



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

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Councilor Maxwell Tracy, Chair, WARD 2
Councilor, Tom Ayres, WARD 7
Councilor William "Chip" Mason, WARD 5

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Transportation, Energy and Utilities Committee

DRAFT MEETING MINUTES:

Wednesday, April 30th - 2014 at 4:45 PM

**DPW – Front Conference Room
645 Pine Street – Burlington, VT**

Members present: Chair, Maxwell Tracy (TEUC)
Tom Ayres (TEUC)

Others present: Pat Buteau, DPW
Guillermo Gomez, DPW
Nicole Losch, DPW
Chapin Spencer, DPW

Chair Tracy called the meeting to order at 4:51 pm.

1. Agenda

Chair Tracy moved to approve the agenda. All in favor.

2. Public Forum

3. Minutes of 3/6/14

Councilor Ayres moved to approve minutes from 3/6/14. All in favor.

4. Traffic Fund Discussion – Pat Buteau, Chapin Spencer - DPW

Spencer: Traffic fund is currently strained. We are looking for opportunities to find efficiencies and increase revenues.

Buteau: There are four areas that we are trying to change

1. Eliminate Operating Deficit

2. Capital Investment (Assessment)
3. Stabilize Traffic Fund
4. Secure cash to purchase technology upgrades

We are considering different measures to achieve these objectives:

- Easy fixes, such as garage automation.
- Turning garages into 24/7 facilities
- Provide extra security
- Potential increases and extended hours for meter enforcement in downtown
- Demand sensitive pricing
- Increase monthly leases

Multiple options are on the table. We wanted to bring this issue to the TEUC to get some input before going in front of the full commission.

Tracy: Are all these measures expected to be rolled out at the same time?

Bureau: No. Different measures must follow different processes. For example we are looking at the 2 free hours of parking. The charter says that 2 hours of free parking must be provided, but it doesn't specify where. The Marketplace garage is the busiest facility in Downtown; however, some 70% of the users are non-paying users (users under 2 hours). One option is eliminating the 2 free hours in the Marketplace Garage, but providing those 2 free hours at other locations.

Ayres: Could you talk about the extended meter enforcement time and the timeline for rollout?

Bureau: Some of the current parking meters that we have are 3-hr meters, plus some that are 10-hr meters. Current enforcement is between 8 am and 6 pm.

Ayres: If we change enforcement hours, I am concerned about the consequences on art events. I know the Flynn can sometimes have events that go over the 3-hr mark.

Bureau: With the implementation of new technologies, such as smart meters, we want to get rid of the time restriction

Ayres: Is it true that there are apps that will give notifications to users?

Bureau: We are currently looking at different types of technologies. There are apps with multiple features in the market. Apps can inform users when their meter time is about to expire. There are technologies that read license plates, so if someone has put money in their meter and still have time left, they can park elsewhere and still make use of this time.

Spencer: We are planning to talk to the Mayor to see which of these technologies we should roll out and how. We have a study underway that will provide recommendations, but in the meantime, we consider that we should take interim measures to address all these issues. We would love the TEUC's input. We plan to talk to the Mayor and then to the Public Works Commission. We want to know if you consider all these measures something defensible.

Tracy: I think all of what you are presenting here is defensible. I support what you are proposing and I will be happy to attend the commission meeting.

Spencer: After our meeting with the Mayor, we will come to the TEUC with a formal proposal

Ayres: If I have no conflict, I will also be happy to attend the Public Works Commission meeting. I will also be happy to convey my support to the Mayor.

Buteau: Hoyle Tanner & Associates was selected recently to conduct a Parking Assessment Study.

Ayres: Regarding the installation of smart meters, what is the timeline for this city-wide?

Buteau: Each of the smart meters costs between \$6,900 and \$7,900. Each meter is supposed to be for approximately 10 parking spaces, which is related to how much people are typically willing to walk to the meter. We are looking to use technologies that do not require pay and display. Mostly likely, payment will be tied to license plates. And we are also trying to figure out some of the enforcement issues. Our initial plan would be for approximately 280 in the downtown core. We are looking also for other technologies, such as in-car meters. We have also other improvements coming, such as improved wayfinding.

5. DPW Fiscal Year 15 Budget Discussion – Chapin Spencer

Tracy: We requested to include this item in the agenda to start getting an idea of what the priorities for Public Works will be for the upcoming fiscal year. We don't want to talk about the numbers yet.

Spencer: We are getting ready to start rolling out a full blown budget for the new fiscal year. This time, we are happy to announce that water and waste water are not seeking a rate increase for next year. As you may already know, we are down one engineer in our staff, so we are in the process of hiring someone to replace Erin Demers. We do have multiple projects along the way. There will be some investment this fiscal year in new equipment. There will be no major changes in the budget for FY 15. We should be going to the full City Council in the upcoming weeks for the budget sessions. Preparation of the budget is well underway.

6. Sidewalk Funding – Nicole Losch, DPW

Spencer: We presented this topic to the Public Works Commission. This topic is line with one of the objectives of the City of providing operational excellence.

Losch: In order to sustainably maintain our current system, we want to reach a 35 year life cycle for sidewalks and a 75 year life cycle for curb. There are current identified issues with our network, but we are not investing enough keep up with the maintenance needs. Our goal is to improve the quality of our concrete infrastructure, by providing a safe and walkable network, and invest in curb repair and construction to prevent greenbelt scouring and compaction. The deterioration of curbs also has an impact in the water quality. We want to document the current state of our system and secure funding to implement our goals.

Our current sidewalk system consists of approximately 127 miles of sidewalk. 42% are deficient, with a Sidewalk Condition Index (SCI) of 51.3. Our yearly budget for sidewalks is approximately \$600,000. Since 2008-2009 we started prioritizing our work, but even with this, at the current rate of investment, sidewalks are on a 126 year life cycle. In the future, we want to add approximately 4.5 miles of new sidewalks to meet the City policy and secure adequate funding to bring the life cycle to 35 years.

Ayers: What are some of the deficiencies in the sidewalks?

Losch: Exposed aggregate, spalling, horizontal displacement, vertical displacement, obstructions, cracking, and drainage problems. Most of the repairs are done by our right-of-way crews.

We don't have as much information about our curb system. We don't know how many miles of curb we have, but we would like to have approximately 132 miles of curb. Currently there is no dedicated funding source for curb repair or construction. We dedicate yearly approximately 10% of our sidewalk budget on curbs but that is not nearly enough. There are multiple funding strategies that we have been researching, such as property tax variations, material options and district based modeling (see presentation). We brought this subject to the last Public Works Commission. They provided some input regarding the funding options we should consider or reject. We are planning to return to the Public Works Commission next month for a funding recommendation. After this, we will come back to the TEUC and then the full City Council, before going to the general public.

Tracy: Is the plan to bring this to the next Town Meeting Day?

