

Meeting Notes

Date:	April 29, 2024	Notes Taken By:	VHB
Place:	CCRPC / Virtual	Re:	Battery Street Scoping Study Advisory Committee Meeting #3
Project No.:	58644.11		

Attendees:

Advisory Committee

Charles Dillard, Office of City Planning
Norm Baldwin, City Engineer
Sophie Sauve, Burlington Parks, Recreation, and Waterfront
Phet Keonmanyvahn, Office of Racial Equity, Inclusion and Belonging
Gene Bergman, City Councilor
Brendan Hogan, DPW Commissioner
Barbie Alsop, Ward 3
Ali Hamedani, Ward 3
Terry Rivers, Ward 5
Jonathon Weber, Walk Bike Council
Kelly Devine, Burlington Business Association
Jamie Smith, GMT

VHB

Drew Gingras, Project Manager
Karen Sentoff, Transportation Consultant
Elisabeth Sundberg, Transportation Planner

CCRPC

Jason Charest, Project Manager
Eleni Churchill, Transportation Program Manager
Eliana Fox, Transportation Planner

City of Burlington

Julia Ursaki, DPW Transportation Engineer
Phillip Peterson, Senior Transportation Planner

Welcome + Introductions

- After a round of introductions, Jason and Drew introduced the project and provided a recap of what has happened since they last met with the group.
- Drew went over the meeting agenda and the goal of meeting, which is to gain consensus around one of the preferred options/ alternatives.

- Drew held a public comment period.

Options Overview

- Drew went over the project area and the two options.
- Option 1: Off road bicycle facilities on both sides of the road. These would be raised and separated from the traveling public. High level typical cross section of option 1 including 11-foot lanes, 8-foot parking, 6-foot bike lanes on both sides, and 6-foot minimum sidewalk on both sides.
- Option 2: 12-foot-wide two-way bike lanes on western side of the corridor. 5-to-10-foot sidewalk on both sides, 11-foot travel lanes, 8-foot parking. Two-way bike travel on the west side.
- On street parking is a flexible element that could change based on preferred alternative.
- Drew went over the features of both options.
    - Travel lane reduction.
    - Continuous separated bicycling facilities
    - Wider sidewalks and pedestrian leading times
    - Sherman street reconfiguration – removal of slip lane
    - Traffic calming median island between Cherry and Pearl
    - Significant increase in green space
        - Stormwater benefits
- Flexible elements
    - Parking/ curbside management
        - Number of spaces / locations
        - Other uses (loading, transit, etc.)
- Drew shared that northern leg of college street doesn't change in option 2.
- Option 1 has more potential for conflicts with motor vehicles.
- Option 2 coming from downtown to get into facility you would have to cross battery street to get into the facility.
- There was a question about the impact to battery park.
- It was shared that there is going to be a master plan for the park.
- Acceptable mobility for all modes
    - Want to be sensitive to the impacts on traffic.
- Question about bus stop and how it will impact traffic?
    - Minimal impact would be expected.

- Eleni stated 3-minute delays is long time.
- Gene asked about the timing impacts at 15-minute increments.
- Jason – Safe to assume that option 1 would cause more changes to trip patterns compared to option 2.
- Norm – Concerned about public safety and want to promote active transportation.
    - Try to have options that don't have a lot of transitions.
    - Flip flop bike facilities in intersections that are heavily active – would prefer there would be consistency.
    - Railyard enterprise coming in, have to provide facilities that include active modes.
- Drew went over the evaluation matrix overview. In terms of constructability, Option 1 would be considered very challenging and option 2 would be challenging.
- Drew went over the feedback form public meeting #2 and the online survey.
- Jason went over the focus group engagement and what was heard from Burlington city and lake semester, CCRPC equity advisory committee, Burlington Walk Bike Council (BWBC), and Burlington Business Association (BBA).

Open Discussion

- Jamie- GMT has preference for option 2, minimizes issues with bikes and buses. Option 2 existing shelter and shelter pad – popular drop off location, would be nice to have something that shows it.
- Drew- no intention to remove the shelter.
- Jamie- like the turn off for bus. Safety concern when cars go around the bus. Pull off would provide more safety. Three locations where to move the stop bar back – battery and maple headed southbound, eastbound stop bar and college and battery.
- Jonathon- consistent with main street – crossing distance college street is a downside of option 2, and Battery Park already has a two-way path.
- Terry- major question about time different for traffic – turning lane option in option 2?
- Drew- option 1 has more negative impact to traffic because of the turning volumes.
- Terry- good signage for option 2?
- Drew- that would be an engineering decision.
- Gene- speed limit be changed?
- Drew- not a consideration of the study- it is already 25mph.
- Jason- in downtown designated district you could go lower than 25mph.
- Gene- can't do 10 for lane width?
    - Major corridor with all class of vehicles, lanes have to be at least 11 feet.
- gene- asked about tree types.

- Barbie- prefer option 1. No longer ride bike but when she did, she liked going with the traffic. More children friendly. Less damage to battery park and things that are important to city members.
- Phet- delay would be concerned about behavior – people will find different pathways and think about other routes people will take. Be curious to know who filled out the survey because that would dictate how they would answer the survey. Project goal is to create access. Personally, likes option 2, bigger picture not finite details.
- Ali – option 1 concern if someone is in the bike lane going up the wrong way.
- Gene- like option 1- dislike two-way bike traffic on the hill- thinks it will be dangerous.
    - Concerned about option 2 shortened crossing time at college street. 7 seconds is really short.
    - Drew- that is the leading interval but there would be more time in addition to that. Crossing distance is a little different in option 2 since there is an extra turn lane.
- Kelly- heard concerns about both options from BBA. Concerns about width of sidewalks, what impacts that would have for local businesses, concern of loss of ability for traffic to flow. Every cross street is on a road diet. Concerned about loss of parking. Concerns about some times of the year- main access to the waterfront. Some people felt they did not want to pick either option.
- Option 2 would be an easier facility to maintain.
    - Main street great street will be on both sides- vehicle to maintain this facility would not be new.
- Norm- we are continuing to build facilities that didn't exist and the general operation budget to maintain these facilities. Does this merit that kind of long-term effort.
- Norms proposed a new option- combination of both options, with transition at Main Street.

Vote on Preferred Alternative:

1. Gene- option 1
2. Barbie- option 1
3. Ali – option 1
4. Norm- option 1- prefer mixed.
5. Sam- option 1 – like norm's idea
6. Jonathon- option 1
7. Brendan- Option 1
8. Jamie- option 2
9. Kelly- option 2
10. Terry – option 2
11. Phet- option 2
12. Charles- option 2 or a hybrid

The project team thanks the AC for their input and shared that they will further explore other alternatives given the feedback that was received.



Battery Street Scoping Study

Advisory Meeting #4

September 26th, 2024

Chittenden County RPC
Communities Planning Together

Burlington, VT Public Works

vhb

Meeting Agenda

- Welcome
- Public Comment Period
- AC Meeting #3 Recap
- Since We Last Met…
  - Option 2 Refinements
  - Option 3 Development
  - Additional Analysis
  - Updated Evaluation Matrices
- Project Team Recommendation
- AC Recommendation
- Next Steps





01|| Project Team

Project Team

vhb

- Drew Gingras
- Karen Sentoff
- Elisabeth Sundberg

CHITTENDEN COUNTY RPC
Communities Planning Together

- Jason Charest
- Eleni Churchill

BURLINGTON, VT PUBLIC WORKS

- Julia Ursaki
- Phillip Peterson

Advisory Committee

- Barbara Alsop & Ali Hamedani | Ward 3 Representatives
- Terry Rivers | Ward 5 Representative
- Laura Wheelock | City Engineer
- Gene Bergman | City Councilor
- Phet Keomanyvanh | Office of Racial Equity, Inclusion & Belonging
- Kelly Devine | Burlington Business Association
- Charles Dillard | Office of City Planning
- Brendan Hogan | DPW Commissioner
- *Vacant* | *City Councilor*
- Sophie Sauvé | BPRW
- Chris Damiani | Green Mountain Transit
- Jonathon Weber | Walk / Bike Council

02|| Public Comment Period

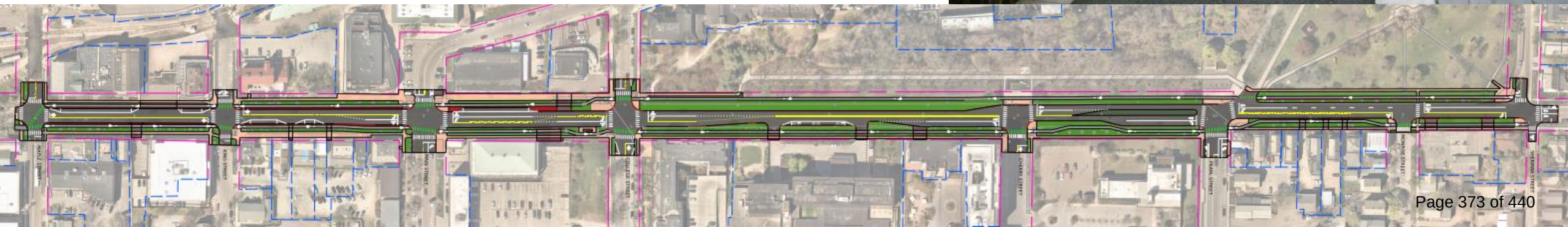


03|| AC Meeting #3 Recap

Option 1 Overview

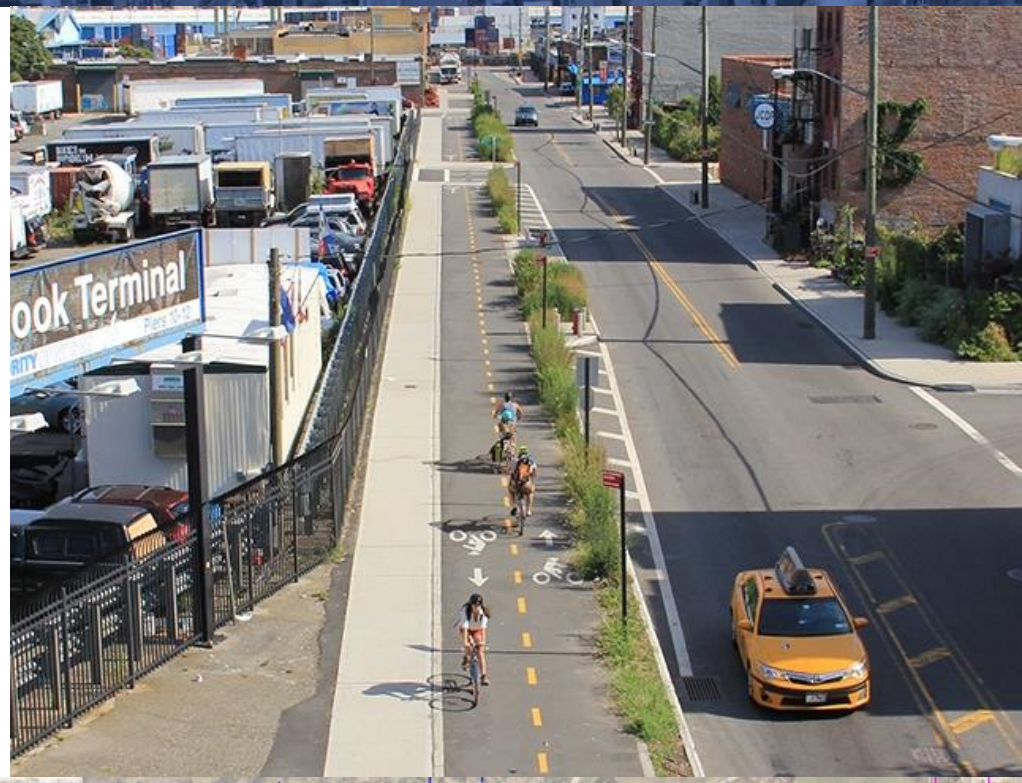
- 6- to 15-foot-wide sidewalks on both sides
- 6- to 7-foot-wide bike lanes on both sides
- Some parking reallocation south of Main St
- Road Diet with 11-foot-wide travel lanes
- Pedestrian signal improvements
- Raised Median Island between Cherry Street and Pearl Street

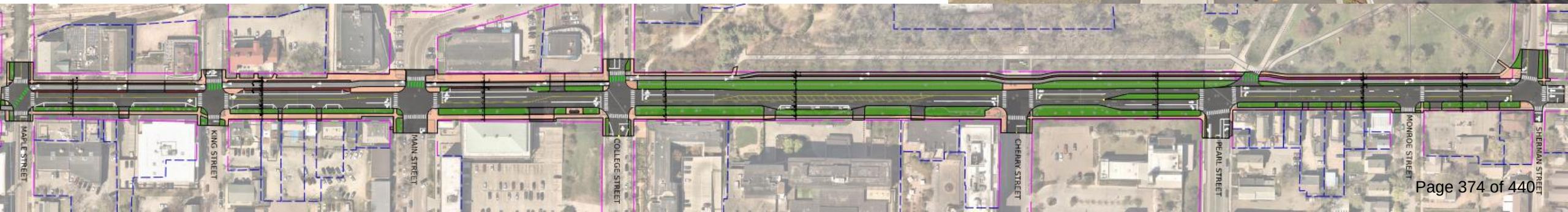




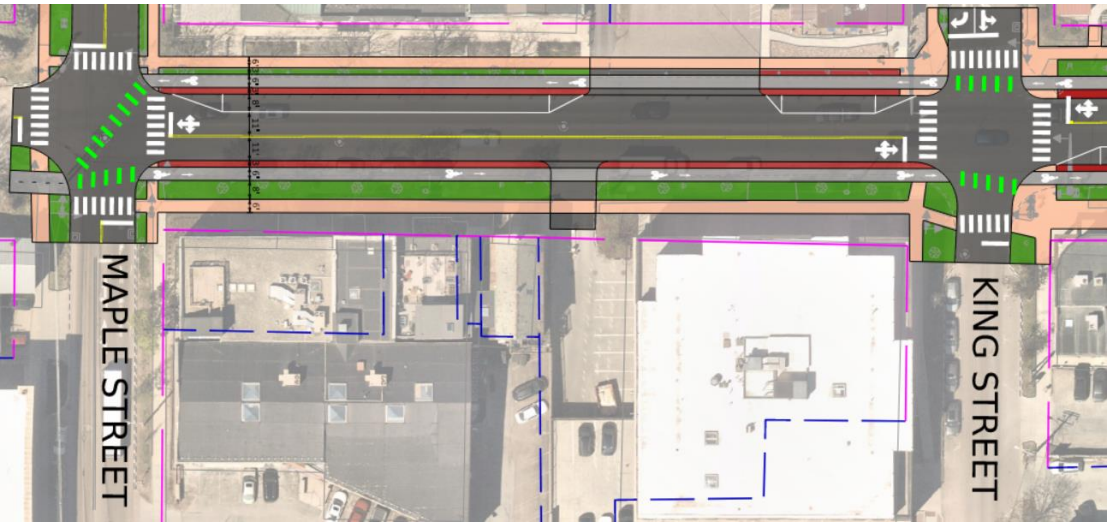
Option 2 Overview

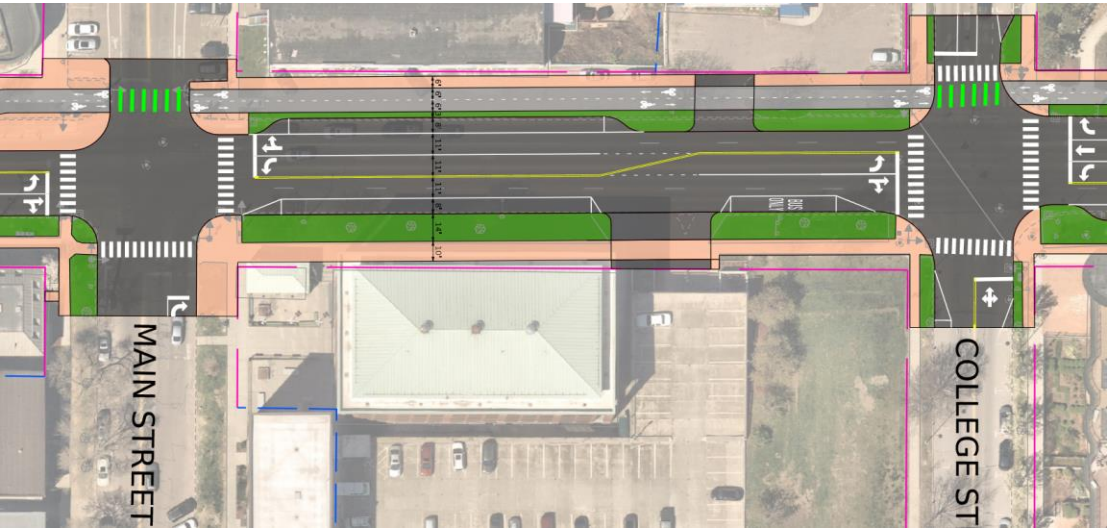
- 12-foot-wide two-way bike lanes on west side
- 5- to 10-foot-wide sidewalks
- Parking maintained both sides King to Main
- Road Diet with 11-foot-wide travel lanes
- Pedestrian signal improvements
- Raised Median Island between Cherry Street and Pearl Street





