



CITY OF BURLINGTON, VERMONT
CITY COUNCIL TRANSPORTATION, ENERGY & UTILITIES COMMITTEE

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Councilor Maxwell Tracy, Chair *WARD 2*
Councilor Jack Hanson, *East District*
Councilor Franklin Paulino, *North District*

Inquiries:
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802.865.5832
ppeterson@burlingtonvt.gov

Transportation, Energy and Utilities Committee of the City Council

Tuesday, February 4, 2020 5:30 PM

**Burlington Department of Public Works – Front Conference Room
645 Pine Street – Burlington, VT**

–AGENDA–

1. **Agenda**
2. **Minutes of 1/22/2020**
3. **Public Forum**
4. **Winooski Avenue Transportation Study**
 - a. Nicole Losch, DPW
 - b. 15-minute duration
 - c. Action requested.
5. **FY21 CCRPC Unified Planning Work Program**
 - a. Nicole Losch, DPW
 - b. 15-minute duration
 - c. Action requested.
6. **Adoption of 2019 VTRANS Town Road and Bridge Standards**
 - a. Laura Wheelock, DPW
 - b. 15-minute duration
 - c. Action requested.
7. **Pothole Briefing**
 - a. Lee Perry, DPW
 - b. 5-minute duration
 - c. Informative, no action needed.
8. **October Slope Failure Briefing**
 - a. Norm Baldwin, DPW
 - b. 10-minute duration
 - c. Informative, no action needed.
9. **Franklin Square Street Acceptance and Infrastructure Assessment Briefing**
 - a. Phillip Peterson, DPW
 - b. 5-minute duration
 - c. Informative, no action needed.
10. **E-Bike Briefing**
 - a. Nicole Losch and Rob Goulding, DPW
 - b. 5-minute duration
 - c. Informative, no action needed.
11. **Councilors' Update**
12. **Adjourn**



City of Burlington
Department of Public Works

Technical Services Engineering Division
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Memo

Date: January 31, 2020

To: Transportation, Energy, and Utilities Committee

CC: Chapin Spencer, Director
Norm Baldwin, P.E., Assistant Director – Technical Services / City Engineer

From: Nicole Losch, PTP, Senior Planner

Subject: Winooski Avenue Transportation Study and Implementation Plan

Recommendation

We respectfully request the Transportation, Energy, and Utilities Committee sponsor the attached Resolution for City Council requesting the Department of Public Works implement the recommendations of the Winooski Avenue Transportation Study and provide bi-annual updates to the TEUC and area Councilors.

Introduction to the Winooski Avenue Transportation Study and Implementation Plan

The Winooski Avenue Transportation Study is a corridor study for complete streets on Winooski Avenue. It considers strategies to develop multimodal improvements that address safety, capacity, and connectivity along this nearly two mile corridor stretching from Riverside Avenue in the Old North End to Howard Street in the South End.

The study was guided by the Project Advisory Committee (PAC), with representatives from City and community entities invested in the corridor. The study was also guided by the community in a series of public meetings, active workshops, stakeholder interviews, and online interactions. With input from the community, the PAC established the vision for the corridor:

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

- **Businesses along and near Winooski Avenue will flourish** with an activated streetscape and convenient access.
- The **mobility and parking needs will be balanced** for property owners, residents, businesses and the greater transportation system.
- The street can **adapt** to changes to the transportation system and land use

Thirteen alternatives were developed for infrastructure improvements that could mitigate existing deficiencies and address challenges and issues identified by the community. These alternatives were evaluated for their ability to align with the vision of the corridor, including bicycle level of stress, pedestrian quality of service, changes in parking spaces, street trees impacted, change in green belt width, cost, neighborhood access, vehicle operations and safety, and transit quality of service.

The recommended alternative was presented to the PAC in October 2019 and the community in November 2019. It was then refined based on PAC and community input. At their meeting on January 28, 2020, the PAC reached unanimous consensus on the preferred alternative for City Council to consider. This includes interim improvements that are to be completed in 2020, short-term projects that are to be built in 2020 if possible, short-term projects that are to be built in 2021, and longer-term projects that are to be implemented as funding is identified after 2021. The recommended preferred alternative and implementation timeline can be viewed in the draft Winooski Avenue Transportation Study Report, Chapter 6, and described in the draft Resolution.

If the Transportation, Energy & Utilities Committee votes to sponsor the Resolution at its February 4, 2020 meeting, it would be staff's intention to bring the Resolution to the full City Council on February 18, 2020.

Councilors are encouraged to read the draft Winooski Avenue Transportation Study, available on the project website: tiny.cc/WinooskiAveStudy. Please don't hesitate to contact me in advance of the meeting with any questions (nlosch@burlingtonvt.gov).

Resolution Relating to

WINOOSKI AVENUE TRANSPORTATION STUDY

RESOLUTION _____

Sponsor(s): Transportation, Energy,
Utilities Committee

Introduced: _____

Referred to: _____

Action: _____

Date: _____

Signed by Mayor: _____

CITY OF BURLINGTON

In the year Two Thousand Twenty

Resolved by the City Council of the City of Burlington, as follows:

1 That WHEREAS, Winooski Avenue is the primary north-south transportation corridor through the heart of
2 downtown Burlington; and

3 WHEREAS, Winooski Avenue was envisioned as a corridor to accommodate safe access for all users,
4 including pedestrians, bicyclists, transit vehicles and riders through adoption of the 2011 Burlington
5 Transportation Plan and 2017 planBTV Walk Bike; and

6 WHEREAS, Winooski Avenue does not have consistent or intuitive multimodal facilities, has seven of
7 the twenty priority intersections identified for safety improvements in planBTV Walk Bike, has experienced
8 16% of bicycle crashes and 17% of pedestrian crashes in the City in the past five years, and has six VTrans
9 High Crash locations along the corridor; and

10 WHEREAS, the Winooski Avenue Transportation Study complements past planning efforts in
11 Burlington and the region by evaluating options for transportation improvements in a comprehensive study of
12 the entire corridor; and

13 WHEREAS, a Project Advisory Committee with broad public participation was convened to represent
14 those invested in the corridor and guide the development of alternatives for transportation improvements to the
15 Winooski Avenue corridor; and

16 WHEREAS, the Advisory Committee reached unanimous consensus in support of the preferred
17 alternatives identified in the Implementation Plan; and

18 WHEREAS, the Transportation, Energy and Utilities Committee (TEUC) of the City Council has
19 reviewed and supports the Winooski Avenue Transportation Study recommendations that will achieve the
20 corridor vision; and

21 WHEREAS, interim improvements are to be completed in 2020 to include a Parking Management Plan
22 for North Winooski Avenue, pilots or demonstrations of mini-roundabouts on North Winooski Avenue,
23 wayfinding between the southbound Winooski Avenue and northbound Union Street bike lane, finding

solutions to commercial loading and driveway queueing on Winooski Avenue in the downtown, and evaluating options to create protection for pedestrians and bicyclists in the downtown; and

WHEREAS, shorter-term improvements are to be completed in 2020, if possible, to include new pavement markings from Pearl Street to Main Street (to include one southbound vehicle lane, one northbound vehicle lane, a center turning lane, and northbound and southbound bicycle lanes), continuous bicycle lanes in both directions south of Main Street, and improvements for high-priority transit stops and pedestrian crossings; and

WHEREAS, shorter-term improvements are to be completed in 2021 to include new pavement markings for bicycle lanes in both directions between North Street and Riverside Avenue, improvements for high-priority transit stops and pedestrian crossings north of Pearl Street, and additional streetscape and safety enhancements south of Pearl Street; and

WHEREAS, longer-term improvements are to be completed as funding is identified and will modify the roadway to balance two-way traffic for all modes North of Pearl Street, protected bike lanes, additional on-street parking, underground utilities, manage stormwater, improve transit stops, new street trees, and improve the pedestrian experience of Winooski Avenue.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby recommends and requests that the Department of Public Works (DPW) take all steps necessary to implement the recommendations of the Winooski Avenue Transportation Study and provide the City Council's Transportation, Energy, & Utility Committee and project area Councilors bi-annual updates regarding same.

CNL/Resolutions 2020/WinooskiAveTransportationStudy
01222020



City of Burlington
Department of Public Works
645 Pine St
Burlington, VT 05401
802-863-9094
Burlingtonvt.gov/dpw

Chapin Spencer
Director of Public Works

MEMORANDUM

TO: Transportation, Energy & Utilities Committee

FROM: Robert Goulding, Public Information Manager, Public Works
Nicole Losch, Senior Planner, Public Works

DATE: January 30, 2020

CC: Chapin Spencer, Director of Public Works

RE: Shared Mobility Update

We have been eager to transition the existing traditional bikeshare program ('Greenride Bikeshare') currently operating in Chittenden County to an all-electric fleet. We continue to believe that this will be a significant change to our transportation ecosystem - contributing to core goals of choice, affordability and sustainability. We would like to share an update as to the status of the shared mobility system in Chittenden County, a recent timeline of activity and next steps below.

BACKGROUND

After City Council approval of the shared mobility contract in June, we expected to have this system operational by Fall 2019. By the middle of August, we learned of tariff issues that delayed the operator Gotcha's ability to procure and deliver the 200 bikes to our market. At this time, we also learned of software issues affecting the performance of their system in other cities followed by a merger with a larger shared mobility entity, OjO.

Here is a timeline indicating how we have continued to work through these issues.

- **Late August:** Chittenden County shared mobility partners (Burlington, South Burlington, Winooski, CATMA and Universities) had a call w/ CEO of Gotcha, Sean Flood and his team. During this meeting we spoke candidly of our disappointment about the delay and lack of early communication. CEO Flood and his team were transparent about the tariff and technology issues. They answered every question from our group. CEO Flood said the technology issues were fixed and then committed to a spring 2020 launch of a full suite of e-bikes in Chittenden County.

- **Early September:** We identified a former City of Burlington employee who currently works for municipal government in Syracuse - a Gotcha market. He put us in touch with municipal colleagues in charge of implementation of the e-bike system. CATMA had an in-depth conversation with them and confirmed that while there were significant technology issues early on, the Gotcha team had followed through on its commitment to address the app issues. The situation appears to be resolved.
- **Fall:** Working through the transition in the City Attorney's staff including the departure of the attorney who was directly involved in the Gotcha discussions, we began working on the inclusion of contractual milestones to hold Gotcha accountable to specific progress. These include:
 - Spring 2020 launch of e-bikes and all equipment
 - A Burlington specific clause that stipulates that escalated pricing is an important consideration for renewal and that the Operator shall provide a statement detailing its efforts to integrate escalated pricing into its fee structure
 - A Burlington specific clause that has Gotcha providing a sign to hang at their waterfront location indicating the motor will shut off beyond system limits and that for long rides, local bike shops are a much better option.
- **Late Fall:** We learned that Gotcha has merged with OjO - another shared mobility operator. Unrelated to that, we learned that the local Gotcha employee who was working on the Greenride to e-bike transition decided to move to New Hampshire for another opportunity.
- **Mid-December:** Chittenden County partners had a second call w/ Gotcha CEO Sean Flood. We ask for updates on the tariffs and merger and what it means for implementation. We were told that the tariff issue has been circumvented with a new supplier in a different country and that they are still committed to a spring launch. We are told candidly that the merger has taken most of their attention, but are close to re-engaging with e-bike system implementation.
- **Late December:** Shortly after this call we shared the new contractual milestones with Gotcha - approved by the City Attorney's Office and agreed to by our partners - which is currently "under review" by their legal team.
- **January 27:** We heard from CEO Flood that we should expect a schedule any day now with revisions/agreement to the contract.
- **Current:** CATMA continues to press Gotcha for contract feedback and a schedule.

