



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

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

802.863.9094 VOX
802.863.0466 FAX
802.863.0450 TTY
www.burlingtonvt.gov

Councilor Maxwell Tracy, Chair *WARD 2*
Councilor Sharon Foley Bushor, *WARD 1*
Councilor David Hartnett, *North District*

Inquiries:
Phillip Peterson
802.865.5832
ppeterson@burlingtonvt.gov

Transportation, Energy and Utilities Committee of the City Council
Thursday, September 13, 2018 5:30 PM

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

–AGENDA–

1. Agenda
2. Minutes of 08/01/2018
3. Public Forum
4. **Lake Champlain (LC) Byway Chittenden County Corridor Management Plan (CMP)**
 - a. Gillian Nanton (CEDO) and Dan Albrecht (CCRPC) presenting
 - b. 20-minute duration
 - c. Action: Approve resolution and recommend to City Council for approval.
5. **Residential Parking Program Ordinance Changes**
 - a. Phillip Peterson presenting
 - b. 10-minute duration
 - c. Action: Informative, no action needed.
6. **Review of wastewater bond proposal**
 - a. Chapin Spencer and Megan Moir presenting
 - b. 20-minute duration
 - c. Action: Recommend approval to City Council
7. **Scheduling Future Meetings**
8. **Councilors' Update**
9. **Adjourn**



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Department of Public Works
645 Pine Street
Burlington, VT 05401
802-863-9094 VOICE
802-863-0466 FAX
802-863-0450 TTY
Burlingtonvt.gov/dpw

Chapin Spencer
Director of Public Works

Memorandum

TO: Board of Finance

FROM: Chapin Spencer, Director of Public Works
Megan Moir, Assistant Director - Water Resources

DATE: September 5, 2018

RE: **Proposal for a Resilient City** -- Reinvesting in Burlington's Wastewater & Stormwater Infrastructure -- Phase II of Burlington's Sustainable Infrastructure Plan

Burlington has been undergoing a period of substantial reinvestment across assets that are vital to keeping Burlington a great place to live, work and recreate. Major progress has been made in repaving streets, rebuilding sidewalks, renovating the Bike Path, and rehabilitating water mains since 2016 when the City Council approved the 10 Year Capital Plan and voters approved two bonds funding the initial years of the capital plan. While reinvestments in our community's wastewater and stormwater systems had been understood to be a future second phase of the Sustainable Infrastructure Plan, this year's multiple system failures at our Main Wastewater Treatment Plant and the public's growing calls for improved stormwater management and green infrastructure have accelerated the development of this proposal. It is time to build on past progress to further reduce Burlington's impact on our waterways and Lake Champlain. Burlingtonians deserve and expect infrastructure that performs to modern standards. We are bringing forward the next phase of Burlington's Sustainable Infrastructure Plan to reinvest in the City's wastewater and stormwater systems in order to achieve those goals.

Background

Burlington's first wastewater treatment plant (WWTP) was constructed on the waterfront in 1953. North Plant was constructed in 1961 and East Plant in 1963. As was typical of older cities, much of Burlington had only one pipe to carry both sanitary waste and stormwater flow away from the buildings and streets. Anytime the volume in the combined sewer system exceeded the capacity of the wastewater treatment plant (or in some cases the local pipe network) a mixture of stormwater and untreated sewage would discharge to water bodies around Burlington. This was to protect the WWTPs and also to prevent the sewer system backing up into people's homes, but it obviously had

water quality impacts. To this day, there are approximately 860 communities across the United States, like Burlington, that still have combined sewer systems (<http://bit.ly/EPACsos>).

Since the construction of Burlington's three WWTPs in the 1950's and 1960's, each generation of Burlingtonians has left a legacy of water protection through major upgrades to the City's wastewater and stormwater management systems. In the 1970's, all three WWTPs were upgraded for additional flow capacity and treatment improvements. In the 1990's, wastewater and stormwater collection systems were separated in the New North End and sections of the Old North End and a wet weather treatment system was added to the Main WWTP. **The time is now for the current generation to make our investment.**

Up until the 1990s, as Burlington grew there were on-shore sewage discharges into the Lake during most rainstorms, and frequent beach closures (<http://bit.ly/BacT1990>). Burlington voted for a \$52 million bond to upgrade the WWTPs to improve phosphorus removal, increase hydraulic capacity, and most importantly to greatly reduce the locations, frequency and volume of untreated CSOs. The number of CSO points decreased from 12 to 5. Additionally, an estimated 170 million gallons of annual wet weather flow was being treated and disinfected at the Main WWTP's wet weather process after 1994 instead of being discharged into Lake Champlain, the Winooski River and Englesby Brook as untreated and undisinfected combined sewer overflows.

Since the 1994 upgrades, the three WWTPs have generally operated in a reliable fashion. Through the 1994 upgrades and subsequent investments since then, the frequency of untreated CSOs in Burlington has declined over time (see Appendix A). In 2016, the Legislature passed Act 86 which mandated more and quicker public communications after CSOs and permit exceedances at WWTPs. As stewards of the lake and public health, DPW Water Resources staff support this transparency. We were one of the first municipalities in the State to install monitoring equipment that provides accurate flow data for our incident reports when CSOs occur.

The additional public notification required by Act 86 and the multiple permit violations at Main WWTP this season have heightened the public's awareness and concern. Main WWTP experienced permit violations resulting from a valve failure, a computer system failure and biological disruptions from high strength industrial waste. These events all occurred during high flow episodes (storm events) and resulted in incomplete disinfection of the sewage component contained within the combined sewer/stormwater flows (while somewhat variable, sewage typically constitutes approximately 5-10% of the total volume of flow during storm events). This resulted in higher than allowable bacteria levels being discharged via the outfall pipe (2600' offshore). Beaches were closed for 48 hours following these events in accordance with Act 86. In addition, there have also been six days with intense storm events causing untreated collection system Combined Sewer Overflows, primarily into the Pine Barge Canal, but also into the Intervale Wetland and the Winooski River on at least one occasion.

With public feedback urging the City to do more to steward our water resources, the Mayor's call to put a reinvestment plan together this fall, and our own commitment to water quality, we have

accelerated the wastewater and stormwater capital planning work that was already underway. As the City Council reviewed in our FY'18 and FY'19 budget presentations, we called out our wastewater and stormwater capital planning and alerted Councilor to significant upcoming reinvestment needs that would necessitate a second phase of the Sustainable Infrastructure Plan. The potable water distribution system was included in Phase I because relining water mains always requires excavations in the roadways and we needed to ensure the water mains were repaired prior to repaving the streets to avoid expensive rework and impact to residents. Relining the wastewater and stormwater lines can happen using existing manholes and therefore does not damage the roadway surface -- providing us with more flexibility on when this work is done.

Historical Context

DPW staff has put together a water quality history document that provides additional background on the City's wastewater and stormwater management over time. This document can be viewed here: <https://www.burlingtonvt.gov/DPW/Water-Quality-History>.

Proposal for a Resilient City -- Wastewater Improvements

Overall, Phase II of the Sustainable Infrastructure Plan proposes approximately \$20M of investments into existing Wastewater infrastructure including the City's wastewater treatment plants, pump stations, collection system and pollution prevention programs. The various components of the investment are detailed below and are summarized in Appendix B.

WWTP Disinfection Upgrades -- The disinfection systems provide chemical treatment to ensure bacteria levels in the plant's effluent remain low. While we have replaced significant disinfection equipment since the 1994 upgrade (including all disinfection pumps and pump drive controllers at Main WWTP), critical pieces of equipment that are original to the upgrade 24 years ago remain in service. Three different failures in our plants' disinfection systems led to discharges that exceeded permit limits this season:

- April 16 - valve failure at Main WWTP
- July 10 - programmable logic control (PLC) failure at Main WWTP
- August 24 - feed line blockage at North WWTP

The 2017 Dubois & King Wastewater 10 Year Capital Plan identified the need to upgrade key components of the disinfection systems in FY'21. After the July 10 PLC failure, DPW Water Resources engaged two outside teams to refine and detail the recommendations so implementation could be expedited:

- Hallam ICS provided cost estimates on rehabilitating Main Plant's overall SCADA/PLC control system since the larger system is also original to the plant and in need of upgrades and we want to make sure that our upgrade of the disinfection PLC is compatible with a future global PLC upgrade.

- Dubois & King refined their rehabilitation recommendations of Main Plant's other disinfection system's equipment (pumps, drives, valves, feed lines, etc.) and evaluated the disinfection systems at North and East WWTPs as well.

For the capital upgrades, full redundancy, automatic run sequences, and PLC failure alarms will be mandatory functionality. The upgrades are projected to cost \$1,438,000 and are itemized in Appendix C.

Other WWTP Upgrades -- The City's three WWTPs are complex industrial facilities with multiple chemical, biological and mechanical processes. The disinfection system described above is just one of many essential systems that must all function together to discharge the high-quality effluent Burlingtonians demand. As mentioned in the introduction, our plants have been upgraded once a generation since they were constructed in the 1950's. It has been 24 years since the last comprehensive upgrade. DPW Water Resources had proactively prepared for the next major re-investment by completing the Wastewater 10 Year Capital Plan in 2017 and providing forecasts of upcoming capital expenditures at the FY'18 and FY'19 City Council budget presentations. Despite this proactive work, recent failures of the plants' aging equipment has caused three permit violations at our WWTPs (described above) and resulted in beach closures, and an erosion of the public trust in our stewardship of Burlington's water resources. As a result of these incidents, DPW Water Resources is proposing to accelerate our reinvestment efforts and timelines. Dubois & King was re-engaged in July to refine a number of the 10 Year Capital Plan estimates. Additionally, Water Resources Engineers and Managers reviewed and supplemented the capital projects list based on recent failures and issues. The 28 upgrades across the three WWTPs, including final design, construction oversight and construction inflation costs where appropriate, are projected to cost \$11,403,000 and are itemized in Appendix C.

Pump Stations -- Pump stations push wastewater towards the City treatment plants from low areas of the system where wastewater cannot reach the plant using gravity alone. Most of the City's sewer system is gravity-fed, but there are 25 areas that are lower than the main gravity system and must drain to a pump station which then pumps the wastewater up to the gravity-based network. Some of the current pump stations are over 50 years old and reinvestment in them has been minimal over the past decades. In past years, pump station failures have led to discharge of wastewater into adjacent water bodies and surfacing onto roadways and private property, and such events are likely to increase in future years without proactive investment. Engineering firm Dubois & King conducted an assessment of the pump stations in 2016-2017 to determine their deficiencies and likelihood of failure. Staff then evaluated the consequence of failure for each pump station to determine the overall prioritization. Phase II of the Sustainable Infrastructure Plan proposes to make substantial repairs to 10 highest risk pump stations and one leachate pump station which collects leachate from the City's old Manhattan Landfill and pumps it to Main Plant. These investments will improve the reliability of the pump stations and reduce the risk of wastewater from the collection system flowing into water bodies, streets etc. The upgrades to these 11 pump stations are projected to cost \$2,595,000 and are itemized in Appendix D.

WW Collection System Rehabilitation -- The Wastewater collection system collects sewage that comes from customers' private sewer laterals and carries it to the City's three municipal wastewater treatment plants. There are 46.5 miles of sanitary sewer pipes (wastewater only) and 46.6 miles of combined sewer pipes (wastewater and stormwater). While we do not have a comprehensive age inventory on our sewer collection system, many sewers are over 100 years old. Some of the oldest 'pipes' are constructed of brick and after intense storm events we find bricks among the screenings at the Main WWTP -- indicating that these combined sewers are falling apart. Failures in the collection system have led to discharge of wastewater into adjacent water bodies, sinkholes, backflow into adjacent buildings, and surfacing onto roadways and private property. In 2017, DPW Water Resources began a systematic assessment of the collection system and to date 20% of the system has been inspected by independent firms. Based on these inspections, past failure locations, and other proposed capital projects in the City's rights-of-way, staff has prioritized the list. Phase II of the Sustainable Infrastructure Plan proposes to reline or replace 6.7 miles of the highest priority sections (pipes marked as needing short term rehabilitation in the map in Appendix E) in the collection system at a projected cost of \$3,360,000.

Pre-Capital Investment Planning Studies -- There are two upcoming Wastewater capital investments that are not included in this Phase II proposal and require additional planning work to determine the optimal design solution.

- **Sludge Dewatering** -- The Main WWTP has presses that dewater the residual sludge -- the solid byproduct of the various treatment processes at the plant. Currently, sludge from all three plants is brought to the press room at Main WWTP where it is partially dewatered and then trucked to upstate New York where it is neutralized with lime and land applied. We seek to evaluate other options for multiple reasons: the presses at Main WWTP are nearing the end of their life; there are other emerging process and re-use options for Burlington's sludge; a number of Burlington businesses are generating significant organic waste that might make a digester feasible; and the current hauling and disposal costs (~\$750,000) are significant and could fund other solutions.
- **East Plant Process Evaluation** -- Due to the characteristics of the influent at the East Plant, there may be benefits to modifying the existing process to a sequenced batch reactor (SBR) process. Before reinvesting in certain systems at East Plant, we seek to complete a third party evaluation of the process alternatives. It is important to note that the capital upgrades in this current proposal are for elements of East Plant that would remain even if the Plant were converted to a different type of treatment plant.

Phase II of the Sustainable Infrastructure Plan proposes to dedicate \$180,000 to completing these two planning studies which are itemized at the bottom of Appendix C.

Industrial Wastewater Program -- Over the past 4 years, the organic content of the influent at Main WWTP has increased (see figure 1 below), which is due to increased high strength waste from commercial customers that handle or produce organic matter -- mainly beverage and food industries. The variable and high strength waste can disrupt the biological process of a WWTP, and this is what occurred at Main WWTP on June 2 & 4 when the plant's discharge exceeded permit limits. Breweries and cideries have been assessed a high-strength waste (BOD) surcharge since

2013 to cover the additional costs of processing their high-strength waste, but given the increasing BOD trends overall and the continued increase in brewery/cidery flow, in late 2016 Burlington Water Resources began to develop a more robust pre-treatment and pollution prevention program that would reduce the strength of the influent received at our WWTPs. The June 2 & 4 incidents demonstrated the urgency of this work, and since then we have contracted with Hoyle, Tanner & Associates to assist us with program development and have procured flow monitors and sampling equipment to initially install at the largest producers. Phase II of the Sustainable Infrastructure Plan proposes investing \$425,000 to accelerate the program development and implementation, and potentially provide pass through loans (up to \$250K) to commercial customers for their development of pre-treatment or side-streaming systems. The City values the vibrant beverage and food production industries and this program would give us the tools to partner with these producers in a way that allows them to flourish while ensuring the protection of the City's water resources.

Increasing Strength (BOD) of Wastewater in Main Plant Flow has significantly increased in recent years

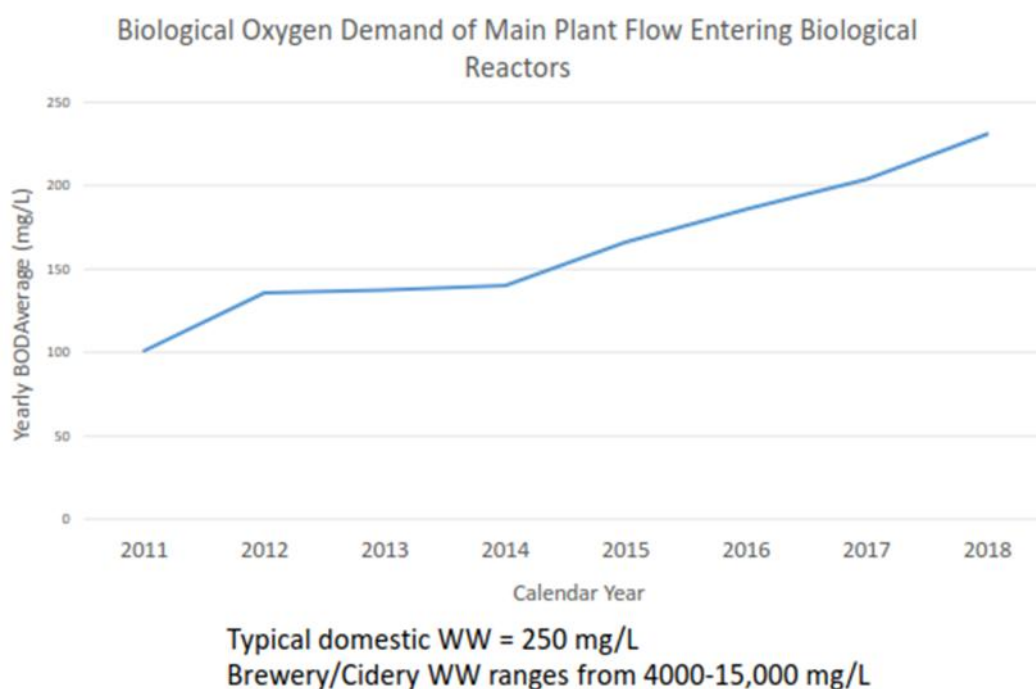


Figure 1: Increasing trend in strength (BOD) at Main WWTP

Proposal for a Resilient City -- Stormwater Improvements

Phase II of the Sustainable Infrastructure Plan proposes approximately \$10M of improvements to the City's stormwater infrastructure including construction of a diverse array of new green

infrastructure, repair of existing failing stormwater outfalls and rehabilitation of stormwater pipes. The various components of the investment are described below and are detailed in Appendix B.