What we Heard





Key Takeaways

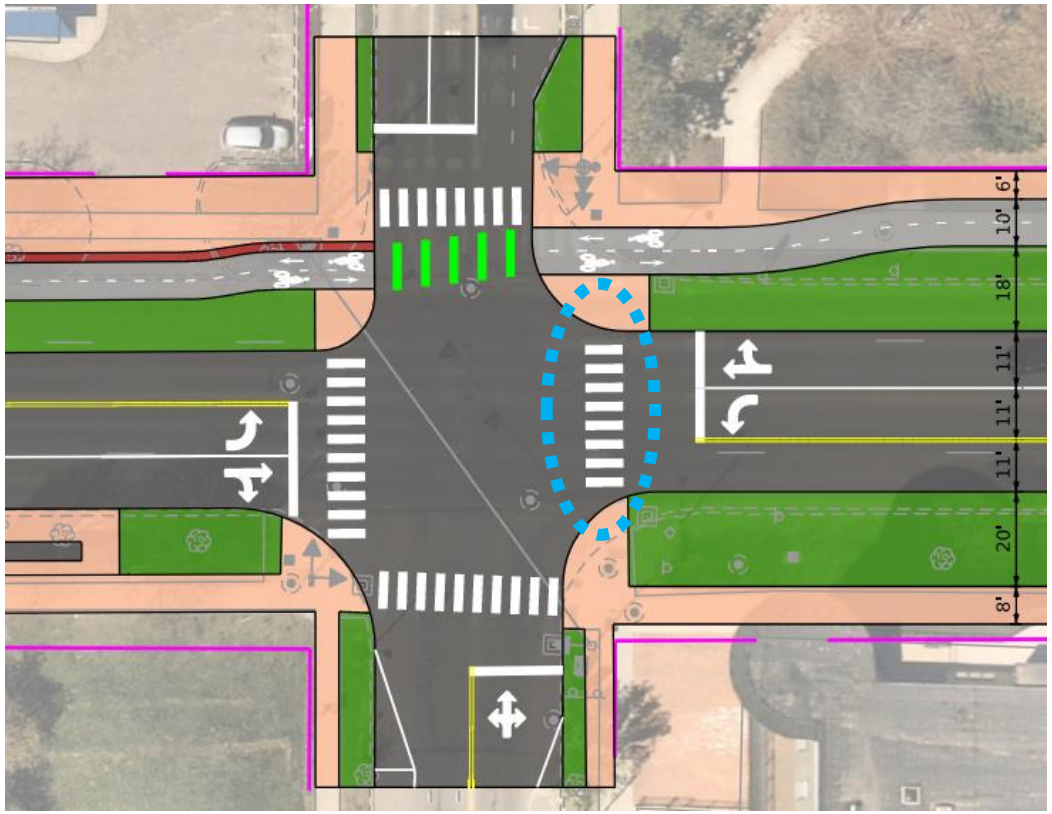
- Concern over impacts to traffic operations
- Concern over impacts to parking
- Concern over College Street ped crossing (Option 2)
- Safety concerns
  - Side by side bike riding (Option 2)
  - Higher conflict potential (Option 1)
- Impacts to Battery Park (Option 2)
- Maintenance
- Desire to consider an additional option (Option 3)



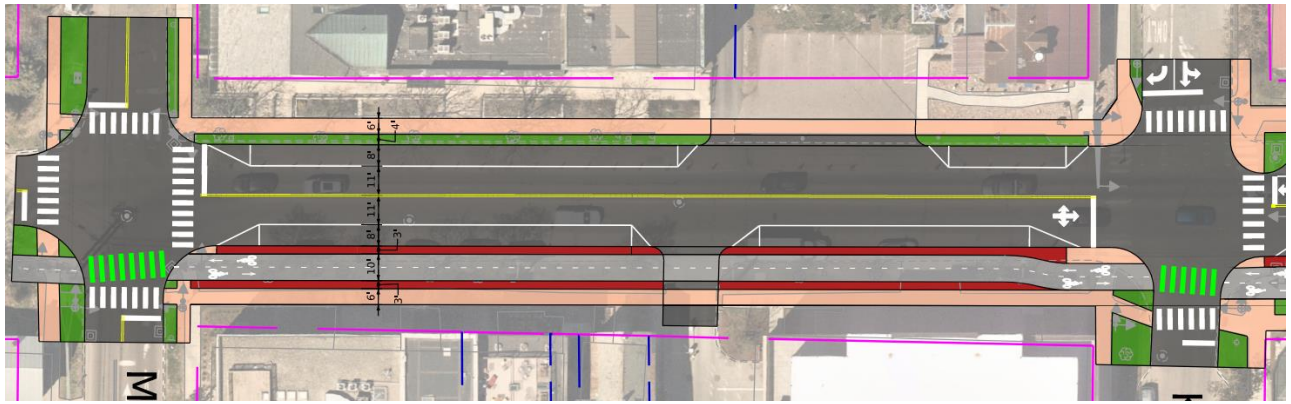
04|| Since We Last Met

Option 2 Refinements / Additional Analysis

Reduced College Street Crosswalk Length



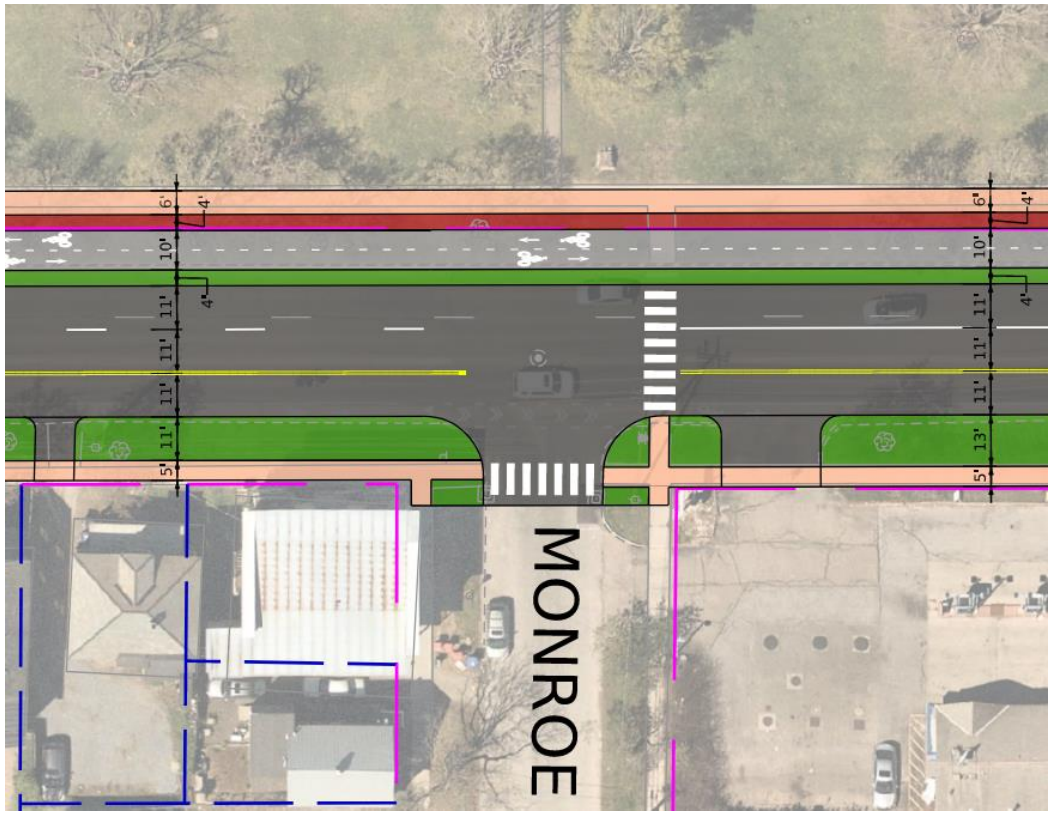
Parking Opportunities*



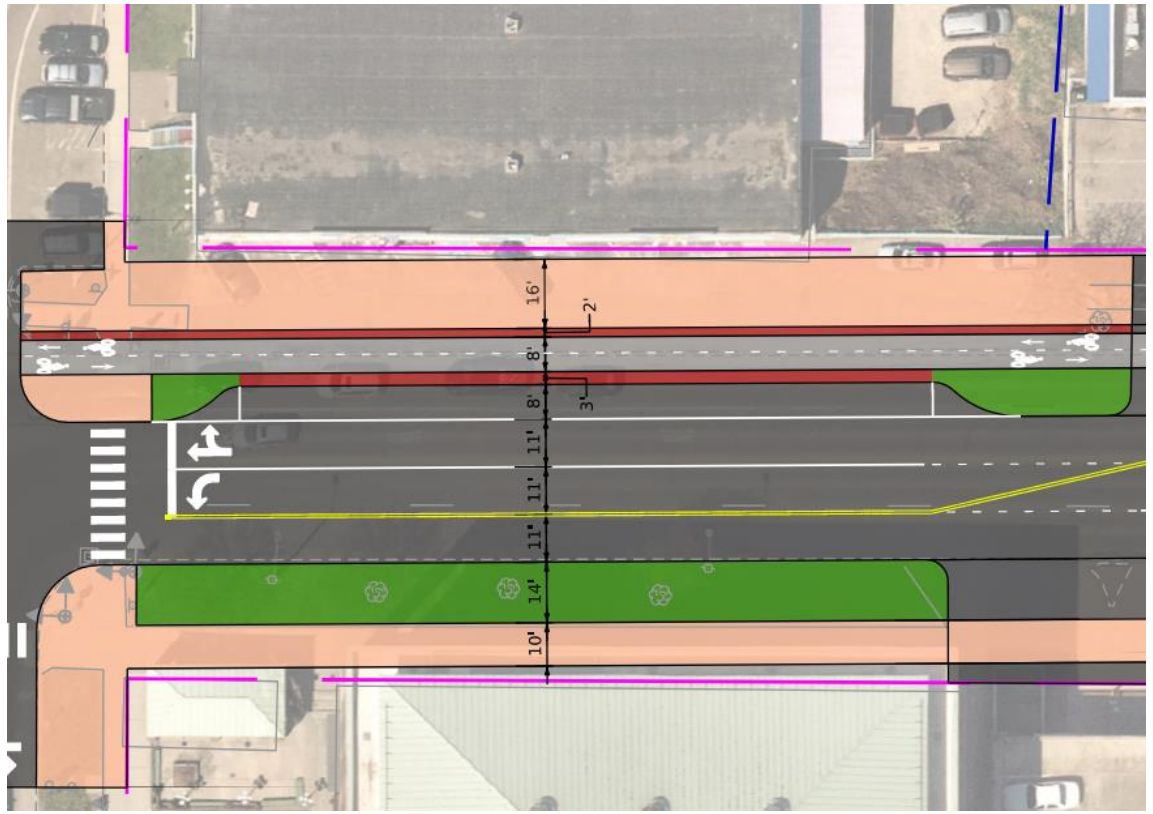
** Option 3 is shown, but parking along both sides of Battery Street from Maple to King is feasible in Option 2 as well*

Option 2 Refinements / Additional Analysis

Reduced Battery Park Impacts

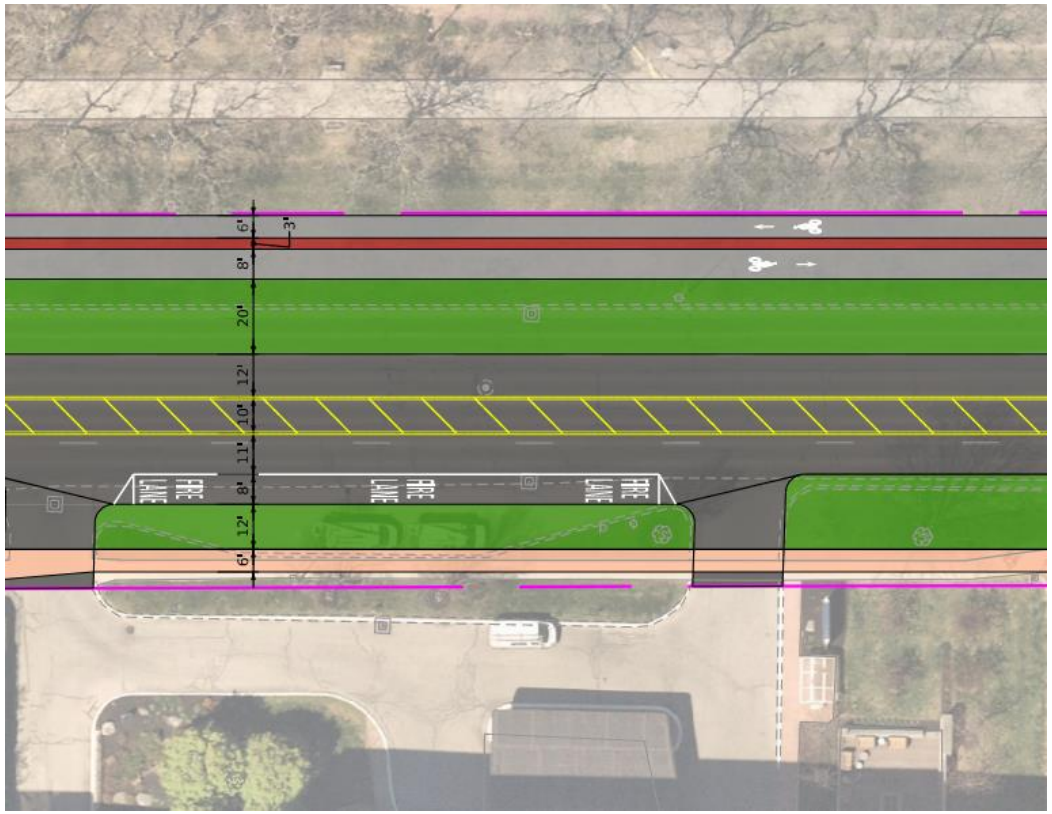


Increased Business Frontage Space



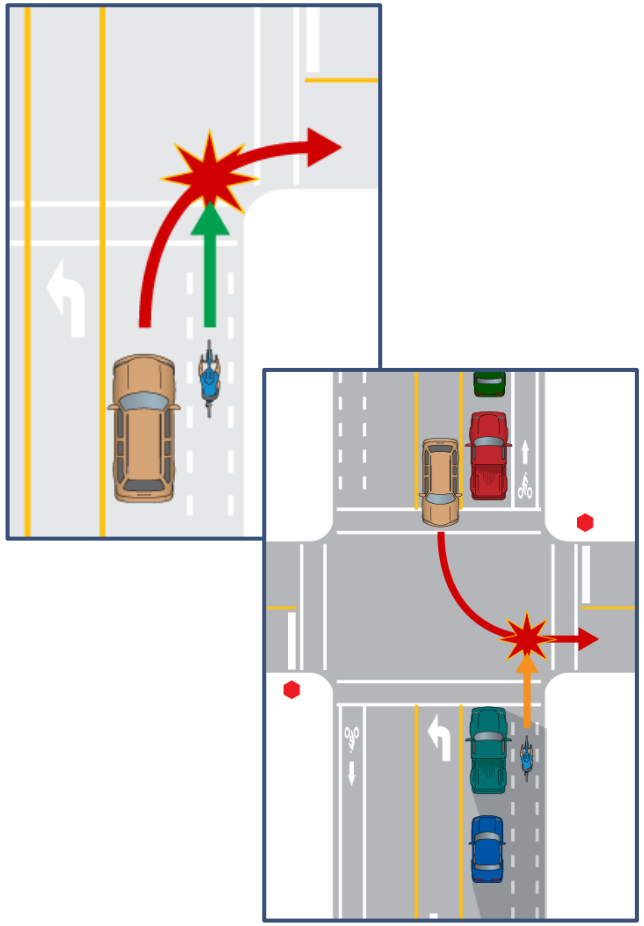
Option 2 Refinements / Additional Analysis