NEXT STEPS

We remain cautiously optimistic that the operator, Gotcha, can have a fully functioning e-bike system implemented in spring. However, we share the frustration of our partners and our community that there has been a significant delay in implementation.

We have an upcoming partner-only meeting -- hopefully to discuss a proposed in-hand schedule and finalize the contract. However, we are all prepared to discuss options for a Plan B. Unfortunately, the shared-mobility industry is changing rapidly (as evinced by the Gotcha/OJO merger) and upon last analysis, was more e-scooter oriented. There does not appear to be a lot

of operators who offer the system flexibility, the price point and the accessibility of Gotcha - especially for a market of this size.

Our current analysis suggests working with Gotcha through this next schedule proposal and agreement to milestones is a prudent course. However, the interests of our community are paramount and we are ready to consider soliciting an RFP for possible operators who may be able to launch in Burlington in 2020 if we do not get clear commitments and a signed contract from Gotcha soon.

We appreciate your attention to this issue and the care you put into this discussion in 2019. We welcome any questions and feedback prior, during or anytime after the upcoming TEUC meeting.

Thank you.



Franklin Square Neighborhood Meeting

FRANKLIN SQUARE COMMUNITY ROOM
JANUARY 28, 2020

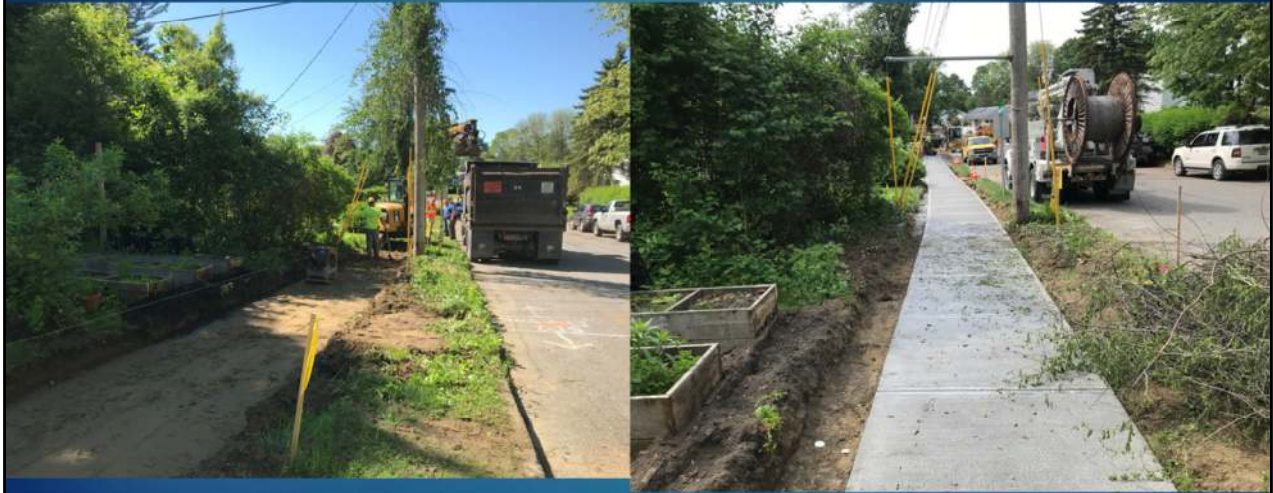
The City of Burlington and the Burlington Housing Authority (BHA) are collaborating on efforts for the City of Burlington to accept Franklin Square as a City street in the public Right-of-Way. This street acceptance would allow the Department of Public Works (DPW) to conduct maintenance operations on existing utilities and infrastructure as well as manage parking around Franklin Square. Future correspondence will be provided regarding change of addresses for the Franklin Square apartments.

What is the Right-of-Way



Essentially the right-of-way is public property; specifically property that the City has accepted, and property which has been deeded over to the city. The right-of-way does vary, a good rule of thumb on most streets is, the right-of-way is about one foot away from the sidewalk toward private property.

Why the Right-of-Way is important



Planners, Engineers, Utilities, Construction staff and City Leadership coordinate efforts to establish the location and design of transportation projects that will minimize impact and be of the greatest benefit to the public. The final product takes into consideration feasible engineering, safety, economics, public well-being, and convenience for the travelling public in parallel with the needs of local residents.

Franklin Square Street Acceptance Impact to Residents

1. Change of Address
2. New parking layout
 - a) Diagonal parking scheme
 - b) Snow ban parking zones
3. Maintenance
 - a) Street sweeping
 - b) Pothole repair
 - c) Plowing
4. Future Improvements
 - a) Stormwater drainage
 - b) Street Lighting
 - c) Street Paving
 - d) Sidewalk reconstruction



Franklin Square Proposed Parking Layout



The diagonal parking should give residents an additional 10 parking spaces.

Franklin Square Parking Snow Ban



Snow parking bans are an important and necessary tool for the City to remove snow and ice from City streets, and Franklin Square cannot be excluded. However, we have developed a promising solution. A snow parking ban on Franklin Square will be a two day process; on the first day of a snow parking ban residents will not be allowed to park in the existing Zone-A which includes parking on Red-Maple Lane, the south side of Franklin Square, and the spaces directly adjacent to the community center; on day two of a snow parking ban residents will not be allowed to park in the new Zone-H which includes the parking on the north side of Franklin Square and the pull in parking on the east side.

Maintenance

- Street-sweeping, Pothole repair, and plowing



Utilities Stormwater

■ 8 Catchbasins need replacement



A total of 8 catch basins were identified as in need of replacement in the near term (deteriorated brick structures or cinder block style). 1 catch basin was discovered as no longer functioning as it has been overrun with root intrusions.

Utilities Electrical



- Lighting upgrades



The work involves replacing fixtures on existing poles – no new poles are required.

Paving & Sidewalks

- Paving and Sidewalk Work



The paving plan this Summer is well set, and Franklin Square is not on the list. 2021 is a possibility, however 2022 is the earliest Franklin Square would be considered. Sidewalk assessment will be this Summer. Franklin Square will be compared equally to the rest of the City.

Franklin Square Acceptance Timeline

1. City Meetings

- 2.4.20 Update for Transportation, Energy, and Utilities Committee
- 2.18.20 Update for City Council
- Fall 2020 – City Council Street Acceptance

2. Parking layout change

- Fall 2020

3. Planned Work

- Stormwater drains, Anticipated in 2021
- Street Lighting, Anticipated in 2020
- Paving, Anticipated in 2022



Comments or questions?

Contact:

Phillip Peterson, Associate Engineer

Desk: 802.865.5832

Email: ppeterson@burlingtonvt.gov



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Memo

Date: January 31, 2020

To: City Council Transportation, Energy & Utilities Committee

From: Phillip Peterson, Associate Public Works Engineer

CC: Chapin Spencer, Director of Public Works
Norm Baldwin, P.E., City Engineer/Asst. Director of Public Works
Susan Molzon P.E., Senior Public Works Engineer

Subject: Franklin Square Street Acceptance Update

Background:

The Department of Public Works (DPW), the City Attorney's Office, and Burlington Housing Authority (BHA) have been collaborating on the formal acceptance of Red Maple Lane, and Franklin Square into the City of Burlington's public Right-of-Way (ROW). DPW Staff and the City Attorney's Office have reviewed the Land Records and documentation provided by BHA staff. We have concluded that in 1974 the City Council, with the support of the City Engineer, passed a Resolution accepting Franklin Square as a City street. However, there is no documentation that Burlington Housing Authority, or any previous owner, completed the process of dedicating the street to the City. Therefore, the process was not fully completed, though the intent was there, and the transfer of property rights was never effectuated.

Burlington Housing Authority intends to formally dedicate portions of the property located at 1554 North Avenue, commonly known as Franklin Square, to the City of Burlington. In order to complete this process, the City Council will need to accept the dedication of Franklin Square as a City street and establish it is a public right-of-way.

Proposed Right-of-Way:

In collaboration with BHA, we are advancing with this process to complete the dedication and acceptance of Franklin Square under the following assumptions:

- Proposed Right of Way to be deeded would be approximately 2 feet outside the outside curb and approximately 2 feet off the sidewalks adjacent to the buildings.
- For the sidewalk to be properly maintained, BHA will provide a 2 foot clear zone along the building side of all sidewalks, which will require relocation of some of the existing yard fencing.

- The proposed City street will maintain one-way circulation on Franklin Square in a counter-clockwise direction.
- Existing on-street parallel parking on the north and south sides of Franklin Square will be reconfigured to 45-degree angled parking which will increase parking capacity for residents.
- Parallel parking on Red Maple Lane will be retained.
- On-street parking will be divided into two winter parking ban zones which would be alternated with the first evening being the Standard Parking Ban-Zone A and the next day, Zone H Parking Ban would be in effect.
 - Existing Zone A - South and West Side of Franklin Square and Red Maple Lane.
 - Proposed Zone H-North and East Side of Franklin Square.

Ongoing Efforts:

In order to prepare a formal dedication and acceptance proposal to City Council, DPW Staff continue to advance the following items:

- DPW and BHA held a neighborhood meeting on January 28, 2020 to inform the residents of these proposed changes and to gather feedback. The presentation prepared for this meeting is attached. Additional neighborhood meetings will be held as this process continues.
- DPW and BHA will share in the cost to perform a boundary survey, deed research and monumenting to establish the limits of the proposed right-of-way.
- Coordination with the City Attorney's Office related to the legal instruments for street acceptance and the establishment of public right-of-way.
- The various City departments have assessed the conditions of water resource infrastructure (stormwater/sanitary sewer/water), street lighting, electrical distribution, pavement, and sidewalks. Anticipated near-term capital investments are discussed below.
- Collaboration with Burlington Police and Fire Departments on ability for Emergency Services response on Franklin Square.
- Evaluation of Zoning implications of changing the acreage and boundary lines of the BHA parcel.
- Coordination with the City's E911 Coordinator to implement any necessary re-addressing.

