Public Works Commission

Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM

6:30 pm, Main Conference Room, 645 Pine St OR Remotely via ZOOM:
Please click the link below to join the webinar:
https://us02web.zoom.us/j/83495330508
Or Telephone: Dial US: 301-715-8592 Webinar ID: 834 9533 0508
Channel 17 also often livestreams this on their YouTube channel and airs it over the air at a later date. Note that comments on YouTube are not monitored.

1. Call to Order

2. Agenda - 5 Minutes

2.1. Motion to amend/adopt agenda

3. Public Forum - 3 Minutes per Person Time Limit - 10 Minutes

4. Consent Agenda - 5 Minutes

4.1. Approval of Draft Minutes of 2-19-25

4.2. Hungerford Terrace Parking Chicane

4.3. No Turn on Red at Shelburne St & Home Ave

Subject	**4.4. Approval of Consent Agenda**
Meeting	March 19, 2025 - DPW Public Works Commission - Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM
Category	4. Consent Agenda - 5 Minutes
Department	Public Works Department
Type	Action (Consent)
Recommended Action	Approval of Consent Agenda

5. Battery Street Preferred Alternative Approval - 30 Minutes

Subject	**5.1. Communication, P. Peterson & J. Ursaski**

Meeting	March 19, 2025 - DPW Public Works Commission - Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM
Category	5. Battery Street Preferred Alternative Approval - 30 Minutes
Department	Public Works Department
Type	Action
Recommended Action	Motion to Approve

6. 2025 Paving Update - 15 Minutes

Subject	**6.1. Information - C. Manna**
Meeting	March 19, 2025 - DPW Public Works Commission - Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM
Category	6. 2025 Paving Update - 15 Minutes
Department	Public Works Department
Type	Information
Recommended Action	None

7. Director's Report - 10 Minutes

Subject	**7.1. Communication, C. Spencer**
Meeting	March 19, 2025 - DPW Public Works Commission - Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM
Category	7. Director's Report - 10 Minutes
Department	Public Works Department
Type	Information

8. Commissioner Items

9. Adjournment & Next Meeting Date - April 16, 2025

Subject	**9.1. Motion to adjourn**
Meeting	March 19, 2025 - DPW Public Works Commission - Wednesday, March 19, 2025, 6:30 PM, To Attend in Person - 645 Pine St. Main Conference Room OR REMOTELY via ZOOM
Category	9. Adjournment & Next Meeting Date - April 16, 2025
Department	Council and Board
Type	Action
Recommended Action	Motion to Adjourn

DEPARTMENT OF PUBLIC WORKS
645 PINE STREET
BURLINGTON, VERMONT 05401
COMMISSION MEETING FEBRUARY 19, 2025
DRAFT MINUTES
For video of the meeting, please visit Town Meeting TV's YouTube Channel:
https://www.youtube.com/watch?v=fLAyRGweCwE&list=PLljLFn4BZd2PwCge7lNoKug676jIf_iUA&index=4

Commissioners Present: Commissioner Barr, Vice Chair Fox, Commissioner Davis, Commissioner Munteanu, Commissioner O'Neill-Vivanco, Chair Damiani

Commissioner Absent: Commissioner Sears

ITEM 1 – CALL TO ORDER

Chair Damiani called the meeting to order at 6:31 p.m.

ITEM 2 – AGENDA

Commissioner Barr made a motion to approve the agenda
Commissioner Munteanu seconded.
Unanimous Approval.

ITEM 3 – PUBLIC FORUM

There was no one present for public forum

ITEM 4 – CONSENT AGENNDA

4.1 Approval of Draft Minutes 1-15-25
4.2 North Street Corridor Stop Signs

Commissioner Munteanu made a motion to accept the consent agenda
Commissioner Barr seconded
Unanimous Approval

ITEM 5 – FINAL BOND Q & A BEFORE THE 2025 TOWN MEETING DAY ELECTION

Director Chapin Spencer reviewed the Capital needs in the aging City.
Water/Wastewater Division Director Megan Moir reviewed the background on the proposed Water Resources Bond Request. Very happy to receive City Council Approval. City should be highly eligible for Pollution Control Grant funding. Continuing conversations about affordability programs**. Ashley Parker, Capital Program Director** reviewed the need for the 20 Million General Obligation Bond. Bond is really important to make our infrastructure sustainable and resilient. Tax impact is about 12.00 a month on a 500,000.00 home or about 140.00 a year.
Commissioner O'Neill-Vivanco asked what if this doesn't pass. What impacts will the City Face?
AP -Worst case we have to divvy it up and will limit what we can do**.**

Commissioner Munteanu asked how the money is allocated to Specific projects especially Street/Sidewalks. What is DPW requesting funding for and how will sidewalk and street needs be prioritized?
AP – Nothing is guaranteed funding – see chart in presentation.
Director Spencer stated that it would be very limiting trying to operate on the 2 million dollars authorized.
Chair Damiani thinks the items on the Capital Plan that Commission looks at would love to see the input and provide comments.
Commissioner Davis asking why this amount? Is there a reason we don't aim for a percentage rather than a fixed dollar amount? Impact Fees – does the Commission determine them? Prioritization of sidewalk repair?
AP – we share debt with School. Annual Authorizations are 2 million a year, looking to change the limit to 10 million to fit the needs of the City. 2013 borrowing limit changed from 1 million to 2 million. Impact fees will require changes to existing ordinance. Division Director Moir we have had conversations about having and authorized annual limit.
Commissioner Barr – What is the actual impact on constituents tax bills? Great job showing what it would be.
Vice Chair Fox – Future charter changes for Water Resources to be able to borrow consistently -Size of bonds is because maintenance has been deferred so long, super important and is one of the parts of the affordability problem.
Chair Damiani – Affordability program – Income sensitized, is there an easy way to show how that may change what they will be paying. Voting 10 days away, any last outreach?
Division Director Moir -Mayor's office running tax fairness committee
Public Information Manager Rob Goulding - Late last week postcards were sent to let everyone know what was going to be on the ballot. Waiting for ads from BCA that will be going out on social media.

Commissioner Barr made a motion to support all three Bonds. Commissioner O'Neill-Vivanco seconded. All in favor – Supported by Commission

ITEM 6 – FY'26 UPWP CITY APPLICATION

Senior Transportation Planner, Phillip Peterson presented proposed projects for inclusion in the FY'26 Unified Planning Work Program. This is Federal funding that covers planning only. 10 ongoing projects. Requesting support on two ongoing projects. Technical assistance on the Battery Street project and the City wide transportation plan which hasn't been updated since 2011. See packet for more detail.

Commissioner Munteanu asked how do you anticipate this program might change in the future and how is the City aiming to insure that the projects that have already started are coming to completion regardless of the different bodies of government?
Chair Fox positive comment when Public Works took over parking lots, great colorization.
Commissioner Barr – Great plan. Great stuff.
Chair Damiani - Planning documents are great.

Commissioner Barr made a motion to approve/support staffs proposed projects under the FY'26 Unified Planning Work Program

Commissioner O'Neill-Vivanco seconded
Vice Chair Fox – abstained
Commissioners Munteanu, Barr, O'Neill-Vivanco & Davis and Chair Damiani - Aye

ITEM 7 – DIRECTOR'S REPORT

- Commissioner Sears is stepping down.
- Shout out to teams who battled storm. Did a remarkably good job!
- Wastewater plants upgrades are underway.
- Battery Street next meeting.
- Bikeshare - Bird not returning.
- Next steps for bond outreach – videos coming out on social media
- Resolution of 201 Flynn Ave – City purchased the property.

ITEM 8 - COMMISSIONER ITEMS

Commissioner Davis appreciates snow ban alert efforts. Email link to parking information is broken. Post on Front Porch that Garages Full – what should one do if that happens? GPS on trucks to show when plowed. Snow Maintenance on Bike Path? Traffic Light on Lakeside issues with right turn only. Possibly cancel trash pickup during snow.
RG – Park early and other garages offer different prices.
Commissioner O'Neill-Vivanco – Email about stop signs on Foster taken care of? Great job on snow clean up. Noticing potholes. Looking forward to Battery Street discussion.
Commissioner Munteanu - Status of the quality of streets data portal - is it available to the public?
Commissioner Barr - Echo's on great clean up with everybody working together.
Vice Chair Fox – Echo on snow clean up. Communication was excellent. Relates to the General Obligation Bond – helps us buy equipment. Flynn Ave & Champlain Parkway – red light seems to lead to confusion when train is going by. Bike Lane across from BPD – Sherman St striped poorly. Flag for restriping.
Chair Damiani – Kudos to Phillip & Julia for coming to Rose St project. Kudos to storm clean up and notification. Felt bad that sidewalk plow operator had to keep stopping to move trash containers. Communication needed. BPD Academy public safety – encourage folks to learn about it.

ITEM 9 – ADJOURNMENT AND NEXT MEETING MARCH 19, 2025

Commissioner Barr made a motion to adjourn
Commissioner Munteanu seconded.
Unanimous approval

Meeting adjourned at 7:55 p.m.