Side-by-Side Uphill/Downhill Riding

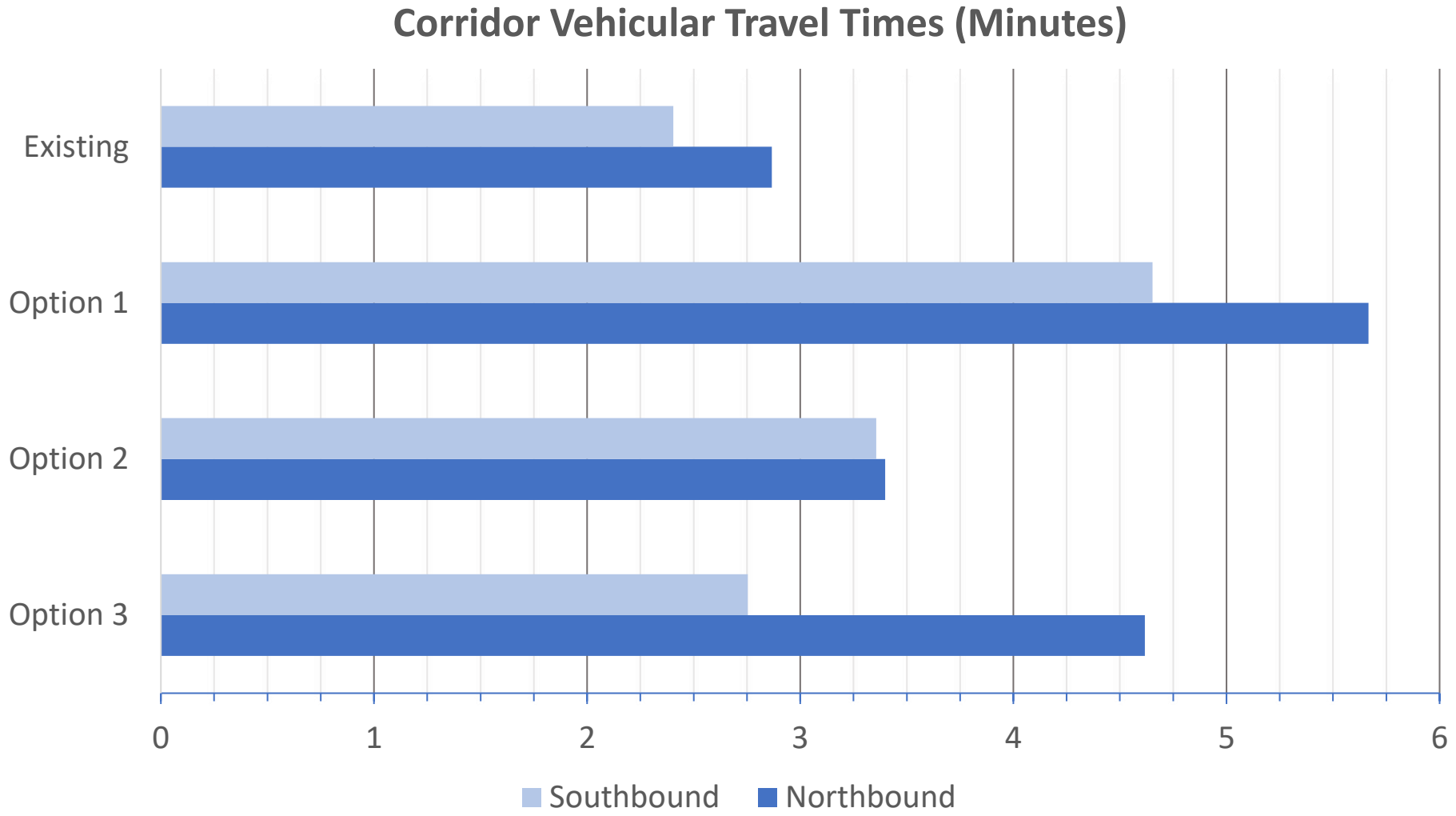


Safety Considerations



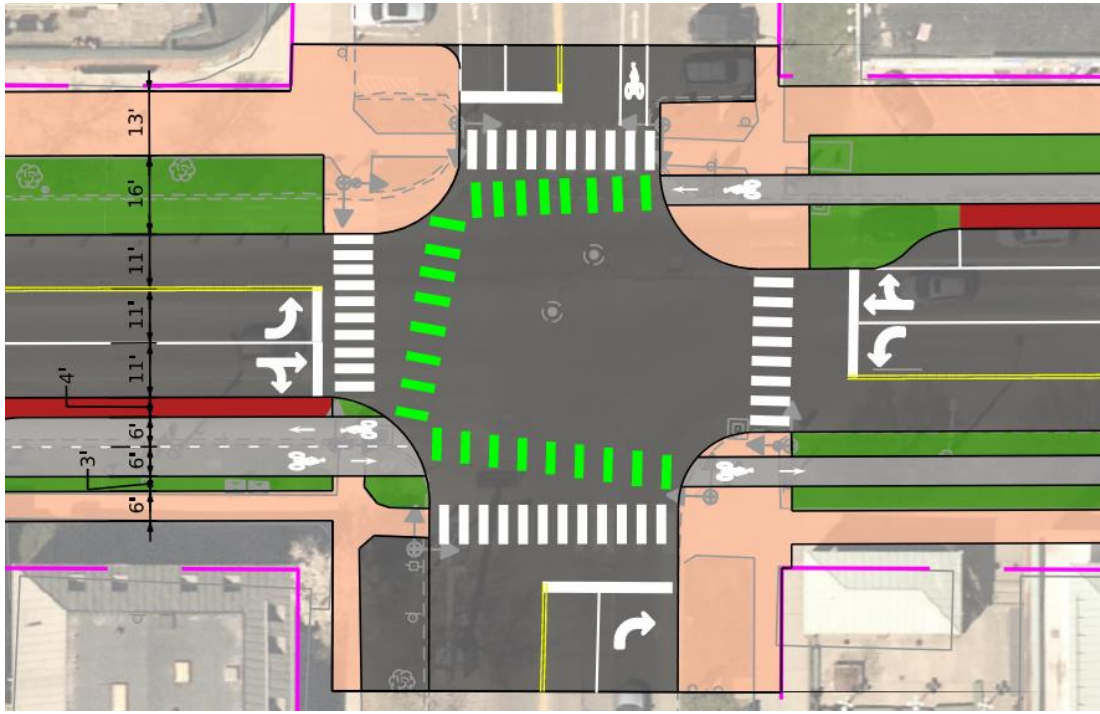


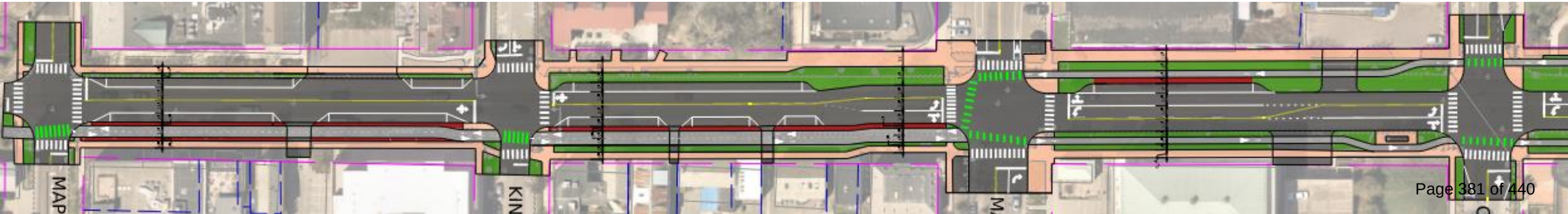
Additional Analysis



NEW - Option 3

- 10 to 12-foot-wide two-way bike lanes on east side (Maple to Main) transition to 6 to 7-foot wide bike lanes on both sides (Main to Sherman)
- "Two-stage crossover" at Main Street
- Parking maintained on both sides (Maple to Main)
- Road Diet & Pedestrian considerations same as Options 1 & 2





Updated Evaluation Matrix

	Corridor Options			
	No Build	**Option 1**	**Option 2**	**Option 3**
Project Cost	$0	$$$$$	$$$$$	$$$$$
Constructability	-	Very Challenging	Challenging	Very Challenging
Purpose & Need				
Improve corridor & intersection safety for all users	No	Yes	Yes	Yes
Enhance comfort and accessibility for pedestrians	No	Yes	Yes	Yes
Provide end-to-end bicycle facilities and connections	No	Yes	Yes	Yes
Integrate street ecology into Battery Street's overall design	Somewhat	Yes	Yes	Yes
Provide acceptable mobility for all modes of transportation	No	Yes (bikes/peds) / No (motor vehicles)	Yes	Yes

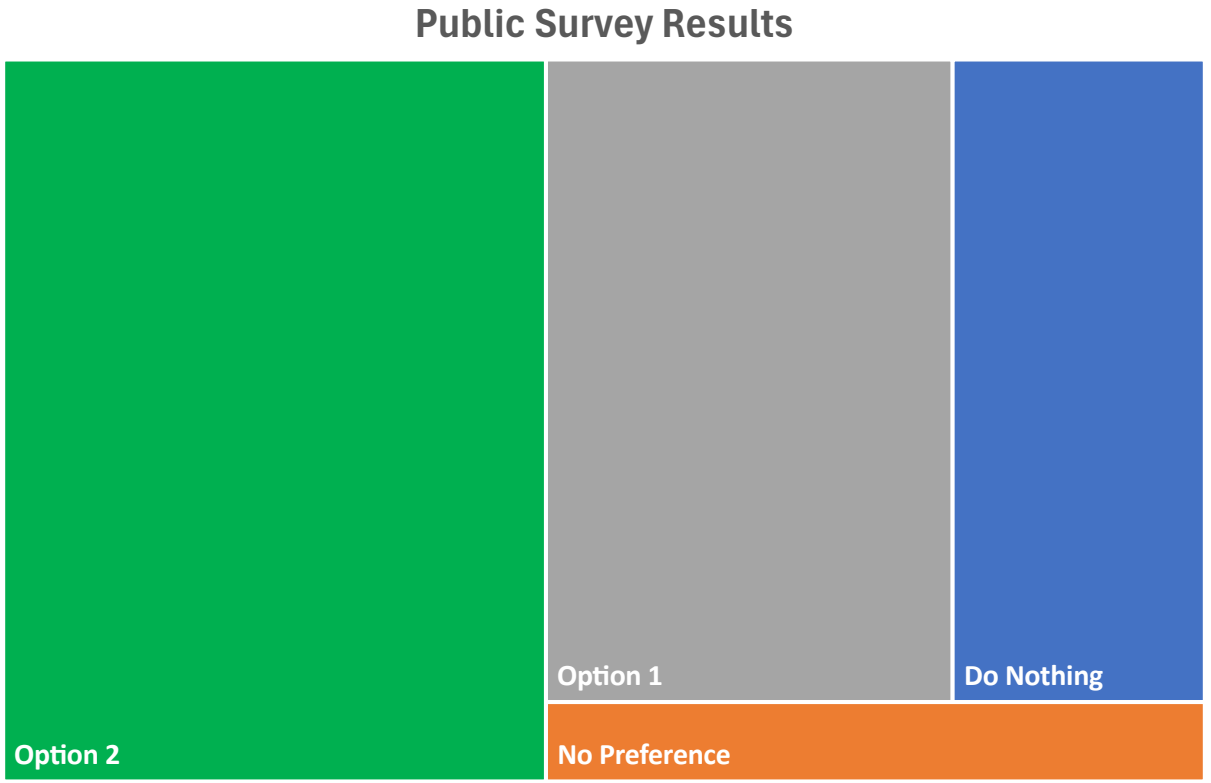


05|| Project Team Recommendation

Project Team Recommendation – Option 2

Why Option 2?

- Best meets the Purpose & Need
- Greatest public support
- Minimizes impacts to delay – for all modes – while maintaining safety for vulnerable users
- Fewest points for conflict potential
- Accommodates design modifications to address Advisory Committee concerns





06|| Advisory Committee Recommendation

How is everyone feeling?

Roundtable Discussion

- Questions?
- Comments?
- Preference?





07|| Next Steps

Next Steps

- Develop Draft Scoping Report
- Presentation of Recommended Alternative to:
  - Transportation, Energy, & Utilities Committee (TEUC)
  - City Council
- Develop Final Scoping Report



Contact Us

Jason Charest
Senior Transportation Planning Engineer

802-861-0127
jcharest@ccrpcvt.org

Drew Gingras, PE
Project Manager

802-391-5569
dgingras@vhb.com

Meeting Notes

Date:	September 26, 2024	Notes Taken By:	E. Sundberg (VHB)
Place:	Burlington DPW and Zoom	Re:	Battery Street Scoping Study Project Advisory Committee Meeting #4
Project No.:	58644.11		

ATTENDEES:

Project Team:

Drew Gingras, VHB
Elisabeth Sundberg, VHB
Jason Charest, CCRPC
Eleni Churchill, CCRPC
Eliana Fox, CCRPC
Julia Ursaki, Burlington DPW

Advisory Group:

Laura Wheelock, Burlington DPW
Sophie Sauve, BPRW
Jonathon Weber, Local Motion
Chris Damiani, GMT
Gene Bergman, City Councilor
Barbie Alsop & Ali Hamedani, Ward 3
Terry Rivers, Ward 5
Kelly Devine, BBA

Welcome + Introductions

- After a round of introductions, Jason and Drew introduced the project and provided a recap of what has happened since they last met with the group.
    - This update included the analysis of Option 3 which was a combination of Option 1 and Option 2.
- Drew went over the meeting agenda and the goal of meeting, which is to seek consensus for a preferred alternative.
- No public comments were made during the public comment period.

Options Overview

- Drew went over the project area and the first two options.
- **Option 1**: Separated bicycle facilities on both sides of Battery Street. These would be raised and separated from motorists. High level typical cross section of option 1 including 11-foot lanes, 8-foot parking, 6-foot bike lanes on both sides, and 6-foot minimum sidewalk on both sides.
- **Option 2:** 12-foot-wide two-way bike lanes on western side of the corridor. 5-to-10-foot sidewalks on both sides, 11-foot travel lanes, 8-foot parking. Two-way bike travel on the west side. Additionally, Drew went over the adjustments that were made to Option 2 since the last Advisory Group meeting.
- On street parking is a flexible element that could change based on the preferred alternative.

Key Differences

- The primary difference between the two alternatives is how bicycle facilities interact with the corridor.

Key Takeaways from last meeting

- **Traffic Operations**: Concerns regarding traffic impacts.
- **Parking**: Concerns about parking availability.
- **Pedestrian Crossings**: Concern about pedestrian crossings at College Street in Option 2.
- **Safety**:
    - Side-by-side biking in Option 2 raises concerns.
    - Option 1 presents higher conflict potential.
- **Battery Park**: Impacts in Option 2 were noted.
- **Maintenance**: Considerations were discussed.
- **Additional Option**: Desire to explore Option 3 was noted.

Option 2 Refinements / Additional Analysis

- **College Street Crosswalk**: Length reduced.
- **Southbound Right Turn Lane**: Removed in the interest of shortening the pedestrian crossing. Traffic phasing was modified to provide separate phasing for bicyclists and turning motorists.
- **Parking**:
    - Maintain parking from Maple to King.
    - Feasible in both Option 2 and Option 3.
- **Battery Park Impacts**: Reduced by minimizing buffer separation in Option 2.
- **Business Frontage**: Increased space in front of April Cornell & Burlington Bay.
    - 16-foot frontage zone for business staging and sidewalk.
    - Reduced width for bicycle lanes.
    - Parallel parking available.
- **Safety Considerations**:
    - Conflict potential and crash risks (e.g., right hook, left turn crashes).
    - Phase separations at intersections to hold movements.

Additional Analysis

- **Corridor Vehicular Travel Times (minutes)**:
    - All options increase travel times, with Option 1 being the most significant.

New Option 3

- **Bike Lanes**:
    - 10-12-foot-wide two-way bike lanes on the east side (Maple to Main).
    - Transition to 6-7-foot-wide lanes on both sides (Main to Sherman).
- **Parking**: Maintained on both sides (Maple to Main).
- **Road Diet and Pedestrian Considerations**: Similar to Options 1 and 2.

Updated Evaluation Matrix

- Similar to Options 1 and 2, Option 3 met all elements of the purpose and need to a slightly higher degree than Option 1, and a slightly lower degree than Option 2.

Project team recommendations

- **Recommended Option:**
    - **Option 2.**
        - Best meets the purpose and need.
        - Greatest public support.
            - Public input was from the survey that included Option 1 and Option 2.
        - Minimizes delays for all modes while maintaining safety for vulnerable users.
        - Fewest points of conflict.
        - Accommodates design modifications to meet advisory committee's input.

Open Discussion

- Someone asked which side of the street are the bike facilities for Railyard Enterprise project on?
    - Laura added that in the ROW phase the City may be able to move it to west side of the road.
        - This does not require to go back to NEPA.
- Barbie asked what the difference between Option 1 and Option 2 for parking.

  - Currently, Option 1 would allow parking to be maintained on one side or the other from Maple Street to Main Street.
  - Option 2 and Option 3 would allow parking to be maintained on both sides of the street from Maple Street to Main Street.