Near-term Capital Investment:

Following the dedication and acceptance of Franklin Square as public right-of-way, we anticipate a series of near-term capital investment by the City will be required within the next 1-3 years. Based on the conditions assessments performed in 2019, we anticipate the following:

- Burlington Electric Department: street lighting upgrades (Estimated \$16,000)
- DPW Traffic Division: Re-striping and signage for reconfiguration of on-street parking. Installation of snow ban signal equipment and signage. (Estimated \$2,500)
- DPW Water Resources Division: Stormwater drainage repairs (Estimated \$36,000).
- DPW Technical Services: Street pavement reconstruction (Estimated \$450,000).
- DPW Streets Maintenance: Pothole repair, street sweeping, and snow plowing.

Next Steps:

DPW and BHA will continue to coordinate efforts to advance the dedication and acceptance process through the ongoing efforts discussed above. We will also be preparing an update for the full City Council in February 2020. DPW anticipates bringing forward a recommendation for the City Council to accept the proposed Franklin Square right-of-way in Fall 2020.

Attachments:

1. Franklin Square Neighborhood Presentation 1.28.20
-



**CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS**

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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

MEMORANDUM

TO: Transportation, Energy & Utility Committee
City Council

FROM: Laura Wheelock P.E., Public Works Engineer

DATE: February 3, 2020

CC: Norman Baldwin, P.E. Assistant Director of Public Works/City Engineer
Chapin Spencer, Director of Public Works

RE: 2019 VTrans Town Road and Bridge Standards

Request

Transportation, Energy & Utility Committee

1. We are respectfully requesting that the Transportation, Energy & Utility Committee approve the following motion: To recommend to the City Council the adoption of Sections 1 through 7 of the 2019 Vermont Agency of Transportation Town Road and Bridge Standards, and authorize Chapin Spencer, Director of Public Works to execute the certificate on behalf of the City Council.

City Council

1. We are respectfully requesting that the City Council approve the following motion: To adopt of Sections 1 through 7 of the 2019 Vermont Agency of Transportation Town Road and Bridge Standard, and authorize Chapin Spencer, Director of Public Works to execute the certificate on behalf of the City Council.

Background - Updates

In June of 2019, the Vermont Agency of Transportation (VTrans) adopted new Town Road and Bridge Standards that provided an update to the 2013 Standards that were previously adopted by the City of Burlington. VTrans reached out to the City of Burlington several times during the development of the update to the standards to review the proposed changes, take feedback, and answer questions specific to the impact the changes have to the City.

Communications from VTrans specific to the standards and changes have been included as attachments to this communication for review and consideration. In short, the focus of the changes are around updating the 2013 Standards to comply with new State stormwater regulation and legislation. Many of the updates focus on Class 4 roads, dirt roads, and paved roads who utilize swales and ditches for their stormwater conveyance; there is one section regarding paved streets with catch basins that has been added which is the most relevant to Burlington. The other updates and categories only impact a few of our accepted City streets.

As it relates to Burlington, our obligations under this update focuses around ensuring our outfalls for the collection system are stabilized and constructed with materials that meet the standards. DPW Stormwater Program Manager was engaged throughout the review of the drafts of the updated standards and is aware of the commitment to outfall improvements that come with the adoption of these standards. Many of these standards are improvements that Burlington was already working towards to be in compliance with our MS4 permit.

As it relates to the other Sections 4-7 of the 2019 Standards, the City has previously adopted under the 2013 Standards and standards to which City projects were already meeting. There are no changes proposed to those sections at this time.

Financial Impacts

A major benefit of adopting these 2019 Standards is the ability to get higher levels of reimbursement from the State for disaster-related damages to public infrastructure as well as the percent local match on state and federal grants increases with adoption of the Standards.

For FEMA Recovery Projects, FEMA will assume 75% of eligible costs, absent this adoption the State of Vermont will contribute 7.5%, leaving the City to assume 17.5% of those costs. With the City's adoption of these standards FEMA will continue to contribute 75% of eligible costs, the State of Vermont will contribute 12.5% and the City would assume 12.5%.

The City's infrastructure incurred damages of more than \$150,000 during the October 31 - November 1, 2019 storm event. The most costly damage was to the East Wastewater Treatment Plant's outfall and associated diffuser. Adopting the attached Standards will position the City to receive a more favorable reimbursement rate from the State.

The City was also awarded a Town Highway Grant for paving on North Prospect Street in July 2019, adoption of these Standards will qualify the City for a local match of 10% of the grant instead of the 20% without the adoption of the 2019 State Standards. For the \$175,000 grant this savings equates to \$17,500 for the proposed 2020 work.

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In summary the adoption of these standards will save the city 12.5% of the current and any future recovery projects as well as 10% for the local match on some federal and state grants.

Thank you for your consideration of these requests.

Please contact Laura Wheelock at 338-2125 or LWheelock@burlingtonvt.gov if you have any questions.

ATTACHMENTS

VTrans Cover Letter

New VT Road and Bridge Standards Summary Table

VTrans Town Road and Bridge Standards

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AGENCY OF NATURAL RESOURCES
AGENCY OF TRANSPORTATION

June 20, 2019

Re: 2019 Town Road and Bridge Standards

Dear Municipal Officials:

Overview

Over the past few months, the Vermont Agency of Transportation and the Vermont Agency of Natural Resources have been developing an updated State-approved Town Road and Bridge Standards template (attached). One of the primary reasons for updating these standards is to give municipalities more flexibility in choosing the parts of these standards they would like to adopt and to make it easier for FEMA to understand the standards each municipality has adopted in the event of a federally declared disaster. We have worked very closely with the Vermont League of Cities and Towns on this effort and we have involved the Vermont Local Roads program and the regional planning commissions to solicit reviews and input from the municipalities.

In accordance with Act 110 of the 2010 Legislative session, the Town Road and Bridge Standards were last reviewed and approved (unchanged) in 2017, and the next deadline is 2021. However, there is a practical need to update the standards sooner to eliminate the overlap with the Municipal Roads General (stormwater) Permit standards, which all towns must follow. The MRGP standards only cover "hydrologically-connected" local roads (about 50% of local roads on average). By comparison, the Town Road and Bridge Standards are voluntary, also include stormwater management and flood resilience, construction and safety practices, and apply to all town highways.

The existing (January 2013) template can remain in effect through July 31, 2019. After that date, the January 2013 version of the Town Road and Bridge Standards will no longer be considered the State-approved template. Consequently, we would like to strongly encourage all municipalities to consider adopting the new 2019 Town Road and Bridge Standards template prior to August 1, 2019.

2019 Town Road and Bridge Standards

The attached State-approved Town Road and Bridge Standards template has seven sections and is organized around hydrologically-connected and non-hydrologically connected roads. As noted in the table, Sections 1 and 2 are required for connected roads, and Section 3 is required for all bridges and culverts over perennial streams. For the non-connected roads, municipalities can choose which specific standards they wish to adopt.

To be eligible for increased funding under the Emergency Relief and Assistance Fund (ERAF) rule (CVR 10-000-001) and to be eligible for an additional 10% State share funding on Town Highway Structures and Class 2 Town Highway grants, a municipality need only circle "Yes" under the hydrologically-connected road segments column (Sections 1 and 2) and then circle "Yes" for Section 3. All other

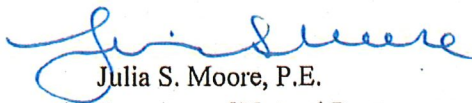
choices may be circled "No." Adoption of what essentially is mandatory under the MRGP and the Stream Alteration Permit standards may seem redundant, however, it makes it clear to FEMA that a municipality has formally adopted "codes and standards" in writing.

We would like to encourage all municipalities to circle "Yes" for as many sections in this new template as they feel comfortable with to improve the resiliency of municipal highway infrastructure, enhance the safety of the travelling public, and to realize as many benefits as possible from the FEMA Public Assistance program.

There are a few municipalities throughout the State who have much more comprehensive and elaborate standards and specifications related to their highway infrastructure. In the past, we have allowed municipalities to use those documents with a signed certification that they meet or exceed the State-approved template. The 2019 Town Road and Bridge Standards template continues to allow for this. You will find that proviso in the second paragraph of page 1. The VTrans District staff can assist municipalities who fall under that category of "codes and standards."

The VTrans District personnel are available to work with any municipality in explaining the various options and to answer questions related to the new town road and bridge standards template. Please contact your nearest VTrans District Office for assistance and information. See attached District map and contact information.

Sincerely,



Julia S. Moore, P.E.
Secretary of Natural Resources



Joe Flynn
Secretary of Transportation

New VT Road and Bridge Standards Summary Table

New VT Road and Bridge Standards	Change from previous version of Standards
Overall changes	The new Road and Bridge Standards overall goal was to align any differences with the previous Road and Bridge Standards with the new required DEC Municipal Roads General Permit (MRGP), give towns more flexibility in deciding exactly which standards that adopt by itemizing each, and to give FEMA more clarity in seeing which standards towns are required to adopt by Vermont law (MRGP standards for connected roads and DEC Stream Alteration Permit) and which standards towns are voluntarily adopting.
1. Municipal Roads Standards	What's the same? - The previous standards for road crown, grader berms, and drive and drainage culvert minimum sizes remain unchanged. Those MRGP standards are the same as the previous Road and Bridge Standards. What's changed? - What has changed is that the MRGP standards are required by Act 64 for <i>hydrologically-connected roads</i>, while the VT Road and Bridge Standards had been voluntarily adopted by towns. Towns can voluntarily adopt the MRGP standards for "<i>non-hydrologically connected</i>" roads as well. If towns choose to adopt the MRGP standards for "<i>non-connected roads</i>", those road segments <u>will not</u> fall under the MRGP. - Some of the changes from the old to the new include: changes to the road drainage ditch-stone-lined ditch requirements. The previous version required stone-lining at 5% slope and greater. The new standards require stone lining at 8% and greater and give different options for road slopes between 5-8% including check dams and disconnection practices. Additionally, towns will be required to address any erosion associated with drainage and driveway culverts- either replacing them or stabilizing erosion sources. - The MRGP standards have different road standards for different road types, rather than the previous standards, which were more of a "one size fits all." The MRGP road types and related standards include: paved roads with curbs and catch basins, gravel and paved roads with drainage ditches and Class 4 roads.