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: March 19, 2025

To: Public Works Commission

From: Jack Keller, 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: Hungerford Terrace Parking Chicane

For your consideration, a draft motion to amend Appendix C is below:

To adopt the following proposed amendments to Appendix C, Rules and Regulations of the Traffic Commission, Sections 7 (No-parking areas) and 7A (Accessible spaces designated), of the Code of Ordinances of the City of Burlington, in relation to installing the Hungerford Terrace parking chicane. The Traffic Regulation is included in Attachment-1.

- Section 7 No-parking areas.
No person shall park any vehicle at any time in the following locations:

(1-21) As written.

(22) ~~Reserved.~~ On the west side of Hungerford Terrace beginning at Pearl Street and extending south two hundred seventy-two (272) feet.

(23-57) As written.

(58) On the east side of Hungerford Terrace ~~between Pearl and College Streets~~ beginning at Buell Street and extending north two hundred fifty-three (253) feet.

(59-134) As written.

(135) ~~Reserved.~~ On the west side of Hungerford Terrace between Buell Street and Bradley Street.

(136-312) As written.

(313) ~~Reserved.~~ On the west side of Hungerford Terrace beginning at College Street and extending north one hundred eighty-seven (187) feet.

(314) ~~Reserved.~~ On the east side of Hungerford Terrace beginning at Bradley Street and extending south one hundred sixty-two (162) feet.

(315-591) As written.

- Section 7A Accessible spaces designated.
  No person shall park a vehicle at any time in the following locations, except automobiles displaying special handicapped license plates issued pursuant to 18 V.S.A. § 1325, or any amendment or renumbering thereof:

  (1-47) As written.

  (48) ~~Two (2) spaces designated on the west side of Hungerford Terrace in front of 61 Hungerford Terrace and 65 Hungerford Terrace and extending forty (40) feet north.~~ Reserved.

  (49-173) As written.

Purpose and Need

The purpose of the proposed parking chicane is to dynamically manage curbside parking on Hungerford Terrace to address safety issues and reduce vehicle speeds on Hungerford Terrace. Based on existing speeds and crash data, this street qualifies for traffic calming treatments, per the criteria listed in the 2020 Traffic Calming Manual.

Project Checklist

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		Complies with MUTCD Standards
Aligns with City Plans?		X		2020 Traffic Calming Manual
Followed Public Engagement Plan?		X		This Traffic Regulation change is defined as an INVOLVE project in the Public Engagement Plan (PEP).

Background

The Department of Public Works (DPW) received a request from a resident concerning excessive vehicle speeds on Hungerford Terrace. The narrow geometry of this roadway combined with high-density on-street parking and a shared bicycle and vehicle travel lane, all make for heightened safety concerns when speeding occurs. After reviewing speed data, crash data, and City plans, DPW developed traffic calming plans to reduce vehicle speeds and improve safety for all users on Hungerford Terrace.

Currently, parking exists only on the west side of Hungerford Terrace. Moving parking to the east side of the street in three strategic, alternating locations creates lateral shifts or "chicanes" in the travel lane which in turn can produce a traffic calming effect. DPW installed a parking chicane on Bright Street in 2022, and traffic data showed that it reduced the 85th percentile traffic speed from 24 to 18 miles per hour. DPW has also recently implemented another parking chicane on Chase Street and a conventional chicane on East Avenue, which have both reduced 85th percentile traffic speeds by at least 5 miles per hour.

Given the locations of driveways on Hungerford Terrace, these parking changes will increase the number of parking spaces available on Hungerford Terrace by four total spaces. Additionally, with the reallocation of two underutilized ADA spaces on this street, there will also be two regular unrestricted parking spaces made available. These changes will thus help address concerns related to parking availability for residents in and around the Downtown area.

Observations

Hungerford Terrace is a single-vehicle travel lane, one-way street with existing on-street parking on the west side of the street. The Hungerford Terrace corridor is primarily mixed-use commercial and residential. The travel lane is shared by vehicles and bicyclists.

Hungerford Terrace currently has 27 total parking spaces between College St and Pearl St. The proposed design would provide 4 additional spaces for a total of 31 parking spaces.

Within the 27 total parking spaces, there are currently 2 designated ADA parking spaces in front of 61 Hungerford Terrace and 65 Hungerford Terrace. DPW has documented utilization of these ADA spaces over the last several weeks and has counted only one occasion where one of the spaces was filled. DPW has communicated with residents of adjacent properties, who reiterated the low utilization of these spaces. DPW staff also followed up with the residents who had requested these spaces and has received no response, implying that these two ADA spaces are no longer needed. We therefore propose to reallocate these spaces to regular unrestricted parking.

Public Engagement

Flyers containing an overview of the proposed parking chicane and contact information for DPW staff were delivered to residents and businesses on Hungerford Terrace and mailed to all affected property owners. DPW staff also reached out to the residents who initially requested the ADA spaces via email but received no response. DPW staff received three emails and two phone calls from the public with input on the proposed changes (see Attachment-3); three of the responses expressed their support

for the project, and one questioned the need for a parking chicane. The remaining response expressed concerns with the ability of trash removal services to enter their driveway; these concerns were addressed by DPW staff.

Conclusion

Based on current speed data and crash data, there is a need for traffic calming on Hungerford Terrace to reduce vehicle speeds and improve safety for all users. We recommend moving parking from the west side to the east side of Hungerford Terrace in three locations (between Pearl Street and 21 Hungerford Terrace, between Buell Street and Bradley Street, and between 83 Hungerford Terrace and College Street), thus creating a parking chicane. In addition to reducing speeds, this parking change will also increase total parking capacity for this high-density residential street. We also recommend reallocating two underutilized ADA designated parking spaces to regular unrestricted parking, further increasing parking availability for other residents. This parking chicane is a tactical solution that will improve safety and can be installed rapidly and within the capacity of the City's current staff and funding resources.

Implementation Approach and Timeline

If the parking chicane is approved by the Public Works Commission, our traffic team would install the change in the coming weeks as seasonal conditions allow, and once the regulation is posted for the requisite period.

Attachments

1. Traffic Regulation Amendment.
2. Parking Chicane Layout.
3. Public input

Attachment 1: Traffic Regulation Amendment.

CITY OF BURLINGTON

In the Year Two Thousand Twenty-five

A Regulation in Relation to

Rules and Regulations of the Traffic Commission—
Section 7 No parking areas., 7A Accessible spaces designated.

Sponsor(s): Department of Public Works
Action: _____
Date: _3/19/2025_____
Attestation of Adoption:

_____
Phillip Peterson, PE
Public Works Engineer, Technical Services
Published: _____
Effective: _____

It is hereby Ordained by the Public Works Commission of the City of Burlington as follows:

That Appendix C, Rule and Regulations of the Traffic Commission, Section 7, No-parking areas. and Section 7A, Accessible spaces designated., of the Code of Ordinances of the City of Burlington is hereby amended as follows:

Section 7 No-parking areas.

No person shall park any vehicle at any time in the following locations:

(1-21) As written.

(22) ~~Reserved.~~ On the west side of Hungerford Terrace beginning at Pearl Street and extending south two hundred seventy-two (272) feet.

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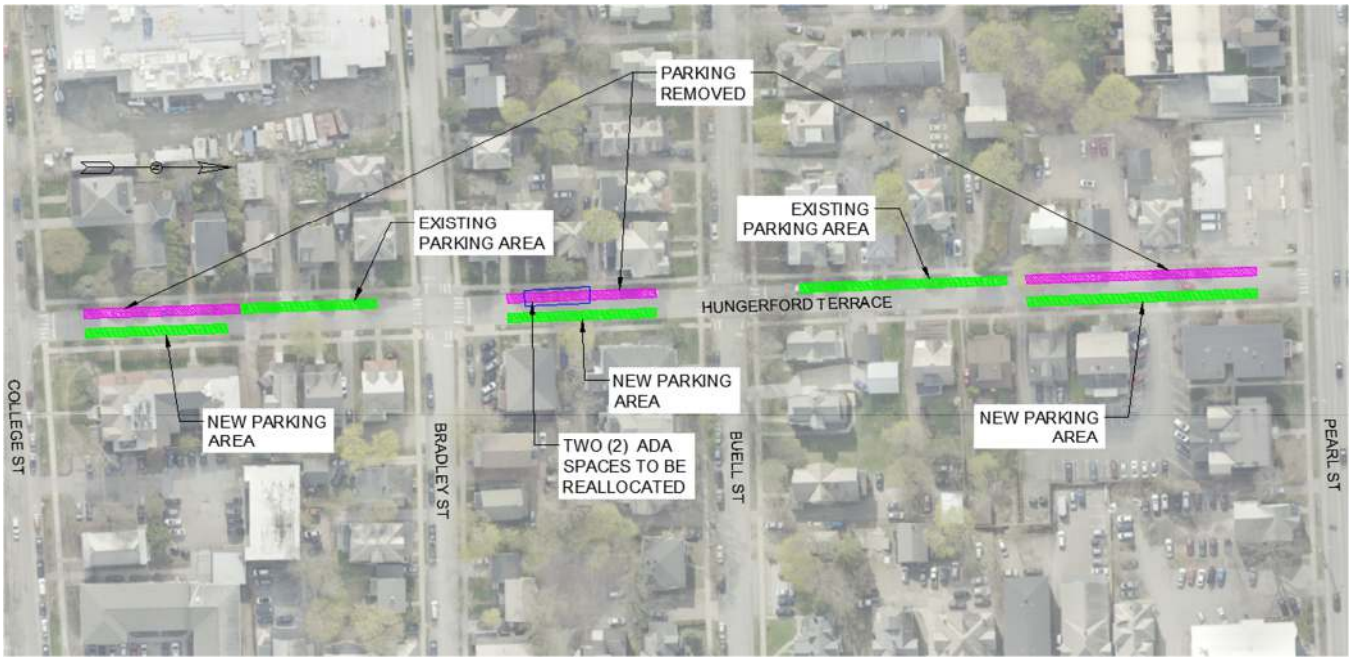
(49-173) As written.