- Gene would like to see the safety changes at all the intersections for bikers and pedestrians turning left and crossing the opposite lanes of traffic as they cross over the intersection. Especially for Option 2 at the College Street intersection.
- It was mentioned that it would be difficult to cross over from east side over to the west side to have to cross back over to the east side of the roadway
- Someone asked what the delay would be for bikers for Option 1 and Option 2.
  - Drew shared that Option 1 and Option 2 are the same if you are traveling down into downtown.
  - However, Option 1 would have a longer wait time travelling northbound
- There were more questions around how you would cross the roadway from the two-way path.
  - Drew shared they would likely use a two stage turn box that would pull you out of the way of through traveling bicyclists, but this is a detail to be sorted out in engineering design.
  - When the signal turns green the cyclist would travel in front of the cars.
- Jonathon asked if protected intersections were considered.
  - Julia shared on Main Street it would be considered because it would tie into that bicycle network but not in other areas where there is no existing infrastructure to tie into.
  - Jonathon shared that it is a much better experience to be in a protected facility.
  - It was mentioned that a two stage turn box would be a difficult turn movement for users.
  - It was asked if the city can build entrances for protected turns.
    - Julia shared that this was not part of project scope to look at all intersections at this level of detail.
- Chris mentioned that we should be mindful of connecting to downtown from the south once Pine and Saint Paul get connected. Pine Street may be a more popular route for getting into downtown from the south.
- It was mentioned that protected intersections could be considered in other work going on in the City like the update to planBTV Walk Bike.
  - Pearl Street and Main Street could have intentional crossings into receiving facilities
  - College Street becomes challenging when it doesn't connect to the other side of the road.
- Jonathon asked what the delay for bikes northbound on a bike from Option 1
  - Drew shared they have not done a travel time for bikes

  - Regarding Option 1, it was discussed that in the northbound direction at King, Maple, College, Cherry, and Pearl as a bicyclist, you would likely be waiting for a light cycle and would experience delay similar to a driver.
  - Option 2 northbound wouldn't incur this same delay for bicyclists as there are no intersections between College Street and the northern end of the project.
- Jonathon asked about the southern four intersections for bikes for Option 2
  - Less of the demand for turning west into the waterfront vs east towards downtown.
  - Similar delay to that of drivers.
- Ali inquired about the potential for a pedestrian exclusive phase at the College Street intersection.
  - Drew added that exclusive pedestrian phase would be challenging given the phase changes required to protect bicyclists (at an already congested intersection).
  - Drew also noted that the Leading Pedestrian Intervals (LPIs) have all been extended to improve crossing conditions for pedestrians.
  - What would it mean for the delay of motor vehicle traffic?
    - It would likely get significantly worse across the board (if pedestrian exclusive phasing was added).
- Concerns were expressed that even with an advance of seven seconds, drivers turn right on red.
  - Julia noted that the City has had success with blankout no right turn on red signage, the City can include this along the Battery Street corridor.
  - The desire for no turn on red at major intersections was emphasized.
- Jonathon discussed Option 2 coming from railyard path to cross over and then having to cross back over to the north.
  - Jonathon shared the opinion that bicyclists will just not be using the path in that scenario and that it fails to meet that need.
  - Additionally, Jonathon shared the opinion that when on the north end from Cherry and Pearl, he does not think bicyclists are going to cross to then have to cross again.
- Laura added a lot of the movements are connecting streets that are slow streets. As a pedestrian or bicyclist there are a lot of opportunities and even more so when the Pine and St Paul Street grid connections are restored as part of the City Center development.
- Jonathon shared the opinion that Option 3 addressed the noted "crossover" concern well.
- The question was asked – Where does the study go from here?
  - VHB will draft a scoping report, then the project team will seek an endorsement of the preferred alternative from the TEUC and City Council.

- Drew added they could recommend or present a toolbox about safety design measures for two-way paths.
    - A lot of the questions are beyond scoping and will be addressed during design.
- The Project Team offered follow-up one-on-one meetings with AC members, if questions remain.
- Laura asked what room these designs have to accommodate the growth in the city given the State and City's ambitious goals to add new housing (particularly relative to the traffic analysis and capacity in the future).
    - Option 1 presents a condition that is at or above capacity at most intersections, while Option 2 presents the most room for future growth.
- It was asked if this analysis included the 20-mph speed limit change for downtown.
    - Yes, Battery Street will be designed for 20mph speeds.
- Someone asked if cameras could be used for speeding enforcement.
    - This is not currently allowed at the State-level.
- Laura requested that the City's Great Streets Standards be considered, particularly for the April Cornell frontage i.e. adding trees, plantings, and other streetscape amenities instead of just concrete sidewalk.
    - Jonathon noted that he doesn't think the 2-way bike lane should be narrowed in this area.
- Jonathon requested that the project team reconsider two southbound lanes at the Monroe Street crosswalk. It is a multiple threat crossing.
- Gene asked for clarity around the parallel parking in front of April Cornell and expressed concern about people coming down the roadway fast and it being very narrow.
    - Jason added that the narrowing of roadway and parallel parking activity is part of how compliance with a 20 mph speed limit will be achieved.. He acknowledged it's hard to envision this given current conditions.
- Julia added they were looking at peak hour volumes, so it won't always be that high of volumes and delay.
- Jonathon asked that if Option 2 is the preferred alternative, please consider adding a northbound painted bike lane from Pearl St to Park St so the route is more convenient for NB bikes.
- Sophie mentioned that she understands the importance of the ADA accessible parking in the southern portion of the corridor based on Parks' pop up during the bike path detour that took this parking away temporarily.
- Sophie mentioned a question/concern about bicyclists navigating between pedestrians and vehicles and the different speeds that they go.

Straw Poll for a Preferred Option

- A straw poll was conducted with Option 2 receiving all votes from present AC members, with the exception of one vote being cast for Option 1.
- The AC was generally appreciative of the additional analysis undertaken by the Project Team.

Next Steps

- Jason went over the next steps.
    - Will keep the group up to date on the TEUC meeting.
    - Beginning the scoping report.
    - Will seek endorsement from city council.
- The AC requested the TEUC and City Council presentation dates be shared.

Appendix D

Traffic Analysis

1: Park St & North Ave/Sherman St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.1	0.0	0.1	0.2
Total Del/Veh (s)	7.9	35.0	18.0	19.2	14.5
Avg Speed (mph)	21	7	7	15	15

2: Battery St/Park St & Monroe St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	21.3	9.0	4.6	6.8
Avg Speed (mph)	13	14	14	14

3: Battery St & Pearl St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.6	0.0	0.0	0.4
Total Del/Veh (s)	18.2	16.5	21.2	18.6
Avg Speed (mph)	13	10	8	10

4: Battery St & Cherry St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	32.6	11.0	8.9	11.9
Avg Speed (mph)	12	18	15	16

5: Battery St & College St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.6	0.3	0.0	0.0	0.2
Total Del/Veh (s)	27.2	25.3	11.3	24.2	20.0
Avg Speed (mph)	14	11	12	12	12

6: Battery St & Main St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.5	2.9	0.0	0.0	0.8
Total Del/Veh (s)	24.5	14.4	18.5	14.5	16.6
Avg Speed (mph)	11	15	9	11	11

7: Battery St & King St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.6	0.3	0.0	0.0	0.1
Total Del/Veh (s)	33.0	17.4	7.1	9.0	12.2
Avg Speed (mph)	12	13	13	14	14

8: Battery St & Maple St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	3.2	0.1	0.0	1.2
Total Del/Veh (s)	8.7	6.5	8.6	21.3	14.4
Avg Speed (mph)	9	20	18	8	13

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	54.8
Avg Speed (mph)	15

Arterial Level of Service: NB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maple St	8	22.5	41.0	0.1	12
King St	7	1.7	4.9	0.1	56
Main St	6	15.6	23.7	0.1	12
College St	5	7.8	16.3	0.1	17
Cherry St	4	10.8	28.9	0.2	20
Pearl St	3	18.2	27.0	0.1	10
Monroe St	2	7.5	16.3	0.1	17
Total		84.2	158.1	0.7	16

Arterial Level of Service: SB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pearl St	3	14.9	23.5	0.1	12
Cherry St	4	8.0	17.3	0.1	16
College St	5	25.1	43.4	0.2	13
Main St	6	8.7	17.9	0.1	15
King St	7	8.3	17.7	0.1	16
Maple St	8	6.3	12.6	0.1	21
Total		71.4	132.2	0.5	15

Intersection: 1: Park St & North Ave/Sherman St

Movement	EB	WB	NB	SB	SB
Directions Served	R	LT	L	T	TR
Maximum Queue (ft)	210	18	229	151	114
Average Queue (ft)	120	6	193	95	58
95th Queue (ft)	229	25	280	158	124
Link Distance (ft)	1094	619	220	931	931
Upstream Blk Time (%)			18		
Queuing Penalty (veh)			132		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Battery St/Park St & Monroe St

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	31	198	113	62
Average Queue (ft)	12	120	32	12
95th Queue (ft)	37	266	121	82
Link Distance (ft)	640	330	220	220
Upstream Blk Time (%)		1	0	
Queuing Penalty (veh)		7	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Battery St & Pearl St

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	LT	T
Maximum Queue (ft)	103	81	324	254	262	251
Average Queue (ft)	70	54	227	122	195	165
95th Queue (ft)	108	99	405	272	312	313
Link Distance (ft)	706		346	346	330	330
Upstream Blk Time (%)			2	0	3	0
Queuing Penalty (veh)			8	1	12	2
Storage Bay Dist (ft)		350				
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: Battery St & Cherry St

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	TR	LT	T
Maximum Queue (ft)	164	265	226	159	147
Average Queue (ft)	103	153	110	92	85
95th Queue (ft)	180	318	253	170	163
Link Distance (ft)	1094	778	778	346	346
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 5: Battery St & College St

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	LT	TR	LT	TR
Maximum Queue (ft)	90	96	203	166	150	291	321
Average Queue (ft)	59	61	131	117	88	204	236
95th Queue (ft)	100	109	218	183	163	337	382
Link Distance (ft)		1138	791	335	335	778	778
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	75						
Storage Blk Time (%)	15	5					
Queuing Penalty (veh)	17	5					

Intersection: 6: Battery St & Main St

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	R	LT	R	LTR	L	TR
Maximum Queue (ft)	100	86	95	113	273	170	127
Average Queue (ft)	63	33	60	71	198	110	72
95th Queue (ft)	110	90	108	124	339	195	152
Link Distance (ft)	764		791		358	335	335
Upstream Blk Time (%)					1		
Queuing Penalty (veh)					4		
Storage Bay Dist (ft)		75		115			
Storage Blk Time (%)	11	0	1	2			
Queuing Penalty (veh)	6	0	2	2			

Intersection: 7: Battery St & King St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	47	19	192	74	152
Average Queue (ft)	28	7	126	49	95
95th Queue (ft)	60	28	248	109	193
Link Distance (ft)	1114		762	309	358
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		75			
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Intersection: 8: Battery St & Maple St

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	66	38	62	23	227
Average Queue (ft)	26	25	46	9	148
95th Queue (ft)	70	55	76	31	257
Link Distance (ft)	149	852		719	309
Upstream Blk Time (%)					0
Queuing Penalty (veh)					1
Storage Bay Dist (ft)			80		
Storage Blk Time (%)		1	0		
Queuing Penalty (veh)		1	0		

Network Summary

Network wide Queuing Penalty: 199

1: Park St & North Ave/Sherman St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.1	0.0	0.2	0.2
Total Del/Veh (s)	38.6	79.6	14.2	36.1	28.0
Avg Speed (mph)	11	4	9	11	11

2: Battery St/Park St & Monroe St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	174.1	5.3	13.5	10.9
Avg Speed (mph)	2	17	8	11

3: Battery St & Pearl St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.9	0.0	0.3	0.6
Total Del/Veh (s)	73.3	40.7	33.4	42.9
Avg Speed (mph)	5	5	6	6

4: Battery St & Cherry St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	5.2	0.0	2.6
Total Del/Veh (s)	86.3	62.8	27.7	49.3
Avg Speed (mph)	6	7	7	7

5: Battery St & College St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.8	2.6	0.6	11.8	5.5
Total Del/Veh (s)	57.3	82.4	36.5	89.0	66.2
Avg Speed (mph)	9	5	6	5	6

6: Battery St & Main St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	61.3	2.9	1.3	0.0	6.8
Total Del/Veh (s)	383.7	53.7	84.6	24.4	81.7
Avg Speed (mph)	1	7	3	8	4

7: Battery St & King St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.9	283.0	0.2	0.3	83.1
Total Del/Veh (s)	239.2	320.1	31.9	26.9	110.1
Avg Speed (mph)	3	1	5	8	3

8: Battery St & Maple St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	3.2	0.1	0.0	1.2
Total Del/Veh (s)	27.0	12.7	17.5	41.4	28.6
Avg Speed (mph)	4	17	14	5	9

Total Network Performance

Denied Del/Veh (s)	37.9
Total Del/Veh (s)	199.8
Avg Speed (mph)	7

Arterial Level of Service: NB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maple St	8	27.3	43.7	0.1	12
King St	7	25.8	33.4	0.1	8
Main St	6	86.2	96.2	0.1	3
College St	5	30.5	40.6	0.1	7
Cherry St	4	63.7	89.4	0.2	7
Pearl St	3	41.0	50.0	0.1	5
Monroe St	2	5.5	14.5	0.1	19
Total		280.0	367.8	0.7	7

Arterial Level of Service: SB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pearl St	3	30.4	39.5	0.1	7
Cherry St	4	25.8	35.1	0.1	8
College St	5	81.0	111.1	0.2	6
Main St	6	18.9	28.2	0.1	10
King St	7	25.2	35.2	0.1	8
Maple St	8	15.6	21.7	0.1	12
Total		196.8	270.8	0.5	8

Intersection: 1: Park St & North Ave/Sherman St

Movement	EB	WB	NB	SB	SB
Directions Served	R	LT	L	T	TR
Maximum Queue (ft)	624	41	230	260	283
Average Queue (ft)	307	8	162	85	129
95th Queue (ft)	639	28	266	197	245
Link Distance (ft)	1094	619	220	931	931
Upstream Blk Time (%)			7		
Queuing Penalty (veh)			54		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Battery St/Park St & Monroe St

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	73	336	242	250
Average Queue (ft)	20	57	69	104
95th Queue (ft)	78	211	217	304
Link Distance (ft)	639	328	220	220
Upstream Blk Time (%)		1	2	13
Queuing Penalty (veh)		6	11	62
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Battery St & Pearl St

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	448	324	362	175	274	356
Average Queue (ft)	183	130	340	165	123	266
95th Queue (ft)	454	294	404	209	214	419
Link Distance (ft)	700		346		328	328
Upstream Blk Time (%)	1		16		0	14
Queuing Penalty (veh)	0		172		1	67
Storage Bay Dist (ft)		350		150		
Storage Blk Time (%)	8	0	41	16		
Queuing Penalty (veh)	18	0	166	99		

Intersection: 4: Battery St & Cherry St

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	284	783	175	174	346
Average Queue (ft)	117	658	85	57	242
95th Queue (ft)	256	951	215	150	437
Link Distance (ft)	1086	767			346
Upstream Blk Time (%)		6			12
Queuing Penalty (veh)		67			104
Storage Bay Dist (ft)			150	150	
Storage Blk Time (%)		45	0	0	32
Queuing Penalty (veh)		38	1	0	17

Intersection: 5: Battery St & College St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	LT	R	L	TR	L	TR
Maximum Queue (ft)	100	420	493	100	125	356	350	794
Average Queue (ft)	69	113	205	86	50	294	203	686
95th Queue (ft)	108	306	456	121	127	405	429	948
Link Distance (ft)		1143	797			334		767
Upstream Blk Time (%)						13		12
Queuing Penalty (veh)						107		107
Storage Bay Dist (ft)	75			75	100		300	
Storage Blk Time (%)	29	12	21	42	1	52	5	47
Queuing Penalty (veh)	33	11	39	41	12	21	42	44

Intersection: 6: Battery St & Main St

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	683	473	170	85	389	215	300
Average Queue (ft)	456	197	133	42	371	123	127
95th Queue (ft)	881	447	204	98	417	201	234
Link Distance (ft)	764	802			369		334
Upstream Blk Time (%)	27	0			37		0
Queuing Penalty (veh)	0	0			217		1
Storage Bay Dist (ft)			115	60		200	
Storage Blk Time (%)		18	29	1	74	1	2
Queuing Penalty (veh)		57	31	5	33	3	6

Intersection: 7: Battery St & King St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	228	84	807	249	378
Average Queue (ft)	98	14	618	123	201
95th Queue (ft)	236	61	981	224	355
Link Distance (ft)	1109		757	310	369
Upstream Blk Time (%)			57	0	1
Queuing Penalty (veh)			0	1	6
Storage Bay Dist (ft)		75			
Storage Blk Time (%)	45	0			
Queuing Penalty (veh)	4	0			