Spencer: I am supportive of a dedicated funding source. We are still waiting to hear from the Public Works Commission. They asked to take a closer look at the funding alternatives.

Tracy: I am glad this conversation is happening. This has been one of my top goals, based on the feedback I received from residents. I think if this is put on the ballot, it would be supported.

Ayres: I think this would get a positive reaction at the New North End as well.

Spencer: What do you think is the next step we should take?

Ayres: What was the reaction from the Public Works Commission?

Losch: We would also like to present the option of reducing or cutting other services together with a few other alternatives and gauge the reaction to see how we should proceed after.

Tracy: We will need to know the timeline for this and clarity on who needs to approve what.

Spencer: If it is a tax increase, it will have to be approved by the City Council.

Losch: We can't really advocate for any of the options. We can research, present and inform people, and then the decision makers will eventually have the final word.

Ayres: I think multiple groups should be involved in this effort, such as the local NPAs, the Crossing Guard Program, AARP, etc.

Tracy: I will check with the Mayor to see how this fits with the City's priorities.

Spencer: Is this something that we should pursue for the November election?

Tracy: I think that November is a good time, since the winter will allow time for preparation.

Ayres: Given all that there is under discussion currently, it might be better to give it some more time.

Spencer: Can you bring this to your respective caucuses?

Tracy: We will bring up the subject.

Ayres: Please send the material related to this presentation.

7. North Avenue Corridor Study Update – Nicole Losch, DPW

Losch: We have an upcoming Public Meeting. I will now provide a brief review of the study.

The corridor study is evaluating North Avenue from a Complete Streets perspective and is developing recommendations for remaking the corridor to accommodate all users. There are numerous stakeholders that are part of the Advisory Committee for this study (City Council, the School District, City of Burlington, CCRPC, CCTA, AARP, NPA Reps from Wards 3, 4 and 7, Local Motion, Livable Communities).

The corridor was divided into five distinct corridor segments for the purpose of the study. Each segment has its own characteristics and issues. The existing conditions and improvement options were documented and presented at a Public Workshop that took place on February 20, 2014. A wide range of options were presented to attendees and short-term, mid-term and long-term solutions were developed throughout the corridor.

The next step is to analyze the specific transportation improvements options and how they address identified issues to meet the corridor vision and goals. The next Public Workshop will be held on Tuesday, May 20th at 7:00 PM at St. Mark's Church Family Center.

Ayres: What has been the response from the other Councilors?

Losch: I have met with councilors Hartnett and Wright. I haven't heard from Bianka.

Ayres: Any input?

Losch: Councilor Wright encouraged us to reach out more to the New North End residents because there are still a lot of people that we haven't heard from.

Ayres: How many of the proposed concepts can be initially implemented as pilot projects?

Losch: We are looking into this, but it is a challenge. As we realign travel lanes, traffic will depend on what treatments we have at the intersections.

Ayres: I have a feeling this will be contentious. On one side you will have the bike advocates and on the other you have the drivers. If there are any concepts that can be initially installed as pilots, this could probably help easing some concerns. We are also interested in economic development.

Losch: There is a strong link between land use and transportation. We are definitely interested the opportunity that this study provides to promote economic development.

Ayres: I am committed to this process. Multimodal safety was one of my priorities during my campaign. Are there any concerns about the length of trips along the corridor?

Losch: This is something we are looking into. With changes on the road, there will likely be some kind of impact. It is a matter of determining what the impact will be and if it is acceptable.

8. Councilors' Updates

The next TEUC meeting will take place on Wednesday, May 28th at 4:45 PM at the Front Conference Room at Burlington Public Works.

9. Adjourn

Tracy moves to adjourn. All in favor. Meeting adjourned at 6:31 PM.

DRAFT



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Transportation, Energy and Utilities Committee of the City Council

Wednesday, May 28th, 2014 at 4:45 PM

Burlington Public Works – Front Conference Room

645 Pine Street – Burlington, VT

–AGENDA–

1. Agenda
 - a. DISCUSSION
 - b. ACTION
2. Public Forum
3. Minutes of 4/30/2014
 - a. DISCUSSION
 - b. ACTION
4. Newly Adopted Lighting Policy- Jean O’Sullivan, Burlington Electric Department.
5. Adoption of Town Road and Bridge Standards – Nicole Losch, David Allerton, DPW
6. Colchester/Pearl/Prospect Scoping Study – Nicole Losch, DPW
7. Downtown Parking Initiative – Nathan Wildfire, CEDO
8. Councilors’ Updates
9. Adjourn

Report of the Streetlighting Committee to the Burlington Electric Commission

Committee Members:

Chair: Jean O'Sullivan (member of the BEC)

Bob Herendeen (member of the BEC)

Ron McGarvey (citizen member)

David Pope (citizen member)

The Committee met several times through the fall of 2013 with the sole purpose of developing a streetlighting policy for Burlington Electric Department.

Included in this report are:

1. photos of street lights currently being used,
2. current practices that are now being used at BED, and
3. a copy of the draft policy, which was unanimously approved by the committee.

Current street lighting procedures at BED

Responsibility for Lighting City Streets:

Burlington Electric Department (BED) has been tasked by the Burlington City Council with the responsibility to light the accepted city streets of Burlington.

Street Lighting Standard:

Current street lighting practices at BED are the following: Street lighting has been designed to conform to the Illuminating Engineering Society (IES) recommendation for lighting levels (footcandles) and uniformity (contrasts between bright and dark spots).

All new non light-emitting diode (LED) street light fixtures shall be full cut off and energy efficient. All LED fixtures shall be rated with the Backlight, Uplight, and Glare (BUG) system with color temperature of 4,000 K. Street lighting fixtures are purchased based on performance, durability, workability and cost. When evaluating the performance of the street light fixture, BED creates a road template and evaluates the light level on the street, sidewalk, and beyond the sidewalks. The goal of the evaluation is to choose an energy efficient fixture that provides adequate lighting on the street and sidewalk with the “lowest” light spill beyond the sidewalks.

Standard Street Lighting System:

The street lighting system will consist of an LED cobra head fixture rated according to the BUG system and mounted at approximately +/- 30 feet on an existing utility pole or on a new 35 foot wooden/fiberglass pole. BED will supply power via aerial service for streets with aerial electrical circuits and via underground service where BED’s electrical circuits are underground. Based on current technology, this standard system is the least-cost option available.

Non-Standard List of Fixtures and Poles:

The following non-standard fixtures and poles have been approved by BED:

- 1) Lumec L-70 Octogonal Lantern
- 2) Lumec Domus 50 series LED fixtures
- 3) Lumec Renaissance 20 series LED fixtures

Non-Standard Street Lighting System:

Occasionally the street lighting goals on certain city streets are not accomplished through the standard street lighting poles and fixture. In such situations an alternative system may be installed provided that the IES recommendations are met. In cases in which a customer (other than the City) or a group of customers request a non-standard street lighting system, the customer or the group of customers shall be responsible for the cost in excess of the standard system.