Stormwater Outfalls -- Stormwater outfalls are the points where the separate storm system discharges stormwater into the City's watersheds. There are 101 outfalls in the City that are in various states of repair. Failing outfalls erode public and private property, undermine buildings and roads, and release sediment and nutrients into water bodies during storm events. 11 of the City's 101 outfalls have failed and have high risk of impact. Phase II of the Sustainable Infrastructure Plan proposes to invest \$2.3M to repair the top 5 outfalls as detailed in Appendix F.

Stormwater Collection System Rehabilitation -- The separate stormwater collection system transports stormwater from catch basins to outfalls. The City has approximately 53.1 miles of separate stormwater pipes and 3,200 catch basins. Failures in the collection system undermine roadways and utilities, create sinkholes, and release sediment and nutrients into water bodies. A GIS based risk analysis, using estimates of likelihood of failure based on pipe material (with corrugated metal pipe having a very high likelihood) and recent collapse history and consequences of failure (with a focus on recently paved streets or streets that are soon to be paved, heavy traffic volume streets etc), identified approximately 6.3 miles of the stormwater collection system in need of relining or replacement at a cost of \$3.1M. The high-risk pipes are identified in Appendix I.

Wet Weather Mitigation on Combined Sewer System -- The City has approximately 46.6 miles of combined sewer and stormwater collection system. Most of Burlington's combined sewer system connects to our Main Wastewater Treatment Plant. During intense storm events, the amount of stormwater entering the system can exceed the pipes' hydraulic capacity in the collection system causing combined sewer overflows (CSOs) at one or more of the City's 5 remaining overflow points. These high flows can also exacerbate any process or equipment challenges at the main WWTP. Strategies to reduce the quantity and the intensity of stormwater flows in the combined collection system include: rain gardens, soil cells for street trees, stormwater ponds, subsurface infiltration and detention tanks, pervious pavement and pavers, downspout disconnection, etc. Where possible, Burlington prefers implementation of green wet-weather infrastructure to maximize benefits to the community, since green infrastructure not only manages stormwater runoff, but also adds more green space, shading, pedestrian/biking accommodations, and property value improvements than typical "grey" infrastructure (storage tanks). Phase II of the Sustainable Infrastructure Plan proposes to invest \$3.3M in combined sewer stormwater reductions, with an emphasis on green infrastructure including:

- Supplementing TIF funding to install extensive green infrastructure on rehabilitated downtown streets consistent with the City's adopted Great Streets Standards
- Implementing other combined sewer reduction efforts in the Main WWTP sewershed, with focused reductions above the Pine Street CSO point

The potential combined sewer mitigation projects are listed in Appendix G. Additionally, because mitigating CSO frequency at the Pine Street Barge Canal CSO outfall is challenging due to soil/geologic conditions in the sewershed, approximately \$500,000 in additional funding is set

aside to explore the installation of a remote disinfection station at this CSO location to address potential bacteria concerns downstream in the near term.

Separate Stormwater Management -- Heightened State regulation will require parcels over 3 acres to complete an engineering feasibility analysis to reduce stormwater impacts in the short term and implement retrofits in the medium-term (3-5 years). The City has a number of parcels over three acres, many of them parks, and we need to be proactive to ensure we develop designs that will provide the greatest return on investment. Phase II of the Sustainable Infrastructure Plan proposes to invest an initial \$315,000 towards addressing this upcoming regulatory requirement that will further protect Burlington's waterways. The specific parcels are detailed in Appendix H. Additional funds will be necessary beyond 2023 once the permits are in place and the new regulatory requirements are clear.

Proposal for a Resilient City -- Overall WW & SW Improvements

Asset Management -- A robust asset management program is critical to ensuring the maximum lifespan of each City asset and to improving our capital funding need forecasting ability. Capital upgrades are expensive and can be minimized and anticipated through preventive maintenance and scheduled assessments. In the public sector, it is often easier to secure funding for periodic capital upgrades than ongoing preventative maintenance; this lack of regular maintenance can lead to premature failure of public assets and an expensive cycle of borrowing to fix broken systems. A good asset management program can deliver the lowest cost of ownership of an asset over time while also providing real-time data and metrics so policy makers can make the best decisions possible. As a component of the Sustainable Infrastructure Plan, DPW has been leading an effort to develop a formal asset management program so that we can derive the greatest long-term value from our capital investments. The department has commissioned a third party report that is nearing completion and is expected to include recommendations for enhancing DPW's current asset management systems and abilities which vary considerably across asset classes. Phase II of the Sustainable Infrastructure Plan includes \$346,000 for acquiring and implementing a Computerized Maintenance Management System (CMMS) as a critical component of the City's asset management efforts if the Council approves moving forward with enhanced asset management after reviewing the report.

Staff Capacity -- Implementing \$20M of wastewater improvements identified above will require project management resources. Existing Water Resources staff capacity is already stretched tackling a number of other areas of deferred investments and attention while also maintaining our 24/7 operations. Other areas of increased attention include:

- Managing expanded Water capital projects from November 2016 voter-approved bond
- Implementing meter-to-cash improvements following billing errors discovered in 2017 and 2018
- Managing the first-in-the-State Integrated Planning process while negotiating updated wastewater and stormwater permits

- Coordinating Water Plant operations around Burlington Harbor Marina construction
- Reviewing and coordinating with numerous large construction projects (CityPlace Burlington, Cambrian Rise, 85 North Avenue, Great Streets)

The complexity of Water Resources' regulatory and operational landscape has increased significantly over the last decade. To position the division for long-term success, DPW leadership is proposing a third-party organizational assessment that would provide structural and staffing recommendations. We will be seeking Board of Finance approval for this contract amendment at this upcoming Board of Finance meeting. While these specific recommendations won't be complete for the next 3-4 months, Phase II of the Sustainable Infrastructure Plan proposes a placeholder of 1.25 FTEs for engineering / project management support to manage the \$30M of capital and programmatic projects.

Requesting Authorization to Borrow

Proposal -- In summary, we are seeking authorization to finance up to \$30M to reinvest in the City's wastewater and stormwater systems as detailed in this memo and the appendices. The recommendations have come from the 2017 10-Year Capital Plan completed by Dubois & King, first hand knowledge of Water Resources managers and engineers, and supplemental review by multiple consulting firms. Based on the secured rate mitigation strategies detailed below, we have been able to reduce the impact on ratepayers by approximately 40% -- and additional means of mitigating the impact are being vigorously pursued which is likely to further reduce the impact of the proposed bonding.

Rate Mitigation Strategies -- Below are the many strategies we are, or will be, pursuing to reduce the impact on our ratepayers.

- Secured
 - Utilize Clean Water State Revolving Fund (SRF) Loans. Borrowing from the State Revolving Fund has a number of advantages. The interest rate/admin fee is only 2% compared to 3.9% or more for municipal bonds. In addition, there is a deferred pay back on planning, design and construction expenses until 1 year after construction is completed. The interest savings, if the full \$30M is borrowed, would likely exceed \$8M over the life of the loan.
 - Re-allocate existing Water Resources revenues to offset some debt service costs. Through careful financial oversight, DPW management has been able to methodically increase the capital funding in the annual wastewater and stormwater budgets over the last several years. By dedicating a portion of the budgeted capital funds (what we call "PayGo Capital") to debt service, we can accelerate reinvestments into these utilities while minimizing bond-driven rate increases. By reallocating an estimated annual \$237,000 in currently budgeted wastewater PayGo Capital and an estimated \$285,000 in currently budgeted stormwater PayGo Capital approximately 30% of the new bonding will be paid for by existing revenues.

- Unsecured
 - Pursue State grants/loan forgiveness subsidy
 - Determine whether TIF-funded projects have sufficient TIF funding to cover stormwater improvements without this Water Resources bonding
 - Evaluate alternative strategies to current PILOT paradigm
 - Explore having the General Fund pay the stormwater fees for the impervious surface within the City's rights-of-way
 - Consider additional fees for service from users of services (fire services to buildings, project review, connection fees)
 - Explore minimizing rate increases for residential and low-income users through alternative rate structures or affordability programs

Additional Needed Investments -- While this Proposal for a Resilient City is a broad package of wastewater and stormwater upgrades, it must be acknowledged that this is not all inclusive -- and additional water resource-related capital investments will likely be needed in the future including:

- Potential sequenced batch reactor installation at East WWTP
- Dewatering and/or digester upgrade at Main WWTP
- Additional stormwater retrofits on 3+ acre municipal parcels as required by future permit conditions
- Additional phosphorus reduction strategies at our WWTPs and in our stormwater system that are currently being evaluated as part of our integrated water quality planning effort and as required by future permit conditions
- Potable water infrastructure upgrades

What Residents & Businesses Can Do

City government alone cannot fully address our community's wastewater and stormwater challenges. There are many steps property owners, residents and business can take to help.

- **Stop private property stormwater from entering the municipal sewer:** Property owners can substantially reduce flows into the combined sewer by disconnecting downspouts and basement drains from the combined sewer. DPW Water Resources has worked with partners such as the CCRPC and Lake Champlain International to provide community resources such as Rethink Runoff (<http://rethinkrunoff.org/>) and Blue certification program (<https://www.burlingtonvt.gov/DPW/BlueBTV>).
- **Install water saving devices:** Low-flow showerheads, faucets and toilets both reduce water usage and reduce wastewater flows -- which also saves ratepayers money.
- **Scoop your pet's poop:** Dog poop is a major contributor to stormwater pollution and bacteria in our waterways. Rain and melting snow flows across yards, dog parks, down trails, etc. on its way to creeks via our streets and storm drains. Dog poop contains bacteria and is high in nitrogen and phosphorus (nutrients that negatively affect our waters). Picking up a pet's poop is a simple step we can take to reduce stormwater pollution.

- **Learn more about Burlington's water quality journey:** DPW Water Resources has put together an online resource providing a history of wastewater and stormwater investments. Read it here: <https://www.burlingtonvt.gov/DPW/Water-Quality-History>

Thank you for your consideration of this request.

Frequency of CSO events

Year	N. Champlain	Park	Gazo	Colchester	Pine Street	Notes
2005	3	12	1	UNK	UNK	
2006	1	11	3	UNK	UNK	
2007	3	8	2	UNK	UNK	
2008	2	13	?	UNK	UNK	
2009	4	8-9	?	UNK	UNK	
2010	0	5	?	2	UNK	Colchester Ave CSO discovered through mapping/outfall visits
2011	1	9	1	3	UNK	Gazo, North Champlain and Park frequency and Volume reduced by ARRA projects 2010-2012
2012	1	6	1	9	UNK	
2013	4	6	2	10 - 13	UNK	Wet year
2014	0	1	1	2	UNK	Colchester CSO improved through pipe cleaning downstream
2015	0	3	1	0	8	Pine Street Discovered through mapping
2016	0	1	0	0	5	
2017	0	1	1	0	8	
2018 YTD	1	1	2	0	6	Late 2017 conducted significant cleaning of downstream section

Note: Frequency data do not show decreases in duration or volume, particularly for Park and Gazo; nor adjust for the impact of wet/intense rainfall years such as 2011 and 2013.

UNK = Previously unidentified CSO point, no data available

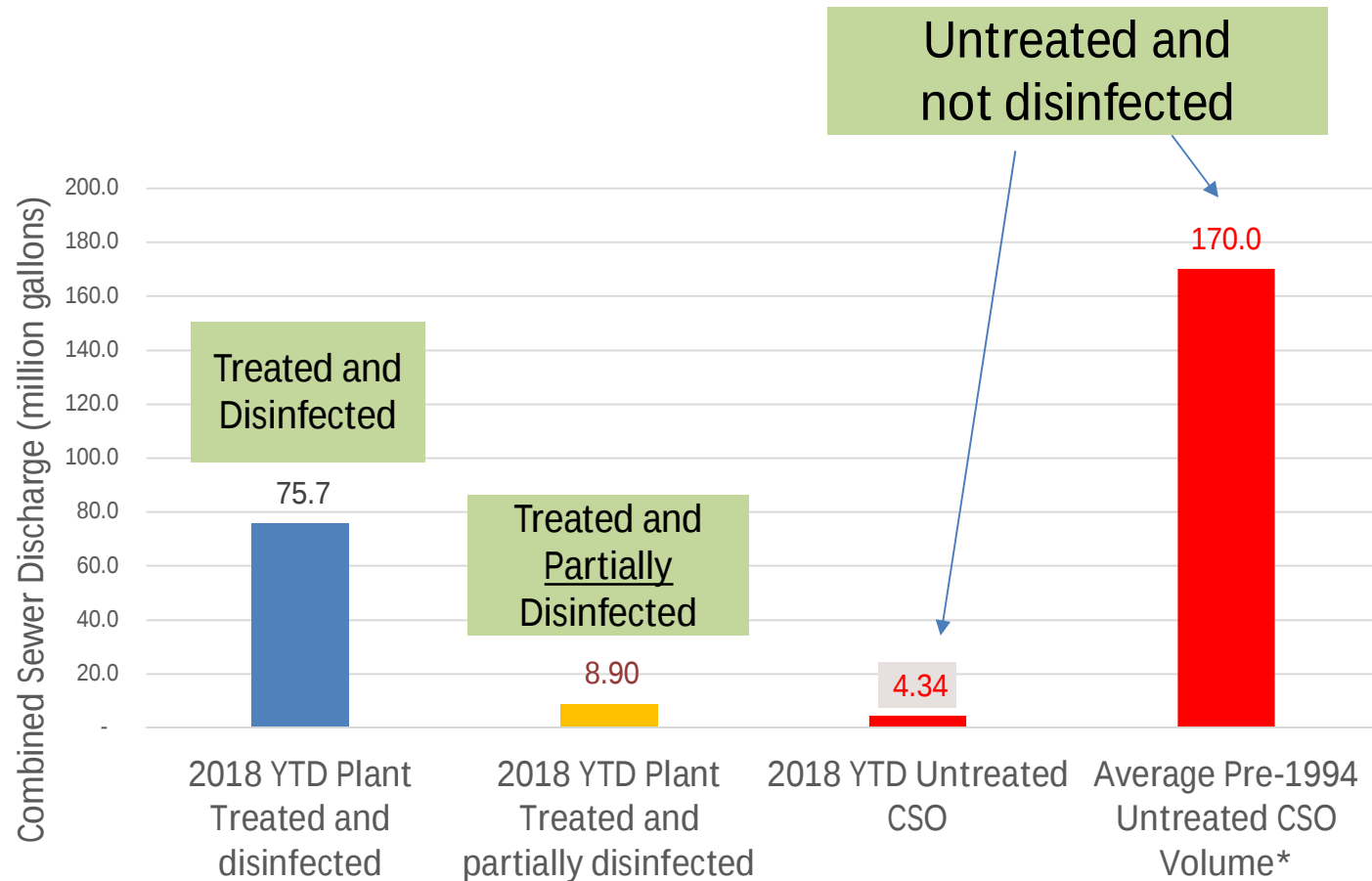
? = data not easily available, still researching

Range provided when unclear or multiple events on one day

* Gazo discharged for 55 seconds on 6/18/18

Main Wastewater Plant

Comparison of Combined Sewer Discharges Pre 1994 to 2018 Through 8/26/18



*Pre-1994 estimate is based on average annual combined sewer wet weather flows treated by Vortex between 2001 and 2017.
See <https://www.burlingtonvt.gov/DPW/Water-Quality-History>.