** Material stricken out deleted.
*** Material underlined added.

TD: BCO Appx.C, Section 7 & 7A
03/19/2025

Attachment 2: Parking Chicane Layout.



Attachment 3: Public Input.

Resident Email #1: Jordan Mitchell

Good afternoon DPW staff and Public Works Commission,

I am writing in response to a paper flier left in my door about the proposed parking changes on Hungerford Terrace. Thank you for the note, as I was unaware of the project proposal otherwise.

My name is Jordan and I have been a resident at 99 Buell Street (intersection of Buell and Hungerford Terrace) for four years. I am in support of the proposed changes with no comments or questions. 1) Adding the parking chicane would assist with the slowing of traffic speed, which is a general concern. 2) I see the two ADA parking spaces outside my living room window and cannot recall a time when both spots were being utilized, and rarely see one of the spots used. Of course, if someone in the area needs those parking spaces, I am glad they are available, but I do not see them being used. 3) The addition of five parking spaces would be greatly appreciated. As a resident who relies on street parking, it can be difficult to find parking certain times of day, such as when the Y (College Street) is busy. Also, City Market employees are not allowed to park in the business lot, and are instructed to park on Buell or Hungerford for non-metered parking, which also adds parking congestion to the area.

I do have one question: why is the section of Hungerford between Bradley and College resident permit-only parking (certain times of day)? Is there the possibly that would be removed with this new parking plan?

Thank you for the work that you do! Please reach out if you have any questions.

Resident Email #2: Frank Donath

The blocks are not very long and have a stop sign at each intersection - not conducive to speeding. I can't imagine the need for a chicane and as I see the one on East Avenue, it's a waste of money. My property is on the corner of Buell & Hungerford - my tenants don't see any sp[eedinmg or reckless driving
Any additional parking would be welcomed by the residence

Resident Phone Call #1: Maddy Pozick

I spoke on the phone on 3/12/2025 with a resident of Hungerford Terrace between College St and Bradley St. They expressed an opinion that traffic calming isn't needed in the area and concerns about the following topics: how parking will be controlled at locations in locations where the parking is switched to the other side of the street mid-block; backing out of their driveway with new parking configurations; and whether the new parking configuration would obstruct plowing on the street. Ms. Pozick was supportive of increased street parking on Hungerford Terrace.

Resident Phone Call #2: Mark Farrell

I spoke on the phone with Mark Farrell, property owner on Hungerford Terrace, on 3/7/2025. Mr. Farrell had questions about the layout of the proposed changes which were answered by DPW staff. He did not have any major concerns and was supportive of increased street parking on Hungerford Terrace.

Resident Email Correspondence #3: Hinsdale Properties

From: Hinsdale Properties

Good Morning,

I'm following up on a message I left your office this morning regarding the proposed changes to street parking on Hungerford Terrace.

Shifting the spots from the west to the east side on the north end of Hungerford Terrace will dramatically reduce the accessibility of the parking lot we have at 10 Hungerford Terrace. This 42 spot lot must also be accessible by Casella trucks that currently have to drive over the curb to access our lot as the curb cut is inadequately sized.

If parking was placed on the east side of the street, a parked vehicle close to our curb cut would make it impossible for our trash/recycling/compost to be serviced at the property. Additionally, even one illegally parked car on the street block our driveway could deny access for 42 cars in our lot.

Please let me know if someone from your office would like to make a site visit so we can discuss in person.

From: Jack C. Keller

Good Afternoon,

Thank you for reaching out regarding the proposed parking changes on Hungerford Terrace.

The installation of parking chicanes is a proven traffic calming measure that reduces vehicle speeds by requiring drivers to navigate around strategically placed parked cars. We have successfully implemented similar projects on other streets in Burlington, improving safety for all road users while maintaining on-street parking availability.

Regarding your concerns about driveway access, we looked into it and have run some turning movement models on your driveway onto Hungerford Terrace. It does seem that your driveway width is inadequate for commercial use and, according to what we found, doesn't accommodate a garbage truck turning radius in either parking configuration. We don't normally do this but in this case we would be willing to give you a commercial grade 24 foot curb cut at that driveway entrance to increase accessibility there.

That said, if a vehicle is ever blocking your driveway, it is subject to towing. Any vehicle parked within two feet of the straight-line edge of a driveway entrance is subject to a $150 fine. Although this should be less of a concern if the driveway width is increased.

We appreciate your input and will take your concerns into account. Please get back to me if you would like us to move forward with increasing your driveway width to 24 ft and we will update you about further steps.

On Thu, Mar 13, 2025 at 10:51 AM Jack C. Keller <jckeller@burlingtonvt.gov> wrote:

I'm sorry, to clarify: we would permit widening your driveway to a 24 ft curb cut. The City would not be doing this work.

Thank you,

Jack Keller, P.E.

From: Hinsdale Properties <hinsdaleproperties@gmail.com>
Hi Jack,
We would like to move forward with widening the curb cut to 24 feet. Please let me know what the next steps are.
From: Phillip Peterson, DPW
Hi Jacob,
I've included Alice Schwencke, DPW Excavation Inspector, in this conversation. She can assist you with your curb cut permit.
Thanks for your flexibility!
Best,
Phillip Peterson P.E.
Senior Transportation Planner

Resident Email Correspondence #4: DPW Outreach to Robert Neale about ADA Spaces
(No response received)

From: Phillip Peterson

Hi Robert,

I wanted to follow up on our previous conversation regarding the ADA parking spaces on Hungerford Terrace. Over the past month, we have been collecting data on the use of these spaces, and with the exception of one morning, we have not observed any vehicles parked in them. On that one occasion, the vehicle did not appear to have an ADA placard or plate, indicating it may have been parked illegally. This data is important as we continue to assess the balance of parking needs in the neighborhood.

In addition, we are evaluating a potential change in parking to the opposite side of the street to create a **parking chicane**—a strategy that has been successfully implemented in other areas of the city. A chicane involves staggered parking to create a natural traffic-calming effect, encouraging lower speeds while maintaining parking availability. Speed data from other locations where we have introduced this treatment shows measurable reductions in vehicle speeds, which improves safety for all road users, including pedestrians and cyclists. This is important because parking along this one block section would be switched to the other side of the street.

We will most likely bring this proposal—including the parking chicane and the removal of both ADA spaces—to the **Public Works Commission in March** for consideration. Here is a link with details on the upcoming meeting and more information about the Commission: https://www.burlingtonvt.gov/598/Public-Works-Commission.

I recognize that parking is a critical issue for you and appreciate your ongoing engagement. We will continue to monitor the demand for ADA parking and the overall parking dynamics on Hungerford Terrace to ensure equitable access for all residents.

Please feel free to reach out if you'd like to discuss this further.

Regards,

Phillip Peterson P.E.
Senior Transportation Planner

City of Burlington
Department of Public Work

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: March 19, 2025

To: Public Works Commission

From: Julia Ursaki, PE, Public Works Engineer

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

Subject: No Turn on Red at Shelburne Street/Home Ave

Staff Recommendation:

Following the City Council's adoption of the Shelburne Street, Home Avenue, and Farrell Street Intersection Scoping Study, the Department of Public Works (DPW) recommends implementing no turn on red at all times for Home Avenue and Farrell Street at Shelburne Street.

Staff recommend the DPW Commission pass the below motion amending Appendix C as follows:

> "To adopt the below proposed amendments to Appendix C, Rules and Regulations of the Traffic Commission, Section 20 (Prohibition of turns on red signal), of the Code of Ordinances of the City of Burlington, in relation to implementing a no turn on red on Home Avenue and Farrell Street at Shelburne Street.
>
> - Section 20 Prohibition of turns on red signal.
>
> Notwithstanding any general authorization otherwise contained in the statutes of the State of Vermont, the ordinances of the City of Burlington or the regulations of the board of traffic commissioners, it shall be unlawful at the following intersections within the City of Burlington for an operator of a motor vehicle to make a right-hand turn against a traffic signal which is indicating red:

(b) At times when an illuminated sign indicating "No Turn On Red" is displayed to drivers at the following locations:

(1-21) As written.

(22) Home Avenue and Shelburne Street, eastbound.

(23) Farrell Street and Shelburne Street, westbound.

Purpose & Need:

The purpose of this request is to prohibit right turns on red for vehicles on Home Ave and Farrell Street turning onto Shelburne Street during the pedestrian phase. The need for this change is to reduce the number of conflicts between right-turning vehicles and pedestrians crossing the street, especially when DPW implements the exclusive pedestrian phase at this intersection, as recommended in the Shelburne Street, Home Ave, and Farrell Street Intersection Scoping Study.