Intersection: 8: Battery St & Maple St

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	112	99	99	64	324
Average Queue (ft)	47	40	54	22	180
95th Queue (ft)	93	83	90	53	298
Link Distance (ft)	149	852		719	310
Upstream Blk Time (%)	0				2
Queuing Penalty (veh)	0				8
Storage Bay Dist (ft)			80		
Storage Blk Time (%)		2	1		
Queuing Penalty (veh)		4	0		

Network Summary

Network wide Queuing Penalty: 1711

1: Park St & North Ave/Sherman St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.4	0.1	0.0	0.2	0.2
Total Del/Veh (s)	17.7	52.4	13.9	21.6	17.1
Avg Speed (mph)	17	6	9	15	14

2: Battery St/Park St & Monroe St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	52.1	5.6	6.9	6.6
Avg Speed (mph)	7	17	12	14

3: Battery St & Pearl St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.5	0.0	0.0	0.4
Total Del/Veh (s)	43.5	15.2	17.1	20.1
Avg Speed (mph)	8	11	10	10

4: Battery St & Cherry St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.4	0.0	0.2
Total Del/Veh (s)	44.6	25.1	21.6	25.0
Avg Speed (mph)	10	12	9	11

5: Battery St & College St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.9	2.7	0.0	4.7	2.4
Total Del/Veh (s)	167.7	29.6	19.3	69.5	54.9
Avg Speed (mph)	4	11	9	6	6

6: Battery St & Main St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	2.9	0.0	0.0	0.7
Total Del/Veh (s)	38.8	22.4	34.3	21.2	27.0
Avg Speed (mph)	9	13	6	9	9

7: Battery St & King St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.8	0.3	0.1	0.1	0.2
Total Del/Veh (s)	32.9	25.1	14.1	12.8	17.4
Avg Speed (mph)	12	11	10	12	11

8: Battery St & Maple St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	3.3	0.1	0.0	1.1
Total Del/Veh (s)	7.5	5.9	9.1	16.9	11.8
Avg Speed (mph)	10	21	18	9	14

Total Network Performance

Denied Del/Veh (s)	2.8
Total Del/Veh (s)	99.7
Avg Speed (mph)	12

Arterial Level of Service: NB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maple St	8	13.2	30.6	0.1	17
King St	7	14.3	21.7	0.1	13
Main St	6	34.7	44.2	0.1	7
College St	5	13.1	22.2	0.1	13
Cherry St	4	26.2	45.6	0.2	13
Pearl St	3	14.9	24.0	0.1	11
Monroe St	2	6.7	15.7	0.1	17
Total		123.1	203.9	0.7	12

Arterial Level of Service: SB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pearl St	3	13.0	21.8	0.1	12
Cherry St	4	20.3	29.6	0.1	9
College St	5	64.8	88.0	0.2	7
Main St	6	17.3	26.7	0.1	10
King St	7	13.1	22.8	0.1	13
Maple St	8	6.7	12.6	0.1	21
Total		135.2	201.4	0.5	10

Intersection: 1: Park St & North Ave/Sherman St

Movement	EB	WB	NB	SB	SB
Directions Served	R	LT	L	T	TR
Maximum Queue (ft)	478	40	230	146	214
Average Queue (ft)	216	9	186	65	105
95th Queue (ft)	380	31	271	122	177
Link Distance (ft)	1094	619	220	931	931
Upstream Blk Time (%)			6		
Queuing Penalty (veh)			47		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Battery St/Park St & Monroe St

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	52	325	172	179
Average Queue (ft)	15	95	36	24
95th Queue (ft)	43	265	113	130
Link Distance (ft)	639	328	220	220
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		2	0	2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Battery St & Pearl St

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	289	241	360	175	270	321
Average Queue (ft)	109	103	209	128	111	158
95th Queue (ft)	265	202	403	214	202	324
Link Distance (ft)	700		346		328	328
Upstream Blk Time (%)			3			3
Queuing Penalty (veh)			33			12
Storage Bay Dist (ft)		350		150		
Storage Blk Time (%)	1	0	10	4		
Queuing Penalty (veh)	3	0	41	25		

Intersection: 4: Battery St & Cherry St

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	218	722	175	174	350
Average Queue (ft)	93	349	63	63	226
95th Queue (ft)	173	697	189	162	414
Link Distance (ft)	1086	767			346
Upstream Blk Time (%)		0			6
Queuing Penalty (veh)		5			56
Storage Bay Dist (ft)			150	150	
Storage Blk Time (%)		21	0	0	24
Queuing Penalty (veh)		18	1	0	13

Intersection: 5: Battery St & College St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	LT	R	L	TR	L	TR
Maximum Queue (ft)	100	631	212	100	125	347	350	746
Average Queue (ft)	84	272	86	81	49	218	190	586
95th Queue (ft)	121	669	177	114	118	368	416	929
Link Distance (ft)		1143	797			334		767
Upstream Blk Time (%)						3		4
Queuing Penalty (veh)						22		36
Storage Bay Dist (ft)	75			75	100		300	
Storage Blk Time (%)	57	19	11	20	0	28	0	39
Queuing Penalty (veh)	64	19	21	19	3	11	0	37

Intersection: 6: Battery St & Main St

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	206	260	170	85	372	205	260
Average Queue (ft)	98	83	112	35	265	117	142
95th Queue (ft)	184	177	174	83	421	190	229
Link Distance (ft)	764	802			369		334
Upstream Blk Time (%)					6		
Queuing Penalty (veh)					35		
Storage Bay Dist (ft)			115	60		200	
Storage Blk Time (%)		2	12	0	46	1	2
Queuing Penalty (veh)		6	13	3	20	7	5

Intersection: 7: Battery St & King St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	91	43	308	186	325
Average Queue (ft)	28	7	137	66	141
95th Queue (ft)	69	30	287	160	262
Link Distance (ft)	1109		757	310	369
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)		75			
Storage Blk Time (%)	2	0			
Queuing Penalty (veh)	0	0			

Intersection: 8: Battery St & Maple St

Movement	EB	WB	WB	NB	SB
Directions Served	LTR	LT	R	LTR	LTR
Maximum Queue (ft)	90	70	94	60	280
Average Queue (ft)	30	20	46	16	132
95th Queue (ft)	66	54	77	45	231
Link Distance (ft)	149	852		719	310
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)			80		
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Network Summary

Network wide Queuing Penalty: 580

1: Park St & North Ave/Sherman St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.5	0.1	0.0	0.2	0.2
Total Del/Veh (s)	15.9	57.0	14.4	22.7	17.0
Avg Speed (mph)	17	7	8	14	14

2: Battery St/Park St & Monroe St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	32.4	4.9	5.8	5.6
Avg Speed (mph)	9	18	13	15

3: Battery St & Pearl St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	2.5	0.0	0.0	0.4
Total Del/Veh (s)	34.1	11.7	11.0	14.7
Avg Speed (mph)	9	12	13	12

4: Battery St & Cherry St Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.1	0.0	0.1
Total Del/Veh (s)	37.5	15.3	12.5	15.6
Avg Speed (mph)	11	16	13	14

5: Battery St & College St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.7	2.7	0.0	1.1	1.0
Total Del/Veh (s)	35.9	35.9	33.1	40.2	36.6
Avg Speed (mph)	12	10	6	9	9

6: Battery St & Main St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.2	2.9	0.7	0.1	0.9
Total Del/Veh (s)	60.2	26.7	73.4	31.9	45.4
Avg Speed (mph)	7	12	3	7	6

7: Battery St & King St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	1.0	23.4	2.9	0.0	7.5
Total Del/Veh (s)	186.3	142.2	49.8	16.6	66.9
Avg Speed (mph)	4	3	4	10	4

8: Battery St & Maple St Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	3.2	0.1	0.0	1.1
Total Del/Veh (s)	25.4	18.0	8.9	15.0	16.8
Avg Speed (mph)	4	15	18	10	12

Total Network Performance

Denied Del/Veh (s)	4.5
Total Del/Veh (s)	106.2
Avg Speed (mph)	11

Arterial Level of Service: NB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Maple St	8	13.8	30.6	0.1	17
King St	7	34.9	62.2	0.1	7
Main St	6	66.5	77.0	0.1	4
College St	5	27.7	36.7	0.1	8
Cherry St	4	16.0	35.1	0.2	16
Pearl St	3	11.4	20.5	0.1	13
Monroe St	2	5.9	14.9	0.1	18
Total		176.2	277.0	0.7	10

Arterial Level of Service: SB Battery St

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Pearl St	3	5.9	14.7	0.1	18
Cherry St	4	10.8	20.2	0.1	14
College St	5	40.2	59.8	0.2	10
Main St	6	22.3	31.7	0.1	9
King St	7	17.5	27.1	0.1	11
Maple St	8	5.8	11.8	0.1	23
Total		102.5	165.2	0.5	12

Intersection: 1: Park St & North Ave/Sherman St

Movement	EB	WB	NB	SB	SB
Directions Served	R	LT	L	T	TR
Maximum Queue (ft)	393	40	230	170	203
Average Queue (ft)	207	8	192	65	110
95th Queue (ft)	342	29	272	127	180
Link Distance (ft)	1094	619	220	931	931
Upstream Blk Time (%)			6		
Queuing Penalty (veh)			44		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 2: Battery St/Park St & Monroe St

Movement	WB	NB	SB	SB
Directions Served	LR	TR	LT	T
Maximum Queue (ft)	52	298	147	93
Average Queue (ft)	14	81	31	5
95th Queue (ft)	41	231	98	55
Link Distance (ft)	639	328	220	220
Upstream Blk Time (%)		0	0	0
Queuing Penalty (veh)		1	0	0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Battery St & Pearl St

Movement	WB	WB	NB	NB	SB	SB
Directions Served	L	R	T	R	L	T
Maximum Queue (ft)	177	192	352	175	222	250
Average Queue (ft)	82	99	162	108	105	115
95th Queue (ft)	149	173	335	201	184	220
Link Distance (ft)	700		346		328	328
Upstream Blk Time (%)			1			0
Queuing Penalty (veh)			8			2
Storage Bay Dist (ft)		350		150		
Storage Blk Time (%)			6	2		
Queuing Penalty (veh)			26	13		

Intersection: 4: Battery St & Cherry St

Movement	WB	NB	NB	SB	SB
Directions Served	LR	T	R	L	T
Maximum Queue (ft)	173	554	175	163	330
Average Queue (ft)	81	229	36	48	171
95th Queue (ft)	145	470	134	120	328
Link Distance (ft)	1086	767			346
Upstream Blk Time (%)					1
Queuing Penalty (veh)					10
Storage Bay Dist (ft)			150	150	
Storage Blk Time (%)		12	0	0	10
Queuing Penalty (veh)		11	0	2	5

Intersection: 5: Battery St & College St

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	LT	R	L	TR	L	T	R
Maximum Queue (ft)	99	166	289	100	125	355	350	752	125
Average Queue (ft)	62	67	106	83	42	323	124	425	70
95th Queue (ft)	110	132	226	116	112	394	327	760	159
Link Distance (ft)		1132	797			334		767	
Upstream Blk Time (%)						11		1	
Queuing Penalty (veh)						98		8	
Storage Bay Dist (ft)	75			75	100		300		100
Storage Blk Time (%)	10	5	20	16	0	51		36	0
Queuing Penalty (veh)	12	5	36	15	2	20		85	1

Intersection: 6: Battery St & Main St

Movement	EB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	LT	R	L	TR	L	TR
Maximum Queue (ft)	362	311	170	85	391	216	305
Average Queue (ft)	120	112	124	43	370	149	159
95th Queue (ft)	296	247	191	100	419	241	292
Link Distance (ft)	764	802			369		334
Upstream Blk Time (%)					34		1
Queuing Penalty (veh)					198		4
Storage Bay Dist (ft)			115	60		200	
Storage Blk Time (%)		1	19	3	71	12	2
Queuing Penalty (veh)		3	20	14	31	54	5

Intersection: 7: Battery St & King St

Movement	EB	EB	WB	NB	SB
Directions Served	LT	R	LTR	LTR	LTR
Maximum Queue (ft)	219	100	732	301	341
Average Queue (ft)	78	14	410	145	162
95th Queue (ft)	199	61	823	307	281
Link Distance (ft)	1109		757	310	369
Upstream Blk Time (%)			16	6	0
Queuing Penalty (veh)			0	16	1
Storage Bay Dist (ft)		75			
Storage Blk Time (%)	37	0			
Queuing Penalty (veh)	3	0			

Intersection: 8: Battery St & Maple St

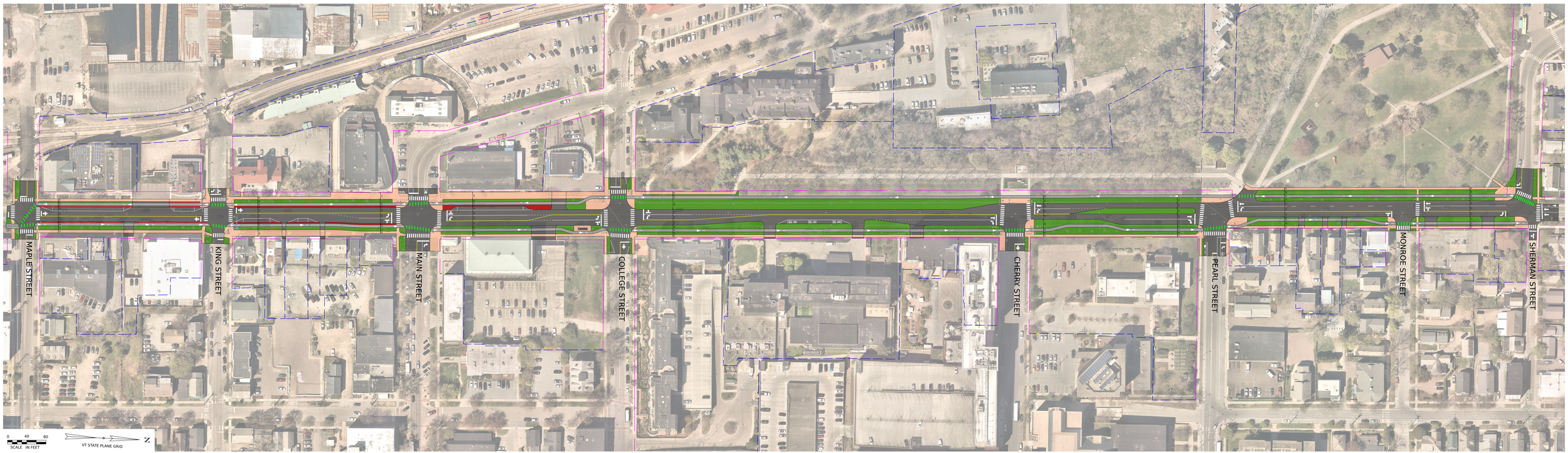
Movement	EB	B11	WB	WB	NB	SB
Directions Served	LTR	T	LT	R	LTR	LTR
Maximum Queue (ft)	111	22	220	100	52	259
Average Queue (ft)	39	2	50	53	18	120
95th Queue (ft)	105	26	226	91	44	209
Link Distance (ft)	149	751	852		719	310
Upstream Blk Time (%)	3					
Queuing Penalty (veh)	0					
Storage Bay Dist (ft)				80		
Storage Blk Time (%)			0	6		
Queuing Penalty (veh)			1	3		