	Construction Cost (with ~20-25% contingency generally)	Design & Oversight (15-25% of construction cost)	Total
<i>Disinfection and SCADA/PLC upgrade</i>			
Main Plant Disinfection upgrade	\$ 480,000	\$ 111,000	\$ 590,000
Main Plant SCADA/PLC upgrade (global upgrade)	--	--	\$ 350,000
North Plant Disinfection System Upgrade	\$ 173,000	\$ 40,000	\$ 213,000
East Plant Disinfection System Upgrade	\$ 173,000	\$ 40,000	\$ 213,000
North & East SCADA/PLC improvements	\$ 60,000	\$ 12,000	\$ 72,000
Disinfection and SCADA/PLC upgrades (Main, East and North)	\$ 1,236,000	\$ 203,000	\$ 1,438,000

Other WW Plant (Main, East and North) Capital Needed in next 5 years	\$ 8,793,000	\$ 1,384,000	\$ 11,403,000
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Proposed WW Planning Studies in Next 5 years to make decision for next Bond (East Plant suitability, dewatering)		\$ 180,000	\$ 180,000
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Pump Stations (10 Highest Need)	\$ 2,017,000	\$ 578,000	\$ 2,595,000
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Collection System Planning/Assessment (current planning loan)		\$ 900,000	\$ 900,000
Collection System (Sewer Rehab) WW (35,485 lf = 6.72 mi)	\$ 1,558,000	\$ 400,000	\$ 2,154,000
Collection System (Sewer Rehab) WW Subtotal (35,485 lf = 6.72 mi)	\$ 1,558,000	\$ 1,300,000	\$ 3,360,000

Asset Management CMMS (50% share with SW)	\$ 113,000	\$ 60,000	\$ 173,000
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Industrial Wastewater Program development		\$ 175,000	\$ 175,000
Industrial Wastewater Pass through loans	\$ 250,000		\$ 250,000
Industrial WW Subtotal	\$ 250,000	\$ 175,000	\$ 425,000

City Project Management Staff (0.625 FTE x 4 years)		\$ 282,000	\$ 282,000
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Wastewater Total Request	\$ 19,856,000
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	Construction Cost (with ~20-25% contingency generally)	Design & Oversight (15-25% of construction cost)	Total
Stormwater Outfalls (top 5 of 11 high risk outfalls)	\$ 1,880,000	\$ 470,000	\$ 2,350,000

SW Collection System Planning/Assessment (current planning loan)		\$ 100,000	\$ 100,000
SW Collection System	\$ 2,913,831	\$ 145,692	\$ 3,060,000
SW Collection System (33,381 linear feet = 6.3 miles)	\$ 2,913,831	\$ 245,692	\$ 3,160,000

Stormwater and Wet Weather Management

Wet-Weather Mitigation

Combined Sewer Runoff Reduction (Pine Barge Canal as priority, with other projects throughout Main Plants)	\$ 1,460,000	\$ 212,000	\$ 1,672,000
Pine Street CSO disinfection Station	\$ 400,000	\$ 100,000	\$ 500,000
Wet Weather (CSS) Mitigation and Disinfection	\$ 1,860,000	\$ 312,000	\$ 2,172,000

Great Streets (if assume SW covers \$125k of \$250k/block)			\$ 1,500,000
City Hall Park (if assume that SW may have to cover \$150K of \$300k)			\$ 150,000
Great Streets and City Hall Park SW (if assume SW pays 1/2)			\$ 1,650,000

Separate Stormwater Management

3 acre permit obligation (City parcels) EFAs		\$ 65,000	\$ 65,000
Regulatory Req'd Separate Stormwater Retrofits (between 2020-2024)	\$ 150,000	\$ 100,000	\$ 250,000
Separate SW Regulatory Obligations	\$ 150,000	\$ 165,000	\$ 315,000

Asset Management CMMS (50% share with SW)	\$ 113,000	\$ 60,000	\$ 173,000
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City Project Management Staff (0.625 FTE x 4 years)		\$ 282,000	\$ 282,000
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Stormwater Total Request	\$ 10,102,000
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TOTAL	\$ 29,958,000
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Wastewater Plant Improvements

Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Main Plant Disinfection System Upgrade (does not include PLC)	This system controls the ability to disinfect wastewater and is require to protect public health.	Main			X	\$ 479,375.00		\$ 110,256.25	\$ 590,000
Main SCADA/PLC wholesale upgrade	This system acts as the central nervous system of the facility. Without this automation, there is more possibility for error.	Main			X	---	--	--->	\$ 350,000
North Plant Disinfection System Upgrade	This system controls the ability to disinfect wastewater and is require to protect public health.	North			X	\$ 172,750.00		\$ 39,732.50	\$ 213,000
East Plant Disinfection System Upgrade	This system controls the ability to disinfect wastewater and is require to protect public health.	East			X	\$ 172,750.00		\$ 39,732.50	\$ 213,000
North and East PLC Upgrade/optimization	This system acts as the central nervous system of the facility. Without this automation, there is more possibility for	North, East		X		\$ 60,000		\$ 12,000	\$ 72,000
Total Disinfection and PLC/SCADA									\$ 1,438,000
East plant outfall	Pipe that transports wastewater effluent to the Winooski	East	Fy20			\$ 180,000	\$ 30,600	\$ 45,000	\$ 256,000
North Influent Pump Controller	This controls the heart of the facility. Without it, North plant is not able to treat wastewater.	North	FY17	X		\$ 18,000		\$ 3,600	\$ 22,000
North/East Fire system replacement	Fire protection. North failed last fire inspection. East likely to fail	North, East		X		\$ 60,000			\$ 60,000
Upgraded Blower (Hybrid)	This is central to the biological process. This equipment will provide better control of the process, redundancy and electrical efficiency	Main				\$ 210,000		\$ 31,500	\$ 242,000

Wastewater Plant Improvements

Equipment		Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Dialers & Rain gauges		This allows for notification of problems at the facilities and better data on localized rain storms	North, East		X		\$ 12,000			\$ 12,000
Electrical component study and upgrade (Including Arc flash assessment) Find critical components that we need to have a backup on the shelf, or that needs to be replaced. i.e. foul sewer breakers.		This allows us to discover which components are failing and/or obsolete, to better manage risk and safety.	All		X		\$ 240,000		\$ 48,000	\$ 288,000
EMG Building Improvements		To management and maintain our building envelopes.	All		X		\$ 300,000		\$ 60,000	\$ 360,000
Back Up Blower		This is central to the biological process. This equipment will provide better control of the process, redundancy and electrical efficiency. But mostly for the redundancy.	Main		X		\$ 90,000		\$ 13,500	\$ 104,000
Main Plant Main Bar Rack (4 ft)		This equipment screens out debris from the influent, and is imperative for treatment and protection of equipment further down the line.	Main	FY21		X	\$ 363,576	\$ 61,808	\$ 72,715	\$ 499,000
North and East Bar Racks		This equipment screens out debris from the influent, and is imperative for treatment and protection of equipment further down the line.	North, East	FY23, 20		X	\$ 603,576	\$ 102,608	\$ 120,715	\$ 827,000
Grit							\$ -			\$ -
	Classifiers	This equipment screens out grit and course material from the influent, and is imperative for treatment and protection equipment from wear.	North, East			X	\$ 243,696		\$ 48,739	\$ 293,000
	Trolley drive upgrades		North, East		X		\$ 36,000	\$ 6,120	\$ 5,400	\$ 48,000
	Controls		North, East	FY17,18			\$ 120,000	\$ 20,400	\$ 18,000	\$ 159,000
	Complete replacement		Main	FY22		X	\$ 441,665	\$ 75,083	\$ 88,333	\$ 606,000
Main Inf. Ferric Storage		Ferric is used in phosphorus control. It is a nasty chemical, and this will change our current temporary storage, to a safe and permanent installation.	Main		X		\$ 42,000		\$ 4,200	\$ 47,000

Wastewater Plant Improvements

Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Rehab gates that do not work	The gates are used in various processes for flow control, maintenance and staff safety.	All		X		\$ 480,000	\$ 81,600	\$ 72,000	\$ 634,000
CSO pump controller and level sensor	This controls the ability to process wet weather events	Main	FY19,26	X		\$ 36,000		\$ 7,200	\$ 44,000
Rehab Rodney Hunt controller, panel, solenoids and gas cylinders	This controls various gates at main plant, including the relief gate for CSO treatment.	Main	FY18,26	X		\$ 60,000		\$ 12,000	\$ 72,000
Gas Detection systems	This is a safety system to protect staff from dangerous gasses.	All		X		\$ 24,000		\$ 4,800	\$ 29,000
Aeration Membranes of all Plants	This is part of the biological process to deliver oxygen to the bacteria so that they can treated the wastewater.	All	FY23, 19, 19	X		\$ 132,000	\$ 22,440	\$ 26,400	\$ 181,000
North and East Piston Pump Replacement (Primary Sludge pump)	These pumps provide the ability to transfer waste solids to storage for residuals management.	North, East		X		\$ 96,000			\$ 96,000
Yard Hydrant Replacement All plants	Yard hydrants are used to clean and maintain equipment and tanks.	All	FY19	X		\$ 120,000			\$ 120,000
Godwin Pump	This piece of equipment is a trailer mounted pump which can be used as a backup pump station in an emergency.	All		X		\$ 78,000			\$ 78,000
Main Plant Primaries (Has to happen)	Primaries are a part of the process in which you settle out as much of the organic material as possible. They reduce the need for more expensive secondary processing.	Main	FY20		X	\$ 1,092,050	\$ 185,649	\$ 198,582	\$ 1,477,000
Main Plant CSO Bar Rack (12ft)	This equipment screens out debris from the wet weather influent system, which is a major component of the wet weather treatment process.	Main			X	\$ 1,074,000	\$ 182,580	\$ 214,800	\$ 1,472,000

Wastewater Plant Improvements

Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Clarifiers (Primary or Secondaries) High Priority and/or East Plant redesign #	Primaries are a part of the process in which you settle out as much of the organic material as possible. They reduce the need for more expensive secondary processing. Secondaries are important for settling out biologically treated solids leaving a clean, polished effluent.	Any	FY24			\$ 2,400,000	\$ 408,000	\$ 240,000	\$ 3,048,000
On-Shore Relief Box Culvert	This is the culvert used to discharge off shore in the case of hydraulic overload for the wet weather system. The lab building sits on top of this structure.	Main		X		\$ 240,000	\$ 40,800	\$ 48,000	\$ 329,000
Total						\$ 8,792,563	\$ 1,217,687	\$ 1,383,485	\$ 11,403,000

STUDIES

Dewatering Decision (Brewery option) Final Study		Main, All		X				\$ 120,000	\$ 120,000
Engineering evaluation of East Plant, which may include recommendations for alternative treatment strategies		East				\$ -		\$ 60,000	\$ 60,000
								Total Studies	\$ 180,000

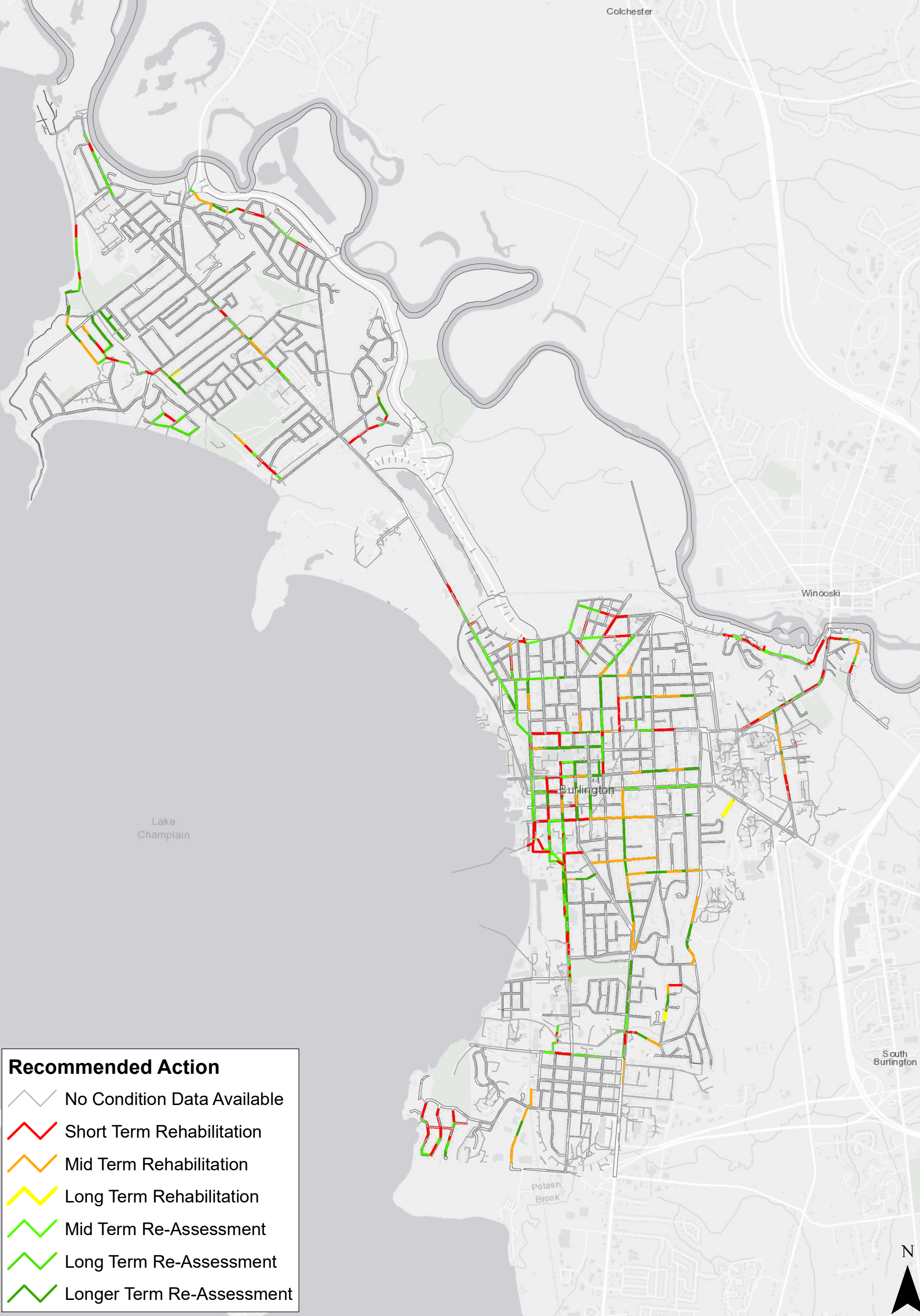
WASTEWATER PUMP STATION IMPROVEMENTS

Pump Station	Dry Pit or Submercible	Capital Planning D&K Year	D&K recommendation	Risk Totals	AEW Rank based on D&K Upgrades	FM Size/Material	Waterway Impacted by Spill?	Construction Total	Design and Oversight (30%)	Subtotal
Fletcher Place	S	2018 & 2020	VV metal and failing, valves, piping & pumps original. Controls showing safety issues	32	1	4" Steel	Yes, would have to go over an embankment	\$ 120,394	\$ 42,138	\$ 162,532.10
Crescent Beach	D	2018	WW old brick, DW failing, original valves, pumps and piping. Controls require entry to DW - Requiring a complete replacement of system	29	2	4" UNK	Yes but would have to be a large spill	\$ 270,369	\$ 94,629	\$ 364,997.54
Queen City	D	2023	WW & DW both in poor condition, valves & pumps original and should be replaced. Controls OK but may need to be relocated to surface	27	3	4" Cast	Yes but would only be from a FM or gravity break since the WW is 25ft deep	\$ 192,809	\$ 67,483	\$ 260,292.35
South Cove	D	2019	WW & DW both in poor condition, valves & piping original, pumps recently replaced but aren't submersible. Panel ok but structure is poor & needs replacement	26	4	4" PVC (relined 2018)	Yes directly on private beach	\$ 139,799	\$ 48,929	\$ 188,727.98
Flynn Avenue	D	2020	DW metal and failing, valves, piping & pumps original. Controls showing minor seal fitting issues, controls to be moved above ground	26	5	Half 6" HDPE Half 6" Cast	Yes direct access to beach	\$ 242,238	\$ 84,783	\$ 327,020.96
Water Plant	S	N/A	WW & VV both deteriorating, valves showing heavy corrosion, pumps ok but capacity could be issue, junction boxes are code violations C1 D1, seal fittings needed on conduits, controls OK	26	6	4" Ductile	Yes direct access to storm CB's that discharge to lake	\$ 196,998	\$ 68,949	\$ 265,947.44
Upper Beach	S	2022 & 2024	Hatch to be replaced, WW steel insert questionable but unknown, valves & piping original but pumps recently replaced. Controls old but ok	23	7	4" AC	No, but does have high public impact	\$ 171,668	\$ 60,084	\$ 231,751.13
Proctor Place	D	2024	WW & DW both in poor condition, valves & pumps original and should be replaced. Controls OK	21	8	6" Cast	Yes direct access to storm CB's that discharge to lake	\$ 316,350	\$ 110,723	\$ 427,072.50
Van Patten	S	2020	WW hatch poor, valve vault not sealed & submerged with GW, valves, pumps & pipes original, VFD's good, need covers	20	9	4" PVC	Yes, but over an embankment into intervale	\$ 67,522	inhouse	\$ 67,522.00
Chase Street	S	2020	Plug valves original, checks recently changed, pumps need to be replaced, panels & conduits showing corrosion	19	10	4" Cast	Yes, CB's with direct discharge into Winooski River	\$ 108,529	inhouse	\$ 108,528.50
Intervale Landfill	S	2026	Might not be the best use of our capital bond this time around	0	25		N/A	\$ 100,000	inhouse	\$ 100,000.00
Mission Control	N/A		Need to upgrade telemetry for improved staff efficiency and alarming					\$ 90,000	inhouse	\$ 90,000.00
								\$ 2,016,674	\$ 577,718	\$ 2,594,392

Burlington, VT

Sewer and Combined Sewer Gravity Mains

Recommended Action



Recommended Action

- No Condition Data Available
- Short Term Rehabilitation
- Mid Term Rehabilitation
- Long Term Rehabilitation
- Mid Term Re-Assessment
- Long Term Re-Assessment
- Longer Term Re-Assessment



High Risk Stormwater Outfall Repair

Location	Estimated Construction Cost (includes 25% cont)	Design & Oversight (25%)	Total Estimate
Manhattan Drive	\$725,000.00	\$181,250.00	\$906,250.00
505 Riverside Avenue	\$600,000.00	\$150,000.00	\$750,000.00
Northeast of Riverside Plant	\$179,906.25	\$44,976.56	\$224,882.81
North Avenue @ 127, just north of on ramp	\$245,000.00	\$61,250.00	\$306,250.00
Burlington High School	\$40,000.00	\$10,000.00	\$50,000.00
Ethan Allen Park, near Moore Drive	\$600,000.00	\$150,000.00	\$750,000.00
Englesby Brook @ Pine Street	\$100,000.00	\$25,000.00	\$125,000.00
Riverside Avenue, near Salmon Hole Park	\$60,000.00	\$15,000.00	\$75,000.00
Upper Little Eagle Bay	\$72,500.00	\$18,125.00	\$90,625.00
Leddy Park	\$120,000.00	\$30,000.00	\$150,000.00
Just west of Riverside	\$62,631.25	\$15,657.81	\$78,289.06
Total construction with 10% additional contingency ---->	\$3,085,541.25	\$701,259.38	\$3,786,800.63
Total construction for top 5, with 5% additional contingency on construction and design	\$1,879,401.56	\$469,850.39	\$2,349,251.95