Project Checklist:

	N/A	Yes	No	Reference
Aligns with MUTCD standards and/or established City Policy?		X		MUTCD Section 2B.60
Aligns with City Plans?		X		Shelburne/Home/Farrell Intersection Scoping Study
Followed Public Engagement Plan?		X		This change is defined as an INFORM project in the Public Engagement Plan (PEP).

Background:

The right turn restriction and exclusive pedestrian phase are recommendations from the Shelburne St, Home Ave, and Farrell St Intersection Scoping Study, which was adopted by the City Council on December 9, 2024. This study was a collaboration between Burlington DPW, the CCRPC, the City of South Burlington, and our engineering consultant Stantec, and was funded through the CCRPC's Unified Planning Work Program (UPWP).

Purpose: The purpose the project was to develop concepts to improve intersection safety and operations to meet the needs of pedestrians, cyclists, motorists, and transit users at the intersection of Shelburne Street, Home Avenue, and Farrell Street.

Need: Recognizing the importance of this intersection in the transportation system for the Cities of Burlington and South Burlington, the following needs for the project were identified:

1. *There is a need to improve pedestrian safety in crosswalks:* This intersection is listed as one of the Top 20 priority intersections for safety upgrades in planBTV Walk Bike (2017). The key problem listed is turning motorists not yielding to pedestrians in crosswalks.
2. *There is a need to improve pedestrian connectivity through and around the intersection and bike connectivity between Home Avenue and Farrell Street*: Home Avenue is identified in planBTV Walk Bike (2017) as a significant walk-bike route in the southern part of the city, giving access from Shelburne Street to Pine Street and recreation areas like Oakledge Park. The intersection is also the western terminus of the South Burlington Recreation Path network. Public webmap feedback from the 2022 CCRPC Active Transportation Plan identified this intersection as an existing barrier to active transportation.
3. *There is a need to address existing congestion at the intersection during peak travel periods:* Intersection capacity analysis results indicate traffic backs up significantly on the Shelburne Street approaches, extending past the signalized intersection to the south and past the next two minor street approaches to the north with Bacon Street and Scarff Avenue.
4. *There is a need to mitigate factors that contribute to a high number of crashes:* This intersection is located within a High Crash Section between the I-189 off ramp and Hadley Road with 128 crashes during the 2012-2016 period. There was a fatal crash at this intersection in 2018.
5. *There is a need to enhance transit facilities:* The intersection is located adjacent to busy commercial centers and dense residential neighborhoods and is on a primary transit line connecting Burlington to South Burlington and Shelburne. Both northbound and southbound bus stops have limited bicycle parking and need improved pedestrian facilities connecting to the nearby destinations.

Preferred Alternative Recommendation

The preferred alternative is to implement an exclusive pedestrian phase with no turn on red at the Shelburne/Home intersection along with other short- and medium- term improvements to the intersection. The preferred alternative prioritizes pedestrian and bicycle safety while maintaining acceptable levels of traffic congestion in the area. Traffic models analyzed by the project team show that this change in pedestrian phasing will not have an undue traffic impact to this corridor, with the average vehicle delay increasing from 32.6 seconds to 34.9 seconds. Vehicle queueing is also not expected to change significantly throughout the corridor with this change.

The additional short- and medium- term changes include:

- Removing and building new sidewalk segments to improve pedestrian circulation around the intersection
- Re-striping Shelburne Street to add more lane storage for northbound left turns from Shelburne Street to Home Avenue
- Re-striping the Home Avenue approach with an eastbound bike lane and westbound sharrows (complimenting a separate DPW initiative to add painted bike lanes on Home Avenue)
- Testing adjustments to the curb radii to shorten pedestrian crossings and reduce vehicle speeds (in collaboration with South Burlington)
- *For South Burlington,* closing two of the entrances to Walgreens and re-aligning Farrell Street

The Chittenden County Regional Planning Commission also reviewed the signal timing and phasing throughout the Shelburne Street corridor in Burlington. With our additional capabilities from hardware installed this year, DPW will also implement signal coordination for the study intersection and the two nearby signals (Shelburne Street/Gateway Plaza and Shelburne Street/I-189 Ramp C) that operate very closely together.

The traffic signal equipment at this intersection was recently upgraded as part of the Class 1 paving project in 2023. This gives us more capabilities with the signal timing to implement these recommendations. We are also coordinating with the Champlain Parkway construction conditions, which have added traffic onto Home Avenue with the closure of Pine Street before the Champlain Parkway connects to I-189.

Longer term, DPW expects traffic patterns to change on this portion of Shelburne Street when the Champlain Parkway is fully open, so this project is only recommending short term changes to the intersection that DPW can implement quickly. DPW expects to pursue a more comprehensive study of this intersection that evaluates long-term options as part of a corridor study for Shelburne Street after the Champlain Parkway is open and traffic patterns normalize.

Next Steps:

If approved by the Public Works Commission, DPW Traffic will install the no turn on red signs in the coming months. The exclusive pedestrian phase will also be implemented at this signal in spring or summer of this year.

Attachments:

1. Traffic Regulation

CITY OF BURLINGTON

In the Year Two Thousand Twenty-four

A Regulation in Relation to

Rules and Regulations of the Traffic Commission—
20 Prohibition of turns on red signal.

Sponsor(s): Public Works Commission
Action: _____
Date: _____
Attestation of Adoption:

_____
Phillip Peterson, PE
Senior Transportation Planner, Technical Services
Published: _____
Effective: _____

It is hereby Ordained by the Public Works Commission of the City of Burlington as follows:

That Appendix C, Rule and Regulations of the Traffic Commission, 20 Prohibition of turns on red signal of the Code of Ordinances of the City of Burlington is hereby amended as follows:

20 Prohibition of turns on red signal.

Notwithstanding any general authorization otherwise contained in the statutes of the State of Vermont, the ordinances of the City of Burlington or the regulations of the board of traffic commissioners, it shall be unlawful at the following intersections within the City of Burlington for an operator of a motor vehicle to make a right-hand turn against a traffic signal which is indicating red:

(b) At times when an illuminated sign indicating "No Turn On Red" is displayed to drivers at the following locations:

(1)-(21) As written.
(22) Home Avenue and Shelburne Street, eastbound.
(23) Farrell Street and Shelburne Street, westbound.

** Material stricken out deleted.
*** Material underlined added.

BCO Appx.C, Section 20
3/19/25

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: March 19, 2025

To: Public Works Commission (PWC)

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 PWC approve the following motion:

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

Preferred Alternative Recommendation

The Project Advisory Committee and Project Team recommend a two-way separated bike lanes along the west-side of Battery Street as the preferred alternative. It also includes a lane reconfiguration that reduces the number of lanes from four to three, shortened pedestrian crossings, traffic signal improvements, and space for additional Great Streets design elements like green stormwater infrastructure, healthy street trees, benches, and public art. Attachment 1 is an executive summary of the report and includes a graphic of the preferred alternative.

The two-way separated bike lanes are recommended 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.

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.

Important to note, survey results indicated a preference for Alternative 2, with 64% of respondents favoring the two-way separated bike lanes or liked both alternatives equally. Public meeting attendees consistently emphasized the need for improved pedestrian safety at intersections, which influenced the inclusion of extended leading pedestrian intervals and shorter crossing distances at all intersections.

Purpose & 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 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, in its Long-Term Plan, 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.

Public Engagement

A Project Advisory Committee (PAC) served as a key stakeholder group throughout the project, offering input at every stage of the study. Comprising representatives from city agencies, green mountain transit, advocacy groups, the Burlington business association, and NPA representatives, the committee provided valuable insights to be sure the study reflected community priorities. The PAC met four times throughout the study to provide input on the vision for the Battery Street corridor, alternatives development, alternative refinement, and selecting a preferred alternative. Alternative 2 was ultimately selected as the preferred alternative by the PAC.

The broader 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 selecting the Preferred Alternative.

- Local Concerns Meeting (May 2023): this meeting introduced the project to the public and solicited input on existing conditions and desired improvements. 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, and concerns about maintaining parking for businesses and residents.
- Draft Alternatives Meeting (March 2024): the Draft Alternatives Presentation showcased two initial design concepts (Alternatives 1 and 2). 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, and general support for traffic calming measures, including the proposed road diet.
- Public Surveys (April 2023 and March 2024): the first survey gathered general feedback on the corridor and asked participants where they observed issues or opportunities for improvement along Battery Street. The second survey asked participants to determine which alternative they prefer. The survey indicated a preference for Alternative 2.

Alternative Analysis

This study evaluated three alternatives, including:

- Alternative 1: One-way separated bike lanes (on either side of the street)
- Alternative 2: Two-way separated bike lanes (on the west side of the street)
- Alternative 3: Hybrid of 1 & 2, with a two-way separated bike lane between Maple Street and Main Street, and one-way separated bike lanes between Main Street and Sherman Street.

All alternatives include a lane reconfiguration on Battery Street, however, the traffic signal timing differs among the alternatives based on the need to provide different types of phasing for bicyclists to safely cross intersections. Alternative 2 meets the purpose and need of this project to the greatest extent of all options considered.