2. Class 4 Road Standards	New standard option- The MRGP standards are required for “ <i>connected</i> ” Class 4 roads, but towns can voluntarily adopt this standard for “ <i>non-connected</i> ” Class 4 roads. The standard for Class 4 roads includes stabilizing any gully erosion, or erosion that is at a depth of 12” or greater.
3. Perennial Stream-bridge and culvert standards	What’s the same and what has changed? Towns were, and still are, required to contact a DEC Stream Engineer and obtain a DEC Alteration permit when replacing or working on a perennial stream bridge or culvert. The crossing requirements for perennial streams are generally based on the <i>bankfull channel width</i> . This standard is called out for clarity for FEMA and towns that this is required by state law.
4. Intermittent stream crossings	New standard option- • This is a new voluntary standard that towns can adopt for intermittent stream culverts. Intermittent streams are those streams that only run for a portion of the year but have defined stream channels. Intermittent streams are not perennial streams and therefore do not fall under the DEC Stream Alteration permit. Drainage and driveway culverts are covered under Standard 1 above. • The intermittent stream crossing size is based on the “<i>Active Channel Width</i>” or <i>scour width</i>, which is approximately 75% of the bankfull channel width
5. Roadway construction standards	What’s changed? Towns can voluntarily adopt this standalone standard and enter their desired depth of both surface material and sub-base material.
6. Guardrail standards	What’s changed? Towns can voluntarily adopt this standalone standard.
7. Driveway access standards	What’s changed? Towns can voluntarily adopt a Driveway Access Standard, as a standalone. VTrans and the VT League of Cities and Towns have added some sample Driveway Access templates.

TOWN ROAD AND BRIDGE STANDARDS

(June 5, 2019)

MUNICIPALITY OF _____, VERMONT

The Legislative Body of the Municipality of _____ hereby adopts the following Town Road and Bridge Standards which shall apply to the construction, repair, and maintenance of town roads and bridges.

The standards below are considered minimums. Municipalities that have construction standards / specifications in place that meet or exceed the minimum standards: indicate adoption date and include as Appendix C. **Date of Adoption:** _____

Municipalities must comply with all applicable state and federal approvals, permits and duly adopted standards when undertaking road and bridge activities and projects.

Any new road regulated by and/or to be conveyed to the municipality shall be constructed according to the minimum of these standards.

Circle **YES** or **NO** below to indicate town adoption of that section of the Standards

Road and Bridge Standards Sections	Hydrologically-connected road segments*	Non-hydrologically-connected road segments**
Section 1 – Municipal Road Standards	YES (Required by Act 64)	YES NO
Section 2 – Class 4 Road Standards	YES (Required by Act 64)	YES NO
	Town wide	
Section 3 - Perennial stream- bridge and culvert standards	YES (Required by DEC Stream Alteration Standard)	
Section 4 – Intermittent stream crossings	YES NO	
Section 5 - Roadway construction standards	YES NO	
Section 6 - Guardrail standard	YES NO	
Section 7 - Driveway access standard	YES NO	

Road segments – ANR Resources Atlas includes a map layer of all of Vermont’s municipal roads divided into 100-meter (328 foot) segments, each with a unique identification number.

***Hydrologically-connected road segments** - are those municipal road segments and catch basin outlets, Class 1-4, as shown on the ANR Natural Resources Hydrologically-connected municipal road segment layer (<http://anrmaps.vermont.gov/websites/anra5/>) or the Road Erosion Inventory Scoring (MRGP Implementation Table portal) layer (<https://anrweb.vt.gov/DEC/IWIS/MRGPReportViewer.aspx?ViewParms=True&Report=Portal>).

****Adoption of standards on non-hydrologically-connected road segments** does not indicate that these road segments are then subject to the Municipal Roads General Permit (MRGP).

Municipalities may also find additional resources in the latest version of the *Vermont Better Roads Manual*.
<https://vtrans.vermont.gov/sites/aot/files/highway/documents/ltf/Better%20Roads%20Manual%20Final%202019.pdf>

Road and Bridge Standards Sections

Section 1 – Municipal Road Standards - See Appendix A

These standards are required by Act 64 and the DEC Municipal Roads General Permit (MRGP) for hydrologically-connected roads only.

Municipalities may adopt Section 1 Road standards by road type for non-hydrologically-connected roads/segments/catch basins.

Section 2 – Class 4 Road Standards - See Appendix A

Section 3 - Perennial stream - bridge and culvert standards

Bridge and culvert work on perennial stream crossings must conform with the statewide DEC Stream Alteration Standard.

“Perennial stream” means a watercourse or portion, segment, or reach of a watercourse, generally exceeding 0.25 square miles in watershed size, in which surface flows are not frequently or consistently interrupted during normal seasonal low flow periods. Perennial streams that begin flowing subsurface during low flow periods, due to natural geologic conditions, remain defined as perennial. All other streams, or stream segments of significant length, shall be termed intermittent. A perennial stream shall not include the standing waters in wetlands, lakes, and ponds.

Streambank stabilization and other in-stream work must conform with the statewide DEC Stream Alteration Standard.

For River Management Engineer Districts: https://dec.vermont.gov/sites/dec/files/wsm/rivers/docs/RME_districts.pdf

Section 4 – Intermittent stream crossings – See Appendix B for sizing table and graphic. These standards are above and beyond the culvert standards in Section 1.

“Intermittent streams” are defined as streams with beds of bare earthen material that run during seasonal high flows but are disconnected from the annual mean groundwater level.

Section 5 - Roadway construction standards – Sub-base and gravel standards

All new or substantially reconstructed gravel roads shall have ___ inches* thick gravel sub-base, with an additional ___ inches* top course of crushed gravel.

All new or substantially reconstructed paved roads shall have ___ inches* thick gravel sub-base.

*Municipalities shall indicate their own construction criteria.

Section 6 - Guardrail standard

When a roadway, culvert, bridge, or retaining wall construction or reconstruction project results in hazards such as foreslopes, drop offs, or fixed obstacles within the designated clear-zone, the AASHTO Roadside Design Guide will govern the analysis of the hazard and the subsequent treatment of that hazard. For roadway situations, an approved barrier system may be steel beam guardrail with 6-foot posts and approved guardrail end treatment. If there is less than 3 feet from the rail to the hazard, then steel beam guardrail with 8-foot posts shall be used. The G-1D is an example of an approved guardrail end treatment. For bridge rails systems, VTrans bridge rail standards shall be referenced

Section 7 - Driveway access standard

The municipality has a process in place, formal or informal, to review all new drive accesses and development roads where they intersect town roads, as authorized under 19 V.S.A. Section 1111. Municipality may reference Vtrans Standard A-76 Standards for Town & Development Roads and B-71 Standards for Residential and Commercial Drives; the Vtrans Access Management Program Guidelines; and the latest version of the Vermont Better Roads Manual for other design standards and specifications.

Passed and adopted by the Legislative Body of the Municipality of _____, State of Vermont on _____, 20____

Selectboard / City Council / Village Board of Trustees:

_____	_____
_____	_____

Appendix A

Section 1: MUNICIPAL ROAD STANDARDS

The following standards constitute the minimum required Best Management Practices (BMPs) for municipal roads. These standards shall apply to the construction, repair, and maintenance of all town roads and bridges.

It is the municipality's responsibility to maintain all practices after installation. Roads not meeting these standards must implement the BMPs listed below in order to meet the required town's standards.

Feasibility

Municipalities shall implement these standards to the extent feasible. In determining feasibility, municipalities may consider the following criteria: The implementation of a standard listed in of this documentation does not require the acquisition of additional state or federal permits or noncompliance with such permits, or noncompliance with any other state or federal law. The implementation of a standard does not require the condemnation of private property; impacts to significant environmental and historic resources, including historic stone walls, historic structures, historic landscapes, or vegetation within 250 feet of a lakeshore; impacts to buried utilities; and excessive hydraulic hammering of ledge.

Standards for All Construction and Soil Disturbing Activities

Following construction and soil disturbance on a road, all bare or unvegetated areas shall be revegetated with seed and mulch, hydroseeded, or stone lined within 5 days of disturbance of soils, or, if precipitations is forecast, sooner.

Standards for Gravel and Paved Roads with Ditches

Baseline Standards for Gravel and Paved Roads with Ditches

The following are the standards for all gravel and paved municipal roads with drainage ditches, whether or not erosion is present. These standards also apply to all new construction and significant upgrades of stormwater treatment practices.

A. Roadway/Travel Lane Standards

1. Roadway Crown

- a. Gravel roads shall be crowned, in or out-sloped:
Minimum: ¼ inch per foot
Recommended: ¼ inch to ½ inch per foot or 2% - 4%
- b. Paved/ditched roads shall be crowned during new construction, redevelopment, or repaving where repaving involves removal of the existing paving.
Minimum: 1/8 inch per foot or 1%
Recommended: 1% - 2%

2. Shoulder berms (also called Grader/Plow Berm/Windrows)

Shoulder berms shall be removed to allow precipitation to shed from the travel lane into the road drainage system. Roadway runoff shall flow in a distributed manner to the drainage ditch or filter area and there shall be no shoulder berms or evidence of a "secondary ditch". Shoulder berms may remain in place if the road crown is in-sloped or out-sloped to the opposite side of the road from berm side of road. The shoulder berm standard only applies to gravel roads with drainage ditches.

B. Road Drainage Standards

Roadway runoff shall flow in a distributed manner to grass or a forested area by lowering road shoulders or conversely by elevating the travel lane level above the shoulder. Road shoulders shall be lower than travel lane elevation. If distributed flow is not possible, roadway runoff may enter a drainage ditch, stabilized as follows:

1. For roads with slopes between 0% and 5%: At a minimum, grass-lined ditch, no bare soil. Geotextile and erosion matting may be used instead of seed and mulch. Alternatively, ditches may be stabilized using any of the practices identified for roads with slopes 5% or greater included in subpart B.2 below.

Recommended shape: trapezoidal or parabolic cross section with mild side slopes; 2 foot horizontal per 1 foot vertical or flatter and 2-foot ditch depth.

2. For roads with slopes 5% or greater but less than 8%:
 - a. Stone-lined ditch: minimum 6 to 8-inch minus stone or the equivalent for new practice construction. Recommended 2-foot ditch depth from top of stone-lined bottom,
 - b. Grass-lined ditch with stone check dams¹, or
 - c. Grass-lined ditch if installed with disconnection practices such as cross culverts and/or turnouts to reduce road stormwater runoff volume. There shall be at least two cross culverts or turnouts per segment disconnecting road stormwater out of the road drainage network into vegetated areas or spaced every 160 feet.
3. For roads with slopes of 8% or greater: Stone-lined ditch.
 - a. For slopes greater than or equal to 8% but less than 10%: minimum 6 to 8-inch minus stone or the equivalent for new construction. Recommended 2-foot ditch depth from top of stone-lined bottom.
 - b. For slopes greater than 10%: minimum 6 to 8-inch minus stone. Recommended 12-inch minus stone or the equivalent. Recommended 2-foot ditch depth from top of stone-lined bottom.
4. If appropriate, bioretention areas, level spreaders, armored shoulders, and sub-surface drainage practices may be substituted for the above road drainage standards.