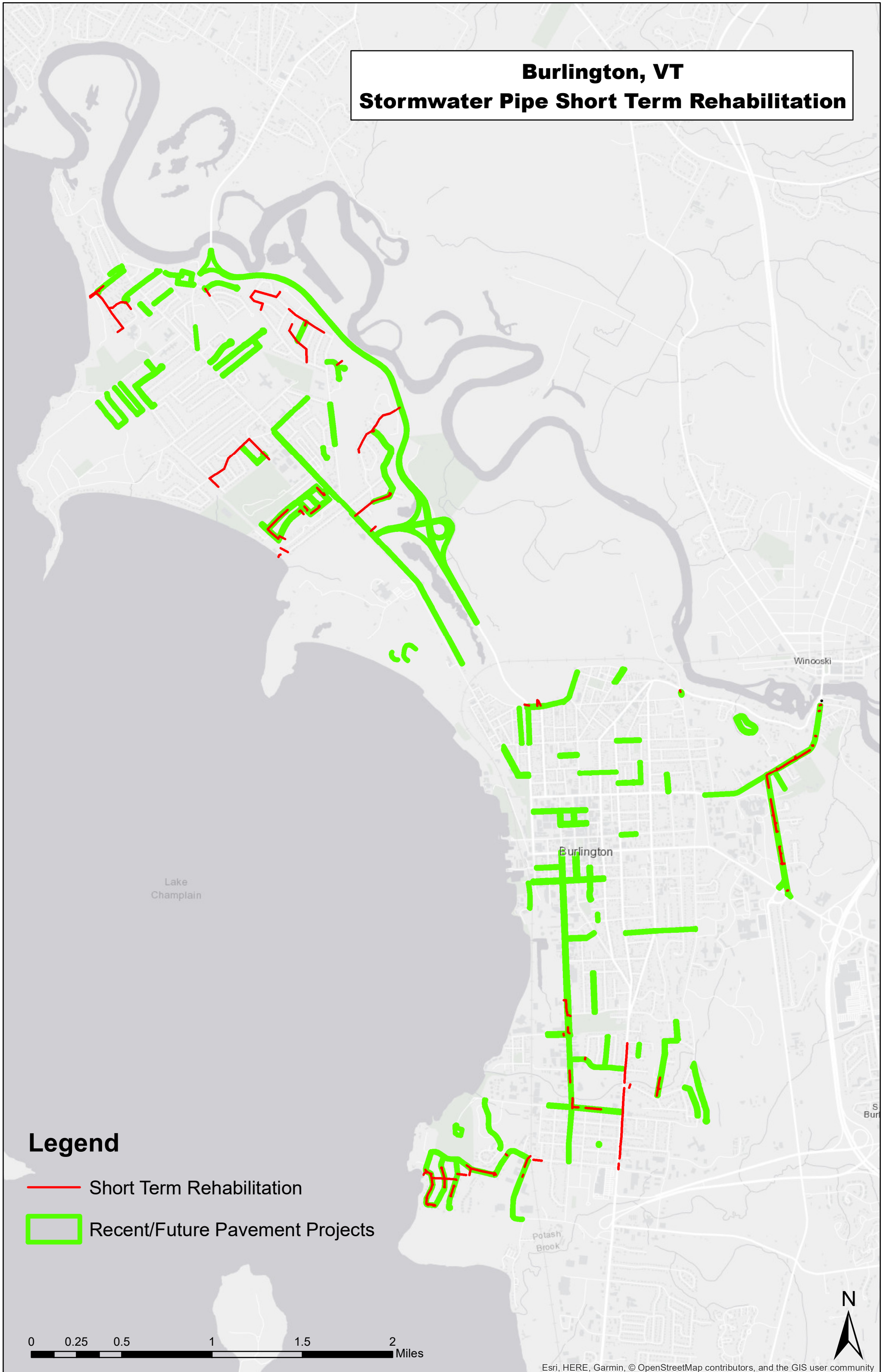
Combined Sewer Retrofit Opportunities

Project Currently Proposed	Acres of Impervious	Construction with contingency (25%)	Design/oversight	Watershed
Allen Street (below CSO)	1.13	\$105,937.50	\$10,593.75	Main Plant
Cedar Street @ Rose Street	0.5	\$62,500.00	\$6,250.00	Main Plant
Cedar Street @ LaFountain	0.62	\$77,500.00	\$7,750.00	Main Plant
North Prospect - North to Pearl	5.62	\$395,156.25	\$39,515.63	Main Plant
Cedar @ North Champlain?	2.75	\$193,359.38	\$19,335.94	Main Plant
Rose Street (above CSO)	1.61	\$150,937.50	\$15,093.75	Main Plant
Front/Summer	0.44	\$55,000.00	\$5,500.00	Main Plant
Hyde Street (near North Street)	0.31	\$38,750.00	\$3,875.00	Main Plant
Main Plant and/or Manhattan CSOs		\$1,079,140.63	\$107,914.06	
Fairmount Street	1.02	\$127,500.00	\$25,500.00	Main Plant - Above CSO
South Prospect (3 locations total)	3.19	\$299,062.50	\$59,812.50	Main Plant - Above CSO
Glen Road @ South Street	0.53	\$66,250.00	\$13,250.00	Main Plant - Above CSO
South Street	0.92	\$115,000.00	\$23,000.00	Main Plant - Above CSO
Prospect Parkway (2 sites)	0.99	\$123,750.00	\$24,750.00	Main Plant - Above CSO
Chestnut Terrace	0.26	\$32,500.00	\$6,500.00	Main Plant - Above CSO
Pine Street Barge Canal CSO		\$764,062.50	\$152,812.50	
Charlotte Street - bumpouts or subsurface or tank	1.1	\$103,125.00	\$20,625.00	Main Plant
	20.99	\$1,946,328.13	\$281,351.56	
75% of total possible opportunities, knowing that we want to wait until Integrated Plan is done to pick best bang for buck projects	12.6	\$ 1,459,746.09	\$ 211,013.67	
GREAT STREETS				
St. Paul				
Other 12 blocks		\$1,500,000.00	estimated cost is \$250K per block, use \$150K (60%)	
City Hall Park		\$150,000.00	Estimated cost is \$300K for CHP, assume 50%	
	Total Great Streets/Downtown	\$1,650,000.00		

Basis for Separate Stormwater Management 2019-2022 Budget #

3-Acre Site Compliance	Details / Notes	EFA Cost	Final Engineering & oversight	Construction Cost (Imp. * \$75000)
Alexis Drive Subdivision	3.1 acres total (1.55 acres required)	\$5,000.00	\$29,062.50	\$145,312.50
Grey Meadows Subdivision	3.87 acres total (1.94 required)	\$5,000.00	\$36,375.00	\$181,875.00
Lori Lane Subdivision	3.1 acres total (1.55 acres required)	\$5,000.00	\$29,062.50	\$145,312.50
Van Patten Parkway Subdivision	9.3 acres total (4.65 acres required)	\$5,000.00	\$87,187.50	\$435,937.50
Riverwatch	Co-permittee - EFA only	\$5,000.00		unknown
Ledgewood	Co-permittee - EFA only	\$5,000.00		unknown
Strathmore	Co-permittee - EFA only	\$5,000.00		unknown
Other City 3-Acre sites	38.06 acres impervious, across 10 sites, (outside of the CSS)	\$50,000.00	\$300,000.00	\$1,427,250
	Subtotals	\$85,000.00	\$482,000	\$2,335,688
Assume need to do remaiing EFAs (some being done in FY19) and some design by 2023, with some limited capital implementation of separate stormwater improvements. There should be grant funds available for non regulatory retrofits. USE		\$65,000.00	\$100,000.00	\$150,000

Burlington, VT
Stormwater Pipe Short Term Rehabilitation



Legend

- Short Term Rehabilitation
- Recent/Future Pavement Projects

0 0.25 0.5 1 1.5 2 Miles

Resolution Relating to
NOVEMBER 6, 2018 – SPECIAL CITY MEETING
ISSUANCE OF REVENUE BONDS
FOR WASTEWATER AND STORMWATER
UTILITY PROJECTS

RESOLUTION _____
Sponsor(s): _____
Introduced: _____
Referred to: _____

Action: _____
Date: _____
Signed by Mayor: _____

CITY OF BURLINGTON

In the year Two Thousand Eighteen
Resolved by the City Council of the City of Burlington, as follows:

- 1 That WHEREAS, the City of Burlington Department of Public Works has identified needs for various capital
2 improvements to its wastewater, stormwater and pollution control system, including capital improvements to
3 its treatment plants, wastewater collection system, stormwater collection and treatment system, improvements
4 to reduce combined sewer runoff, planning studies for programmatic improvements and improvements to its
5 pollution control and asset management systems; and
- 6 WHEREAS, the City has determined that the costs of such improvements are too great to be paid out of the
7 ordinary annual income and revenue of the Wastewater department and that, in order to fund the costs of such
8 capital improvements, it will be necessary to incur indebtedness for that purpose; and
- 9 WHEREAS, it is expected that these improvements will benefit future ratepayers; and
- 10 WHEREAS, the City expects that a total of \$29,958,000 will be required over the next five years to make
11 these capital improvements with approximately \$19,856,000 for the wastewater system and approximately
12 \$10,102,000 for the stormwater system; and
- 13 WHEREAS, the City Charter and other applicable law provides that, with at least a majority vote of the City’s
14 voters, the City shall have the authority to issue bonds, from time to time, for the purpose of financing the cost

Resolution Relating to

NOVEMBER 6, 2018 – SPECIAL CITY MEETING
ISSUANCE OF REVENUE BONDS
FOR WASTEWATER AND STORMWATER
UTILITY PROJECTS

15 of any improvement to the City’s public utility systems, including the City’s wastewater system and the City’s
16 stormwater system, with such bonds payable from the revenues of such public utilities; and

17 WHEREAS, the Board of Finance, at its September 5, 2018 meeting, has approved and recommended that the
18 City Council advance the proposed revenue bonding for wastewater and storm water system improvements for
19 City-wide consideration and a public vote at a City Special Meeting to be held on November 6, 2018;

20 WHEREAS, the proposed financing of such capital improvements may be through a public or private issuance
21 of bonds or notes, through the Vermont Municipal Bond Bank, or through the State of Vermont environmental
22 revolving loan fund, or a combination thereof, and may be done in one or more series, and over multiple years;

23 NOW, THEREFORE, BE IT RESOLVED that the City Council hereby requests, pursuant to Sec. 25 of the
24 City Charter, that the Mayor call a Special City Meeting to be held on November 6, 2018 and that the
25 following question be placed on the ballot of that Special City Meeting:

26 “Shall the City be authorized to issue revenue bonds or notes in one or more series, in an
27 amount not to exceed \$29,958,000 in the aggregate, to be issued pursuant to the City Charter
28 and subchapter 2 of Chapter 53 of Title 24, Vermont Statutes annotated, and payable only from
29 the net revenues of the wastewater system and stormwater system, as may be determined by the
30 City Council, for the purpose of paying for capital additions and improvements to the City’s
31 wastewater and stormwater systems, including (i) improvements to the wastewater treatment
32 plants and disinfection systems, (ii) improvements to the wastewater and stormwater collection
33 system, (iii) improvements for combined sewer runoff and overflow mitigation, treatment and
34 runoff reduction, (iv) programmatic improvements, and implementation of a pollution control
35 asset management system, and (v) funding debt service reserve funds and paying costs of
36 issuance?”

37 Estimated total Project Costs: \$29,958,000
38 City Share of Total Costs: \$29,958,000
39
40
41

Page 3

Resolution Relating to

NOVEMBER 6, 2018 – SPECIAL CITY MEETING
ISSUANCE OF REVENUE BONDS
FOR WASTEWATER AND STORMWATER
UTILITY PROJECTS

42

43

44

45

46

Assistant's initials/atty's initials/Resolutions 2018/Name Resolution

Date

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DPW WATER RESOURCES

Sustainable Infrastructure Plan

Phase II

*Proposed Wastewater and
Stormwater Upgrade Bond*

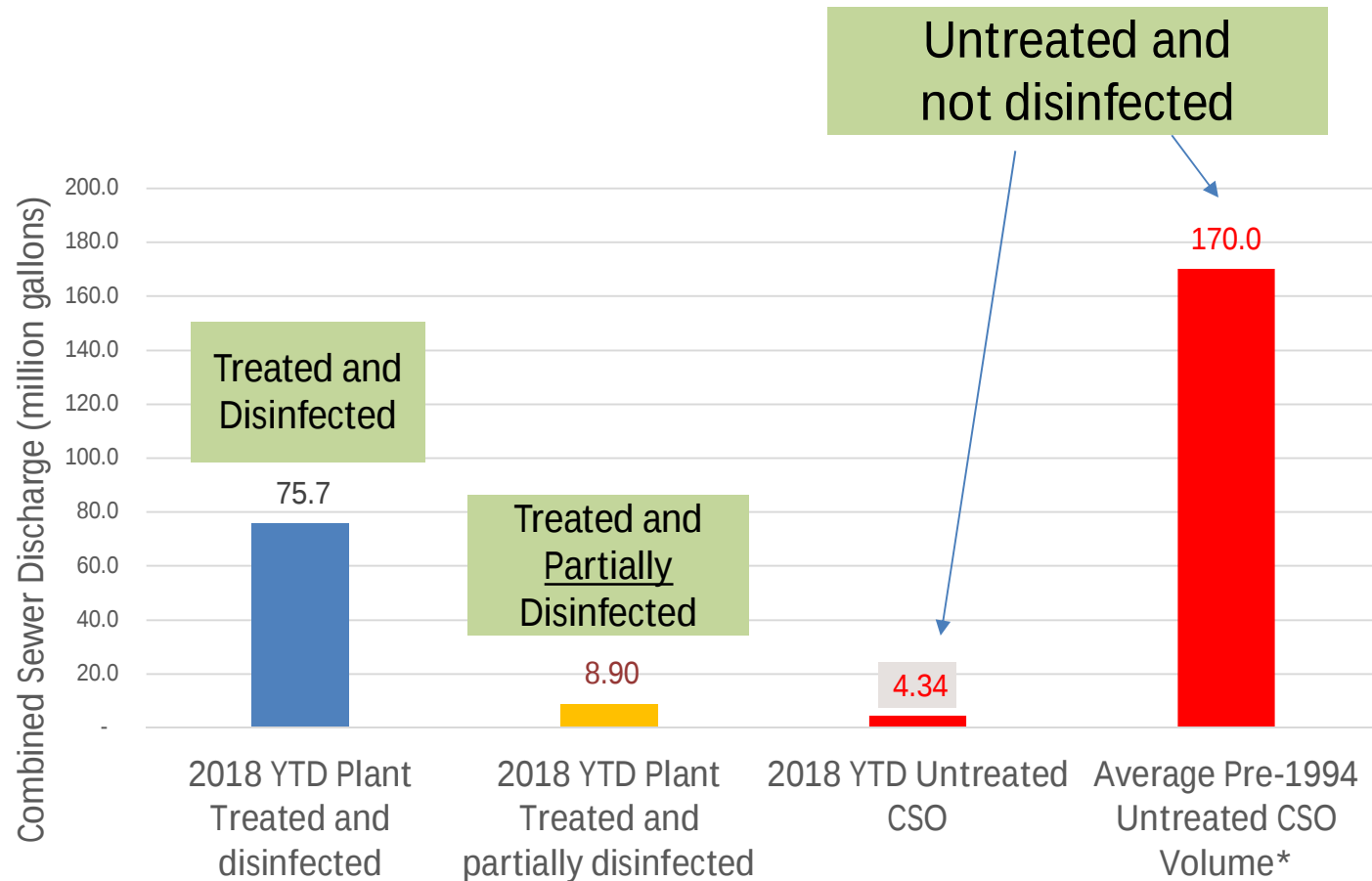
City Council Presentation

August 27, 2018



Main Wastewater Plant

Comparison of Combined Sewer Discharges Pre 1994 to 2018 Through 8/26/18



*Pre-1994 estimate is based on average annual combined sewer wet weather flows treated by Vortex between 2001 and 2017.
See <https://www.burlingtonvt.gov/DPW/Water-Quality-History>.