Existing Streets with Decorative Fixtures:

Existing decorative fixtures may not meet the “full” cut-off fixture requirement, may not be rated with the BUG requirement, may not be energy efficient fixtures, and may not be available for replacement. Also, the height of the poles and intensity of the lights may be too low to meet the IES requirement on the street. When preexisting decorative fixtures need replacement they are either replaced with the same fixture if available or, if unavailable, those fixtures/poles are swapped out for BED’s standard 35-foot wooden/fiberglass poles and LED cobra head fixtures.

Street Lighting Process

BED follows the following street lighting process:

- a) When a street light fixture fails on a street that doesn't meet the IES lighting recommendation, the fixture is replaced with an equivalent output LED full "cutoff" cobra head fixture.
- b) When BED's electrical system rebuild/upgrade project is underway, BED will use this opportunity to change out all the lighting and bring the street up to the IES guidelines. This may include replacing fixtures on existing poles or adding new poles and fixtures.
- c) When BED receives requests from customers to check the lighting levels on a street, BED will investigate the lighting request by performing a street lighting study. If the study indicates the lighting level on the street is below the IES recommendations, BED may upgrade by replacing fixtures on existing poles and adding new poles and fixtures. BED shall add this project to the street lighting capital plan and implement it as budget allows. If the study indicates the lighting level meets the IES recommendation, BED shall inform the customer that the street lighting is adequate and meets the IES recommendation. If the study indicates the size of the fixture needs to be reduced to meet IES recommendations, BED will replace lighting fixtures with lower wattage fixtures. BED shall add this project to the street lighting capital plan and implement it as budget allows.
- d) BED maintains a street lighting capital plan that lists the streets where the lighting will be upgraded or new lights will be installed to meet IES recommendations. This plan includes street lighting projects specified by BED, projects driven by the City/State projects, and projects driven by BED's Customers requesting that lighting levels be checked.

Statement of Purpose:

This street lighting policy is to be followed by Burlington Electric Department and the City of Burlington when installing standard street lighting poles and fixtures, and making decisions about the location of decorative poles and fixtures and banners that are attached to the poles. When choosing street lighting energy efficiency will continue to be a very high priority. Burlington will continue to be aware of dark skies goals as a component of lighting policy. This policy will inform citizens of the standards, guidelines and procedures that Burlington Electric Department employs to safely illuminate Burlington streets, adjacent bikeways and pedestrian ways.

Responsibility for Lighting City Streets:

Burlington Electric Department (BED) has been tasked by the Burlington City Council with the responsibility to light the accepted city streets of Burlington.

Street Lighting Standard:

Street lighting in Burlington, Vermont, conforms to the Illuminating Engineering Society (IES) recommendation for lighting levels (footcandles) and uniformity (contrasts between bright and dark spots).

Street lighting fixtures are purchased based on performance, durability, workability and cost. When evaluating the performance of the street light fixture, BED will create a road template and evaluate the light level on the street, sidewalk, and beyond the sidewalks. The goal of the evaluation is to choose an energy efficient fixture that provides adequate lighting on the street and sidewalk with the lowest light spill beyond the sidewalks. LED fixtures will be the standard and shall be rated with the Backlight, Uplight, and Glare (BUG) system with color temperature of 4,000 K. The BUG system was started by IES in 2005 to reduce stray lighting that escapes from an outdoor lighting luminaire.

Standard Street Lighting System:

The street lighting system will consist of an LED cobra head fixture rated according to the BUG system and mounted at approximately 30 feet above the street on an existing utility pole or on a new 35- foot wooden/fiberglass pole. BED will supply power via aerial service for streets with aerial electrical circuits and via underground service where BED's electrical circuits are underground. Based on current technology, this standard system is the least-cost option available.

Decorative Lighting and Banners

When the City designates decorative lighting districts and banner districts the city shall inform BED of such designations.

For decorative lighting districts, BED with advice from the Planning Department will select one decorative lighting fixture and pole that will be used in the gateways and one in the commercial areas. (Pre-existing non-standard decorative lights will be maintained until the stock runs out, at

which point they will be replaced by the standard fixture and pole selected by BED, unless a new district has been named.)

For banner districts, banners will be affixed to the poles using manufacturer's recommendations. BED will install the banners and maintain them. The city shall sign a waiver of liability in regards to the banners.

BED has standard residential and commercial street lighting equipment. All increased costs above the standard amount for both equipment and maintenance of the banners and the decorative fixtures will be borne by the city. When requesting decorative street lighting fixtures and poles, the city will pay the incremental cost in advance in compliance with BED's Street Lighting Tariff.

New Development: Where new development causes the creation of new "accepted City streets", BED will install a standard lighting system.

Street Lighting Process

BED follows the following street lighting process:

- a) BED maintains a street lighting capital plan that lists the streets where the lighting will be upgraded/new lights will be installed to meet IES recommendations. This plan includes street lighting projects specified by BED, projects driven by the City/State projects, and projects driven by BED's customers requesting that lighting levels be checked.
- b) When a street light fixture fails on a street that doesn't meet the IES lighting recommendation, the fixture is replaced with an equivalent output LED cobra head fixture.
- c) When BED's electrical system rebuild/upgrade project is underway, BED will use this opportunity to change out all the lighting and bring the street up to the IES recommendations. This may include replacing fixtures on existing poles or adding new poles and fixtures.
- d) When BED receives requests from customers to check the lighting levels on a street, BED will investigate the lighting request by performing a street lighting study.

If the study indicates the lighting level on the street is below the IES recommendations, the street will be added to BED's street lighting capital plan, and upgrading the lighting to meet IES recommendation will be implemented as budget allows. This may include replacing fixtures on existing poles and adding new poles and fixtures.

If the study indicates the lighting level meets the IES recommendation, BED shall inform the customer that the street lighting is adequate and meets the IES recommendation.

If the study indicates the lighting level on the street could be reduced and still meet the IES recommendations by replacing lighting fixture(s) with lower wattage fixture(s), BED shall add this project to the street lighting capital plan and implement it as budget allows.



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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

Memo

Date: February 24, 2014

To: Transportation, Energy, & Utilities Committee

From: Nicole Losch, Transportation Planner
David Allerton, Public Works Engineer

Cc: Erin Demers, Public Works Engineer
Norm Baldwin, Assistant Director, Technical Services

Subject: Adoption of 2013 Town Road and Bridge Standards for the State of Vermont

BACKGROUND

In 2009 the Federal Emergency Management Agency (FEMA) adopted a policy which required municipalities to adopt "codes and standards" prior to a Public Assistance disaster declaration in order for a municipality to be eligible for certain FEMA benefits related to facility upgrades that are not governed by eligible state or federal codes or standards. As a result of that policy change, VTrans and Vermont Emergency Management (VEM) began working with FEMA, regional planning commissions, the Vermont Local Roads program, the Vermont League of Cities and Towns, and Agency of Natural Resources (ANR) on the development of a standard template of minimum codes and standards. By 1999, towns began adopting road and bridge codes and standards based on the template developed by this group.