Implementation Approach and Timeline

<u>Short Term (within 5 years)</u>

- Implement the road diet and bike lanes with signing, pavement markings and signal modifications between Main Street and Pearl Street.
- Initiate preliminary engineering & design

Long Term (within 10 years)

- Secure construction funding
- Begin construction

The preliminary cost estimate for Alternative 2 is approximately $31.4 million, covering design, engineering, and construction. Potential funding sources include federal transportation grants, local bond measures, and partnerships with state agencies. Developing a detailed funding strategy will be a priority during the preliminary engineering phase.

Next Steps

- The Transportation, Energy, and Utilities Committee (TEUC) of the City Council approved the preferred alternative at their meeting on February 24, 2025.
- DPW staff will bring the preferred alternative to City Council for approval on March 24, 2025.
- DPW applied for UPWP funding review the existing signals and changes needed to implement the road diet in the near term. This effort will be underway during fiscal year 2026.

Attachments

1. Executive Summary
2. Scoping Report

Battery Street Scoping Study

Executive Summary

Burlington, Vermont

PREPARED FOR

Chittenden County RPC
Communities Planning Together

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PREPARED BY

vhb

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

FEBRUARY 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

In the interest of being as equitable as possible during community outreach, 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, 31% to biking, 19% to driving, 10% to other modes, and 8% to crossing points,.

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 presented the findings of the scoping study as well as the recommended preferred alternative to the TEUC on Tuesday, January 28, 2025. The report was updated based on input from the TEUC. These revisions included updates to the Targeted Outreach and Alternatives Analysis sections. The recommended preferred alternative was also updated based on TEUC and public input; these updates are summarized below under, "Preferred Alternative".

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 was developed at the request of the AC and 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 (formerly retaining 27 spaces, now retaining 39) retains more on-street parking than Alternative 1 (13 spaces). Please see further updates below in the summary of the January 28, 2025 TEUC meeting regarding additional revisions made to on-street parking layout.

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 between the two-way bike lanes near Battery Park to address concerns about varying cyclist speeds on steeper 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.

Lastly, following the presentation to the TEUC on January 28, 2025, the recommended preferred alternative was further refined based on TEUC input, and additional public feedback. Specific refinements included:

› Parking is now maintained on both sides of Battery Street between Maple Street and Main Street, retaining 39 of the existing 42 parking spaces. This revision is feasible by reducing the amount of green space and removing several trees on the east side of Battery 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.

› Just south of Cherry Street, left-turn pockets in the southbound direction have been added for improved access to the hotels.

› The loading zone in front of the Courtyard Marriott has been restored.

The refined 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 Battery Street could be implemented in phases, depending on the availability of funding and progress on adjacent projects. 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 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**

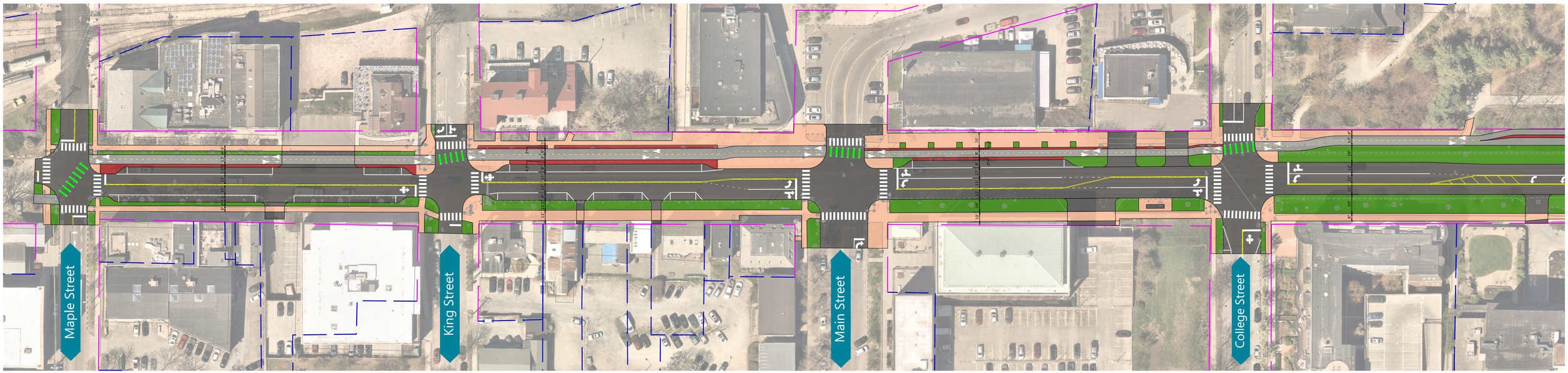
- Incorporate the road diet and separated bike lanes into planned updates to pavement markings or repaving, providing an opportunity to initiate improvements while design work continues.
- Leverage the City's Quick Build Design + Materials Standard Guide

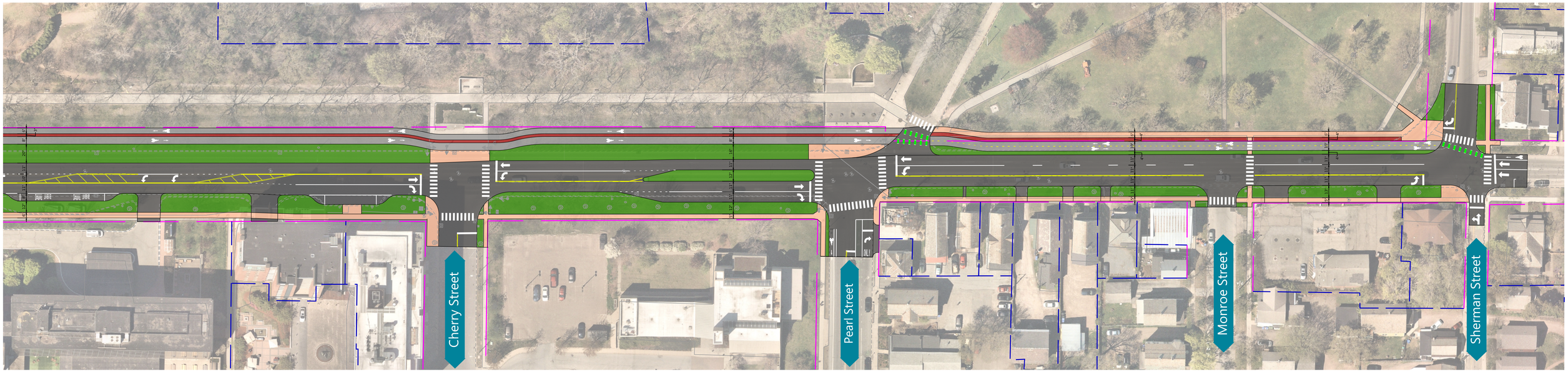
› **Finalize engineering design**

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.





Battery Street Scoping Study

Preferred Alternative (Refined Alternative 2)

0 50 Feet

Battery Street Scoping Study

Burlington, Vermont

PREPARED FOR

Chittenden County RPC
Communities Planning Together

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PREPARED BY

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FEBRUARY 2025

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Appendices

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.

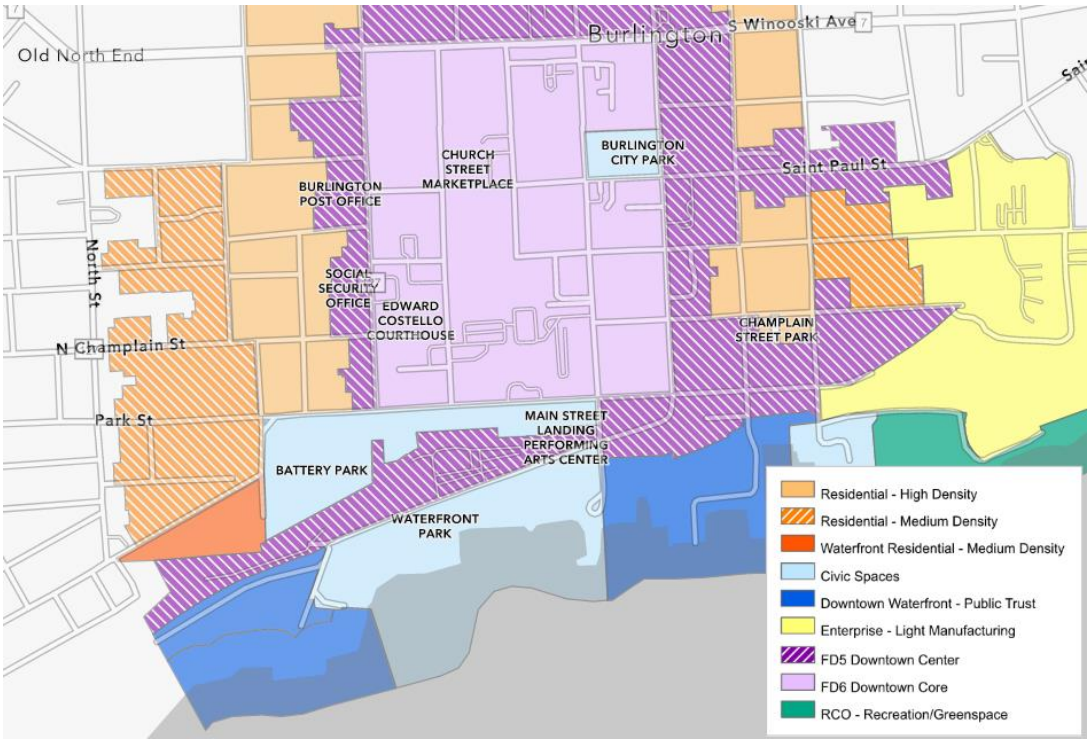
2.2 Land Use & Zoning Characteristics

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

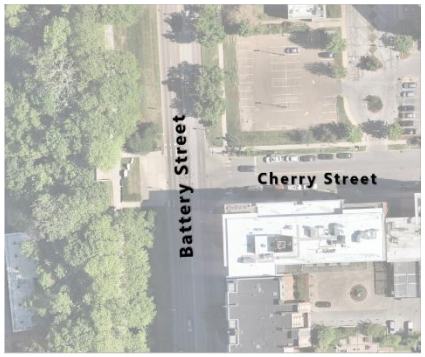


Source: CCRPC.