C. Drainage Outlets to Waters & Turnouts

Roadway drainage shall be disconnected from waterbodies and defined channels, since the latter can act as a stormwater conveyance, and roadway drainage shall flow in a distributed manner to a grass or forested filter area. Drainage outlets and conveyance areas shall be stabilized as follows:

1. Turn-outs – all drainage ditches shall be turned out to avoid direct outlet to surface waters.
2. There must be adequate outlet protection at the end of the turnout, based upon slope ranges below. Turnout slopes shall be measured on the bank where the practice is located and not based on the road slope.
 - a. For turnouts with slopes of 0% or greater but less than 5%: stabilize with grass at minimum. Alternatively, stabilize using the practices identified in subpart b – c below, when possible.
 - b. For turnouts with slopes 5% or greater: stabilize with stone.
 - c. For slopes greater than 5% but less than 10%: minimum 6-inch to 8-inch minus stone or the equivalent for new construction.
 - d. For slopes greater than 10%: minimum 6 to 8-inch minus stone or equivalent for new construction. Recommend 12-inch minus stone or the equivalent.

¹ See check dam installation specifications.

Drainage and Intermittent Stream Culvert Standards

The following are the required culvert standards for all gravel and paved roads with ditches where rill or gully erosion is present. These standards also apply to new construction and significant upgrades of stormwater treatment practices.

1. Municipal Culverts (Drainage and Intermittent Streams)
 1. Culvert end treatment or headwall required for areas with road slopes 5% or greater if erosion is due to absence of these structures. End treatment or headwall is required for new construction on slopes 5% or greater.
 2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction on road slopes 5% or greater.
 3. Upgrade to 18-inch culvert (minimum), if erosion is due to inadequate size or absence of structure.
 4. A French Drain (also called an Underdrain) or French Mattress (also called a Rock Sandwich) sub-surface drainage practice may be substituted for a cross culvert.
2. Driveway Culverts within the municipal ROW
 1. Culvert end treatment or headwall required for areas with road slopes of 5% or greater, if erosion is due to absence of these structures. End treatment or headwall is required for new construction.
 2. Stabilize outlet such that there will be no scour erosion, if erosion is due to absence or inadequacy of outlet stabilization. Stone aprons or plunge pools required for new construction.
 3. Upgrade to minimum 15-inch culvert, 18-inch recommended, if erosion is due to inadequate size or absence of structure.

Standards for Paved Roads with Catch Basins

Catch Basin Outlet Stabilization: All catch basin outlets shall be stabilized to eliminate all rill and gully erosion. Catch basin outfall stabilization practices include: stone-lined ditch, stone apron, check dams and culvert header/headwall.

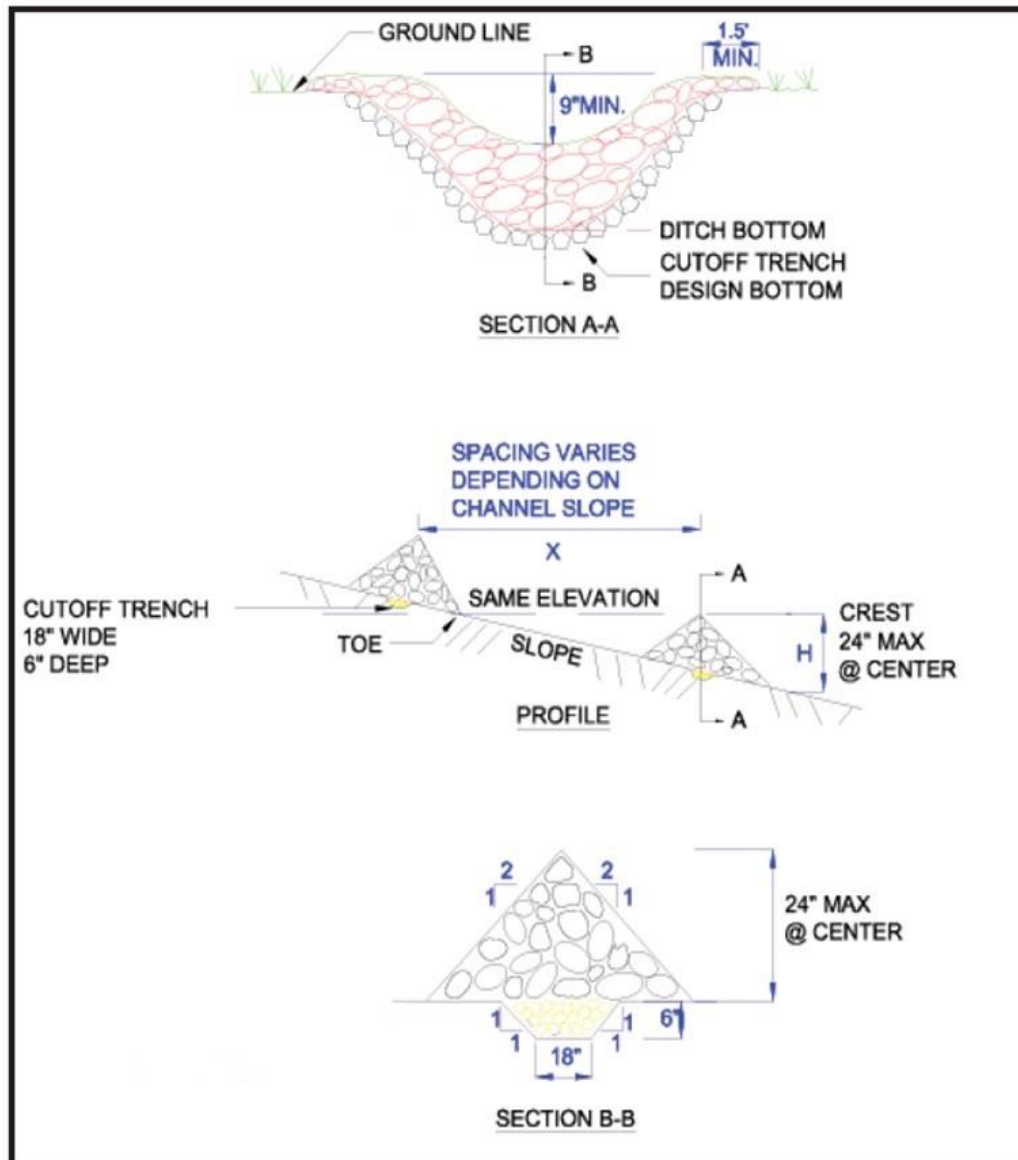
Stone Check Dam Specification

- Height: No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
- Side slopes: 2:1 or flatter
- Stone size: Use a mixture of 2 to 9-inch stone
- Width: Dams should span the width of the channel and extend up the sides of the banks
- Spacing: Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

Spacing (in feet) = $\frac{\text{Height of check dam (in feet)}}{\text{Slope in channel (ft/ft)}}$

- Maintenance: Remove sediment accumulated behind the dam as needed to allow channel to drain through the stone check dam and prevent large flows from carrying sediment over the dam. If significant erosion occurs between check dams, a liner of stone should be installed.

Check Dam Specification:



Section 2: STANDARDS FOR CLASS 4 ROADS

Stabilize any areas of gully erosion with the practices described above or equivalent practices. Disconnection practices such as broad-based dips and water bars may replace cross culverts and turnouts.

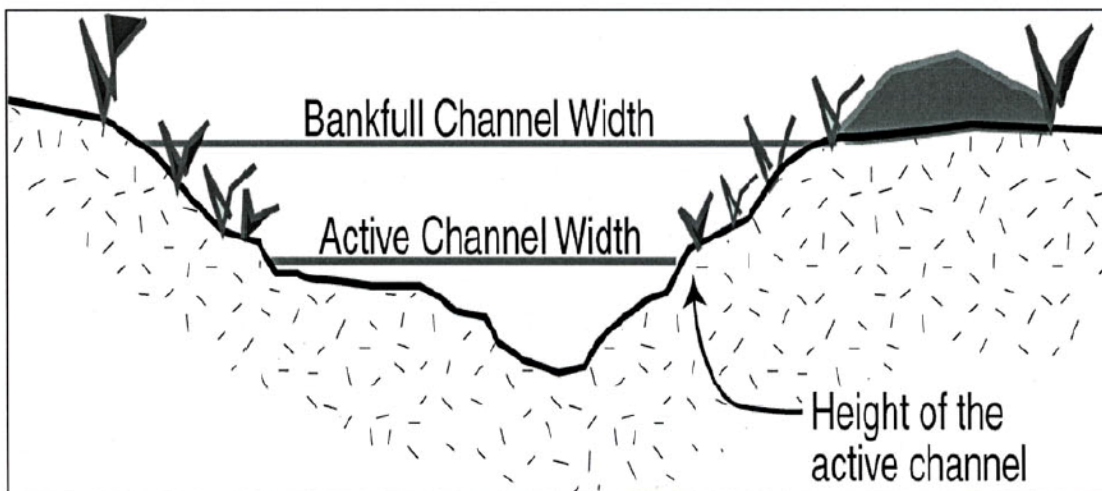
Appendix B

Active Channel Culvert Sizing for Intermittent Stream Crossings

Choose the drainage area closest to your crossing site drainage area

Drainage Area (Acres)	Minimum Diameter for Culverts on Intermittent Streams (inches)
4	15
8	18
16	24
20	30
40	36
50	42
80	48
120	60
160	66
200	<i>Streams with drainage areas of 160 acres or greater are likely to be perennial. Adhere to the VTDEC Technical Guidance for Identification of Perennial Streams</i>
320	
350	
450	
640	

Active Channel Width



Active Channel Width means the limits of the streambed scour formed by prevailing stream discharges, measured perpendicular to streamflow. The active channel is narrower than the bankfull width (approximately 75%) and is defined by the break in bank slope and typically extends to the edge of permanent vegetation.

Culvert sizing for crossings on intermittent streams: Determine the Active Channel Width by field measurements, *the culvert size should meet or exceed the Active Channel Width*. To obtain the measurements go to the crossing location and obtain several upstream Active Channel Width measurements in riffle (fast moving water) narrower channel locations. The selected channel width should be a representative average of the field measurements. In the absence of field measurements, the drainage areas in the table can be used.



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
www.burlingtonvt.gov/DPW

Memo

Date: January 30, 2020
To: Transportation, Energy, and Utilities Committee
From: Nicole Losch, PTP, Senior Planner
Subject: FY2021 Chittenden County Regional Planning Commission's Unified Planning Work Program

Recommendation

We respectfully request the Transportation, Energy, and Utilities Committee approve the following motion:

Support staff's recommended projects under the FY2021 Unified Planning Work Program (UPWP) and authorize each Department to pursue local match allocation within the FY2021 budget development.

Background

The UPWP is the Chittenden County Regional Planning Commission's (CCRPC) annual work program for planning activities. The UPWP is the mechanism to implement the regional strategies outlined in the ECOS Plan (www.ecosproject.com) and also helps the City implement local plans.