Network Summary

Network wide Queuing Penalty: 758

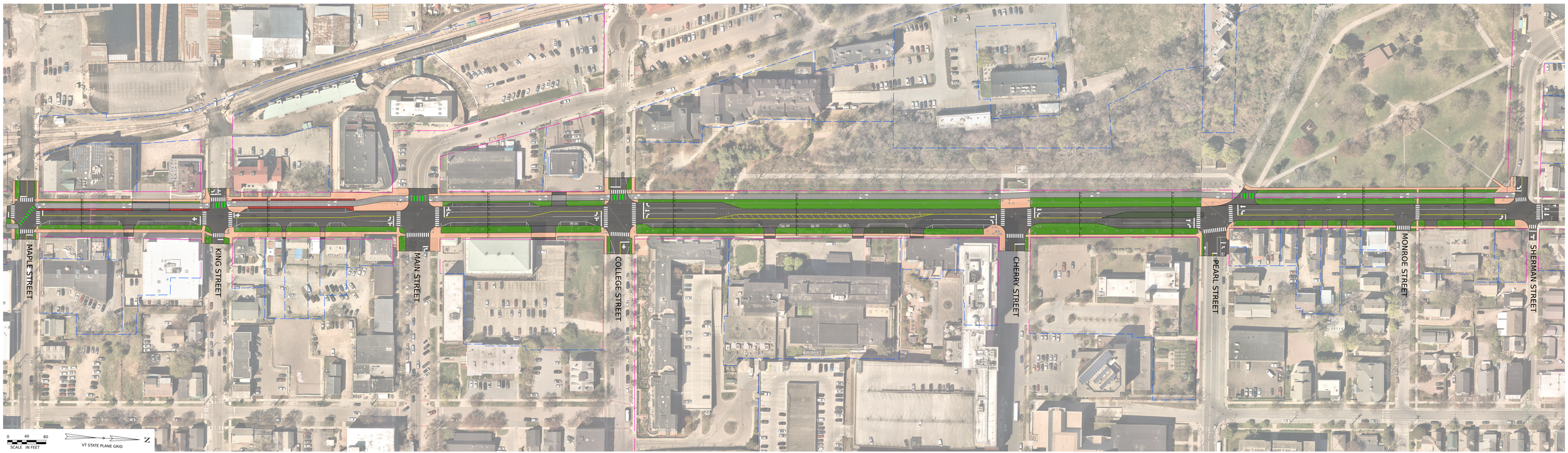
Appendix E

Conceptual Alternatives



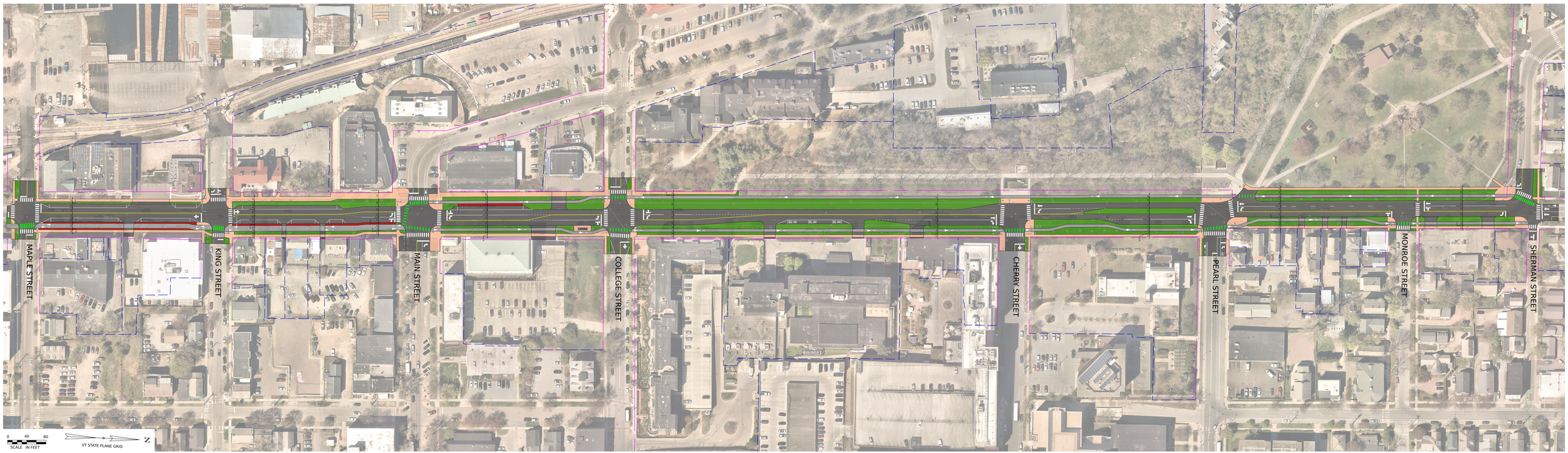
Battery Street Scoping Study

Option 1



Battery Street Scoping Study

Alternative 2



Battery Street Scoping Study

Option 3

Appendix F

Conceptual Cost Estimates

VHB Computations

BATTERY STREET RECONSTRUCTION
CONCEPTUAL CONSTRUCTION ESTIMATE
VHB PROJECT NUMBER: 58644.11
ALTERNATIVE 1

CALCULATED BY: JCE
CHECKED BY: DMP
DATE: 1/15/2025

ITEM #	MAJOR ITEMS DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
ROADWAY & UTILITY WORK					
201.1000	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	1	$ 30,000.00	$ 30,000.00
203.1000	COMMON EXCAVATION	CY	22000	$ 25.00	$ 550,000.00
203.1600	SOLID ROCK EXCAVATION	CY	1100	$ 100.00	$ 110,000.00
301.2600	CRUSHED GAVEL, FINE GRADED	CY	7000	$ 70.00	$ 490,000.00
301.3500	DENSE GRADED CRUSHED STONE	CY	8700	$ 70.00	$ 609,000.00
406.3400	BITUMINOUS CONCRETE PAVEMENT, NON-PAVER PLACED, TYPE IVS	SY	520	$ 40.00	$ 20,800.00
406.0410	BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, QA TIER I	TON	5910	$ 150.00	$ 886,500.00
541.2200	CONCRETE, CLASS B	CY	90	$ 1,500.00	$ 135,000.00
601.0905	12 INCH CPEP	LF	510	$ 150.00	$ 76,500.00
601.0915	18 INCH CPEP	LF	510	$ 200.00	$ 102,000.00
604.1800	PRECAST REINFORCED CONCRETE PIPE DI WITH CAST IRON GRATE	EA	20	$ 7,000.00	$ 140,000.00
604.4102	REHABILITATING DIS, CATCH BASINS, OR MANHOLES, CLASS II	EA	19	$ 2,000.00	$ 38,000.00
616.2702	CAST-IN-PLACE CONCRETE CURB, TYPE B	LF	8300	$ 80.00	$ 664,000.00
618.1005	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	SY	4900	$ 150.00	$ 735,000.00
618.1008	PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH	SY	230	$ 180.00	$ 41,400.00
651.1500	TURF ESTABLISHLIMENT	SY	7800	$ 2.00	$ 15,600.00
651.3500	TOPSOIL	CY	870	$ 60.00	$ 52,200.00
900.6750	BRICK PAVERS	SF	5500	$ 40.00	$ 220,000.00
#1				**ROADWAY & UTILITIES ITEMS SUBTOTAL:**	**$ 4,916,000.00**
#2				SIGNING & STRIPING (4% OF #1):	$ 196,640.00
#3				INCIDENTAL ROADWAY ITEMS (25% OF #1):	$ 1,229,000.00
#4				TRAFFIC SIGNAL UPDATES:	$ 750,000.00
#5				**ROADWAY & UTILITIES CONSTRUCTION SUBTOTAL (SUM OF #1 THRU #4):**	**$ 7,091,640.00**
LIGHTING & LANDSCAPING					
625.6000	WIRED CONDUIT	LF	6000	$ 30.00	$ 180,000.00
625.7021	PULL BOX, STANDARD	EA	36	$ 2,000.00	$ 72,000.00
656.2002	DECIDUOUS TREES, MEDIUM	EA	25	$ 750.00	$ 18,750.00
679.7000	STREET LIGHT ASSEMBLY (WHOLE UNIT)	EA	36	$ 12,000.00	$ 432,000.00
656.8500	TREE PROTECTION	LS	1	$ 10,000.00	$ 10,000.00
900.6450	SOIL CELL ALLOWANCE	LS	1	$ 200,000.00	$ 200,000.00
900.6450	STREETSCAPE AMENITIES (BENCHES, BIKE RACK, ETC.)	LS	1	$ 500,000.00	$ 500,000.00
900.6450	GREEN INFRASTRUCTURE & OTHER LANDSCAPING SOILS	LS	1	$ 1,000,000.00	$ 1,000,000.00
#6				LIGHTING & LANDSCAPING ITEMS SUBTOTAL:	$ 2,412,750.00
#7				INCIDENTAL ROADWAY ITEMS (15% OF #6):	$ 361,912.50
#8				**LIGHTING & LANDSCAPING CONSTRUCTION SUBTOTAL (SUM OF #6 THRU #7):**	**$ 2,774,662.50**
#9				635.1100 - MOBILIZATION / DEMOBILIZATION (16% OF #5 + #8):	$ 1,579,000.00
#10				641.1100 - TRAFFIC CONTROL, ALL-INCLUSIVE:	$ 2,000,000.00
#11				OVERALL CONSTRUCTION SUBTOTAL (#5 + #8 + #10 + #11):	$ 13,445,302.50
#12				CONTINGENCIES (25% OF #11)	$ 3,361,325.63
#13				**CONSTRUCTION ESTIMATE (#11 + #12):**	**$ 16,806,628.13**
#14				ENGINEERING & PERMITTING (20% OF #13):	$ 3,361,000.00
#15				CONSTRUCTION ENGINEERING (20% OF #13):	$ 3,361,000.00
				SUBTOTAL:	**$ 23,528,628.13**

2024 CONCEPTUAL ESTIMATE	**$ 23,600,000**
2030 CONCEPTUAL ESTIMATE (assuming 5% overall cost increase per year, compounded annually)	*$ 31,700,000.00*

VHB Computations

BATTERY STREET RECONSTRUCTION
CONCEPTUAL CONSTRUCTION ESTIMATE
VHB PROJECT NUMBER: 58644.11
ALTERNATIVE 2

CALCULATED BY: JCE
CHECKED BY: DMP
DATE: 1/15/2025

ITEM #	MAJOR ITEMS DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
ROADWAY & UTILITY WORK					
201.1000	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	1	$ 30,000.00	$ 30,000.00
203.1000	COMMON EXCAVATION	CY	20000	$ 25.00	$ 500,000.00
203.1600	SOLID ROCK EXCAVATION	CY	1000	$ 100.00	$ 100,000.00
301.2600	CRUSHED GAVEL, FINE GRADED	CY	7800	$ 70.00	$ 546,000.00
301.3500	DENSE GRADED CRUSHED STONE	CY	8800	$ 70.00	$ 616,000.00
406.3400	BITUMINOUS CONCRETE PAVEMENT, NON-PAVER PLACED, TYPE IVS	SY	800	$ 40.00	$ 32,000.00
406.0410	BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, QA TIER I	TON	6200	$ 150.00	$ 930,000.00
541.2200	CONCRETE, CLASS B	CY	150	$ 1,500.00	$ 225,000.00
601.0905	12 INCH CPEP	LF	510	$ 150.00	$ 76,500.00
601.0915	18 INCH CPEP	LF	510	$ 200.00	$ 102,000.00
604.1800	PRECAST REINFORCED CONCRETE PIPE DI WITH CAST IRON GRATE	EA	18	$ 7,000.00	$ 126,000.00
604.4102	REHABILITATING DIS, CATCH BASINS, OR MANHOLES, CLASS II	EA	21	$ 2,000.00	$ 42,000.00
616.2702	CAST-IN-PLACE CONCRETE CURB, TYPE B	LF	8100	$ 80.00	$ 648,000.00
618.1005	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	SY	3600	$ 150.00	$ 540,000.00
618.1008	PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH	SY	440	$ 180.00	$ 79,200.00
651.1500	TURF ESTABLISHLIMENT	SY	9750	$ 2.00	$ 19,500.00
651.3500	TOPSOIL	CY	1090	$ 60.00	$ 65,400.00
900.6750	BRICK PAVERS	SF	4200	$ 40.00	$ 168,000.00
#1				**ROADWAY & UTILITIES ITEMS SUBTOTAL:**	**$ 4,845,600.00**
#2				SIGNING & STRIPING (4% OF #1):	$ 193,824.00
#3				INCIDENTAL ROADWAY ITEMS (25% OF #1):	$ 1,211,400.00
#4				TRAFFIC SIGNAL UPDATES:	$ 750,000.00
#5				**ROADWAY & UTILITIES CONSTRUCTION SUBTOTAL (SUM OF #1 THRU #4):**	**$ 7,000,824.00**
LIGHTING & LANDSCAPING					
625.6000	WIRED CONDUIT	LF	6000	$ 30.00	$ 180,000.00
625.7021	PULL BOX, STANDARD	EA	36	$ 2,000.00	$ 72,000.00
656.2002	DECIDUOUS TREES, MEDIUM	EA	23	$ 750.00	$ 17,250.00
679.7000	STREET LIGHT ASSEMBLY (WHOLE UNIT)	EA	36	$ 12,000.00	$ 432,000.00
656.8500	TREE PROTECTION	LS	1	$ 10,000.00	$ 10,000.00
900.6450	SOIL CELL ALLOWANCE	LS	1	$ 200,000.00	$ 200,000.00
900.6450	STREETSCAPE AMENITIES (BENCHES, BIKE RACK, ETC.)	LS	1	$ 500,000.00	$ 500,000.00
900.6450	GREEN INFRASTRUCTURE & OTHER LANDSCAPING SOILS	LS	1	$ 1,000,000.00	$ 1,000,000.00
#6				LIGHTING & LANDSCAPING ITEMS SUBTOTAL:	$ 2,411,250.00
#7				INCIDENTAL ROADWAY ITEMS (15% OF #6):	$ 361,687.50
#8				**LIGHTING & LANDSCAPING CONSTRUCTION SUBTOTAL (SUM OF #6 THRU #7):**	**$ 2,772,937.50**
#9				635.1100 - MOBILIZATION / DEMOBILIZATION (16% OF #5 + #8):	$ 1,564,000.00
#10				641.1100 - TRAFFIC CONTROL, ALL-INCLUSIVE:	$ 2,000,000.00
#11				OVERALL CONSTRUCTION SUBTOTAL (#5 + #8 + #10 + #11):	$ 13,337,761.50
#12				CONTINGENCIES (25% OF #11)	$ 3,334,440.38
#13				**CONSTRUCTION ESTIMATE (#11 + #12):**	**$ 16,672,201.88**
#14				ENGINEERING & PERMITTING (20% OF #13):	$ 3,334,000.00
#15				CONSTRUCTION ENGINEERING (20% OF #13):	$ 3,334,000.00
				SUBTOTAL:	**$ 23,340,201.88**

CONCEPTUAL ESTIMATE	**$ 23,400,000**
2030 CONCEPTUAL ESTIMATE (assuming 5% overall cost increase per year, compounded annually)	*$ 31,400,000.00*