2.3 Transportation System Characteristics

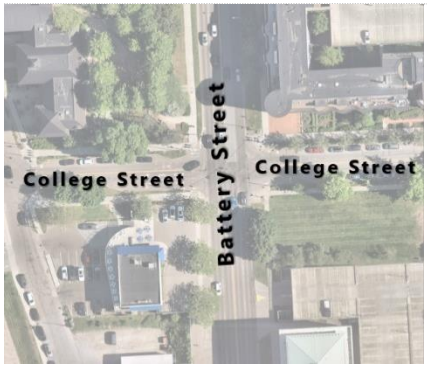
The following section summarizes the relevant transportation system characteristics of Battery Street through the project area. Existing conditions identified as part of this study include daily traffic volumes, roadway geometry, multimodal facilities, and other roadway elements.

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.



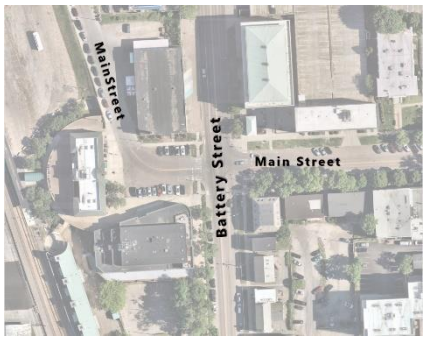
Battery Street & Cherry Street

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

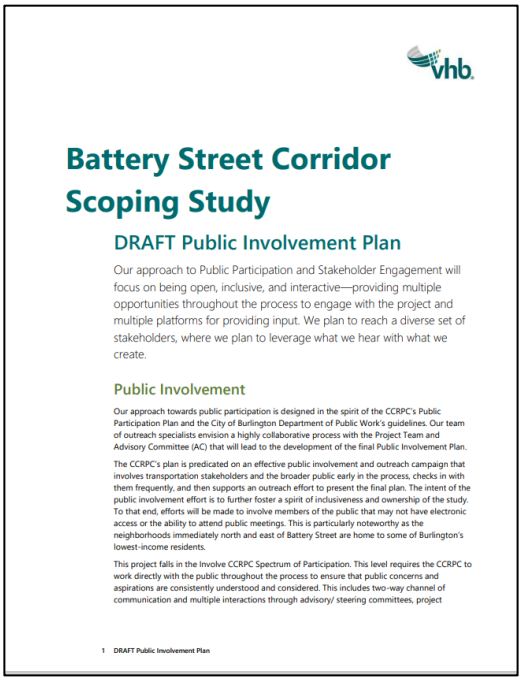
Public Outreach

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.

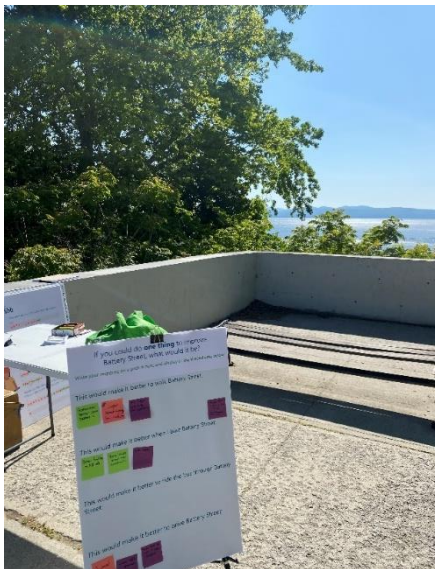
- Alternative 1: 50
- Alternative 2: 75
- Both Equally: 31
- Neither: 10

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

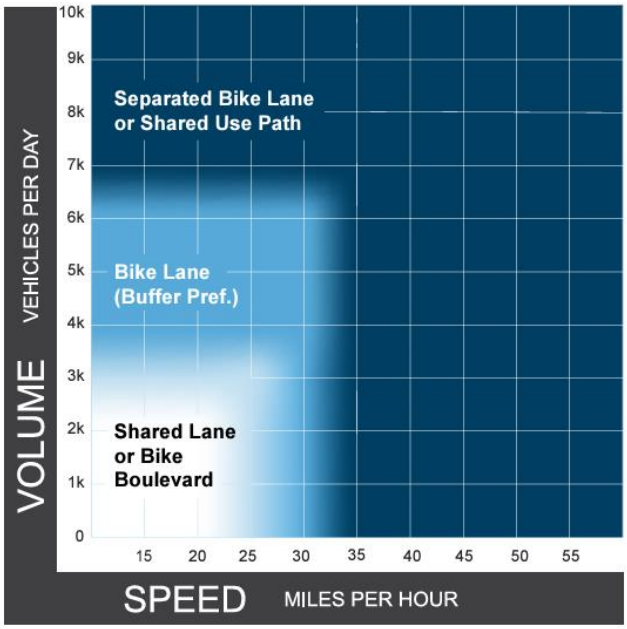
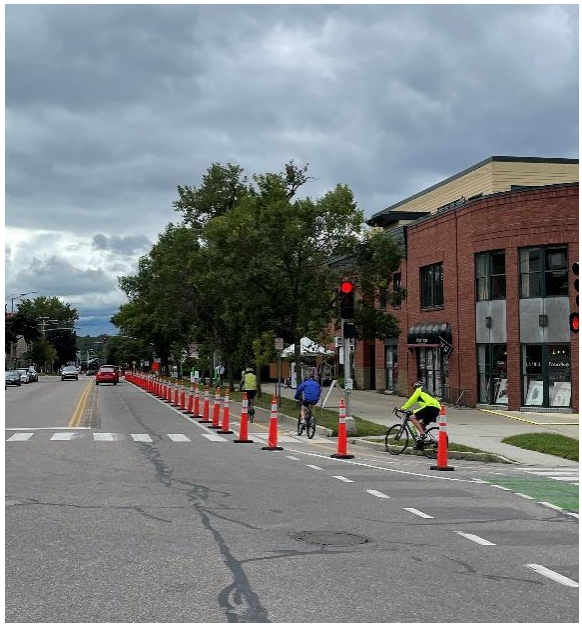


Figure 17 is from the FHWA Bikeway Selection Guide, providing facility type selection guidance.