The road and bridge standards were revised in 2011 and again in 2013 to comply with modifications to 19 VSA § 309 under State Act 110 of the 2009 – 2010 Legislative session. Act 110 resulted in:

- ✓ An incentive program which allows for an increased state share of funding to municipalities receiving grants under the Town Highway Class 2 Roadway and Town Highway Structures grant programs;
- ✓ A requirement that municipalities submit an annual certification of compliance in order to be eligible for receiving the financial incentive;
- ✓ A requirement that VTrans work with municipal representatives to "revise the Agency's current recommended town road and bridge standards to include a suite of practical and cost-effective Best Management Practices (BMPs) for the construction, maintenance, and repair of all existing and future town highways in order to address pollution caused by transportation-related stormwater runoff;"

- ✓ A requirement that, beginning January 15, 2013 and every four years thereafter, VTrans, in consultation with municipal representatives and with ANR approval, review and revise, as appropriate, the town road and bridge standards to ensure the standards are protective of water quality.

Until 2011, the only changes to the 1999 codes and standards template included language modification that: 1) prohibited a municipality from using a fiscal reason as a basis for modifying the standards for a specific project, and 2) required the municipality submit an annual certification of compliance to VTrans. These changes were in response to issues associated with FEMA reimbursement. FEMA insists that towns not modify “codes and standards” for fiscal reasons and that municipalities produce a copy of their adopted codes and standards when asked by FEMA. The 2011 standards recognized the BMPs for transportation-related stormwater runoff. The 2013 standards clarified erosion control and roadside ditch construction and maintenance, included new language regarding basic side slope treatments, changed the bridge and culvert section to discuss the appropriate sizing of culverts and avoid future confusion related to FEMA reimbursement, and included a statement requiring municipalities obtain all applicable state and federal permits for any relevant work.

In order to receive an additional 10% of state funding (80% for Class 2 Roadway grants and 90% for Town Highway Structures grants) starting with State fiscal year 2015 (July 1, 2014), municipalities must:

1. Adopt roadway and bridge standards that meet or exceed the minimum requirements of the January 2013 State-approved standards, and
2. Submit an annual certification to VTrans that their adopted codes and standards meet or exceed these minimum requirements.

The State encourages municipalities to follow the State-approved standards for several reasons:

- ✓ Adherence increases the likelihood that towns’ roads and bridges will survive flooding or heavy rain events;
- ✓ FEMA will use the standards when determining eligible work under the FEMA Public Assistance program during a federally-declared disaster;
- ✓ Without municipal codes and standards, FEMA generally will only provide funding that will rebuild to the conditions in place prior to the disaster if state or federal codes and standards do not apply to the project;
- ✓ Municipalities benefit from a 10% instead of 20% local match requirement for the total costs of a project funded under the Town Highway Structures and Class 2 Roadway grant programs;
- ✓ Beginning October 2014, municipalities will be eligible to receive a 12.5% instead of 7.5% state share of the FEMA-approved total project cost under the FEMA Public Assistance program;
- ✓ The standards address water quality associated with roadway runoff;
- ✓ The standards represent the best technical knowledge of the ANR and VTrans, balanced with practical considerations.

RECOMMENDATION

Public Works Engineers have reviewed the January 2013 Town Road and Bridge Standards (attached) and recommend the City adopt these standards. We request the Transportation, Energy and Utilities Committee approve the adoption and certification of compliance with these standards, and that the TEUC bring this recommendation to the City Council to adopt the January 2013 Town Road and Bridge Standards and authorize the City Engineer to annually certify compliance with these standards.

TOWN ROAD AND BRIDGE STANDARDS **TOWN OF _____, VERMONT**

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

The standards listed here are considered minimum and apply to construction projects and repair and maintenance activities. The standards include management practices and are designed to: ensure the safety of the traveling public, minimize damage to road infrastructure during flood events, and enhance water quality protections by minimizing sediment delivery to surface waters and/or wetlands.

The select board reserves the right to modify the standards for a particular project or repair or maintenance activities where, because of unique physical circumstances or conditions, there is no possibility that the project or activities can be completed in strict conformance with these provisions. Any modifications to the standards must be done in a manner that serves the underlying intent of the management practice, be it public safety, flood hazard avoidance, or water quality protection. Fiscal reasons are not a basis for modification of the standards. Questions about modifications to the standards should be directed to the VTrans District Office.

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 minimums of these standards. If any federal and/or state funding is involved in a project, the VTrans district office must be notified prior to any field changes taking place that would alter the original scope of work.

Roadways

- All new or substantially reconstructed gravel roads shall have at least a 12-inches thick processed gravel sub-base, with an additional 3 inches (minimum) top course of crushed gravel.
- All new or substantially reconstructed paved roads shall have at least a 15 inches thick processed gravel sub-base.
- All roadways shall be graded so water does not remain on the road surface. For roadways that are not super-elevated, this generally means a 2-4% ($\frac{1}{4}$ " - $\frac{1}{2}$ " per ft) crown for gravel roads and a 1-2% ($\frac{1}{8}$ " - $\frac{1}{4}$ " per ft) crown for paved roads to promote sheeting of water.
- Proper grading techniques for gravel roadways must be used to avoid creating a ridge or berm between the crown and the ditch.
- Any berm along the roadway shoulder that prevents the proper sheeting of water must be removed.

Ditches and Slopes

Soil exposed during ditch and slope construction, repair or maintenance must be treated immediately following the operation and temporary erosion prevention and sediment control practices must be installed and maintained during construction activities and until the ditch or slope is permanently stabilized.

The following are minimum erosion control measures. Careful attention must be given to areas vulnerable to erosion and immediately adjacent or discharging to surface waters and/or roadway drainage facilities:

- Seed and mulch all ditches with grades less than 5% when undertaking projects or repairs or maintenance activities that result in exposed soil. Vegetation must be established and monitored. If vegetation is not established within 10 days of placement, install biodegradable non-welded matting with seed.
- Stone line all new or reconstructed ditches or whenever soils are disturbed by maintenance activities with grades equal to and greater than 5%; alternatively, install stone check dams. The check dams must meet criteria outlined in the *“Standards and Specifications for Check Dams,”* from the *Vermont Standards and Specifications for Erosion Prevention and Sediment Control*. Specifically, dams must be placed so that the crest of the downstream check dam is at the same elevation as the base of the upstream dam.
- Create parabolic (wide “U” shaped) ditches when constructing new or substantially reconstructing ditches, rather than narrow “V” shaped ditches wherever lateral space allows. Ditches with gradual side slopes (maximum of 1:2, vertical to horizontal ratio) and a wide bottom (at least 2 feet) are preferred. Use biodegradable, non-welded matting to stabilize side-slopes where slopes are greater than 1:2 and less than 1:1 ½; apply seed and mulch to any raw or exposed side-slope if slopes are less than 1:2.
- All ditches must be turned out to avoid direct outlet into surface waters. There must be adequate outlet protection at the end of the turnout, either a structural (rock) or vegetative filtering area.
- If in the best professional engineering judgment of the VTrans Operations Division, there is a cost effective ditch treatment that will meet the intent of the management practices described above, but represents a departure from these standards, the municipality may implement the more cost effective ditch treatment alternative with the professional recommendation submitted in written form by VTrans prior to the municipality executing the work.
- When constructing new or substantially reconstructing side slopes, use appropriately sized stone armament on slopes that are 1:1½ or greater. If perennial streams are affected by the toe of slope the project must conform to the statewide Stream Alteration standards.