VHB Computations

BATTERY STREET RECONSTRUCTION
CONCEPTUAL CONSTRUCTION ESTIMATE
VHB PROJECT NUMBER: 58644.11
ALTERNATIVE 3

CALCULATED BY: JCE
CHECKED BY: DMP
DATE: 1/15/2025

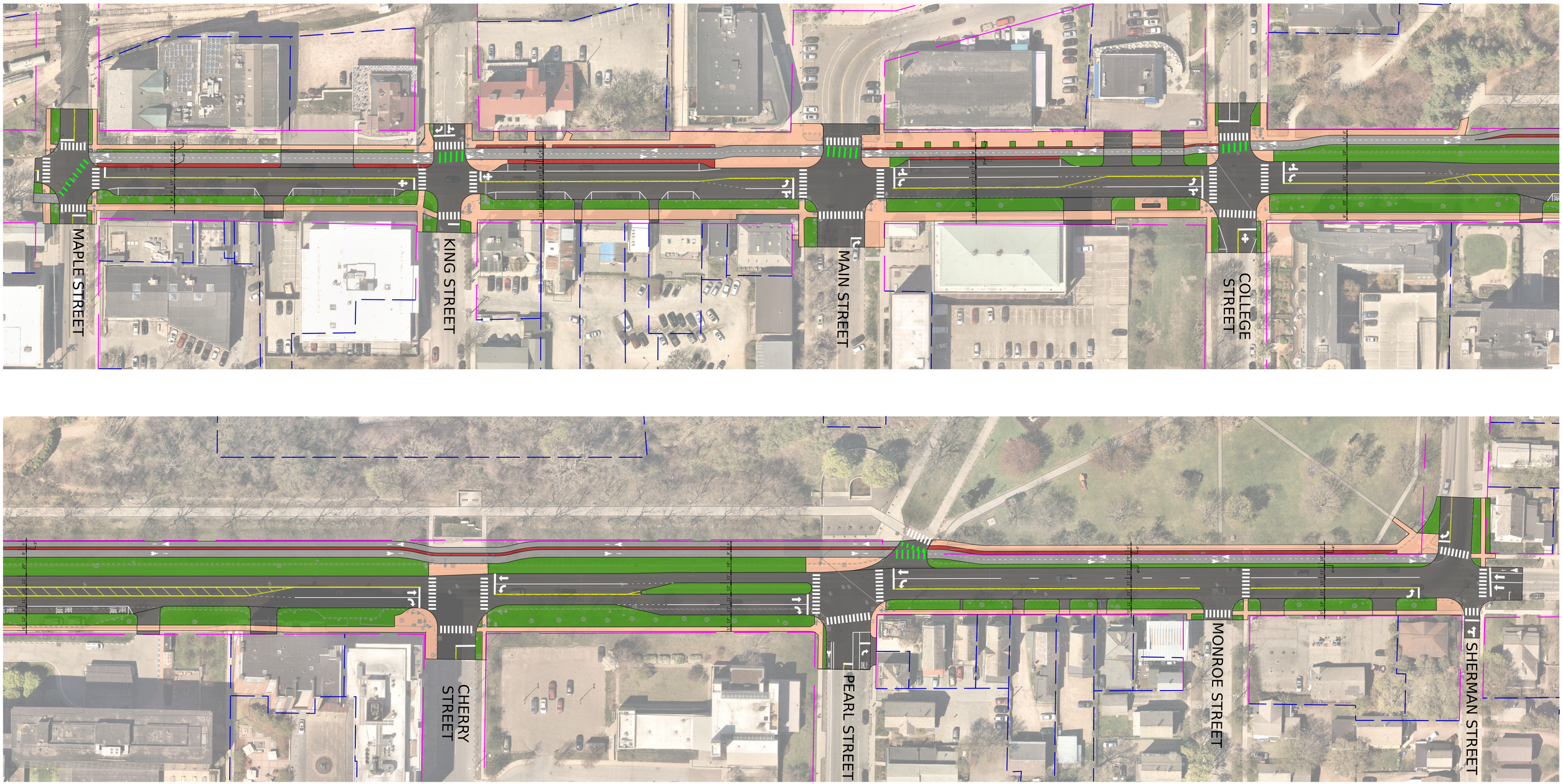
ITEM #	MAJOR ITEMS DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	COST
ROADWAY & UTILITY WORK					
201.1000	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	LS	1	$ 30,000.00	$ 30,000.00
203.1000	COMMON EXCAVATION	CY	22000	$ 25.00	$ 550,000.00
203.1600	SOLID ROCK EXCAVATION	CY	1100	$ 100.00	$ 110,000.00
301.2600	CRUSHED GAVEL, FINE GRADED	CY	7500	$ 70.00	$ 525,000.00
301.3500	DENSE GRADED CRUSHED STONE	CY	8700	$ 70.00	$ 609,000.00
406.3400	BITUMINOUS CONCRETE PAVEMENT, NON-PAVER PLACED, TYPE IVS	SY	600	$ 40.00	$ 24,000.00
406.0410	BITUMINOUS CONCRETE PAVEMENT, TYPE IVS, QA TIER I	TON	6200	$ 150.00	$ 930,000.00
541.2200	CONCRETE, CLASS B	CY	70	$ 1,500.00	$ 105,000.00
601.0905	12 INCH CPEP	LF	510	$ 150.00	$ 76,500.00
601.0915	18 INCH CPEP	LF	510	$ 200.00	$ 102,000.00
604.1800	PRECAST REINFORCED CONCRETE PIPE DI WITH CAST IRON GRATE	EA	18	$ 7,000.00	$ 126,000.00
604.4102	REHABILITATING DIS, CATCH BASINS, OR MANHOLES, CLASS II	EA	21	$ 2,000.00	$ 42,000.00
616.2702	CAST-IN-PLACE CONCRETE CURB, TYPE B	LF	6400	$ 80.00	$ 512,000.00
618.1005	PORTLAND CEMENT CONCRETE SIDEWALK, 5 INCH	SY	4900	$ 150.00	$ 735,000.00
618.1008	PORTLAND CEMENT CONCRETE SIDEWALK, 8 INCH	SY	390	$ 180.00	$ 70,200.00
651.1500	TURF ESTABLISHLIMENT	SY	7940	$ 2.00	$ 15,880.00
651.3500	TOPSOIL	CY	1000	$ 60.00	$ 60,000.00
900.6750	BRICK PAVERS	SF	4200	$ 40.00	$ 168,000.00
#1				**ROADWAY & UTILITIES ITEMS SUBTOTAL:**	**$ 4,790,580.00**
#2				SIGNING & STRIPING (4% OF #1):	$ 191,623.20
#3				INCIDENTAL ROADWAY ITEMS (25% OF #1):	$ 1,197,645.00
#4				TRAFFIC SIGNAL UPDATES:	$ 650,000.00
#5				**ROADWAY & UTILITIES CONSTRUCTION SUBTOTAL (SUM OF #1 THRU #4):**	**$ 6,829,848.20**
LIGHTING & LANDSCAPING					
625.6000	WIRED CONDUIT	LF	6000	$ 30.00	$ 180,000.00
625.7021	PULL BOX, STANDARD	EA	36	$ 2,000.00	$ 72,000.00
656.2002	DECIDUOUS TREES, MEDIUM	EA	33	$ 750.00	$ 24,750.00
679.7000	STREET LIGHT ASSEMBLY (WHOLE UNIT)	EA	36	$ 12,000.00	$ 432,000.00
656.8500	TREE PROTECTION	LS	1	$ 10,000.00	$ 10,000.00
900.6450	SOIL CELL ALLOWANCE	LS	1	$ 200,000.00	$ 200,000.00
900.6450	STREETSCAPE AMENITIES (BENCHES, BIKE RACK, ETC.)	LS	1	$ 500,000.00	$ 500,000.00
900.6450	GREEN INFRASTRUCTURE & OTHER LANDSCAPING SOILS	LS	1	$ 1,000,000.00	$ 1,000,000.00
#6				LIGHTING & LANDSCAPING ITEMS SUBTOTAL:	$ 2,418,750.00
#7				INCIDENTAL ROADWAY ITEMS (15% OF #6):	$ 362,812.50
#8				**LIGHTING & LANDSCAPING CONSTRUCTION SUBTOTAL (SUM OF #6 THRU #7):**	**$ 2,781,562.50**
#9				635.1100 - MOBILIZATION / DEMOBILIZATION (16% OF #5 + #8):	$ 1,538,000.00
#10				641.1100 - TRAFFIC CONTROL, ALL-INCLUSIVE:	$ 2,000,000.00
#11				OVERALL CONSTRUCTION SUBTOTAL (#5 + #8 + #10 + #11):	$ 13,149,410.70
#12				CONTINGENCIES (25% OF #11)	$ 3,287,352.68
#13				**CONSTRUCTION ESTIMATE (#11 + #12):**	**$ 16,436,763.38**
#14				ENGINEERING & PERMITTING (20% OF #13):	$ 3,287,000.00
#15				CONSTRUCTION ENGINEERING (20% OF #13):	$ 3,287,000.00
				SUBTOTAL:	**$ 23,010,763.38**

CONCEPTUAL ESTIMATE $ 23,100,000

2030 CONCEPTUAL ESTIMATE (assuming 5% overall cost increase per year, compounded annually) $ 31,000,000.00

Appendix G

Recommended Preferred Alternative Layout Plan



Battery Street Scoping Study

Recommended Preferred Alternative (Refined Alternative 2)

KIMBERLEE J. STURTEVANT, ESQ.
ACA, Director of Litigation
HAYLEY I. MCCLENAHAN, ESQ.
Assistant City Attorney
ERIK RAMAKRISHNAN, ESQ.
Assistant City Attorney
EMMETT WOOD, ESQ.
Assistant City Attorney

149 Church Street
Burlington, VT 05401-8489
Phone: (802) 865-7121
Fax: (802) 865-7123
TTY: (802) 865-7142

CITY OF BURLINGTON, VERMONT
OFFICE OF
THE CITY ATTORNEY
AND
CORPORATION COUNSEL

MEMORANDUM

To: Chair Barlow & Members of the Transportation, Energy, & Utilities Committee

From: Erik Ramakrishnan, Assistant City Attorney

Date: February 24, 2024

Re: Acceptance of Sidewalk Dedication from School Department

Construction of the new high school is underway. The site plan for the high school includes sidewalks along Institute Road and North Avenue. The sidewalks will be constructed to City standards, and DPW anticipates assuming maintenance obligations over the sidewalks. However, a portion of the sidewalks will be constructed outside the City's right of way, requiring the sidewalks to be dedicated to City to be accessible as public right of way.

To document the dedication and acceptance of the sidewalks, the School District's attorney and the City Attorney's Office worked out a process whereby the School District would offer the sidewalks for dedication by resolution of the School Board, and the City would accept the dedication by resolution of the City Council. The City Council's acceptance would be conditioned on the City Engineer's determination, once the sidewalks are completed, that they meet City standards and are covered under a one-year warranty for the City's benefit. Upon executing a certificate of acceptance, the City Engineer would record the resolutions in the land records.

The School Board adopted the dedication resolution on February 4, 2025. Your committee is now asked to sponsor the City Council's acceptance resolution.

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

Motions:

TEUC: To approve and recommend that the City Council waive the reading and adopt the proposed resolution accepting the School District's dedication of sidewalks to be located at the high school property along North Avenue and Institute Road.

City Council: To waive the reading and adopt the proposed resolution accepting the School District's dedication of sidewalks to be located at the high school property along North Avenue and Institute Road.

Resolution Relating to

ACCEPTANCE OF OFFER OF DEDICATION AND MAINTENANCE OBLIGATIONS FOR SIDEWALKS LOCATED AT HIGH SCHOOL PROPERTY, 52 INSTITUTE ROAD

RESOLUTION_____

Sponsor(s):

Introduced: TEUC

Referred to: _____

_____

Action: _____

Date: _____

Signed by Mayor: _____

DRAFT

CITY OF BURLINGTON

In the year Two Thousand Twenty-Five……

Resolved by the City Council of the City of Burlington, as follows:

That WHEREAS, the Board of School Commissioners has forwarded to the City Council the resolution attached hereto as **Exhibit A** (the "School Resolution"), making an irrevocable offer of dedication (the "Irrevocable Offer") of certain sidewalks more particularly described in the School Resolution (the "Sidewalks"); and

WHEREAS, the City Council desires for the City to accept the Irrevocable Offer upon completion of the Sidewalks and subject to the City Engineer's determination that the Sidewalks are constructed to City standards and are covered by a reasonably acceptable one (1) year construction warranty (the "City Conditions");

NOW, THEREFORE, BE IT RESOLVED that upon the completion of the Sidewalks, the City Engineer is directed to determine whether the City Conditions have been met and, if so, to execute the certificate attached hereto as **Exhibit B**; and

BE IT FURTHER RESOLVED that upon executing said certificate, the City Engineer is directed to record this resolution, signed by the Mayor and inclusive of both exhibits, in the Land Records, whereupon the public shall be deemed to enjoy the right of way and easement described in the School Resolution; and

BE IT FURTHER RESOLVED that thereafter the City shall assume the ongoing obligation to maintain the Sidewalks; provided that, the City assumes no special obligation to maintain the Sidewalks to a higher standard than the City's other sidewalks; and provided further that the School District shall have no special right to enforce any maintenance obligation, the effect of the City's assumption of said obligation being intended merely to relieve the School District of same.

Exhibit A
Executed Resolution Offering Dedication of Sidewalks

Resolution Relating to

PUBLIC DEDICATION OF SIDEWALK AT BURLINGTON HIGH SCHOOL PROPERTY, 52 INSTITUTE ROAD

RESOLUTION_____

Sponsor(s):
Introduced: _____
Referred to: _____
_____
Action: _____
Date: _____
Signed : _____

CITY OF BURLINGTON
BOARD OF SCHOOL COMMISSIONERS

In the year Two Thousand Twenty-Five..……

Resolved by the Board of School Commissioners of the City of Burlington, as follows:

That WHEREAS, a new high school building is currently under construction at the Burlington High School property, located at 52 Institute Road; and

WHEREAS, the site plan for the property, attached hereto as **Attachment 1**, includes sidewalks, five (5) feet in width, more or less, generally located along Institute Road and North Avenue in the approximate locations indicated on the site plan (the "Sidewalks"); and

WHEREAS, all or part of the Sidewalks will be located outside the Institute Road and North Avenue rights of way; and

WHEREAS, the School District intends that the Sidewalks will be constructed to City of Burlington standards; and

WHEREAS, the School District desires to make an irrevocable offer of dedication of the Sidewalks to the City of Burlington on behalf of the public, subject to the City's agreement to assume responsibility for their ongoing maintenance (the "Irrevocable Offer");

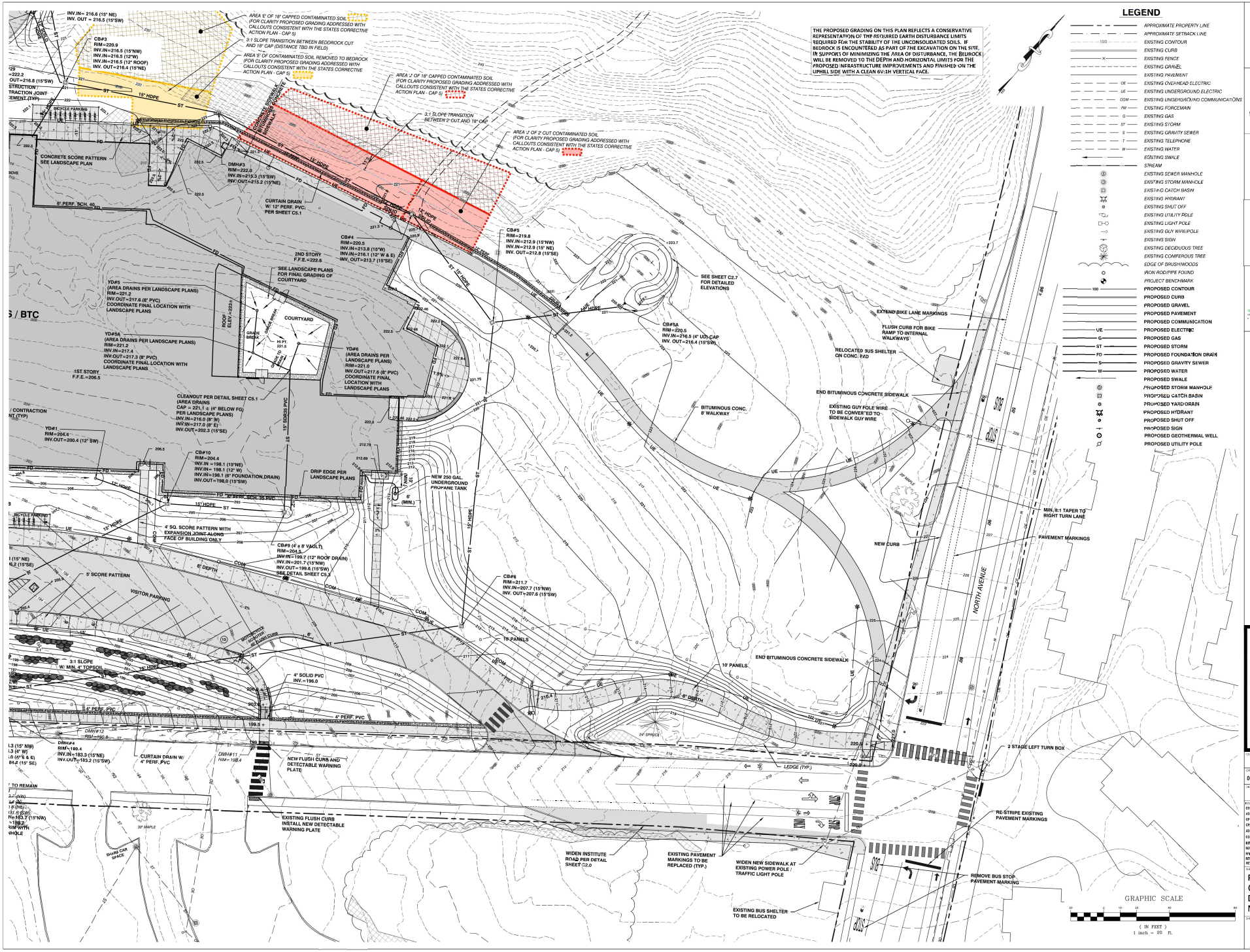
NOW, THEREFORE, BE IT RESOLVED that the Board of School Commissioners hereby makes the aforesaid Irrevocable Offer; and