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

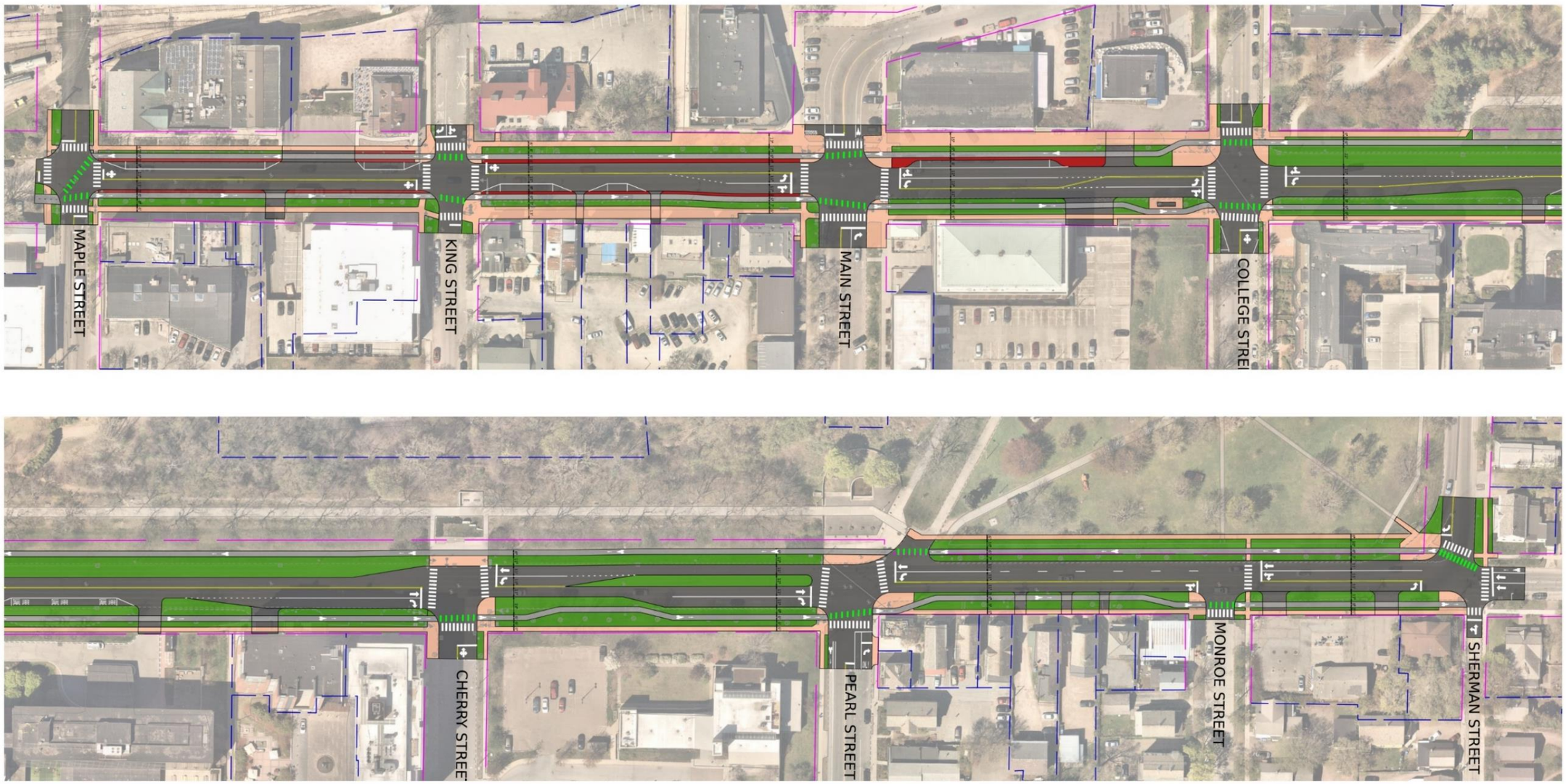
Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St	27.8
Battery St & Pearl St	41.7
Battery St & Cherry St	54.2
Battery St & College St	66.2
Battery St & Main St	78.3
Battery St & King St	89.3
Battery St & Maple St	27.8
Corridor End to End	
Network Delay (min, s)	3 min, 15.6 s
Average 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

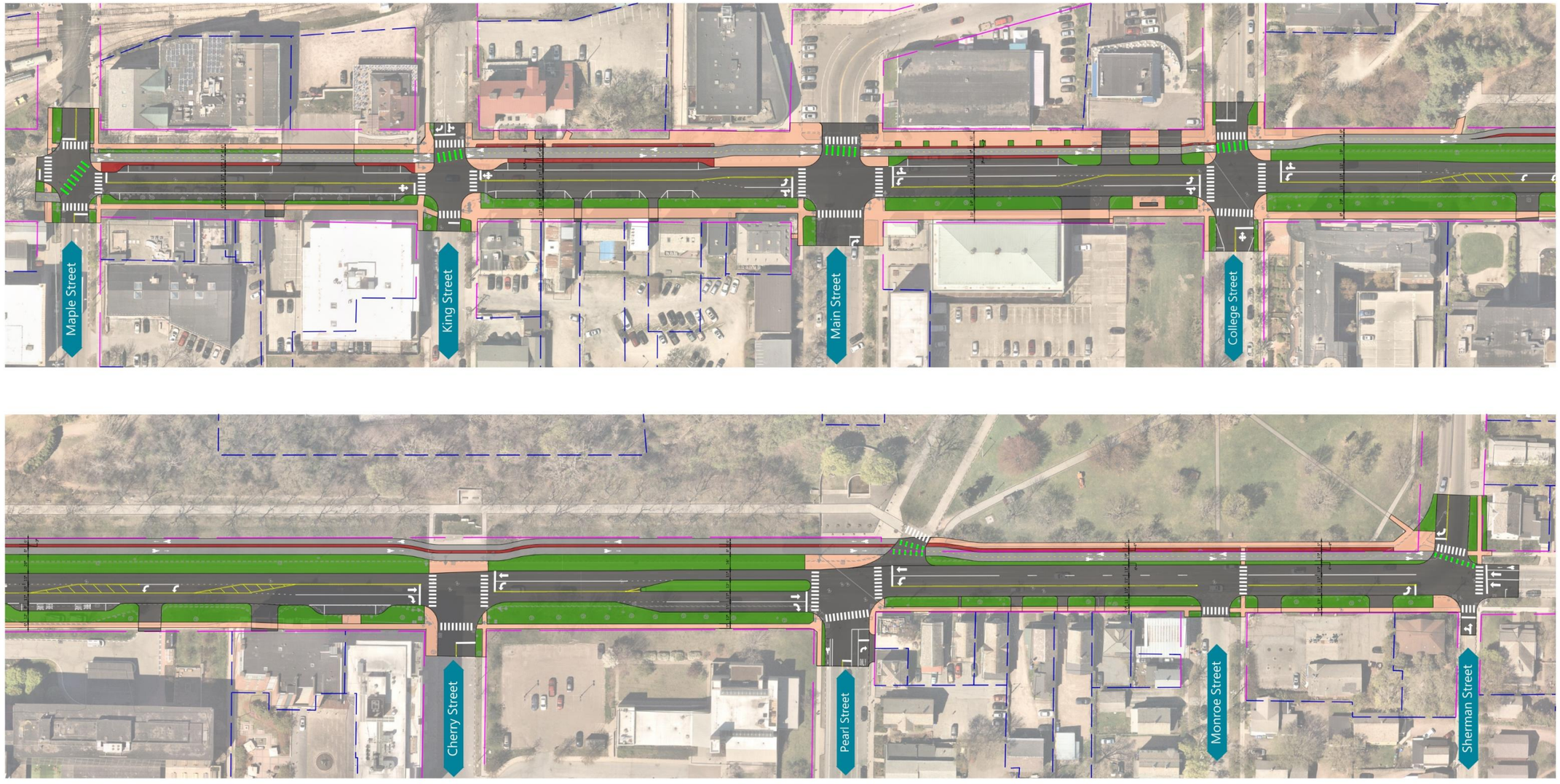
Average Delay (s) per Entering Vehicle	
Park St & North Ave & Sherman St.....	17.1
Battery St & Pearl St.....	20.1
Battery St & Cherry St.....	25.0
Battery St & College St.....	54.9
Battery St & Main St.....	27.0
Battery St & King St.....	17.4
Battery St & Maple St.....	11.8
Corridor End to End	
Network 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

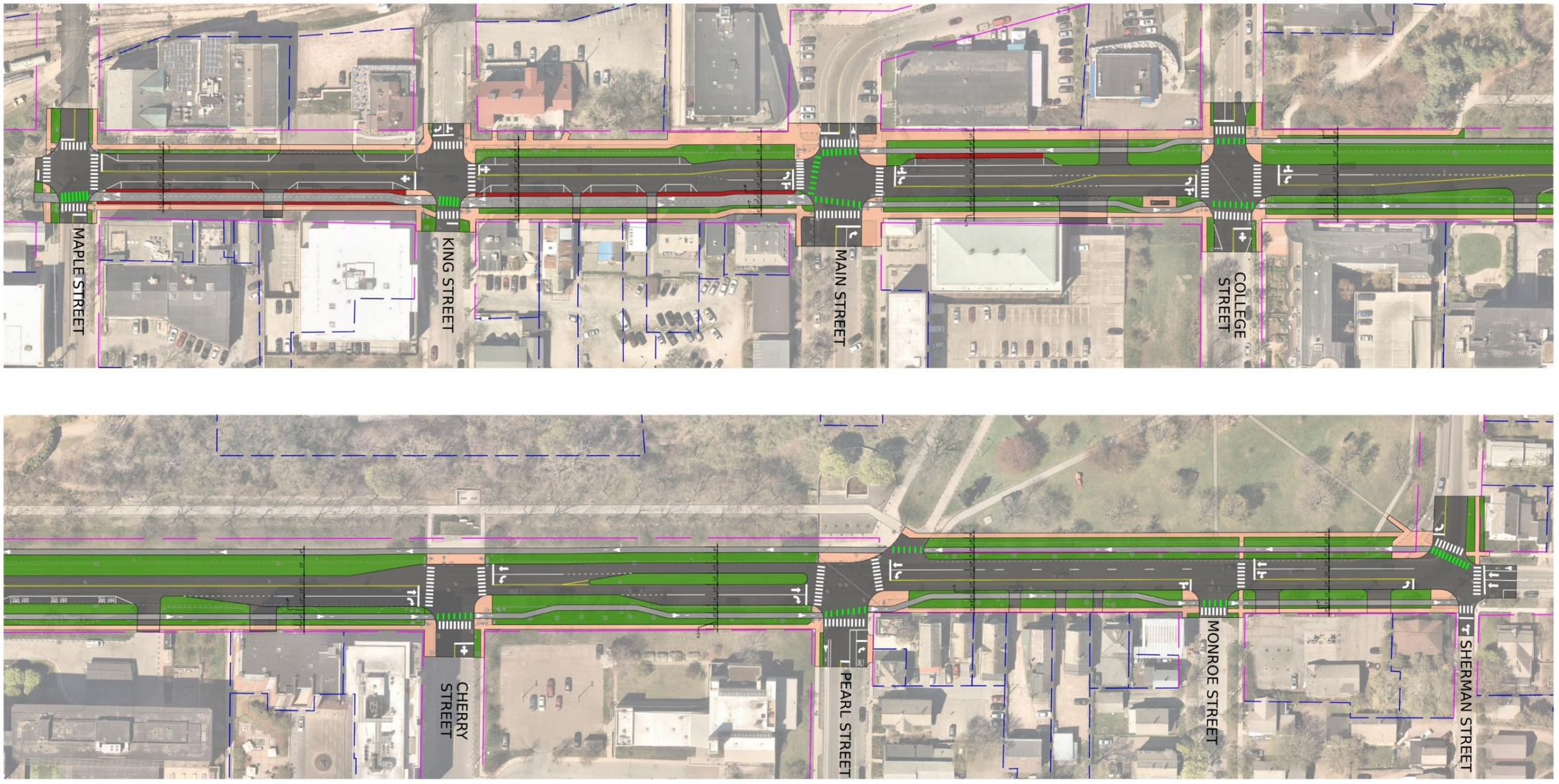
Corridor End to End	
Network Delay (s)	106.2
Average Network Speed (mph)	11
End-to-End Travel Time, NB (min:s)	4:37
End-to-End Travel Time, SB (min:s)	2:45

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.