The majority of UPWP funding is Federal and is provided by the US Department of Transportation, Federal Highway Administration, and Federal Transit Administration. As such, most funding is available for projects with a transportation nexus, including transportation planning, land use planning, and stormwater planning. UPWP projects are conceptual in nature and funding is for planning assistance only, which excludes the cost of municipal employees, detailed design or engineering, right-of-way acquisition, construction, and capital implementation. Requests for assistance can be for projects or for technical assistance. The UPWP is concurrent with the City's fiscal year.

For FY2021, the CCRPC anticipates having \$800,000 available for project requests. Some of this funding will already be allocated to additional phases of current projects. UPWP projects generally require a 20% local cash match from a non-federal source. Regionally-significant projects usually do not require a cash match. Small transportation projects that can be completed by CCRPC staff usually do not require a cash match, but small non-transportation projects that exceed more than 12-hours of staff time are charged \$50 per hour.

To be considered for assistance, project applications must be submitted (and were submitted) by January 17, 2019. The City may submit more than one application but must prioritize all projects in case funding is limited. The CCRPC's UPWP Committee then determines the selected projects and the allocation of local, state, and federal funds which advance their planning programs. The UPWP development process includes input from the public, stakeholders, interest groups, and CCRPC member communities.

All applications and local match commitments must be presented to and approved by the local governing body. A public forum was held at the January 2020 Public Works Commission meeting to solicit public comments and confirm Commission support for these projects. The purpose of this meeting is to confirm support for these projects and authorize pursuit of the local match amounts through the annual budget process.

Additional information on the UPWP can be found on the CCRPC's website:

<https://www.ccrpcvt.org/about-us/commission/annual-work-plan-budget-finances/>

Project Candidates and Local Match Requirements

The City's UPWP projects are developed by the various departments engaged in community planning: Public Works; Parks, Recreation, and Waterfront; Planning and Zoning; Community and Economic Development; City Arts. In addition to the individual project requests, the City must prioritize all projects to assist the CCRPC as all requests may not be funded due to financial constraints.

Projects are still being considered by each Department and cost estimates are being developed with guidance from the CCRPC. At the time of this memo, the City is considering (listed in no order of priority):

PROJECT		DESCRIPTION	MATCH AMOUNT & SOURCE	PRIORITY
Continue FY2020 Projects	Winooski Avenue Transportation Study Phase 3: Parking Management Plan	The North Winooski Avenue Parking Management Plan is a recommendation of the Winooski Avenue Transportation Study and is anticipated to begin in FY2020.	\$8k DPW – Transportation	Very high
	Queen City Park Road and Bridge Scoping	With South Burlington, identify improvements for pedestrian safety along the roadway and bridge	n/a – Regional project	High
	Green Streets Opportunity Map	Continue the work of the Stormwater Integrated Planning effort. Overlay soils maps, potential transportation projects, and street characteristics to identify opportunities for stormwater treatments and improvements.	\$10.6k DPW – Stormwater	High

	Colchester Avenue Protected Bike Lanes and East Avenue Intersection Scoping	As recommended in the 2011 Colchester Avenue Corridor Study and the 2017 planBTV Walk Bike, identify options to improve the intersection of Colchester Ave / East Ave and improve the bicycling facilities on Colchester Avenue.	\$5k DPW – Transportation	Medium (due to staff capacity with other projects)
Technical Assistance	Winooski Avenue Signal Timing Review	Peer review new signal timing plans for Winooski Avenue between Pearl Street and Main Street.	n/a	High
	Shelburne Street Roundabout Performance Measures	Develop the performance metrics that will be used to evaluate the single-lane roundabout after it is constructed.	n/a	High
New Project	School Travel Plans	Work with the Burlington School District, parents, and staff to evaluate and recommend improvements for school travel patterns and traffic safety for all BSD schools.	\$8k DPW and BSD	High
	Burlington 2030 District Property Transportation Plans	Set benchmarks to improve transportation-related emissions through the development of ten Property Transportation Plans for BTV 2030 commercial properties that have already responded to a transportation survey.	\$4k over 2 years BED	Medium
Counts & Inventories	Pavement inspections	1/3 of system – recurring annual request	n/a	High
	Traffic counts and ped/bike counts	Various locations determined by DPW to measure traffic calming impacts, identify baseline data for future projects, and/or establish baseline data	n/a	High

POTHOLES

How they form and how we repair them.

CAUSE AND EFFECT

Potholes are formed when water infiltrates through cracks in the pavement, freezes, and expands, lifting the asphalt causing more failures in the surface.



Other causes of potholes

- Poorly installed utility patches.
- Insufficient thickness of the roadway.
- Poor subbase material, or material installation.
- Poor drainage.

HOW DPW REPAIRS POTHOLES





MATERIALS USED FOR REPAIR

- Bituminous concrete. (Asphalt) - DPW stockpiles up to 40 tons of asphalt in the fall before the local asphalt plants close. DPW breaks the cooled asphalt with our hydraulic jackhammer into smaller manageable pieces and covers to keep snow and ice from contaminating the material.
- When weather permits we load our trailer with the pieces of broken asphalt to be reclaimed, and set the timer to come on the night before we anticipate filling potholes. Overnight the asphalt will be reheated to 370+/- degrees. When crews arrive at 7am the mix will be ready to apply to potholes.
- Cold patch, or cold mix. (Purchased through local asphalt company where they mix the asphalt liquid solution with stone aggregate to create cold patch mix.
- Cost comparison of materials. Asphalt - \$65.00/ton. Cold patch - \$123.00/ton.

EQUIPMENT



PROACTIVE NOT REACTIVE

- Crews proactively milling this past fall, areas with damaged asphalt to mitigate potholes during the winter/spring months.
- Also part of our being proactive, we have recently started stockpiling 40 tons of asphalt in the fall for reclaiming. This enables us to fill potholes in the winter/spring months while the asphalt plants are closed. (Asphalt is considerably cheaper and more effective than cold patch.)



FY'20 TO DATE AT A GLANCE

- Total amount of asphalt used to fill potholes - 100 Tons @ \$65.00/ton.
- Total FTE and PTE employee hours spent filling potholes - 549Hrs.
- Total cost to fill potholes - \$45,588.00
- During the pothole season we try to respond within 48hrs of a report of a pothole. This response time can change due to weather conditions such as snow storms or other priorities such as sewer breaks or other unforeseen failures.

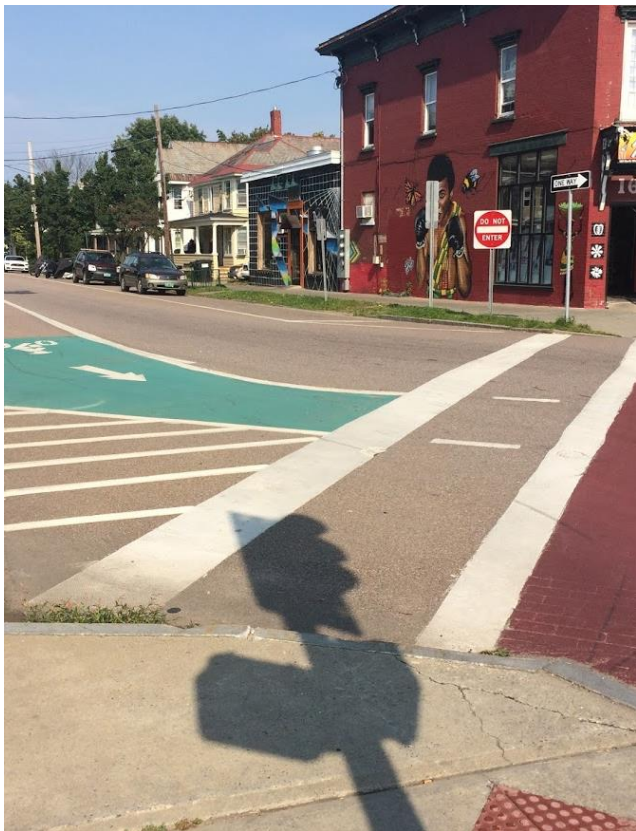
WORK FLOW

(How is DPW notified of potholes)

- See Click Fix - In calendar year 2019 there were about 600 resident initiated pothole complaints.
- Answering service - We have a full time employee on call on a rotational basis 24/7. Dangerous potholes and unsafe road conditions can be called in and an employee will respond. It is not uncommon to have employees called in on the weekend to fill potholes.
- Employees on their way to and from work.
- The Streets Maintenance Manager will ride around and check historical problem areas and create a pothole list.
- (Pothole filling operations are very weather dependent as we still have plowing operations at times, and severe cold dictates the materials we use).

THANK YOU FOR YOUR TIME





Winooski Avenue Transportation Study

TEUC Mtg | Project Summary

February 4, 2020

Study Overview

A comprehensive **transportation study** of the **entire Winooski Avenue corridor**, developing **multimodal improvement strategies** that address **safety**, **capacity**, and **connectivity**.

Final deliverable: An actionable implementation plan with near-term and longer-term recommendations.

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

Public Engagement

The public engagement process was guided by these four elements:

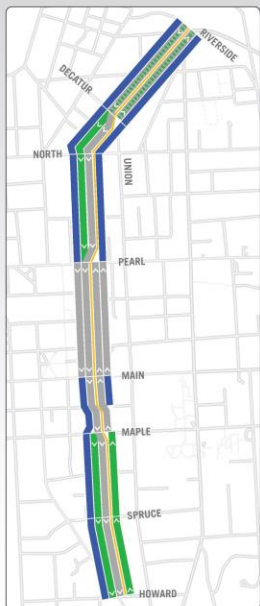
- Project Advisory Committee (PAC):
 - 7 meetings (between May 2018 and Jan 2020)
- Public Forums.
 - 3 forums (Sept 2018, June 2019, Nov 2019)
- Stakeholder Interviews.
 - Individual meetings with organizations and businesses along the corridor.
- Continuous Communication.
 - Project website
 - NPA meetings (two cycles through the NPAs on existing conditions and alternatives)
 - OpenStreets BTV table
 - Old North End business engagement



Where have we been? Schematics – 13 Variations!