Culverts and Bridges

- Replacement of existing culverts and any new culvert must have a minimum culvert diameter of 18 inches.
- Replacement of existing bridges and culverts and any new bridges and culverts must be designed in accordance with the VTrans Hydraulics Manual, and, in the case of perennial streams, conform to the statewide Stream Alteration standards.
- All new driveway culverts must have a minimum diameter of 15 inches.
- When installing or replacing culverts, use appropriate techniques such as headwalls and wingwalls, where there is erosion or undermining or where it is expected to occur.
- Install a splash pad or plunge pool at the outlet of new or repaired drainage culverts where there is erosion or where erosion may occur. Splash pads and plunge pools are not appropriate for use in streams supporting aquatic life.

Guardrails

When roadway, culvert, bridge, or retaining wall construction or reconstruction projects result in hazards such as foreslopes, drop offs, or fixed obstacles within the designated clear-zone, a roadside barrier such as guardrail must be installed. The most current version of the AASHTO Roadside Design Guide will govern the analysis of the hazard and the subsequent treatment of that hazard.

Access Management

The town must have 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. Towns may reference VTrans A-76 Standards for Town & Development Roads and B-71 Standards for Residential and Commercial Drives; and the VTrans Access Management Program Guidelines for other design standards and specifications.

Training

Town highway maintenance crews must collectively attend a minimum total of 6 hours of training per year on best road management practices. The town must keep documentation of their attendance for a period of three years.

Passed and adopted by the Selectboard of the Town of _____, State of Vermont on _____, 20 .

Select Board: _____



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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

Memo

Date: May 23, 2014

To: Transportation, Energy, & Utilities Committee

From: Nicole Losch, Transportation Planner

Subject: Colchester Avenue / Pearl Street / Prospect Street Intersection Scoping Report Approval

BACKGROUND

In 2011 the Colchester Avenue Corridor Study was completed and the report adopted by the City Council. The 2011 report includes numerous recommendations to improve the safety and mobility for travelers along Colchester Avenue, including the need for additional scoping to identify long-term improvements to the intersection of Colchester Avenue / Pearl Street / Prospect Street.

At the request of the DPW, the Chittenden County Regional Planning Commission (CCRPC) advanced this scoping study in 2012. The study includes public and stakeholder outreach, existing and future conditions analysis, statement of the project purpose and need, assessment of alternatives, selection of a preferred alternative, and a final scoping report. The Steering Committee for this study includes representatives of the University of Vermont, Fletcher Allen Health Care, Campus Area Transportation Management Association, Chittenden County Regional Transit Authority, Local Motion, Burlington City Council, Ward 1 Neighborhood Planning Assembly, and Burlington DPW.

SCOPING STUDY DEVELOPMENT

In early 2013 several alternatives were developed, and the Steering Committee endorsed a pilot project to test one alternative as a short-term solution and possible long-term alternative. The pilot project (Figure 1) was launched in August 2013. Traffic data and observations were made in October 2013, which measured traffic operations against 2012 measurements. During the pilot project, an online survey was available from August through November 2013.