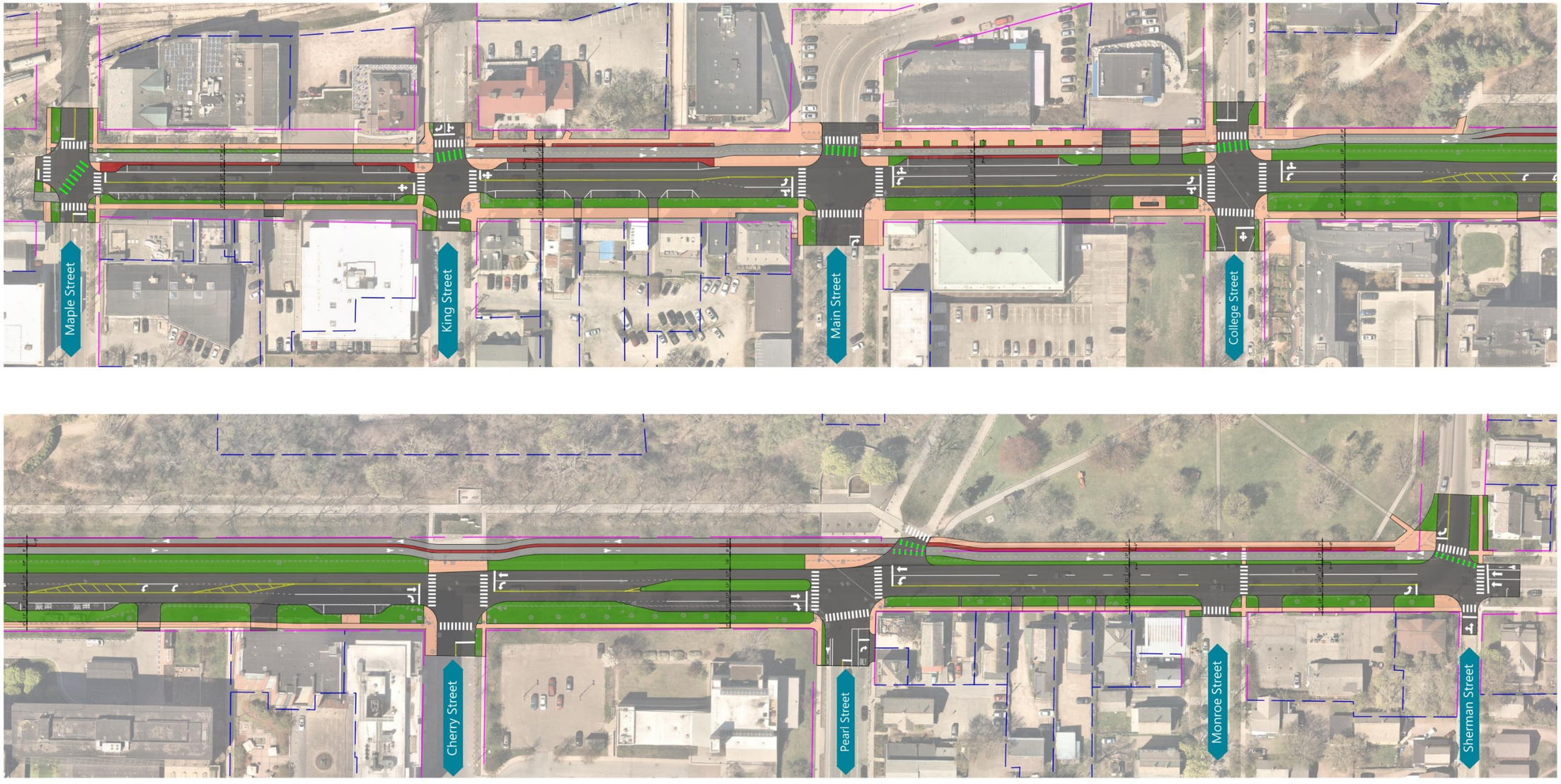
5.1.2 Additional Considerations

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.

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To: DPW Commissioners
Fr: Chapin Spencer, Director (cspencer@burlingtonvt.gov)
Re: **DPW Director's Report**
Date: March 19, 2025

2025 TMD CAPITAL BOND REQUESTS

On Town Meeting Day, all three capital bonds passed with wide margins! Thank you so much for all the time and support the DPW Commission provided to these important, long-term proposals. We cannot overstate how important it was to have unanimous votes of support from public bodies such as the City Council and the DPW Commission. A huge thank you to staffers Megan Moir, Rob Goulding, Eleonore Walker, Matt Dow and so many others who worked tirelessly to advance these proposals and then deliver a coordinated and broad educational campaign.

DPW will continue our work to develop additional affordability measures and secure grant funding to limit the financial impact of these investments as much as possible – and we will be back at the Commission to provide future updates on these efforts. Just this week, we submitted funding proposals to a member of Vermont's congressional delegation for the water and wastewater upgrades.

It is important to note that the positive votes were a huge milestone, there are many additional milestones that need to be achieved before construction starts, new municipal vehicles are on the street, etc. For most projects, additional design work is needed. Additionally, it takes several months to secure financing and that won't happen until after the start of the new fiscal year. As a result, bond-related construction projects are not expected to begin until at least calendar year 2026. More info: Rob Goulding, rgoulding@burlingtonvt.gov.

BATTERY STREET CORRIDOR STUDY PREFERRED ALTERNATIVE

The Battery Street corridor study initiative has made good progress and has a proposed preferred alternative to improve the safety and accessibility for all users along the corridor. The preferred alternative includes a proposed two-way separated bike lanes on the west side of the street, tighter intersections with shorter crosswalks, and space for Great Streets design elements like green stormwater infrastructure, healthy street trees, benches and public art. The project website is at: https://www.ccrpcvt.org/our-work/transportation/current-projects/corridors-circulation/battery-street-corridor-scoping-study/. While there isn't a required Commission approval of the preferred design concept at this stage, given that the Commission will need to make regulatory changes to parking and traffic to implement the design in the future, we will be seeking the Commission's feedback at the March 2025 meeting before going to City Council for their formal approval of the preferred alternative. More info: Phillip Peterson, ppeterson@burlingtonvt.gov.

FY'26 BUDGET AND THE FUTURE OF MUNICIPAL RECYCLING COLLECTION

There remains a significant gap in the City's FY'26 General Fund budget that starts this coming July 1. This is in part due to the Administration's commitment to not seek a General Fund tax increase this Town Meeting Day at the same time the City was bringing forward three large capital bond proposals. We plan to come to the Commission's April meeting to discuss strategies to close the City's General Fund budget gap that will likely include a major change to how recycling is collected in the Queen City. The first discussion of our proposal will be at the March 24 City Council meeting if you want to tune in. More info: Chapin Spencer (cspencer@burlingtonvt.gov).

TRAFFIC CALMING UPDATES:
In addition to the re-installation of our seasonal speed bumps and speed humps later this season, the City is advancing permanent traffic calming installations on Ethan Allen Parkway in the New North End and on Archibald Street in the Old North End. More to come. More info: Phillip Peterson (ppeterson@burlingtonvt.gov).

MAIN STREET BUSINESS OWNER MEETING:
An important part of our normal engagement process for multi-year capital meetings includes regular stakeholder meetings. DPW with Business & Workforce Development and the Mayor's Office will be convening a business meeting on March 28 to discuss how work will progress on Main Street in the coming year, along with discussing challenges and opportunities about the project. Businesses continue to express concerns and the City is doing everything it can to help mitigate parking and access issues. More info: https://greatstreetsbtv.com/

ROUTE 127 IMPROVEMENTS:
In response to the fatal January 2025 crash and community prioritization of traffic safety, DPW has installed 2 radar speed feedback signs on the high-speed portion of 127. We are also reviewing the recent crash report along with the history of prior fatalities on 127. Over the next few months, we will be exploring the potential of automated traffic enforcement. This will require research and Council action if this is advanced. We will keep you updated.

See you all next Wednesday!