- Existing conditions → Issues and Opportunities
- Alternative development → Iteration and Feedback
- Evaluation of alternatives → Recommended Alternative
- Public comment and refinement → Preferred Alternative and Implementation Plan

EXISTING



ALTERNATIVE 1

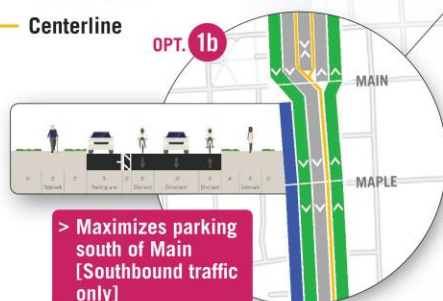
OPT. 1a



LEGEND

- Widening
- Parking
- Bike Lanes
- Shared Lanes
- Vehicle Lanes
- Centerline

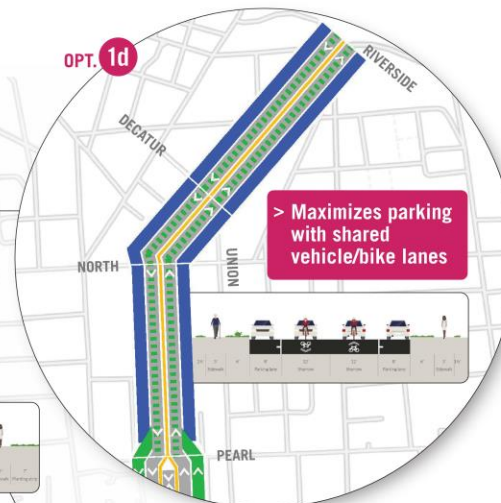
OPT. 1b



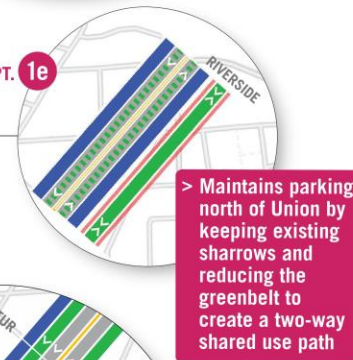
ALT. 1



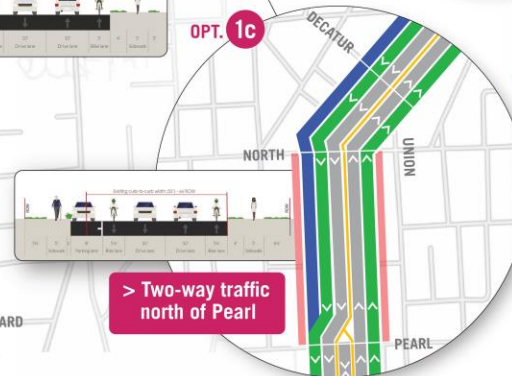
OPT. 1d



OPT. 1e

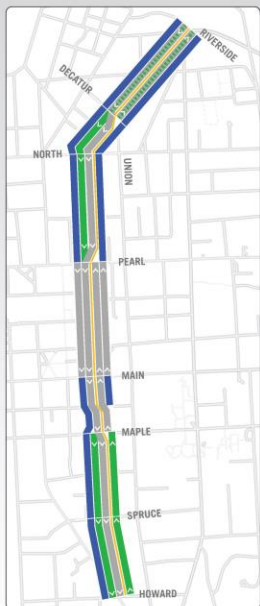


OPT. 1c



ALTERNATIVE 2

EXISTING



LEGEND

- Widening
- Parking
- Bike Lanes
- Shared Lanes
- Vehicle Lanes
- Centerline

OPT. 2c

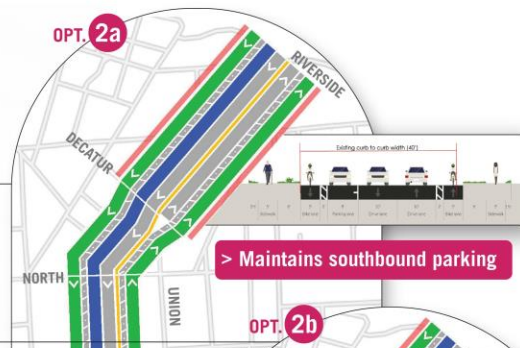


> Creates a curbed median between intersections that will allow left turns onto College, Bank, and Cherry Streets

ALT. 2

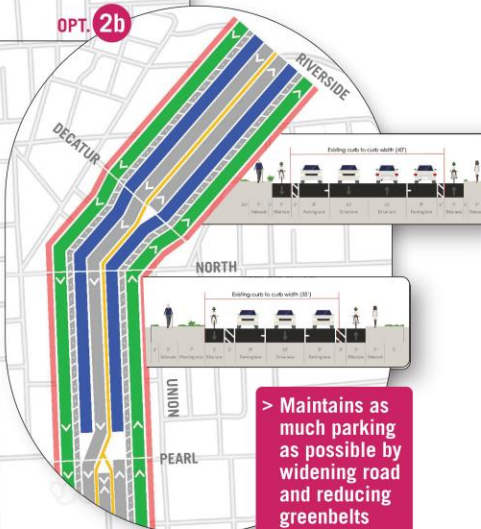


OPT. 2a



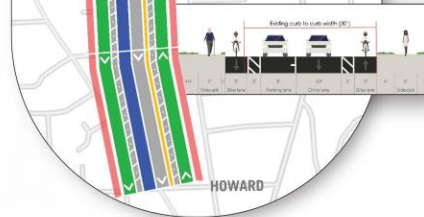
> Maintains southbound parking

OPT. 2b



> Maintains as much parking as possible by widening road and reducing greenbelts

2a-2b



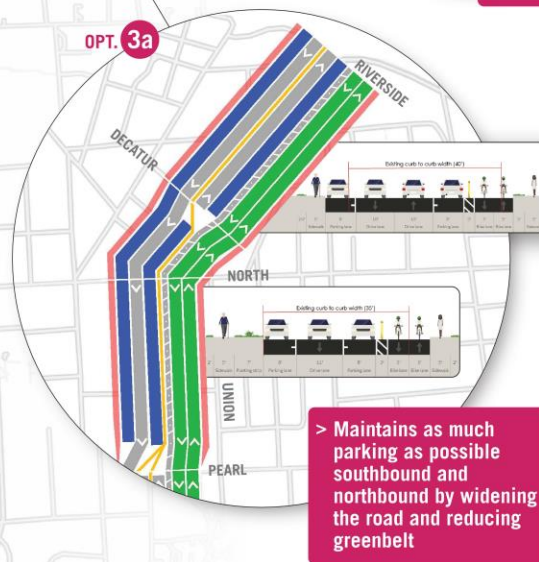
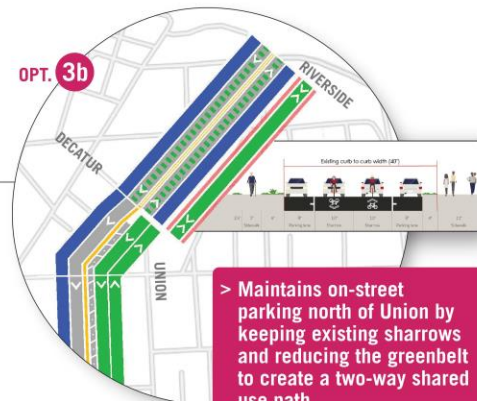
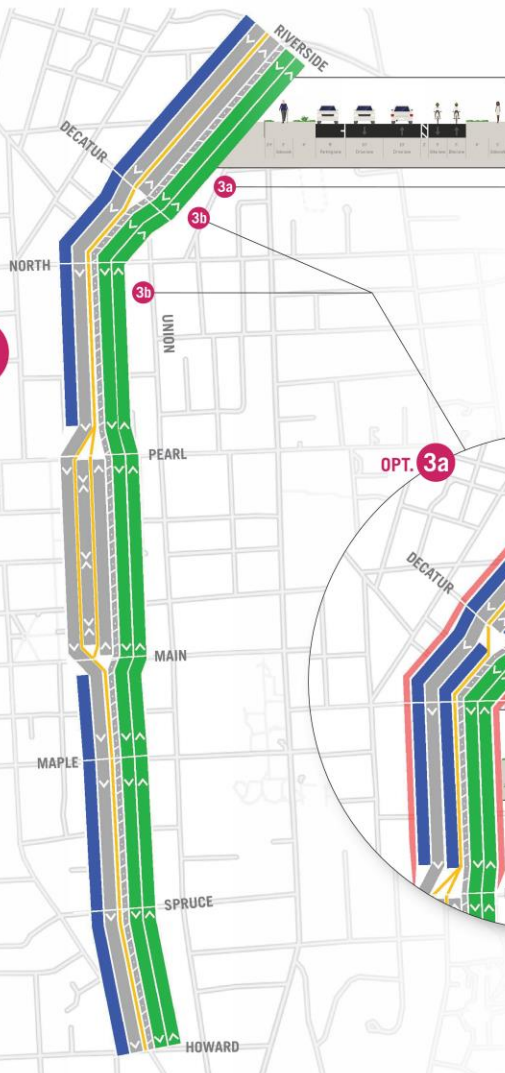
ALTERNATIVE 3



LEGEND

- Widening
- Parking
- Bike Lanes
- Shared Lanes
- Vehicle Lanes
- Centerline

ALT. 3





Preferred Alternative

Interim Actions (2020)

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

Northern Segment – Timeline

2020

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

2020–2021

- Initiate permanent installs of the mini-roundabouts upon successful trials.

2021

- Complete physical work upon agreement on Parking Management Plan outcomes. Retain current vehicle travel patterns, stripe bicycle lanes in both directions between, and remove east side parking between North Street to Pearl Street and Riverside Avenue to Union Street.
- Improve transit stops outside the community health center, reevaluate the mid-block crossing north of Union Street, and improve bicycle detection at the Riverside Avenue traffic signal.

Beyond 2021

- Identify funding to modify the roadway for longer-term improvements such as two-way traffic for all modes north of Pearl Street, expanded transit service, protected bicycle lanes where feasible, underground utilities, incorporate stormwater management, improve transit stops, add street trees, benches and other pedestrian amenities, and incorporate additional on-street parking wherever possible.

Downtown Segment – Timeline

2020

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

2020-2021

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

Beyond 2021

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

Southern Segment – Timeline

2020-2021

- Initiate preliminary design and engineering
- Engage with property owners and neighborhoods affected by change in parking and change in vehicle lanes.
- Complete the shorter-term projects and restriping of lanes
- Make final adjustments to shorter-term improvements in advance of roadway paving in 2022.

Beyond 2021

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

Downtown Section – a note on 2020 work

Known Challenges

- SSTA – limited options at Howard Center
- Driveway queueing at City Market and Marketplace Garage
- Relocate commercial deliveries
- Complete roadway design and signal timing plan
- Hire contractor

Risks to Schedule & Success

- No resolution to SSTA or City Market queueing, congestion blamed on project, safety challenges exacerbated
- Contractor availability & weather
- Opposition could delay project
- Limited staff capacity for signal work
- Limited capacity for other challenges

Established Plan

- DPW staff time committed
- IFB this week for contractor
- Design contract by Feb. 19
- Monthly meetings with Howard Center, City Market, others
- Ordinance changes by Sept.