Today's Topics

- Overall WW/SW Capital Planning
- 2018 Challenges
- Reinvestment Proposal
- Rate Impact
- Rate Mitigation Strategies
- Overall Benefits
- Next Steps
- Questions

Background on City's water quality efforts:

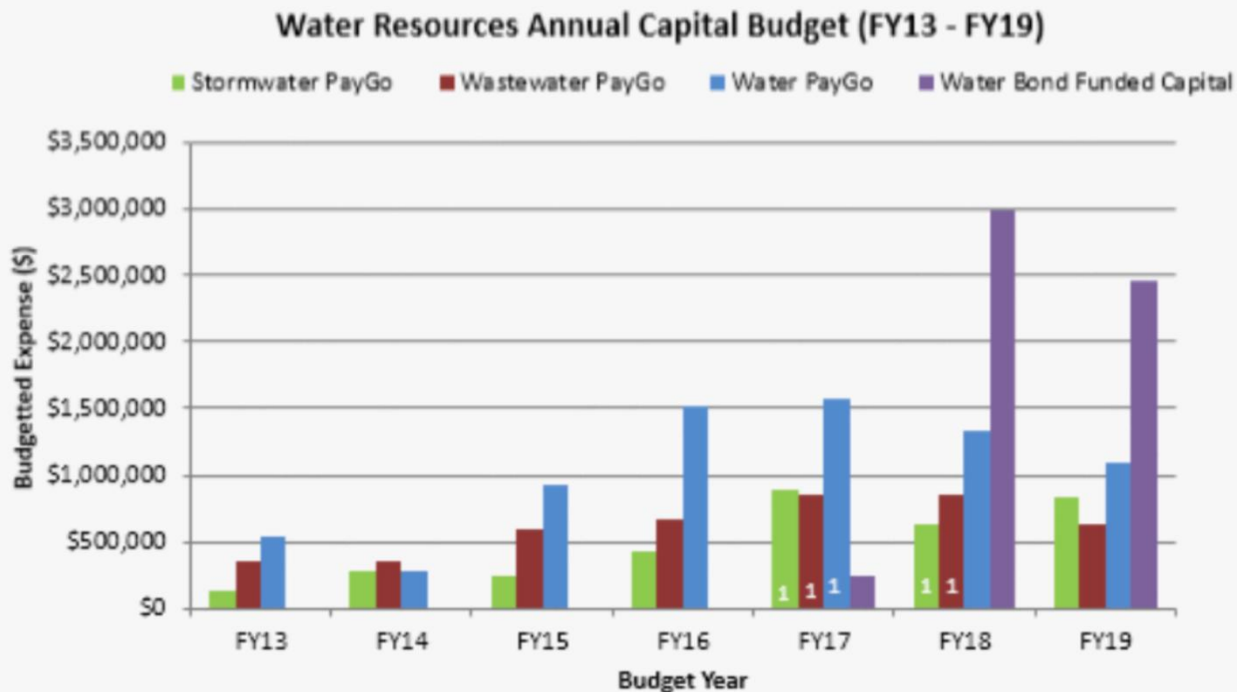
www.burlingtonvt.gov/dpw

Capital investments have increased for Wastewater and Stormwater since FY15, though not enough to keep up with system need

Key Drivers (expense side) cont'd.

FY19 Budget
Presentation Slide

- Continued focus on capital improvements

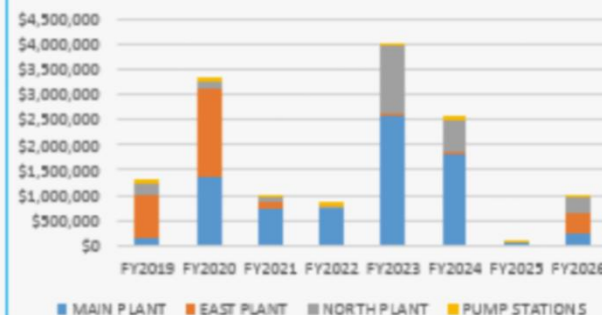


Quickly approaching need for significant existing infrastructure upgrades, as was included in FY18 & FY19 Budget Presentations:

Looking ahead to FY 20 and beyond *Challenges*

- **Water Debt**
 - Important to maintain or increase Moody's A1 rating
 - Maintain required 1.25 Debt Coverage Ratio
- **Future Water Resources Borrowing to meet Capital Deficits**
 - Water:
 - Water Bond authorization will only replace/rehabilitate ~8-10 miles of our 110 mile distribution system
 - High Service Tanks: At a minimum, Redstone Storage tank maintenance (~\$500k) due in FY2021 (likely sooner); UVM tank maintenance (\$1M) in FY27
 - Wastewater:
 - ★ Replacement of **existing treatment system components** at WWTPs and **pump stations** (\$8-10M)
 - ★ Collection System capital needs (~\$1M/year for 5 years)
 - Lake Champlain TMDL possible plant upgrades
 - Biosolids management
 - Stormwater
 - ★ Collection System capital needs (~\$1M/year for 5 years)
 - ★ Outfall Repair (\$3 M to fix top 11 worst outfalls)
 - Lake Champlain TMDL impervious retrofits
 - Combined Sewer Overflow Management
- **Revenue**
 - Conservation/Water efficiency
 - Lose rest of Hadley Road in FY2020 (\$110K)

WASTEWATER PLANT & PUMP STATION
CAPITAL ROLLUP BY FISCAL YEAR



Sustainable Infrastructure Plan

- Phase I – Voter approval Nov. 2016
- Drinking Water infrastructure was prioritized in first phase due to:
 - Higher need for advanced coordination with expanded paving program
 - “Frost-pocalypse” in 2014/2015 and increasing water main breaks on newly paved streets



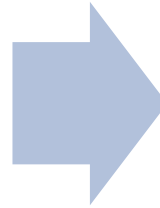
- Current request: Phase II – Address Wastewater and Stormwater existing infrastructure capital needs; maintain steady progress on known stormwater/wet-weather issues in parallel with integrated planning study
- Future: Phase III – Address WW and SW enhancements

2018: Challenges and Solutions

Mitigating Future Risk

Wastewater permit violations & beach closures caused by infrastructure failure

April 16 valve failure and July 10 PLC failure @ Main Plant ; August 24 chemical feed line blockage @ North Plant



Accelerate WW capital improvements for all high risk assets

Wastewater permit violations & beach closures caused by impact of high strength waste on biological treatment system

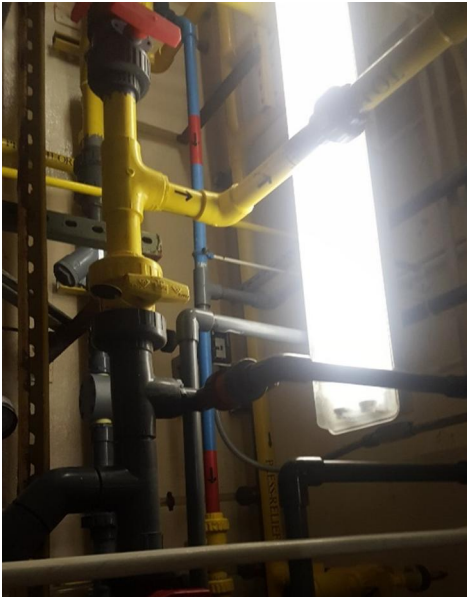
June 2 & 4 @ Main Plant



Accelerate and expand development of industrial wastewater program (require high strength users to divert high strength waste away from sewer system)

No significant upgrades have been made to the system since 1994.

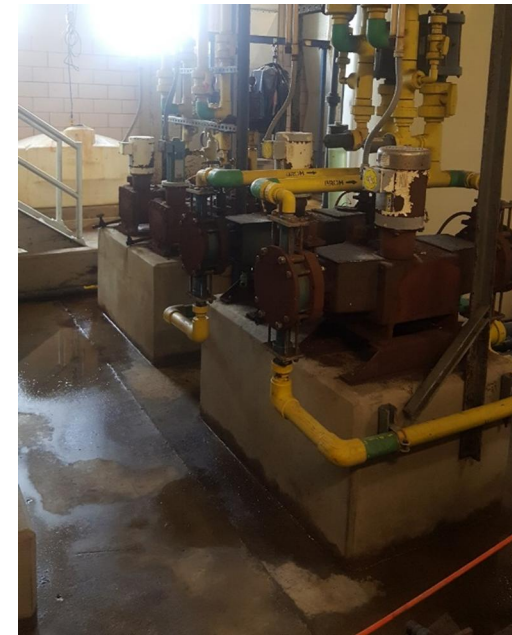
Following are a number of examples of the impacts of underinvestment



Disinfection system pipes: Multiple repairs (different color pipes)



Disinfection system control panel: only one switch (hand-off-auto) works. Other control panels have obsolete parts that cannot obtain anymore..



Bromine pumps: 24 years old; critical to disinfection of wet weather

No significant upgrades have been made to the system since 1994.

Following are a number of examples of the impacts of underinvestment



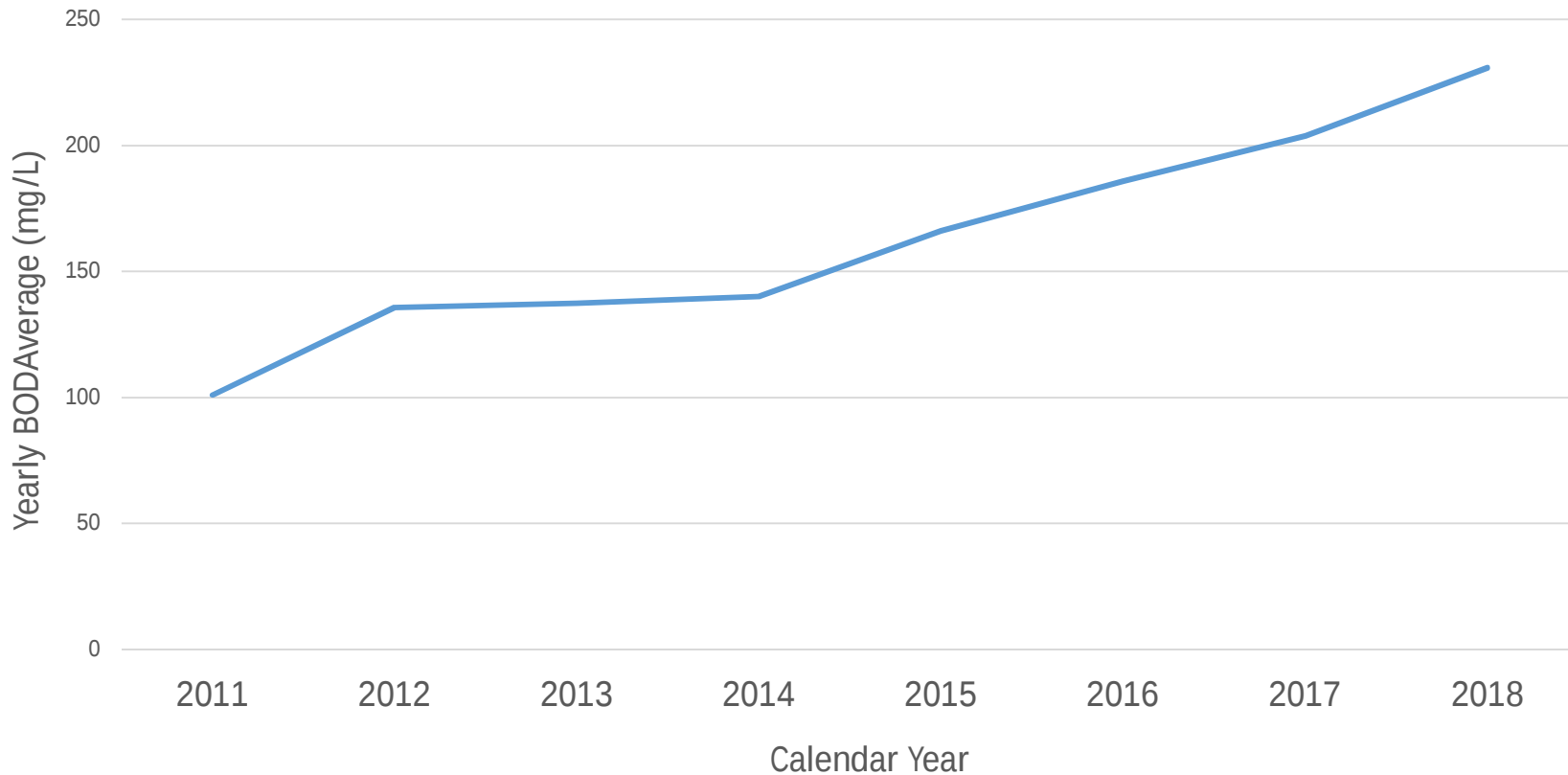
Headworks: Automatic gate that is no longer automatic



Corroded metal components: Full of bandaids and patches or not easily repairable.

Increasing Strength (BOD) of Wastewater in Main Plant Flow has significantly increased in recent years

Biological Oxygen Demand of Main Plant Flow Entering Biological Reactors



Typical domestic WW = 250 mg/L

Brewery/Cidery WW ranges from 4000-15,000 mg/L

2018: Challenges and Solutions

Mitigating Future Risk

Impact of combined sewer flow on Main Plant during process/system challenges
(April 16, June 2&4, July 10)

&

Collection system combined sewer overflows (Jan 12, April 16, June 18, July 25, Aug 7, Aug 17)



Ensure continued progress on design and implementation of combined sewer runoff reduction retrofits

&

Accelerate feasibility evaluation and possible implementation of satellite disinfection for Pine Barge Canal CSO

2018: Challenges and Solutions

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Mitigating Future Risk

Potential failure of high risk assets:

- sewer pump stations
- sanitary, combined & stormwater pipes
- stormwater outfalls



Ensure adequate funding for capital improvements on high risk pump stations, collection system and outfall assets

Additional regulatory obligations anticipated for separate storm sewer runoff



Ensure adequate funding for evaluation, design and implementation of retrofits in the separate storm sewer system

Sustainable Infrastructure Plan – Wastewater Proposal

	Construction Cost (with ~20-25% contingency generally)	Design & Oversight (15-25% of construction cost)	Total	
Disinfection and SCADA/PLC upgrades (Main, East and North)	\$ 1,236,000	\$ 203,000	\$ 1,438,000	
Other WW Plant (Main, East and North) Capital Needed in next 5 years	\$ 8,793,000	\$ 1,384,000	\$ 11,403,000	*
Proposed WW Planning Studies in Next 5 years to make decision for next Bond (East Plant suitability, dewatering)		\$ 180,000	\$ 180,000	
Pump Stations (10 Highest Need)	\$ * 2,017,000	\$ 578,000	\$ 2,595,000	
Collection System (Sewer Rehab) WW Subtotal (35,485 lf = 6.72 mi)	\$ 1,558,000	\$ 1,300,000	\$ 3,360,000	*
Asset Management CMMS (50% share with SW)	\$ 113,000	\$ 60,000	\$ 173,000	
Industrial Wastewater Program development		\$ 175,000	\$ 175,000	
Industrial Wastewater Pass through loans	\$ 250,000		\$ 250,000	
Industrial WW Subtotal	\$ 250,000	\$ 175,000	\$ 425,000	
City Project Management Staff (0.625 FTE x 4 years)		\$ 282,000	\$ 282,000	
	Wastewater Total Request		\$ 19,856,000	

Sustainable Infrastructure Plan – Stormwater Proposal

	Construction Cost (with ~20-25% contingency generally)	Design & Oversight (15-25% of construction cost)	Total
Stormwater Outfalls (top 5 of 11 high risk outfalls)	\$ * 1,880,000	\$ * 470,000	\$ 2,350,000
SW Collection System (33,381 linear feet = 6.3 miles)	\$ 2,913,831	\$ 245,692	\$ 3,160,000
<u>Stormwater and Wet Weather Management</u>			
<i>Wet-Weather Mitigation</i>			
Combined Sewer Runoff Reduction (Pine Barge Canal as priority, with other projects throughout Main Plants)	\$ 1,460,000	\$ 212,000	\$ 1,672,000
Pine Street CSO disinfection Station	\$ 400,000	\$ 100,000	\$ 500,000
Wet Weather (CSS) Mitigation and Disinfection	\$ 1,860,000	\$ 312,000	\$ 2,172,000
Great Streets and City Hall Park SW (if assume SW pays 1/2)			\$ 1,650,000
<i>Separate Stormwater Management</i>			
3 acre permit obligation (City parcels) EFAs		\$ 65,000	\$ 65,000
Regulatory Req'd Separate Stormwater Retrofits (between 2020-2024)	\$ 150,000	\$ 100,000	\$ 250,000
Separate SW Regulatory Obligations	\$ 150,000	\$ 165,000	\$ 315,000
Asset Management CMMS (50% share with SW)	\$ 113,000	\$ 60,000	\$ 173,000
City Project Management Staff (0.625 FTE x 4 years)		\$ 282,000	\$ 282,000
Stormwater Total Request			\$ 10,102,000

*construction inflation applied



WW and SW TOTAL = \$29,958,000

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Mitigating the impact of the proposed \$30 M bond

- Utilize Clean Water State Revolving Fund (SRF) Loans 
 - 2% admin fee vs. 3.9%+ municipal bond interest
 - Deferred Pay back on planning/design \$ until after construction
 - 1 year deferred pay back on construction
 - 30 year payback eligible on longer term assets (collection system)
 - Higher administrative burden (approval process, Davis Bacon, Buy America Iron/Steel)

Ø \$8.18M in interest savings over life of loan (\$37M vs \$45M total payback)

Ø Single family savings = ~\$19.44/year
- Use existing PayGo Capital to offset some debt service costs 
 - Maintain sufficient amount for unplanned and/or smaller capital needs
 - Maintain sufficient amount to re-purpose for improved staffing resiliency