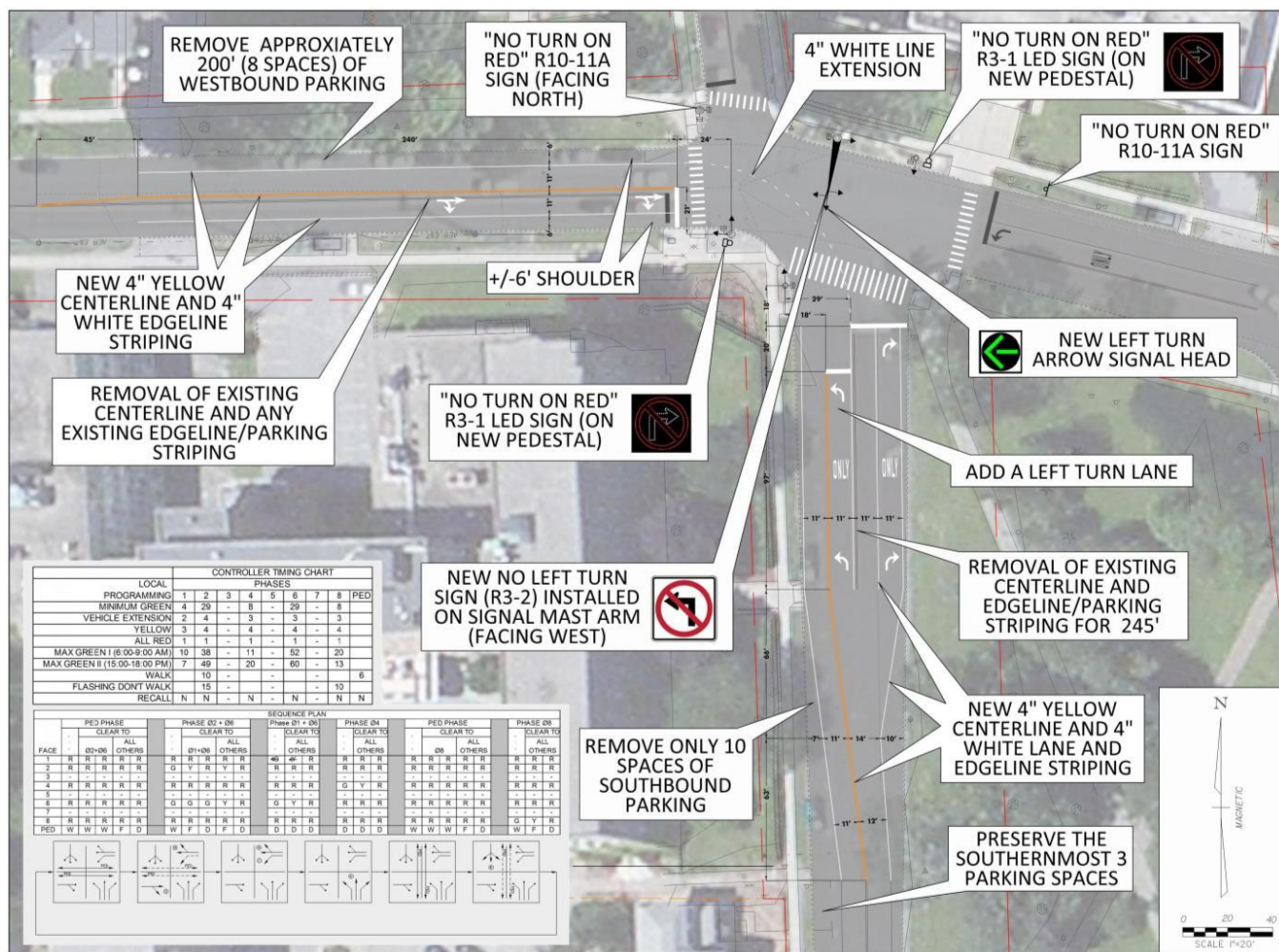
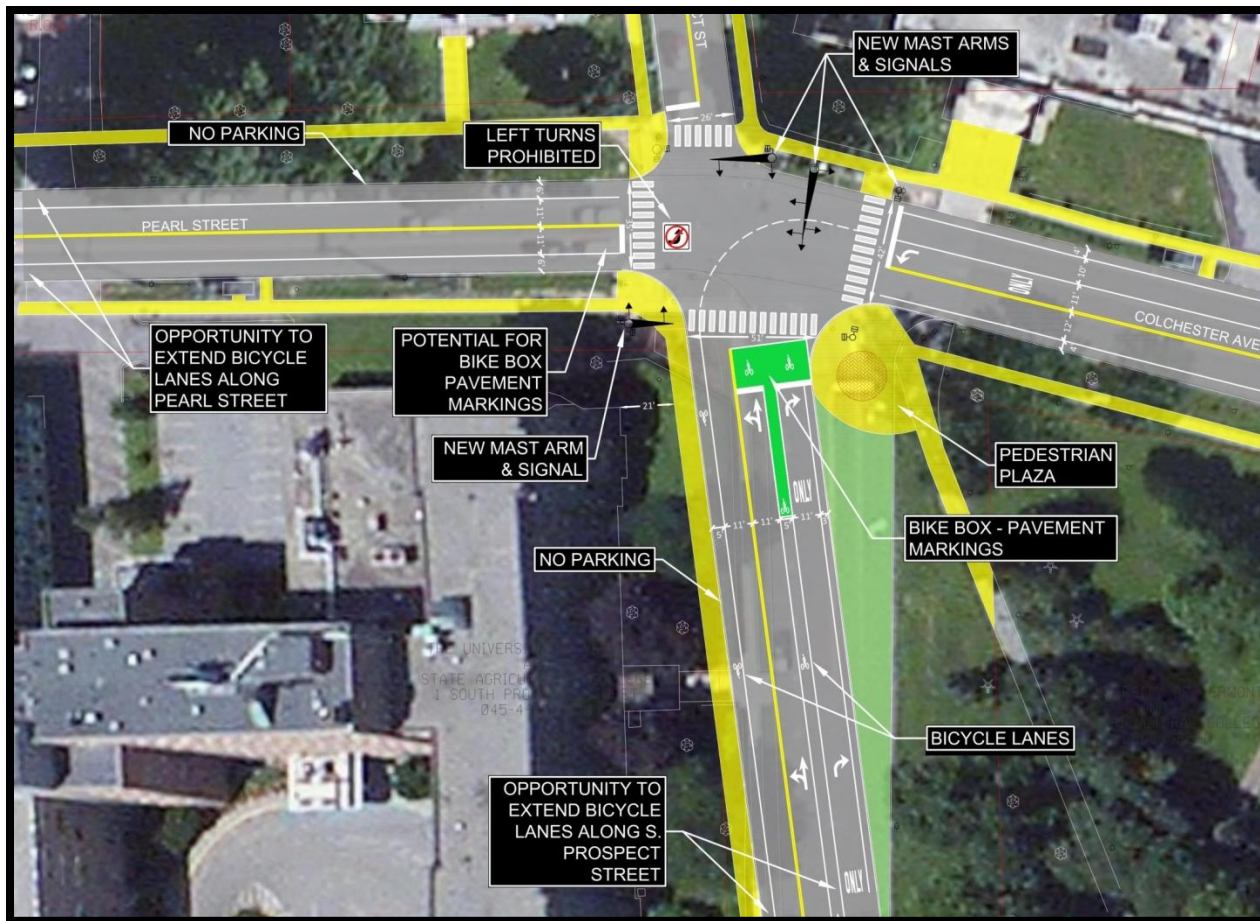


Figure 1: Pilot Project Features

Upon review of the pilot project performance metrics, the public comments, and general observations, the Steering Committee recommended the pilot improvements be made permanent. Following this recommendation, the Public Works Commission approved the traffic regulations that will effectuate the pilot treatments as a permanent configuration. Some small adjustments may be made to improve the operations, including relocation of the "No Left Turn" sign on the eastbound signal mast arm closer to the center of the lane (closer to the signal head), through-arrow pavement markings for northbound traffic, enhanced signal coordination with signals at Mansfield Avenue and Mary Fletcher Drive, and improved lighting at the southwest corner.

SCOPING STUDY RECOMMENDATIONS

The Steering Committee's final meeting was in April 2014 where the Final Alternatives were considered:



Alternative 1

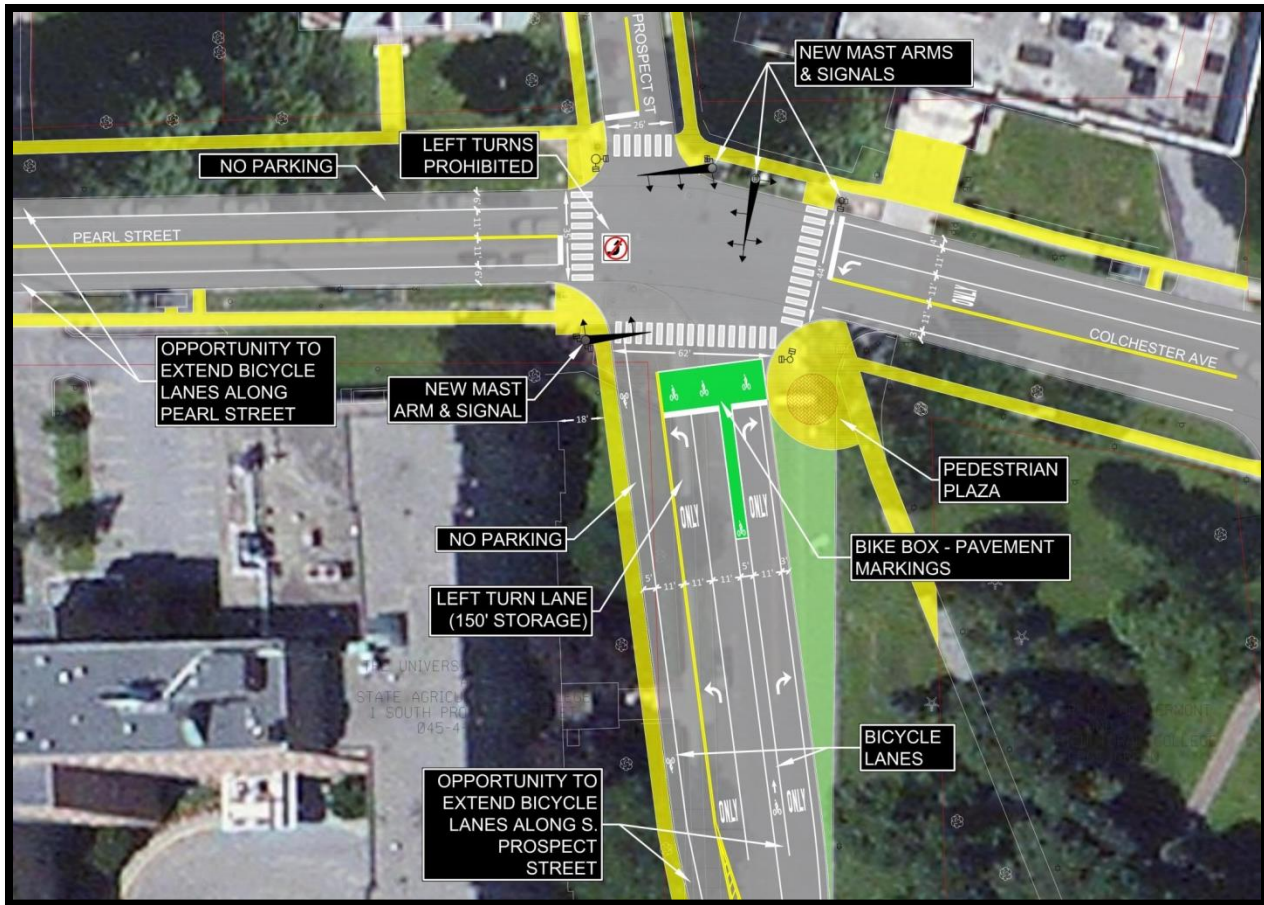
North-South Approach Alignment of Prospect Street

1A: concurrent phasing for Prospect Street approaches

1B: split phasing for Prospect Street approaches

Both 1A and 1B include the following:

1. Two northbound approach lanes on South Prospect (Through/Left and Right)
2. No parking on Pearl Street and South Prospect in front of UHC
3. Prohibited left turns from Pearl Street to North Prospect
4. Wide shoulders on Pearl Street approach
5. Bike box pavement markings for through lanes on Pearl Street
6. An opportunity to extend bicycle lanes along South Prospect Street



Alternative 2

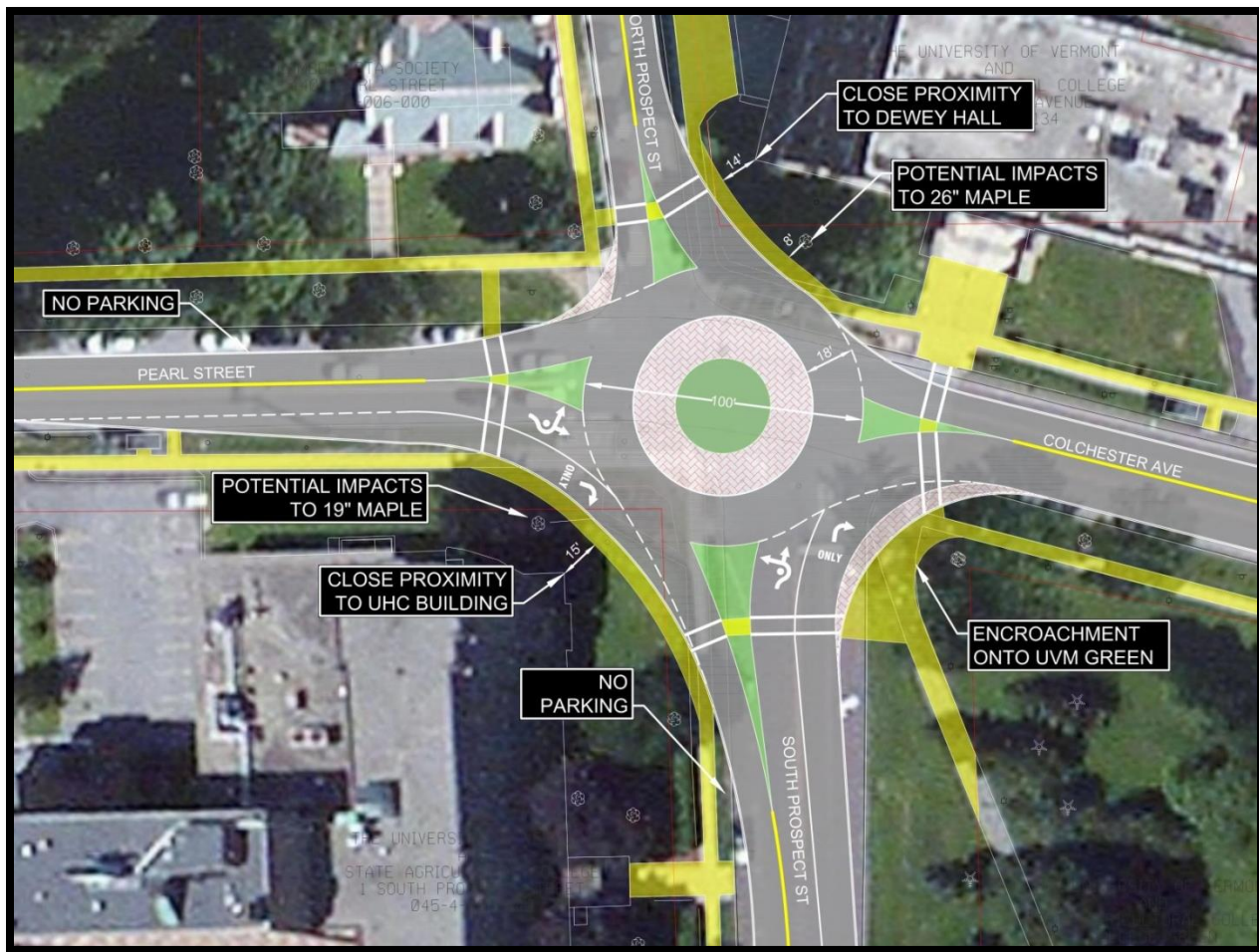
North-South Approach Alignment with Turn Lanes

2A: concurrent phasing for Prospect Street approaches

2B: split phasing for Prospect Street approaches

Both 2A and 2B include the following:

1. Three northbound approach lanes (Left-Through-Right)
2. No parking on Pearl Street and South Prospect in front of UHC
3. Prohibited left turns from Pearl Street to North Prospect
4. Wide shoulders on Pearl Street approach
5. Bike box pavement markings for through lanes on Pearl Street
6. An opportunity to extend bicycle lanes along South Prospect Street



Alternative 3 Roundabout / Mini-Roundabout

This roundabout includes a double lane for northbound and eastbound traffic due to high right-turn volumes; a single-lane is sufficient for southbound and westbound traffic.