Requested Action

- We respectfully request the TEUC sponsor a Resolution for City Council requesting the Department of Public Works implement the recommendations of the Winooski Avenue Transportation Study and provide bi-annual updates to the TEUC and area Councilors.



Thank you



CITY OF BURLINGTON, VERMONT
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Councilor Maxwell Tracy, Chair *WARD 2*
Councilor Jack Hanson, *East District*
Councilor Franklin Paulino, *North District*

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Transportation, Energy and Utilities Committee of the City Council

Tuesday, February 4, 2020 5:30 PM

**Burlington Department of Public Works – Front Conference Room
645 Pine Street – Burlington, VT**

–AGENDA–

1. Meeting started at 5:34 pm
2. Minutes of 1/22/2020 approved at 5:34 pm
3. Public Forum
 - a. Jane Knodell, There are serious concerns over the loss over parking due to the Winooski Avenue corridor work. I would like to speak to the plan, with a comprehensive parking management plan, no changes will be made until agreements have been developed. Who is doing the parking management plan? Will there be an opportunity for public participation? There should not be language in the resolution which refers to removing parking north of Pearl Street. We don't really know what the use of space is, we need to make sure we know what the use is before we just do it. We need to make sure the study has integrity.
 - b. Chris Adams, if the parking study is going to be done, it needs to be done by a non-bias party. It needs to be done at the most crucial times of the day. The reality is, people are not riding bikes 12-months out of the year. There are new businesses, and removing parking will cripple all businesses in the area, the system is already overtaxed. The loss of parking should be up to the people that live in these neighborhoods.
 - c. Eliana Fox, Can everyone who rode a bike to this meeting please raise your hand? (several members of the public raise their hand) As you can see there are plenty of people that ride their bikes 12 months out of the year. The framing of this conversation is troubling. This is reallocating public right-of-way and not loss of parking. We need to be creative when we are adding bike ped infrastructure. What would your ideal commute be? This conversation has limited our ability to look beyond this.
 - d. Greg Hostetler, I walk, drive a car, ride a bike, and ride the bus. Right now, riding a bike is the least safe. Driving a car is the most expensive.
 - e. Freddie, This area of N Winooski Ave feels very unsafe. It's a straight away and drivers go faster than other areas of the city.
 - f. My sense of safety has increased because of the work that was done on North Street, the area from Pearl to Main still feels unsafe. I appreciate your work.
 - g. Karen Local Motion, There are creative ways to make all modes work. Bikes, cars, bikes, and buses working together will make this community thrive. The next generation is not all buying cars, because they have high expenses. I believe this work is worth figuring out. The parking study needs to be done. There is a solution here, there is a tremendous amount of complexity. We would like to see the road diet with a raised boulevard in the middle, a demonstration project is the way to go.
 - h. Josh Katz is an intern with Sustainable Transportation Vermont, during my work we discussed these plans with local residents, and most people on the route really like the plans.
 - i. Tom Bisser, I rarely ride my bike because it is way too scary. I applaud this study. Where sidewalks cross driveways they sidewalks are broken up. We need to focus on sidewalk work and not just restriping.
 - j. Connor Old Spokes Home, on a frequent basis I deal with the low income Vermonters. Based on research we did a couple years ago most of the approximately 1500 people ride their bikes as their primary form of transportation. I feel it is important that I advocate for those people.
 - k. Jason Van Driesche, don't let perfect be the enemy of the good. We would like to see the street restriped right away, the earlier the better.

- l. If you made Winooski Ave one way all the way you would have all the space you need without removing any parking.
- m. Rick Sharp, I support what you do 100%. I would caution you to beware the use of roundabouts. These are not ped or bike friendly, actually roundabouts are unsafe for bicyclist and pedestrians. The quicker the better, there is no opposition between Pearl and Main Street
- n. Natalie Braun, climate justice activist. I support any initiative that reduces greenhouse gases. Active transportation reduces greenhouse gases. We have a great opportunity to provide leadership to other adjacent communities.
- o. Dylan, active biker and ped, some of my experiences on N Winooski Ave, it was very dangerous, I had a couple close calls. I work on Riverside and I still have had close calls. I lived in Copenhagen, and the use of good bike infrastructure has transformed that community.
- p. JJ Van Det, lets stick to what we decided in Plan BTV, this is public access, this is conversation about public access. We need to stick to the plans we have made.
- q. Ryan Lovejoy, the problem is that we are going all in, and you have a track record of going too far. We have to live in the real world; we need to think through things. The crosswalks on Pine Street and North Ave are not used. Bikers run red lights and this is why accidents happen. Education and enforcement would go a long way to making things safer. There needs to be more compromise.
- r. Jacob Flanagan, this corridor has changed allot in the last ten years, but the actual road has not. I'm excited to see these new plans. I hope we can actually move ahead with something. We have changing needs we should adapt.
- s. Kirsten Mermen Shaprio, Champlain Housing Trust, we have concerns about the removal of parking. While there has been a nod to a parking management plan, we are concerned the parking will be removed and what will remain is what will be managed. The parking management plan should include an economic study as well, a comprehensive look at the changes being proposed. Who is actually making this decision? The resolution being presented is lacking in detail. There is uniform agreement that some work needs to proceed, the most dangerous areas should proceed. Many low income people have bikes, many low income folks have cars and those cars are not new or electric cars and these people still need cars. Many of these people work outside of Burlington and do not have the choice to not have a car.
- t. Johnathan I would echo the sentiment to stripe the work south of Pearl. I would encourage a parking study to understand that the use of public ROW for parking cars is prioritizing the storage of personal property over safety.

4. Winooski Avenue Transportation Study

- a. Nicole Losch, DPW
- b. Public questions, short comments
 - i. Jason Van Drieshe, will the five lane conversation be held up by small details like the SSTA bus and commercial deliveries? The design will not be a quick process, there are several cascading effects. The timing of the lights the commercial vehicles etc. The commercial vehicles will be blocking a dedicated travel lane if we just stripe it without working with the local businesses.
 - ii. The roundabouts, I don't agree with your analysis; I don't think 2000 pound cars should not be at the same level as the pedestrians or bicyclists. 2/3 of the budget should not go to this project.
 - iii. Is this new system going to relieve congestion? Potentially, but this is dependent on finding solutions for commercial vehicle parking. There are new wayfinding signs which should help too.
 - iv. Concerning the median, what section will the median be on? There may potentially be a median between Pearl Street and Main Street.
 - v. How is bus traffic affected? The bus stops would not be affected. All the bust stops will remain.
 - vi. The bus is supposed to run every 20 minutes, how are bikers going to get through? You wait until the bus is done and out of the way.
 - vii. Speed is a problem, but I have not heard that addressed. How are you balancing safety improvements against these safety improvements as it relates to speed? The new striping configuration will slow people down.
- c. Councilor discussion
 - i. Councilor Hanson, climate change is a major issue and often gets lost in these transportation conversation; it is important for us not to forget the climate crisis. The City has gone through several public processes which have been approved, and we are so far from achieving what we agreed to do. It's time to stop planning and start doing. I'm excited about what we are seeing here. While we might not be able to perfect every issue, we need to move forward with something. Trying to clarify, what is this parking management plan? Nicole Losch, the parking management plan will identify what the current demands are and how we can better utilize

existing resources more efficiently. The goal is to preserve as much on street parking as possible and balance the safety of pedestrians and bicyclists. We can come to a later meeting to better describe the Parking Management Plan.

- ii. Councilor Tracy, we need to make sure we consider ADA spaces, more wheelchair accessibility.
 - iii. Councilor Paulino, from a traffic volume perspective, how will these changes affect traffic volume? I am concerned about traffic volume. How much impact will this have on volume and serviceability? Winooski Ave has approximately 13000 vehicles a day, the city initiated a phase one study which is available on the website, and vehicle traffic focused study is in this study. A common threshold is 20,000 vehicles per day a loss of vehicle lanes is when there are problems. Did you consider bus pull outs? We did, however it does not really help achieve the goals of this study. The DPW Commission will be involved with the parking management plan, because they have to approve regulatory changes.
 - iv. Councilor Tracy, when will south end striping occur? The striping will happen this year, most likely late Summer early Fall from Maple all the way to Pearl Street. The DPW Commission does not meet in August, we can find a date in August which should be able to move the striping ahead. Nicole Losch is adding language to the resolution to get striping done south of Pearl done quicker. Can we use quick build to move forward changes on Winooski and Main Street? Can we capture that in the resolution? Nicole will add that language. Who is going to do the vetting? We haven't fully vetted this out, there will be a much expedited review process. Is there anything we can do to make the Riverside and Archibald intersections safer? Both of these intersections are challenging. Perhaps a realignment at each of these intersection long-term, there is not allot we can do short-term.
 - d. Motion on the Resolution to sponsor the work moves forward, this will be based on Nicole's work through the language with the TEUC. We will be adding language around 21-23, this is around the parking management plan, for the downtown section 26-30 we will add language prioritizing protection to walking and biking. Councilor Paulino will not support the resolution. Councilor Hanson, I support this because the status quo is worse than doing nothing; I know this will not be perfect. The resolution passes, Councilor Tracy and Councilor Hanson yes and Counselor Paulino no.
5. **FY21 CCRPC Unified Planning Work Program**
 - a. Nicole Losch, DPW
 - b. Motion to authorize local match requirements, the motion passes unanimously.
 6. **Adoption of 2019 VTRANS Town Road and Bridge Standards**
 - a. Laura Wheelock, DPW
 - b. Motion to sponsor adoption of VTrans standards, the motion passes unanimously.
 7. **Franklin Square Street Acceptance and Infrastructure Assessment**
 - a. Phillip Peterson, DPW
 - b. Communication submitted to the TEUC through a memo.
 8. **E-Bike Briefing**
 - a. Nicole Losch and Rob Goulding, DPW
 - b. This is an opportunity to find a more local company to do this work. What we've seen, a main reason OJO wanted to obtain Gotcha is because Gotcha is hooked into smaller markets. Our contract with Gotcha still makes sense, all signs are go from them. Is there still an opportunity for someone to form a cooperative? DO we have anything more specific? We were eagerly anticipating an April date; but we're not sure. No contract was signed; we did not sign due to escalated pricing and other issues with outdoor bike-shops. The company OJO, they only have three cities they are actually in; whereas Gotcha is scooters and e-bikes, so I am skeptical this merger means they will actually stick with what we want. Are we having an environmental impact by using these e-bikes? The way you make these things work is by tapping into the tourist market. Have there been any major changes? The escalating prices are a consideration, and this contract is year to year, so if we have a failure here or in other areas we can get out of our contract. We have many performance measures which will inform working with Gotcha as time goes by. Linka is an app which allows any bike to become shareable.
 - c. Informative, no action needed.
 9. **Next TEUC**
 - a. 3.17.20 at 5:30 pm
 10. **Adjourn**
 - a. Meeting adjourned at 8:50 pm.