Ø Funds ~\$8.5M of total \$30M of borrowed principal

Ø Funds ~\$13.3M of total \$37.4M in total debt service costs

Ø Typical single family savings = ~\$26.40/year

Additional Rate Impact Minimization Strategies

- Mitigate Total Debt Service Amount
 - State Grants/Loan Forgiveness Subsidy
 - Loan forgiveness % varies from year to year (often capped)
 - Upcoming Green Infrastructure CSO grants (\$1.25-\$2.5 M across 5 CSO communities)
 - Pollution Control Grants (up to 35%, depends on priority ranking of project, priority can be improved through sponsorship of natural resource projects)
 - Determine whether TIF funded projects should fully fund stormwater improvements

Additional Rate Impact Minimization Strategies

- Find \$ to Cover Remaining Debt Service
 - Work with City General Fund to evaluate alternative strategies to current PILOT paradigm
 - Wastewater PILOT = \$1.1 M/Annually
 - Develop appropriate additional fees for service from users of services (fire service, project review, connection fees)

Additional Rate Impact Minimization Strategies

- Minimize Rate Increases for Residential Users and Low Income Users
 - Evaluate alternative rate structures
 - Create affordability programs

Rate Impact Minimization Commitments

- Commitment to secure at least \$1 M worth of grants/loan forgiveness or other offsets to bond principal
- Commitment to find additional annual funding to offset debt service and other operational rate increase drivers, through new sources of revenue or expense decreases
- Commitment to propose ways to minimize impact to single family/residential rate payers and low income rate payers through alternative rate structures and affordability programs
- Reminder: All SRF loan applications and executions require City Council approval, so there will be opportunity to review the outcome of mitigation strategies prior to incurring debt

Estimated Wastewater Rate Impact due to Bond

Fiscal Year	Amount Borrowed	CUMULATIVE				
		Annual Cumulative Debt Service (DS)	DS Payment Remaining after use allowable portion of PayGo Capital (\$237K)	WW Monthly Increase per typical single family (6 Ccf)	Typical Bill Single Family Bill (6 Ccf)	% increase (year over year)
FY19	\$ 1,438,000	\$ -	N/A	N/A	\$ 34.92	N/A
FY20	\$ 4,604,500	\$ (87,943)	\$ -	\$ -	\$ 34.92	0%
FY21	\$ 4,604,500	\$ (355,674)	\$ (118,674)	\$ 0.60	\$ 35.52	1.7%
FY22	\$ 4,604,500	\$ (623,404)	\$ (386,404)	\$ 1.80	\$ 36.72	3.4%
FY23	\$ 4,604,500	\$ (891,135)	\$ (654,135)	\$ 3.06	\$ 37.98	3.4%
FY24	\$ -	\$ (1,158,865)	\$ (921,865)	\$ 4.26	\$ 39.18	3.2%
Total:	\$ 19,856,000					

- No rate increase required by this bonding until FY'21
- After 5 years, total 12.2% increase over FY19 bill (~\$51.12/year increase)

AVAILABLE PAYGO CALCULATION			
		PayGo capital in annual budget (without grants)	\$ 632,000
		Amount reserved for PayGo capital and operational resiliency improvements	\$ (395,000)
		Remaining funds available for debt service payment each year:	\$ 237,000

Estimated Stormwater Rate Impact due to Bond

Fiscal Year	Amount borrowed	CUMULATIVE				
		Annual Cumulative Debt Service (DS)	DS Payment Remaining after use allowable portion of PayGo Capital (\$285K)	SW Monthly Increase per Single Family (2.67 ISUs)	Typical Single Family Bill	% increase (year over year)
FY19	\$ -	\$ -	N/A	N/A	\$ 6.60	N/A
FY20	\$ 2,525,500	\$ -	\$ -	\$ -	\$ 6.60	0%
FY21	\$ 2,525,500	\$ (141,411)	\$ -	\$ -	\$ 6.60	0.0%
FY22	\$ 2,525,500	\$ (282,822)	\$ -	\$ -	\$ 6.60	0.0%
FY23	\$ 2,525,500	\$ (424,233)	\$ (139,233)	\$ 0.57	\$ 7.17	8.6%
FY24	\$ -	\$ (565,644)	\$ (280,644)	\$ 1.10	\$ 7.70	7.4%
Total :	\$ 10,102,000					

- No rate increase required by this bonding until FY'23
- After 5 years, total 16.7% increase over FY'19 bill (\$13.20/year increase)

AVAILABLE PAYGO CALCULATION			
		PayGo capital in annual budget (without grants)	\$ 610,000
		Amount reserved for PayGo capital and operational resiliency improvements	\$ (325,000)
		Remaining funds available for debt service payment each year:	\$ 285,000

Additional Needed Investments

- Near term requests
 - Anticipate requesting BOF approval (9/5) of contract amendment for Resiliency Plan/ 3rd party reorganization and staffing recommendations
 - ensure proper operations (including emergent situations) and permit compliance
 - fully implement increased capital investment
 - Keep pace of coordination with public and private infrastructure projects
 - Anticipate requesting BOF/CC approval (~November 2018) of amendments to Integrated Planning Study scope and existing SRF planning loan
- Drinking Water not included in this bond proposal
 - additional \$ money will likely be needed for continued work on distribution system and newly identified challenges at both high service water tanks
- Beyond 2020/2021
 - Capital needs driven by outcome of Integrated Plan and other regulatory requirements
 - Phosphorus upgrades at WW Plants
 - Combined sewer reduction projects (large and small scale)
 - Separate stormwater runoff management
 - Additional investment in remaining high risk collection system and stormwater outfalls

Summary

- Overall costs:
 - No bond driven rate impact in FY20
 - Maximum bond-driven rate impact for typical residential customer after 5 years = \$64.32/year
 - Likely less due to pursuit of grants and other rate mitigation strategies
- Overall benefits
 - Fewer permit violations and beach closures
 - Upgraded disinfection systems in all three plants
 - Major rehabilitation to all other critical systems
 - More green infrastructure and stormwater runoff reductions in combined sewer system

Potential Next Steps

- Gather Council feedback
- September 5: Board of Finance
- September 11: City Council - vote
- September 17: Water Quality Town Hall
- September 19: DPW Commission
- September/October: NPA Tour
- November 6: Bond vote

Questions/Feedback

Future questions?

Chapin Spencer, Director, cspencer@burlingtonvt.gov

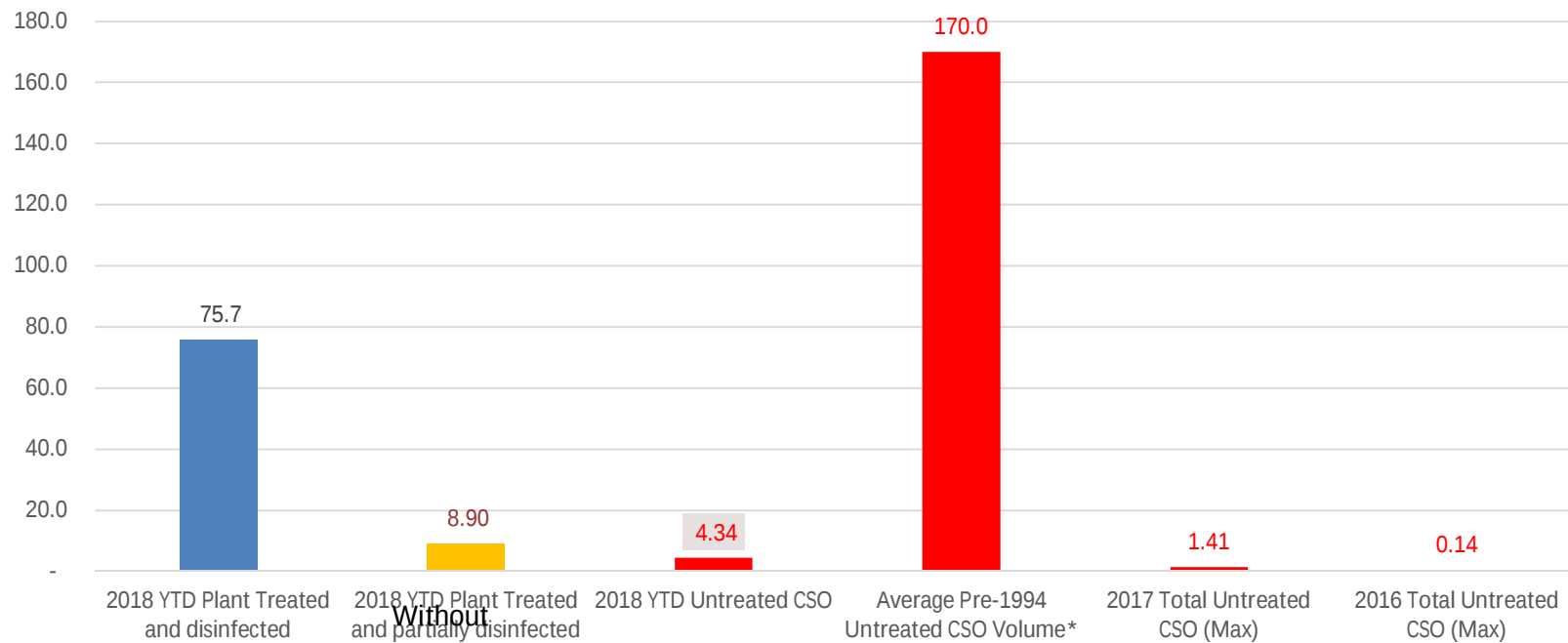
Megan Moir, Assistant Director – WR, mmoir@burlingtonvt.gov

Rob Goulding, Public Information Mgr, rgoulding@burlingtonvt.gov



Untreated CSOs: 2018 compared to 2017 and 2016

Comparison of Combined Sewer Discharges



Without 7/10 PLC failure, untreated CSO #
would be 1.04 M gallons, less than 2017.

Wastewater Plant Improvements

Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total									
Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary		SUBTOTAL
Main Plant Disinfection System Upgrade (does not include PLC)	This system controls the ability to disinfect wastewater and is require to protect public health.	Main			X	\$ 479,375.00		\$ 110,256.25	\$ 590,000
Main SCADA/PLC wholesale upgrade	This system acts as the central nervous system of the facility. Without this automation, there is more possibility for error.	Main			X	---	--	--->	\$ 350,000
North Plant Disinfection System Upgrade	This system controls the ability to disinfect wastewater and is require to protect public health.	North			X	\$ 172,750.00		\$ 39,732.50	\$ 213,000
East Plant Disinfection System Upgrade	This system controls the ability to disinfect wastewater and is require to protect public health.	East			X	\$ 172,750.00		\$ 39,732.50	\$ 213,000
North and East PLC Upgrade/optimization	This system acts as the central nervous system of the facility. Without this automation, there is more possibility for	North, East		X		\$ 60,000		\$ 12,000	\$ 72,000
Total Disinfection and PLC/SCADA									\$ 1,438,000
East plant outfall	Pipe that transports wastewater effluent to the Winooski	East	Fy20			\$ 180,000	\$ 30,600	\$ 45,000	\$ 256,000
North Influent Pump Controller	This controls the heart of the facility. Without it, North plant is not able to treat wastewater.	North	FY17	X		\$ 18,000		\$ 3,600	\$ 22,000
North/East Fire system replacement	Fire protection. North failed last fire inspection. East likely to fail	North, East		X		\$ 60,000			\$ 60,000
Upgraded Blower (Hybrid)	This is central to the biological process. This equipment will provide better control of the process, redundancy and electrical efficiency	Main				\$ 210,000		\$ 31,500	\$ 242,000

Wastewater Plant Improvements

Equipment		Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Dialers & Rain gauges		This allows for notification of problems at the facilities and better data on localized rain storms	North, East		X		\$ 12,000			\$ 12,000
Electrical component study and upgrade (Including Arc flash assessment) Find critical components that we need to have a backup on the shelf, or that needs to be replaced. i.e. foul sewer breakers.		This allows us to discover which components are failing and/or obsolete, to better manage risk and safety.	All		X		\$ 240,000		\$ 48,000	\$ 288,000
EMG Building Improvements		To management and maintain our building envelopes.	All		X		\$ 300,000		\$ 60,000	\$ 360,000
Back Up Blower		This is central to the biological process. This equipment will provide better control of the process, redundancy and electrical efficiency. But mostly for the redundancy.	Main		X		\$ 90,000		\$ 13,500	\$ 104,000
Main Plant Main Bar Rack (4 ft)		This equipment screens out debris from the influent, and is imperative for treatment and protection of equipment further down the line.	Main	FY21		X	\$ 363,576	\$ 61,808	\$ 72,715	\$ 499,000
North and East Bar Racks		This equipment screens out debris from the influent, and is imperative for treatment and protection of equipment further down the line.	North, East	FY23, 20		X	\$ 603,576	\$ 102,608	\$ 120,715	\$ 827,000
Grit							\$ -			\$ -
	Classifiers	This equipment screens out grit and course material from the influent, and is imperative for treatment and protection equipment from wear.	North, East			X	\$ 243,696		\$ 48,739	\$ 293,000
	Trolley drive upgrades		North, East		X		\$ 36,000	\$ 6,120	\$ 5,400	\$ 48,000
	Controls		North, East	FY17,18			\$ 120,000	\$ 20,400	\$ 18,000	\$ 159,000
	Complete replacement		Main	FY22		X	\$ 441,665	\$ 75,083	\$ 88,333	\$ 606,000
Main Inf. Ferric Storage		Ferric is used in phosphorus control. It is a nasty chemical, and this will change our current temporary storage, to a safe and permanent installation.	Main		X		\$ 42,000		\$ 4,200	\$ 47,000

Wastewater Plant Improvements

Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary	Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Rehab gates that do not work	The gates are used in various processes for flow control, maintenance and staff safety.	All		X		\$ 480,000	\$ 81,600	\$ 72,000	\$ 634,000
CSO pump controller and level sensor	This controls the ability to process wet weather events	Main	FY19,26	X		\$ 36,000		\$ 7,200	\$ 44,000
Rehab Rodney Hunt controller, panel, solenoids and gas cylinders	This controls various gates at main plant, including the relief gate for CSO treatment.	Main	FY18,26	X		\$ 60,000		\$ 12,000	\$ 72,000
Gas Detection systems	This is a safety system to protect staff from dangerous gasses.	All		X		\$ 24,000		\$ 4,800	\$ 29,000
Aeration Membranes of all Plants	This is part of the biological process to deliver oxygen to the bacteria so that they can treated the wastewater.	All	FY23, 19, 19	X		\$ 132,000	\$ 22,440	\$ 26,400	\$ 181,000
North and East Piston Pump Replacement (Primary Sludge pump)	These pumps provide the ability to transfer waste solids to storage for residuals management.	North, East		X		\$ 96,000			\$ 96,000
Yard Hydrant Replacement All plants	Yard hydrants are used to clean and maintain equipment and tanks.	All	FY19	X		\$ 120,000			\$ 120,000
Godwin Pump	This piece of equipment is a trailer mounted pump which can be used as a backup pump station in an emergency.	All		X		\$ 78,000			\$ 78,000
Main Plant Primaries (Has to happen)	Primaries are a part of the process in which you settle out as much of the organic material as possible. They reduce the need for more expensive secondary processing.	Main	FY20		X	\$ 1,092,050	\$ 185,649	\$ 198,582	\$ 1,477,000
Main Plant CSO Bar Rack (12ft)	This equipment screens out debris from the wet weather influent system, which is a major component of the wet weather treatment process.	Main			X	\$ 1,074,000	\$ 182,580	\$ 214,800	\$ 1,472,000

Wastewater Plant Improvements

										Design + Mgt 15% to 25% depending on size and complexity) based on non adjusted construction total	SUBTOTAL
Equipment	Description	Facility	D and K 2016 report	Estimate	Revised Consultant Estimate (2018)	Construction Total (with contingency)	ENR (inflation) adjustment as necessary				
Clarifiers (Primary or Secondaries) High Priority and/or East Plant redesign #	Primaries are a part of the process in which you settle out as much of the organic material as possible. They reduce the need for more expensive secondary processing. Secondaries are important for settling out biologically treated solids leaving a clean, polished effluent.	Any	FY24			\$ 2,400,000	\$ 408,000	\$ 240,000		\$ 3,048,000	
On-Shore Relief Box Culvert	This is the culvert used to discharge off shore in the case of hydraulic overload for the wet weather system. The lab building sits on top of this structure.	Main		X		\$ 240,000	\$ 40,800	\$ 48,000		\$ 329,000	
Total						\$ 8,792,563	\$ 1,217,687	\$ 1,383,485		\$ 11,403,000	

STUDIES

Dewatering Decision (Brewery option) Final Study		Main, All		X				\$ 120,000	\$ 120,000
Engineering evaluation of East Plant, which may include recommendations for alternative treatment strategies		East				\$ -		\$ 60,000	\$ 60,000
								Total Studies	\$ 180,000