The general feedback and deliberation by the Committee on the alternatives included:

- Concern for the balance between safety and congestion with split phasing.
- Interest in an enhanced “no build” alternative to avoid higher costs.
- Understanding that “no build” would not improve bicycle access and would not shorten pedestrian crossings.
- The crossing distance for pedestrians in Alternative 2 was concerning, but otherwise this seemed safer than Alternative 1.

Each alternative was evaluated for impacts to traffic performance, shown in Figure 2 below. The shaded areas indicate operations at a Level of Service (LOS) F, above the threshold for what might be considered an acceptable traffic performance at an urban intersection. Each alternative was also evaluated for impacts to other criteria, shown in Figure 3.

Alternatives Evaluation: Traffic Performance

Figure 2

		2022 AM Peak Hour																							
		No Build				Alt 1A				Alt 1B				Alt 2A				Alt 2B				Alt 3			
		(w/ short-term enhancements)				N-S Alignment				Alt 1A + Split Phasing				Align + Turn Lanes				Alt 2A + Split Phasing				Roundabout			
		LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c
Overall		D	38	-	0.79	B	20	-	0.72	D	39	-	0.83	C	20	-	0.69	D	39	-	0.78	C	24	-	-
EB, Pearl St		D	46	281	0.87	B	20	160	0.73	D	47	284	0.89	C	22	173	0.73	D	54	314	0.86	A	8	33	0.48
WB, Colchester Ave		C	26	296	0.80	B	15	204	0.69	C	27	328	0.83	B	16	249	0.68	C	26	167	0.78	D	40	418	0.98
NB, S Prospect St		D	39	107	0.71	C	27	113	0.86	D	39	156	0.86	C	23	65	0.60	C	33	85	0.67	A	8	70	0.24
SB, N Prospect St		D	55	182	0.89	C	25	119	0.75	E	57	192	0.90	C	26	126	0.79	E	55	194	0.86	C	24	13	0.72

		2022 PM Peak Hour																							
		No Build				Alt 1A				Alt 1B				Alt 2A				Alt 2B				Alt 3			
		(w/ short-term enhancements)				N-S Alignment				Alt 1A + Split Phasing				Align + Turn Lanes				Alt 2A + Split Phasing				Roundabout			
		LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c	LOS	Delay (s)	Avg Q. (ft)	v/c
Overall		F	119	-	0.89	D	48	-	0.89	F	101	-	0.97	D	40	-	0.75	E	75	-	0.89	F	95	-	-
EB, Pearl St		F	226	1270	0.97	E	77	503	0.90	F	173	1014	1.02	E	69	471	0.84	F	122	752	0.95	A	6	49	0.64
WB, Colchester Ave		C	24	272	0.84	B	19	231	0.78	C	25	299	0.87	B	16	210	0.72	C	24	143	0.83	F	248	1358	1.12
NB, S Prospect St		F	101	474	0.93	E	55	307	1.03	F	109	560	1.08	D	37	177	0.74	F	84	410	0.96	A	10	20	0.52
SB, N Prospect St		F	146	223	0.99	C	31	88	0.41	F	112	183	1.17	C	33	88	0.53	F	81	153	1.05	A	10	39	0.33

Alternatives Evaluation: Summary

Figure 3

Criteria:	No Build Pilot Improvements Accepted	Alternative 1 N-S Alignment	Alternative 2 Alignment + Turn Lane	Alternative 3 Roundabout
Conceptual Cost Estimate	\$0	\$935,000	\$995,000	\$730,000
Satisfies Purpose and Need				
1) Addresses Congestion	119 Seconds Delay V/C = 0.89	↑ Average delays reduced 48 seconds average delay	↑↑ Average delays & v/c reduced 40 seconds average delay	↓ Significant delays on WB approach 1.12 v/c; 1,400' queue
2a) Improves Safety for Pedestrians	--	↑ Advanced ped phases; shortened crossing distances	↔ Advanced ped phases; Longer crossing distances	↓ Difficulty crossing downstream of right- turn slip lanes. No signalized control.
2b) Improves Safety for Bicyclists	--	↑ New bike lane and bike box on South Prospect Street. Potential for bike lanes on Pearl Street.	↑ New bike lane and bike box on South Prospect Street. Potential for bike lanes on Pearl Street.	↓ Physical constraints preclude separated bicycle facility/lane through intersection
2c) Improves Safety for Vehicles	--	↑ North-South approach alignment	↑↑ North-South approach alignment; Northbound left turn lanes	↑ Roundabout reduces speeds on all approaches; minimizes crash severity
3a) Improves Pedestrian Accommodations & Safety	160' Total Ped Crossing Distance	↑ 154' Total Ped Crossing Distance	↓ 167' Total Ped Crossing Distance	↔ 180' Total Ped Crossing Distance; Only need to cross one direction at a time.
3b) Improves Bicyclist Accommodations & Safety	Bikeable shoulders on Colchester & Pearl	↑ New bike lane and bike box on South Prospect Street. Potential for bike lanes on Pearl Street.	↑ New bike lane and bike box on South Prospect Street. Potential for bike lanes on Pearl Street.	↓ Difficult to accommodate separate bicycle facility due to building constraints
4) Addresses Intersection Offset	No	↑	↑	↑
Criteria:	No Build Pilot Improvements Accepted	Alternative 1 N-S Alignment	Alternative 2 Alignment + Turn Lane	Alternative 3 Roundabout
Net Change in On-Street Parking Spaces	-18	0	-3	0
ROW Impacts	--	1,360 SF (1 Property - UVM)	3,035 SF (1 Property - UVM)	1,500 SF (2 Properties - UVM)
Tree Impacts	--	0	0	2
Environmental / Cultural Impacts		Slight potential for historic impacts	Slight potential for historic impacts	Significant potential for historic impacts
Permitting Needs	--	Potential for Section 106, 4(f); Likely Act 250, Stormwater	Potential for Section 106, 4(f); Likely Act 250, Stormwater	Likely Section 106, 4(f), Act 250, Stormwater

After deliberation, the **Steering Committee recommended Alternative 1**, revisiting split phasing versus concurrent phasing during final design and construction.

TRANSPORTATION, ENERGY AND UTILITIES COMMITTEE

We request the Transportation, Energy and Utilities Committee review the Final Alternatives, identify a preferred Alternative or support the Steering Committee's recommendation, and advance this to the City Council.

By approving the Pearl/Prospect/Colchester Intersection Scoping Report, the city is endorsing the vision and goals for the intersection and committing to pursue the Preferred Alternative.