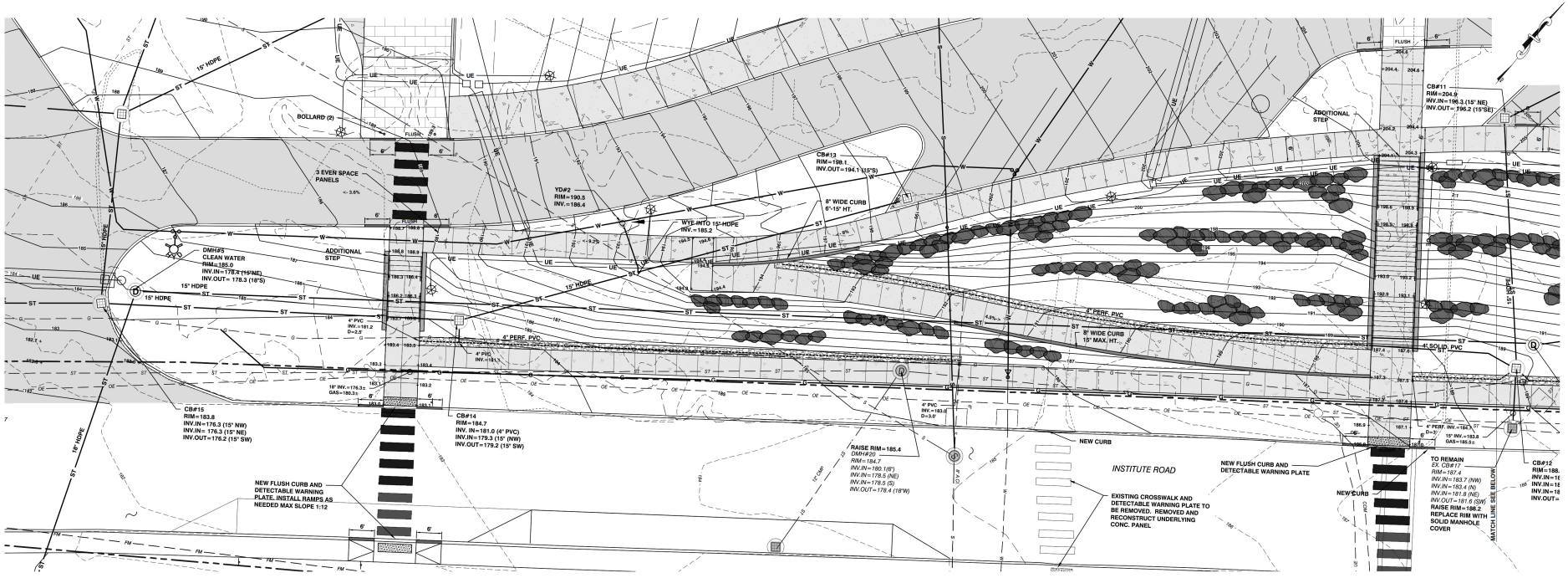
BE IT FURTHER RESOLVED that the City Council of the City of Burlington is hereby requested to adopt a resolution conditionally accepting the Irrevocable Offer, substantially in the form attached hereto as **Attachment 2** (the "Acceptance Resolution"), the provisions of which are incorporated herein by reference insofar as they pertain to the rights and obligations of the School District; and

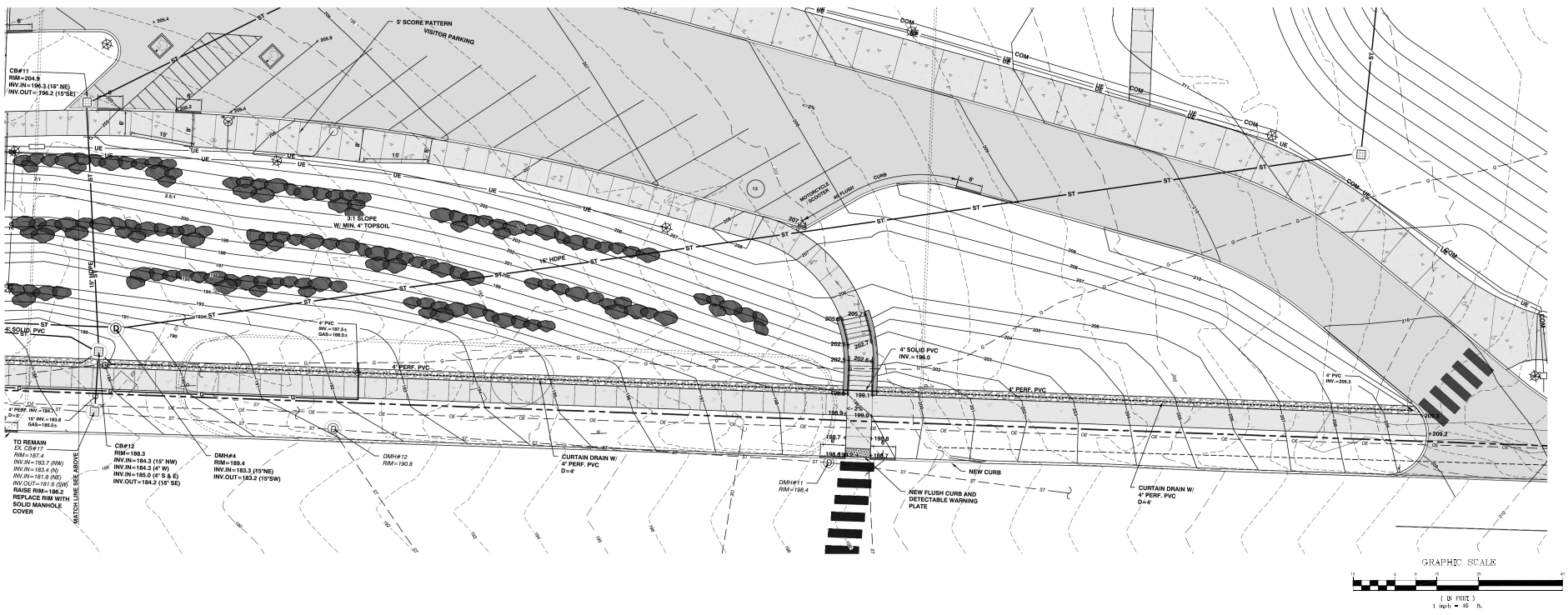
BE IT FURTHER RESOLVED that upon final acceptance of the Irrevocable Offer by the City, the City shall be responsible for ongoing maintenance of the Sidewalks, and the public shall be deemed to have a right of way and easement across and upon the Sidewalks, subject to the same rules as for the City's other sidewalks pursuant to any applicable statutes, ordinances, bylaws, or regulations; and

BE IT FURTHER RESOLVED that said right of way and easement shall be evidenced by recordation of the Acceptance Resolution with a signed copy of this Resolution attached thereto.

JM/Resolutions 2025/*Public dedication of sidewalk at BHS*
Date


LEGEND
APPROXIMATE PROPERTY LINE
APPROXIMATE SETBACK LINE
EXISTING CONTOUR
EXISTING CURB
EXISTING FENCE
EXISTING GRAVEL
EXISTING PAVEMENT
EXISTING OVERHEAD ELECTRIC
EXISTING UNDERGROUND ELECTRIC
EXISTING UNDERGROUND COMMUNICATIONS
EXISTING FORCEMAIN
EXISTING GAS
EXISTING STORM
EXISTING GRAVITY SEWER
EXISTING TELEPHONE
EXISTING WATER
EISTING SWALE
STREAM
EXISTING SEWER MANHOLE
EXISTING STORM MANHOLE
EXISTING CATCH BASIN
EXISTING HYDRANT
EXISTING SHUT OFF
EXISTING UTILITY POLE
EXISTING LIGHT POLE
EXISTING GUY WIRE/POLE
EXISTING SIGN
EXISTING DECIDUOUS TREE
EXISTING CONIFEROUS TREE
EDGE OF BRUSH/WOODS
IRON ROD/PIPE FOUND
PROJECT BENCHMARK
PROPOSED CONTOUR
PROPOSED CURB
PROPOSED GRAVEL
PROPOSED PAVEMENT
PROPOSED COMMUNICATION
PROPOSED ELECTRIC
PROPOSED GAS
PROPOSED STORM
PROPOSED FOUNDATION DRAIN
PROPOSED GRAVITY SEWER
PROPOSED WATER
PROPOSED SWALE
PROPOSED STORM MANHOLE
PROPOSED CATCH BASIN
PROPOSED YARD DRAIN
PROPOSED HYDRANT
PROPOSED SHUT OFF
PROPOSED SIGN
PROPOSED GEOTHERMAL WELL
PROPOSED UTILITY POLE
THE PROPOSED GRADING ON THIS PLAN REFLECTS A CONSERVATIVE REPRESENTATION OF THE REQUIRED EARTH DISTURBANCE LIMITS REQUIRED FOR THE STABILITY OF THE UNCONSOLIDATED SOILS. IF BEDROCK IS ENCOUNTERED AS PART OF THE EXCAVATION ON THE SITE, IN SUPPORT OF MINIMIZING THE AREA OF DISTURBANCE, THE BEDROCK WILL BE REMOVED TO THE DEPTH AND HORIZONTAL LIMITS FOR THE PROPOSED INFRASTRUCTURE IMPROVEMENTS AND FINISHED ON THE UPHILL SIDE WITH A CLEAN 6V:1H VERTICAL FACE.
AREA 'E' OF 18" CAPPED CONTAMINATED SOIL (FOR CLARITY PROPOSED GRADING ADDRESSED WITH CALLOUTS CONSISTENT WITH THE STATES CORRECTIVE ACTION PLAN - CAP 5)
3:1 SLOPE TRANSITION BETWEEN BEDROCK CUT AND 18" CAP (DISTANCE TBD IN FIELD)
AREA 'E' OF CONTAMINATED SOIL REMOVED TO BEDROCK (FOR CLARITY PROPOSED GRADING ADDRESSED WITH CALLOUTS CONSISTENT WITH THE STATES CORRECTIVE ACTION PLAN - CAP 5)
AREA 'J' OF 18" CAPPED CONTAMINATED SOIL (FOR CLARITY PROPOSED GRADING ADDRESSED WITH CALLOUTS CONSISTENT WITH THE STATES CORRECTIVE ACTION PLAN - CAP 5)
3:1 SLOPE TRANSITION BETWEEN 2' CUT AND 18" CAP
AREA 'J' OF 2' CUT CONTAMINATED SOIL (FOR CLARITY PROPOSED GRADING ADDRESSED WITH CALLOUTS CONSISTENT WITH THE STATES CORRECTIVE ACTION PLAN - CAP 5)
CB#3 RIM=220.9 INV.IN=216.5 (15"NW) INV.IN=216.5 (12"W) INV.IN=216.5 (12" ROOF) INV. OUT=216.4 (15"NE)
INV.IN= 216.6 (15" NE) INV. OUT = 216.5 (15"SW)
CONCRETE SCORE PATTERN SEE LANDSCAPE PLAN
DMH#3 RIM=222.6 INV.IN=215.3 (15"SW) INV.OUT=215.2 (15"NE)
6" PERF. SCH. 40
CURTAIN DRAIN W/ 12" PERF. PVC; PER SHEET C5.1
CB#4 RIM=220.5 INV.IN=213.8 (15"W) INV.IN=216.1 (12" W & E) INV. OUT=213.7 (15"SE)
CB#5 RIM=219.8 INV.IN=212.9 (15"NW) INV.IN=212.9 (15" NE) INV. OUT=212.8 (15"SE)
2ND STORY F.F.E.=220.5
SEE LANDSCAPE PLANS FOR FINAL GRADING OF COURTYARD
COURTYARD
ROOF ELEV.=223.1
GRADE BREAK
HI PT. 221.5
SEE SHEET C2.7 FOR DETAILED ELEVATIONS
CB#5A RIM=220.5 INV.IN=216.5 (4" UD) CAP INV. OUT=216.4 (15"SW)
EXTEND BIKE LANE MARKINGS
FLUSH CURB FOR BIKE RAMP TO INTERNAL WALKWAYS
RELOCATED BUS SHELTER ON CONC. PAD
END BITUMINOUS CONCRETE SIDEWALK
EXISTING GUY POLE WIRE TO BE CONVERTED TO SIDEWALK GUY WIRE
BITUMINOUS CONC. 8' WALKWAY
YD#5 (AREA DRAINS PER LANDSCAPE PLANS) RIM=221.2 INV.OUT=217.6 (8" PVC) COORDINATE FINAL LOCATION WITH LANDSCAPE PLANS
YD#5A (AREA DRAINS PER LANDSCAPE PLANS) RIM=221.2 INV.IN=217.4 INV.OUT=217.3 (8" PVC) COORDINATE FINAL LOCATION WITH LANDSCAPE PLANS
YD#6 (AREA DRAINS PER LANDSCAPE PLANS) RIM=221.0 INV.OUT=217.6 (8" PVC) COORDINATE FINAL LOCATION WITH LANDSCAPE PLANS
1ST STORY F.F.E.=206.5
CLEANOUT PER DETAIL SHEET C5.1 (AREA DRAINS CAP = 221.1 ± (6" BELOW FG) PER LANDSCAPE PLANS) INV.IN=216.0 (8" W) INV.IN=217.0 (8" E) INV.OUT=202.3 (15"SE)
YD#1 RIM=204.4 INV.OUT=200.4 (12" SW)
CB#10 RIM=204.4 INV.IN = 198.1 (15"NE) INV.IN= 198.1 (12" W) INV.IN=198.1 (6" FOUNDATION DRAIN) INV.OUT=198.0 (15"SW)
DRIP EDGE PER LANDSCAPE PLANS
NEW 250 GAL. UNDERGROUND PROPANE TANK
6" PERF. SCH. 35 PVC
4' SQ. SCORE PATTERN WITH EXPANSION JOINT ALONG FACE OF BUILDING ONLY
CB#9 (4' x 8' VAULT) RIM=204.5 INV.IN=199.7 (12" ROOF DRAIN) INV.IN=201.7 (15"NW) INV.OUT=199.6 (15"SW) SEE DETAIL SHEET C5.3
CB#6 RIM=211.7 INV.IN=207.7 (15"NW) INV. OUT=207.6 (15"SW)
5' SCORE PATTERN
VISITOR PARKING
3:1 SLOPE W/ MIN. 4" TOPSOIL
4" SOLID PVC INV.=196.0
4" PERF. PVC
DMH#12 RIM=200.8
DMH#4 RIM=190.4 INV.IN=183.3 (15"NE) INV.OUT=183.2 (15"SW)
CURTAIN DRAIN W/ 4" PERF. PVC
DMH#11 RIM=198.4
NEW FLUSH CURB AND DETECTABLE WARNING PLATE
EXISTING FLUSH CURB INSTALL NEW DETECTABLE WARNING PLATE
30" MAPLE
SHARE CAR SPACE
WIDEN INSTITUTE ROAD PER DETAIL SHEET C2.0
EXISTING PAVEMENT MARKINGS TO BE REPLACED (TYP.)
WIDEN NEW SIDEWALK AT EXISTING POWER POLE / TRAFFIC LIGHT POLE
EXISTING BUS SHELTER TO BE RELOCATED
MIN. 8:1 TAPER TO RIGHT TURN LANE
PAVEMENT MARKINGS
NEW CURB
NORTH AVENUE
10' PANELS
END BITUMINOUS CONCRETE SIDEWALK
6" DEPTH
2 STAGE LEFT TURN BOX
RE-STRIPE EXISTING PAVEMENT MARKINGS
REMOVE BUS STOP PAVEMENT MARKING
LEDGE (TYP.)
GRAPHIC SCALE
(IN FEET) 1 inch = 20 ft.
freeman | french | freeman
Colin Lindberg Architects
DRA
BURLINGTON HIGH SCHOOL & BURLINGTON TECHNICAL CENTER
52 INSTITUTE ROAD, BURLINGTON, VERMONT
DRA PROJECT NO. 21255
ORIGINAL ISSUE DATE: 06/23/2023
SCALE: 1" = 20'
DRAWN BY: MAB
CHECKED BY: DSM
ISSUE DATE
ED ISSUE - 06/23/2023
ADDENDUM #3 08/18/2023
CP1 09/29/2023
CP2 10/03/2023
ADDENDUM #4 11/02/2023
COST REDUCTION - NOV. 5 11/02/2023
RFI #31 (CO#1) 04/03/2024
RFI #34 (CO# 13) 04/16/2024
RFP #5-317 04/25/2024
RFI #39 34 (CO# 15) 05/22/2024
RFI #39 44 (CO# 25) 07/16/2024
SHEET CONTENTS
PARTIAL GRADING AND DRAINAGE - NORTH
SHEET NO.
C2.5





freeman | french | freeman

CLA

Collin Lindberg Architects

DRA

CIVIL ENGINEERING ASSOCIATES, INC.

BURLINGTON HIGH SCHOOL & BURLINGTON TECHNICAL CENTER

52 INSTITUTE ROAD, BURLINGTON, VERMONT

CEA PROJECT NO: 21255	
ORIGINATION DATE: 06/23/2023	SCALE: 1" = 10'
DRAWN BY: MAB	CHECKED BY: DSM
ISSUE LOG: RTM#205-GAS MAP1	11/15/2024

SHEET CONTENTS:

PARTIAL GRADING AND DRAINAGE INSTITUTE ROAD

SHEET NO:

C2.4A

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Exhibit B
Certificate of City Engineer

The undersigned hereby certifies that the City Conditions, as described in the resolution to which this Certificate is attached, have been satisfied, and that the Irrevocable Offer of the Sidewalks is hereby finally accepted.

By: _____
(City Engineer)

State of Vermont, County of Chittenden. This record was acknowledged before me on _____ (date) by _____, City Engineer.

Signature of Notary Public:

_____

Stamp or certificate number: _____
Title of office: _____
My commission expires: _____