High Risk Stormwater Outfall Repair

Location	Estimated Construction Cost (includes 25% cont)	Design & Oversight (25%)	Total Estimate
Manhattan Drive	\$725,000.00	\$181,250.00	\$906,250.00
505 Riverside Avenue	\$600,000.00	\$150,000.00	\$750,000.00
Northeast of Riverside Plant	\$179,906.25	\$44,976.56	\$224,882.81
North Avenue @ 127, just north of on ramp	\$245,000.00	\$61,250.00	\$306,250.00
Burlington High School	\$40,000.00	\$10,000.00	\$50,000.00
Ethan Allen Park, near Moore Drive	\$600,000.00	\$150,000.00	\$750,000.00
Englesby Brook @ Pine Street	\$100,000.00	\$25,000.00	\$125,000.00
Riverside Avenue, near Salmon Hole Park	\$60,000.00	\$15,000.00	\$75,000.00
Upper Little Eagle Bay	\$72,500.00	\$18,125.00	\$90,625.00
Leddy Park	\$120,000.00	\$30,000.00	\$150,000.00
Just west of Riverside	\$62,631.25	\$15,657.81	\$78,289.06
Total construction with 10% additional contingency ---->	\$3,085,541.25	\$701,259.38	\$3,786,800.63
Total construction for top 5, with 5% additional contingency on construction and design	\$1,879,401.56	\$469,850.39	\$2,349,251.95

WASTEWATER PUMP STATION IMPROVEMENTS

Pump Station	Dry Pit or Submercible	Capital Planning D&K Year	D&K recommendation	Risk Totals	AEW Rank based on D&K Upgrades	FM Size/Material	Waterway Impacted by Spill?	Construction Total	Design and Oversight (30%)	Subtotal
Fletcher Place	S	2018 & 2020	VV metal and failing, valves, piping & pumps original. Controls showing safety issues	32	1	4" Steel	Yes, would have to go over an embankment	\$ 120,394	\$ 42,138	\$ 162,532.10
Crescent Beach	D	2018	WW old brick, DW failing, original valves, pumps and piping. Controls require entry to DW - Requiring a complete replacement of system	29	2	4" UNK	Yes but would have to be a large spill	\$ 270,369	\$ 94,629	\$ 364,997.54
Queen City	D	2023	WW & DW both in poor condition, valves & pumps original and should be replaced. Controls OK but may need to be relocated to surface	27	3	4" Cast	Yes but would only be from a FM or gravity break since the WW is 25ft deep	\$ 192,809	\$ 67,483	\$ 260,292.35
South Cove	D	2019	WW & DW both in poor condition, valves & piping original, pumps recently replaced but aren't submersible. Panel ok but structure is poor & needs replacement	26	4	4" PVC (relined 2018)	Yes directly on private beach	\$ 139,799	\$ 48,929	\$ 188,727.98
Flynn Avenue	D	2020	DW metal and failing, valves, piping & pumps original. Controls showing minor seal fitting issues, controls to be moved above ground	26	5	Half 6" HDPE Half 6" Cast	Yes direct access to beach	\$ 242,238	\$ 84,783	\$ 327,020.96
Water Plant	S	N/A	WW & VV both deteriorating, valves showing heavy corrosion, pumps ok but capacity could be issue, junction boxes are code violations C1 D1, seal fittings needed on conduits, controls OK	26	6	4" Ductile	Yes direct access to storm CB's that discharge to lake	\$ 196,998	\$ 68,949	\$ 265,947.44
Upper Beach	S	2022 & 2024	Hatch to be replaced, WW steel insert questionable but unknown, valves & piping original but pumps recently replaced. Controls old but ok	23	7	4" AC	No, but does have high public impact	\$ 171,668	\$ 60,084	\$ 231,751.13
Proctor Place	D	2024	WW & DW both in poor condition, valves & pumps original and should be replaced. Controls OK	21	8	6" Cast	Yes direct access to storm CB's that discharge to lake	\$ 316,350	\$ 110,723	\$ 427,072.50
Van Patten	S	2020	WW hatch poor, valve vault not sealed & submerged with GW, valves, pumps & pipes original, VFD's good, need covers	20	9	4" PVC	Yes, but over an embankment into intervale	\$ 67,522	inhouse	\$ 67,522.00
Chase Street	S	2020	Plug valves original, checks recently changed, pumps need to be replaced, panels & conduits showing corrosion	19	10	4" Cast	Yes, CB's with direct discharge into Winooski River	\$ 108,529	inhouse	\$ 108,528.50
Intervale Landfill	S	2026	Might not be the best use of our capital bond this time around	0	25		N/A	\$ 100,000	inhouse	\$ 100,000.00
Mission Control	N/A		Need to upgrade telemetry for improved staff efficiency and alarming					\$ 90,000	inhouse	\$ 90,000.00
								\$ 2,016,674	\$ 577,718	\$ 2,594,392

Combined Sewer Retrofit Opportunities

Project Currently Proposed	Acres of Impervious	Construction with contingency (25%)	Design/oversight	Watershed
Allen Street (below CSO)	1.13	\$105,937.50	\$10,593.75	Main Plant
Cedar Street @ Rose Street	0.5	\$62,500.00	\$6,250.00	Main Plant
Cedar Street @ LaFountain	0.62	\$77,500.00	\$7,750.00	Main Plant
North Prospect - North to Pearl	5.62	\$395,156.25	\$39,515.63	Main Plant
Cedar @ North Champlain?	2.75	\$193,359.38	\$19,335.94	Main Plant
Rose Street (above CSO)	1.61	\$150,937.50	\$15,093.75	Main Plant
Front/Summer	0.44	\$55,000.00	\$5,500.00	Main Plant
Hyde Street (near North Street)	0.31	\$38,750.00	\$3,875.00	Main Plant
Main Plant and/or Manhattan CSOs		\$1,079,140.63	\$107,914.06	
Fairmount Street	1.02	\$127,500.00	\$25,500.00	Main Plant - Above CSO
South Prospect (3 locations total)	3.19	\$299,062.50	\$59,812.50	Main Plant - Above CSO
Glen Road @ South Street	0.53	\$66,250.00	\$13,250.00	Main Plant - Above CSO
South Street	0.92	\$115,000.00	\$23,000.00	Main Plant - Above CSO
Prospect Parkway (2 sites)	0.99	\$123,750.00	\$24,750.00	Main Plant - Above CSO
Chestnut Terrace	0.26	\$32,500.00	\$6,500.00	Main Plant - Above CSO
Pine Street Barge Canal CSO		\$764,062.50	\$152,812.50	
Charlotte Street - bumpouts or subsurface or tank	1.1	\$103,125.00	\$20,625.00	Main Plant
	20.99	\$1,946,328.13	\$281,351.56	
75% of total possible opportunities, knowing that we want to wait until Integrated Plan is done to pick best bang for buck projects	12.6	\$ 1,459,746.09	\$ 211,013.67	
GREAT STREETS				
St. Paul				
Other 12 blocks		\$1,500,000.00	estimated cost is \$250K per block, use \$150K (60%)	
City Hall Park		\$150,000.00	Estimated cost is \$300K for CHP, assume 50%	
	Total Great Streets/Downtown	\$1,650,000.00		

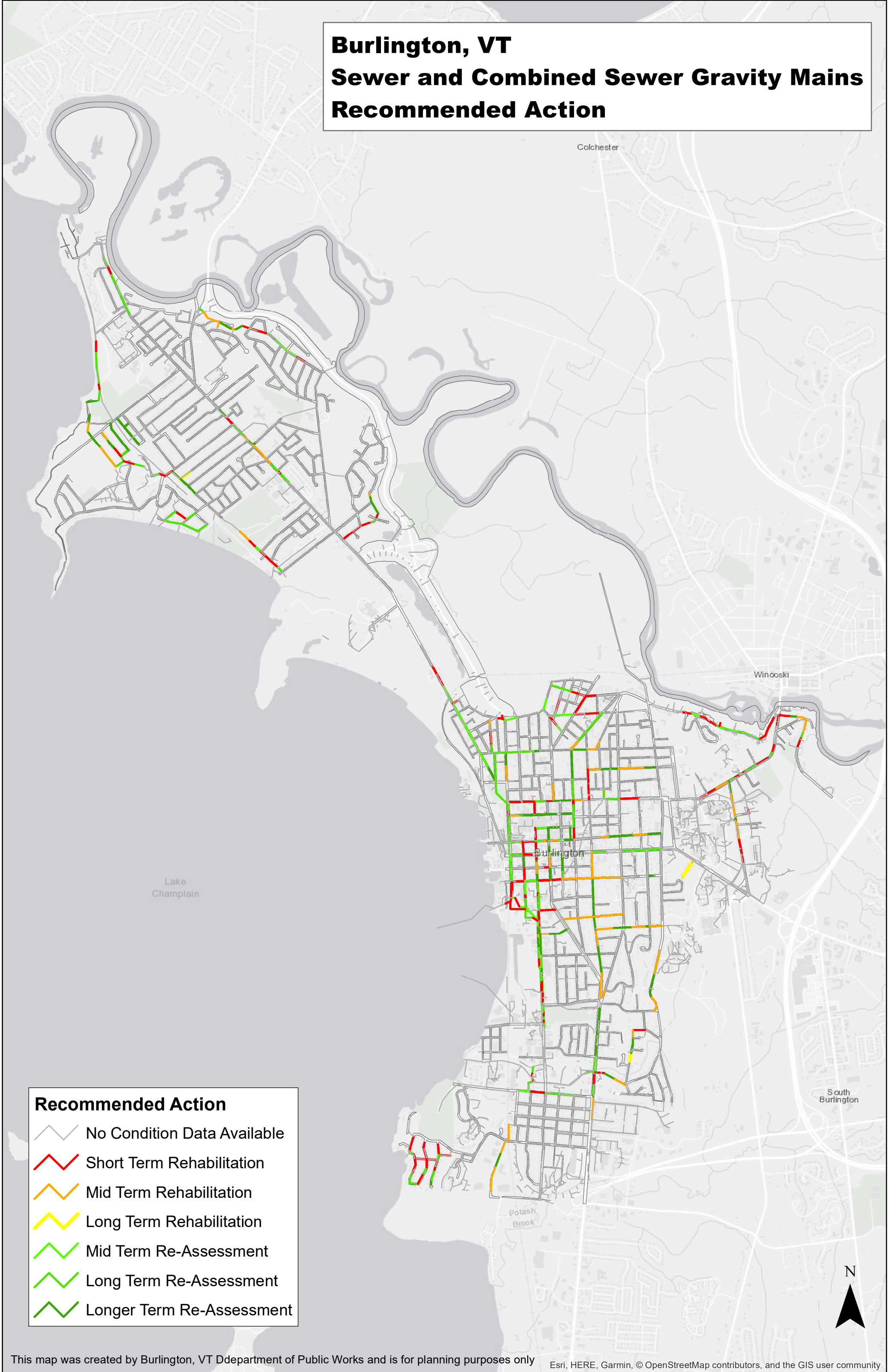
Basis for Separate Stormwater Management 2019-2022 Budget #

3-Acre Site Compliance	Details / Notes	EFA Cost	Final Engineering & oversight	Construction Cost (Imp. * \$75000)
Alexis Drive Subdivision	3.1 acres total (1.55 acres required)	\$5,000.00	\$29,062.50	\$145,312.50
Grey Meadows Subdivision	3.87 acres total (1.94 required)	\$5,000.00	\$36,375.00	\$181,875.00
Lori Lane Subdivision	3.1 acres total (1.55 acres required)	\$5,000.00	\$29,062.50	\$145,312.50
Van Patten Parkway Subdivision	9.3 acres total (4.65 acres required)	\$5,000.00	\$87,187.50	\$435,937.50
Riverwatch	Co-permittee - EFA only	\$5,000.00		unknown
Ledgewood	Co-permittee - EFA only	\$5,000.00		unknown
Strathmore	Co-permittee - EFA only	\$5,000.00		unknown
Other City 3-Acre sites	38.06 acres impervious, across 10 sites, (outside of the CSS)	\$50,000.00	\$300,000.00	\$1,427,250
	Subtotals	\$85,000.00	\$482,000	\$2,335,688
Assume need to do remaiing EFAs (some being done in FY19) and some design by 2023, with some limited capital implementation of separate stormwater improvements. There should be grant funds available for non regulatory retrofits. USE		\$65,000.00	\$100,000.00	\$150,000

Burlington, VT

Sewer and Combined Sewer Gravity Mains

Recommended Action

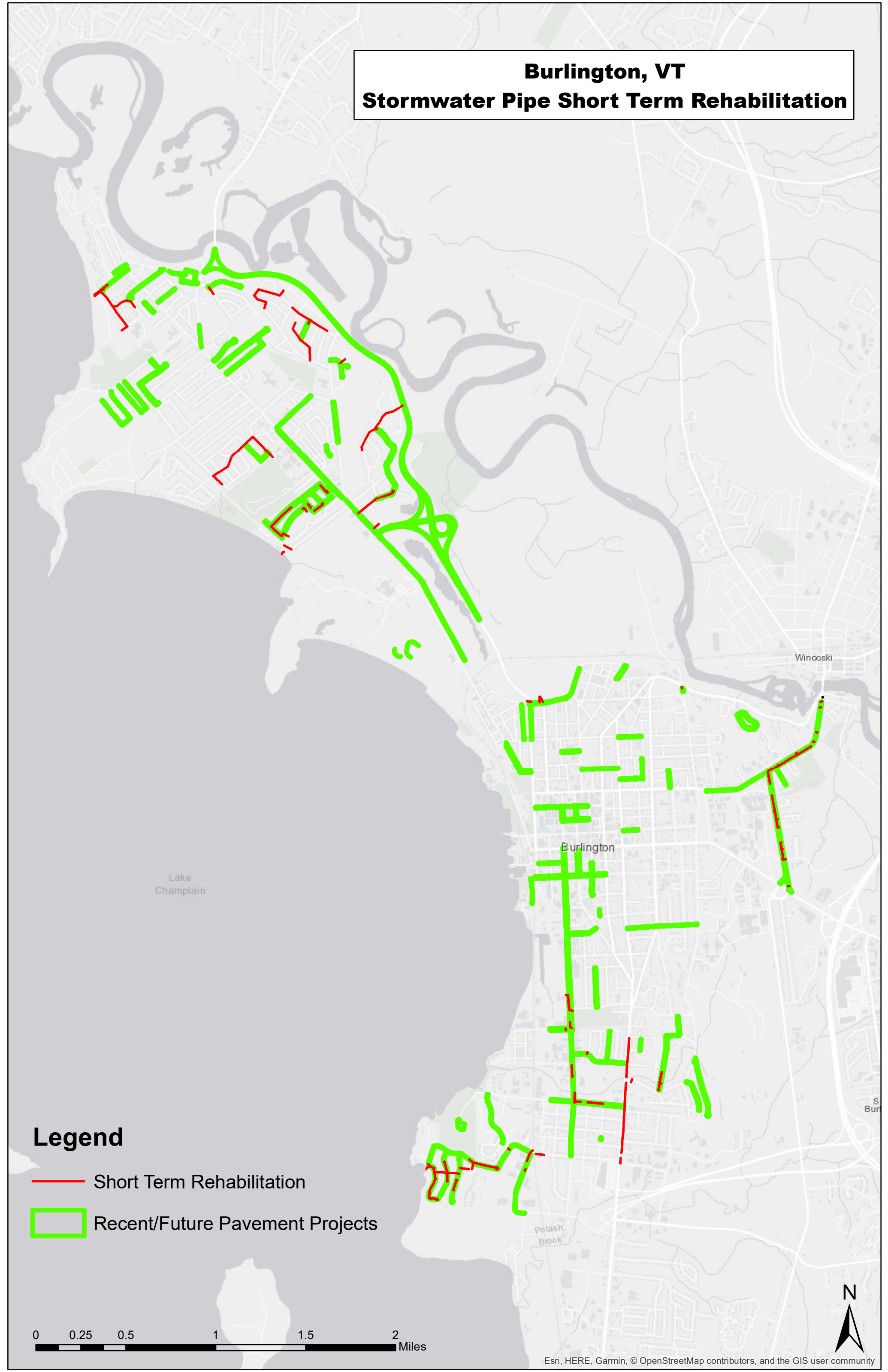


Recommended Action

- No Condition Data Available
- Short Term Rehabilitation
- Mid Term Rehabilitation
- Long Term Rehabilitation
- Mid Term Re-Assessment
- Long Term Re-Assessment
- Longer Term Re-Assessment

Burlington, VT

Stormwater Pipe Short Term Rehabilitation



Legend

- Short Term Rehabilitation
- Recent/Future Pavement Projects

0 0.25 0.5 1 1.5 2 Miles

Resolution Relating to

LAKE CHAMPLAIN BYWAYS



CITY OF BURLINGTON

In the year 'Two 'Thousand Two.....

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

That WHEREAS, the City of Burlington regards state designation of the Lake Champlain Byways as a regionally significant opportunity;

WHEREAS, the City of Burlington is responsible for numerous significant cultural, recreational, historical, scenic, natural and archeological resources; and

WHEREAS, the City of Burlington's intrinsic resources are part of a diverse regional transportation network in, on, and near the shores of Lake Champlain; and

WHEREAS, this diverse network of intrinsic resources might be enhanced through the organization of these resources within the Lake Champlain Byways; and

WHEREAS, the City of Burlington's City Council, and Planning Commission have reviewed the municipal and public review drafts of *Our Past, Our Future – Exploring the Lake Champlain Byways in Chittenden County, Vermont*; and

WHEREAS, the City of Burlington finds that the Byways Corridor Management Plan is in accordance with, and aids in implementation of, the City's planning goals and objectives; and

WHEREAS, a Vermont byway is a highway or other public road that has special scenic, historic, recreational, cultural, archeological, and/or natural qualities, and that has been formally designated by the State of Vermont Transportation Board; and

RESOLUTION

Sponsor: Councilors Spencer, Dunbebin, O'Sullivan (Transportation Com.)

Introduced: 1/22/02

Referred to:

Action: Adopted; Amended

Date: 01/22/02

Signed by Mayor: 01/28/02

Resolution Relating to LAKE CHAMPLAIN BYWAYS

WHEREAS, designation of the Lake Champlain Byways in the City of Burlington will provide opportunities to conserve and enhance Municipality's intrinsic resource features and programs; and will provide outstanding educational and recreational opportunities to residents and visitors;

NOW, THEREFORE, BE IT RESOLVED, that:

- The City Council of the City of Burlington fully supports the Chittenden County Regional Planning Commission's application for state byways designation to the Scenery Preservation Council and Vermont Transportation Board for formal designation of the Lake Champlain Byways in the City of Burlington; and
- The City of Burlington intends on working with its municipal, regional, and state counterparts to advance the implementation of the Lake Champlain Byways.

CITY OF BURLINGTON CITY COUNCIL

A Resolution
reaffirming the City's participation in the Lake Champlain Byway
and supporting recertification of the Lake Champlain Byway.

WHEREAS, by resolution on January 22, 2002, the City of Burlington City Council supported the designation of the Lake Champlain Byway in the City of Burlington; and

WHEREAS, on May 7, 2002, the State Transportation Board formally designated the Lake Champlain Byway as a Scenic Byway; and

WHEREAS, the City of Burlington has worked with the Chittenden County Regional Planning Commission (CCRPC) to successfully implement a Wayfinding Signage and Interpretive Panels project within the City; and

WHEREAS, the City of Burlington is working with the CCRPC in the implementation of new projects and to plan for future Byway-related activities.

NOW, THEREFORE BE IT RESOLVED that the City of Burlington fully supports the City's continued participation in the Lake Champlain Byway and supports the formal recertification of the Byway.

DULY ADOPTED THIS 7TH day of JANUARY, 2008.

SIGNATURE

Kurt W. Galt 1/10/08
Chair Date

CITY COUNCIL PRESIDENT
BURLINGTON, VT

ATTEST

Joni Ollery
By Admin Asst Title
Clerk / Treasurer's Office



COMMUNITY & ECONOMIC DEVELOPMENT OFFICE

149 CHURCH STREET • ROOM 32 • CITY HALL • BURLINGTON, VT 05401
(802) 865-7144 • (802) 865-7024 (FAX)
www.burlingtonvt.gov/cedo

MEMO

TO: Transportation, Energy and Utilities Committee (TEUC)

FROM: Gillian Nanton, Assistant Director, CEDO
Dan Albrecht, CCRPC, Senior Planner & Lake Champlain Byway Council Board Chair

RE: Resolution, 2017 Lake Champlain Byway Chittenden County Corridor Management Plan

CC: Neale Lunderville, Interim Director, CEDO
Chapin Spencer, Director of Public Works

DATE: September 13, 2018

Request:

We respectfully request the Transportation, Energy and Utilities Committee to approve and recommend that the City Council approve the accompanying resolution.

Background:

The Lake Champlain Byway is located in the northwest portion of the state. From north to south, the formal designated motor route is 134 miles (215 km) long and consists of U.S. Route 2 through the Grand Isle County, U.S. Route 7 through Chittenden County and then portions of US. 7 and portions of Vermont Routes 22-A, 73 and 74 Addison County. The overarching goal of the Lake Champlain Byway is to undertake and support projects that balance the promotion, preservation, enjoyment and stewardship of the Byway's intrinsic resources.

On January 22, 2002, the Burlington City Council adopted a resolution supporting the designation of the Lake Champlain Byway in the City of Burlington. Subsequently, in May 2002, the State Transportation Board formally designated the Lake Champlain Byway as a Scenic Byway. Also, in 2002, the Lake Champlain Byway: Chittenden County Corridor Management Plan (CMP) was created. Largely exploratory in tone, this CMP presented a wide range of ideas and recommendations and identifies seven other Byway communities as part of the Byway, along with Burlington. These Byway communities are: Milton, Winooski, Shelburne, Colchester, Essex Junction, South Burlington and Charlotte.

On January 7, 2008, the Burlington City Council passed a resolution fully supporting the City's continued participation in the Lake Champlain Byway and the formal recertification of the Byway.

Since 2002 through mid-2017, the City of Burlington has worked with the Chittenden County Regional Planning Commission (CCRPC) and others to implement a variety of projects to develop the Byway and enhance the traveler's experience through improvements to transportation and interpretation of local intrinsic resources. Accomplishments in the County's Byway communities have included:

- ✓ The fabrication and installation of 16 roadside Lake Champlain Byway highway signs and 37 interpretive panels at key sites as well as the design of several improvements to visitor amenities;
- ✓ The production of several informative brochures as well as interpretive cell-phone audio stories, and
- ✓ The operation of a [Byway website](#) and Facebook page.

In addition to these interpretive and informational projects, these communities also supported and helped to implement various small transportation projects which improved the Byway traveler's experience.

In 2017, CCRPC updated the original 2002 Lake Champlain Byway: Chittenden County Corridor Management Plan (CMP). The 2017 Lake Champlain Byway: Chittenden County CMP seeks to document and learn from the experience of the last 15 years. The objectives of this new 2017 CMP are as follows:

- *Transportation Improvements* – To enhance transportation infrastructure and develop programs and projects that improve all travel modes, improve safety and enhance the traveler experience.
- *Intrinsic Resources and Partnerships* – To create and support educational and recreational opportunities for visitors through strong partnerships with organizations, businesses, nonprofit groups and agencies that have an interest in the intrinsic resources of the Byway.
- *Sustainable Tourism and Economic Development* – To promote and enhance tourism opportunities for the region through sustainable economic development and conservation of intrinsic resources.

The new 2017 Lake Champlain Byway: Chittenden County CMP is supportive of the goals and actions of Burlington's Municipal Development Plan. It can be accessed at the following link:

http://www.ccrpcvt.org/wp-content/uploads/2016/01/LC_Byway_Chittenden_Corridor_Mgt_Plan_FINAL_May2017.pdf

Thank you for your favorable consideration to this request.

Gillian Nanton and Dan Albrecht will be available at the TEUC meeting on September 13, 2018 to answer any questions.

ATTACHMENTS:

- 2017 – Resolution Reaffirming City of Burlington City Council Continued Participation in the Lake Champlain Byway and Adoption of the 2017 Lake Champlain Byway: Chittenden County Corridor Management Plan
- 2008 – City of Burlington City Council Resolution Reaffirming the City's Participation in the Lake Champlain Byway and Supporting Recertification of the Lake Champlain Byway
- 2002 – City of Burlington City Council Resolution Relating to Lake Champlain Byways

Resolution Relating to

Reaffirming the City's continued participation in the
Lake Champlain Byway and
Adoption of the 2017 Lake Champlain Byway: Chittenden County Corridor Management Plan

CITY OF BURLINGTON

In the year Two Thousand Eighteen.....

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

That **WHEREAS**, by resolution on January 22, 2002, the City of Burlington City Council supported the designation of the Lake Champlain Byway in the City of Burlington; and

WHEREAS, on May 7, 2002, the State Transportation Board formally designated the Lake Champlain Byway as a Scenic Byway; and

WHEREAS, by resolution on January 7, 2008, the City of Burlington City Council fully supported the City's continued participation in the Lake Champlain Byway and the formal recertification of the Byway; and

WHEREAS, the creation of the 2002 Lake Champlain Byway: Chittenden County Corridor Management Plan (CMP) was exploratory in tone and presented a wide range of ideas and recommendations; and

WHEREAS, since 2002 through mid-2017, the City of Burlington has worked with the Chittenden County Regional Planning Commission (CCRPC) and others to implement a variety of projects to develop the Byway and enhance the traveler's experience through improvements to transportation and interpretation of local intrinsic resources; and

WHEREAS, the 2017 Lake Champlain Byway: Chittenden County Corridor Management Plan seeks to document and learn from the experience of the last 15 years; and

NOW, THEREFORE BE IT RESOLVED that the City of Burlington finds the 2017 Lake Champlain Byway: Chittenden County Corridor Management Plan prepared by the Chittenden County Regional Planning Commission (CCRPC) is supportive of the goals and actions of Burlington's Municipal Development Plan; and

THEREFORE, BE IT FURTHER RESOLVED that the City of Burlington fully supports the City's continued participation in the Lake Champlain Byway.

DULY ADOPTED THIS _____ day of _____, 2018

SIGNATURE

Chair

Date

ATTEST

Title: _____

DRAFT



September 11, 2018

Memo

TO: Transportation, Energy, and Utilities Committee (TEUC)
FROM: Phillip Peterson, DPW Associate Engineer PWP 9/11/18
CC: Nicole Losch PTP, Senior Transportation Planner U 9/11/18
RE: Resident Parking Management Plan (RPMP) Update

On Wednesday, 8/1/18 DPW Staff presented the possibility of administrative changes to the Resident Parking Program to the TEUC. The Traffic Regulation changes are based on recommendations from the RPMP. Based on recommendations from TEUC members, DPW Staff are developing public engagement specific to the RPMP implementation.

The RPMP plan, which was approved by the DPW Commission in 2016, can be found here:

https://www.burlingtonvt.gov/sites/default/files/DPW/Publications/ResidentialParkingPlan_final.pdf

Multiple City departments are working together to draft possible, proposed revisions to City ordinance consistent with the Plan; however, any possible revisions will be presented to the public before final recommendations are approved. DPW Staff is recommending the following public engagement:

1. DPW Staff will present the specific proposed RPMP recommendations to affected Neighborhood Planning Assemblies.
2. DPW Staff will use Front Porch Forum and other social media to inform the public of any proposed RPMP recommendations.
3. DPW Staff will bring finalized recommendations to a future TEUC meeting prior to seeking final approval from the DPW Commission.



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

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

802.863.9094 VOX
802.863.0466 FAX
802.863.0450 TTY
www.burlingtonvt.gov

Councilor Maxwell Tracy, Chair *WARD 2*
Councilor Sharon Foley Bushor, *WARD 1*
Councilor David Hartnett, *North District*

Inquiries:
Phillip Peterson
802.865.5832
ppeterson@burlingtonvt.gov

Transportation, Energy and Utilities Committee of the City Council
Thursday, September 13, 2018 5:30 PM

Burlington Department of Public Works – Streets Conference Room
645 Pine Street – Burlington, VT
–MINUTES–

Members Present: Councilor Max Tracy, TEUC Chairperson; Councilor Sharon Bushor, TEUC Member Councilor; David Hartnett, TEUC Member Councilor; Karen Paul, City Councilor

City Staff Present: Norm Baldwin, DPW; Phillip Peterson, DPW; Chapin Spencer, DPW; Gillian Nanton, CEDO; Robert Goulding, DPW; Megan Moir, DPW

Residents Present: See Attendance Sheet

1. Agenda

- a. Councilor Tracy called the meeting to order at 5:41 pm.
- b. Councilor Bushor moved to accept the agenda

2. Minutes of 08/01/2018

- a. Councilor Bushor moved to accept the minutes. All in favor.

3. Public Forum

- a. None offered

4. Lake Champlain (LC) Byway Chittenden County Corridor Management Plan (CMP)

- a. Gillian Nanton (CEDO) and Dan Albrecht (CCRPC) presenting
- b. 20-minute duration
- c. Discussion:
 - i. Bushor: This presentation was very informative. Does the state have any tourism funding for the byway? Is there an opportunity to merge or collaborate?
 - ii. Dan: State directed funding is used, there was basically VTrans did get a small federal allocations for some byway projects.

- iii. Bushor: Do we have byway information in hotels?
- iv. Dan: That is a paid for thing to get the brochures in hotels.
- v. Bushor: Are schools aware of the byways? There are some educational opportunities. It would be good for local people to get an understanding of where they come from.
- vi. Dan: That is a part of the CCRPC programs, but we could do more.
- vii. Bushor: The 2017 Champlain Byway is supportive of the goals and missions of Plan BTV. Who did that?
- viii. Gillian: Our planner did the write up and reviewed the document to make sure (David) the plan is in parallel with the Goals and plans of BTV.
- ix. Bushor: I would like information from David to point to examples of how this is consistent with Plan BTV.
- x. Hartnett: Where does most of your funding come from?
- xi. Dan: CCRPC
- xii. Hartnett: Where is the closest byway to us besides ours?
- xiii. Dan: There is one directly across the lake in New York.
- xiv. Hartnett: Is this tied to Chamber of Commerce?
- xv. Dan: We discuss things with them, but they are a separate thing.
- xvi. Hartnett: Is there a thought where we could have a "ByWay weekend?"
- xvii. Dan: There have been some efforts, but that would be a great idea.
- d. Action: "Approved" resolution and recommend to City Council.

5. Residential Parking Program Ordinance Changes

- a. Phillip Peterson presenting
- b. 10-minute duration
- c. Discussion:
 - i. Chapin: This information is in draft form. There will be a limit the number of permits per unit. There will be \$10 per permit, the goal is twofold; one the residents that have the benefit would be paying for it, and two discourage people from buying too many permits.
 - ii. Bushor: The \$75 fee is a bit too harsh for a lost permit. I am a little concerned about that.
 - iii. Bushor: I think that fraternities and sororities will present some problems. Has anyone checked with any of these organizations to see what they think? With the businesses, had you had a chance to see if the businesses.
 - iv. Phillip: We are going to do public outreach over the next month or so.

- v. Bushor: We hope that you will continue to monitor and make adjustments. The goal is to have ordinances be followed, but I don't want things to be punitive.
- vi. Baldwin: We need to be careful with how accommodating we can be. We don't want to make people's lives hard, but we need to be careful with a limited resource. The community is not uniform, there is not one size fits all for every street. There are streets that are underutilized, and there are streets that are over utilized.
- vii. Bushor: I think my overall statement has to do with access in general. I want to make sure that people have what they need. I am supportive of most of this. I don't think many of my residents will be supportive of the cost of the permits.
- viii. Baldwin: We don't want to give these permits like chicklets.
- ix. Hartnett: The permit program has gone way too far. The only place we should have RPP is Ward-1. I am hesitant to support it, because I don't think these changes go far enough. I am hoping we will make more changes in the future. I want us to make changes for the better.
- x. Chapin: These are process changes, we have added four hour public parking on new RPP streets; and it seems to be working.
- xi. Bushor: Have you contemplated limiting the number of permits on certain streets?
- xii. Baldwin: Under the existing system people have basically no limits. So these changes limit the number of permits. It has been a fight to get the changes we have now put forward.
- xiii. Tracy: There is a steering committee involved.
- xiv. Chapin: We will share with the advisory committee.
- xv. Hartnett: The DPW Commission has the final say?
- xvi. Chapin: That is correct.
- xvii. Hartnett: There is not a lot of history with this DPW Commission on RPP, there is a lot of pull back from the commission.
- xviii. Baldwin: There was too much latitude given to the program.
- xix. Bushor: Overall, my residents want a program that reduces the number of permits due to abuse and excess. I think we are giving out too many permits; so we will not get the relief we are hoping.
- xx. Baldwin: When properties are developed, the Planning and Zoning process should catch things. The City has evolved, and some of the spaces need to be available to the public.
- xxi. Chapin: We will be presenting this material to local NPA's and hope to bring it to the DPW Commission by November or December.

- d. Action: Informative, no action needed.

6. Review of wastewater bond proposal

- a. Chapin Spencer and Megan Moir presenting
- b. This material has already been resented to City Council, this is primarily a question and answer session.
- c. Discussion:
 - i. Bushor: I have already voted for this. You talked about having \$250,000 available for local businesses. I am hoping that we are looking at when a sewer line breaks, we understand the cost is too much for some residents; when there is a water line break we have been able to provide them with a payment plan. The sewer lines it is not the same. Is there a way to provide them with a loan for a sewer line?
 - ii. Megan: We want to provide incentives for people to get the work done when paving is done. We are looking at providing some kind of technical assistance. We should provide some kind of list of excavation contractors. We want to provide some kind of low interest loan. We have given this a lot of thought, but it takes time. We have been talking about it. Everyone deserves access to clean water.
 - iii. Bushor: People are looking for a way to afford this work.
 - iv. Chapin: We don't know what kind of rate structures. But, all of this work is in line with all of you.
 - v. Baldwin: This creates complication when it comes to doing the actual paving work.
 - vi. Tracy: If this passes in November, when would work start?
 - vii. Megan: We are working through our designs right now. The earliest is next Spring and Summer.
 - viii. Chapin: The first phase is disinfection work.
 - ix. Megan: The SRF funding may take a while before it is available. Some of this work will be stretched out over four years.
 - x. Chapin: We will be presenting this information to the NPA's this October. If there are any questions from anyone please let us know. I am very proud of the Engineering team, they really did run like their hair was on fire! It has been an amazing effort to watch.

- d. This Action: Recommended approval to City Council.

7. Scheduling Future Meetings

- a. **Wed 10/24/2018 5:30 pm**

8. Councilors' Update

9. Adjourn

- a. **Tracy motion to adjourn 7:11 pm**

Thursday, September 13, 2018 5:30 PM

SIGN-IN SHEET

Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.