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

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Councilor Jack Hanson, *East District*
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Transportation, Energy and Utilities Committee of the City Council

Tuesday, January 26, 2021 5:30 PM

Due to current physical distancing measures, this meeting will be held virtually.

To view the meeting:
1. Join via Zoom: https://us02web.zoom.us/j/84603122855
2. Call in for audio-only – Phone number: 312-626-6799 and Webinar ID: 846 0312 2855

To participate in public comment:
1. You must either join the meeting via the Zoom link above (strongly encouraged) or by calling via the call-in information above.
2. If signed in via Zoom, please use the "Raise Your Hand" feature. This will alert DPW staff that you wish to speak and will automatically add you to the queue. When it's your turn to speak, your name will be called and you will be unmuted.
3. If you are calling in, please press *9 which will alert DPW staff that you wish to speak. When it's your turn to speak, your phone # will be called out and you will be unmuted.
4. If you encounter any difficulties when attempting to speak, please email DPWCommunications@burlingtonvt.gov.

–AGENDA–

1. **Agenda**
2. **Minutes of 12//15/2020**
3. **Public Forum**
4. **Asset Management**
   - Martha Keenan, Megan Moir, Gustave Sexauer, DPW
   - 30 Minute Duration
   - Action
5. **Rate Restructuring and Affordability Program Update**
   - Jenna Olson, Jessica Lavalette, Megan Moir, DPW
   - 40 Minute Duration
   - Information
6. **Director's Report**
7. **Councilors' Update**
8. **Adjourn**

To: Transportation, Energy, and Utilities Commission

From: Megan Moir, Water Resources Division Director
Jessica Lavalette, Water Resources Customer Care and Finance Manager
Jenna Olson, Water Quality Program and Policy Manager

Date: January 26, 2020

Re: Water Resources Division Rate Restructuring and Affordability Project Restart for Fiscal Year 2022

Background

Recognizing the need for future water, sewer, and stormwater rate increases due to aging infrastructure, operational needs and new regulatory challenges, in April 2019 the Burlington City Council requested the Water Resources Division to consider alternative rate structures, revenue sources, and affordability frameworks.

The Division engaged Raftelis, their on-call financial and utility management consultant, to assist in this process. Raftelis is a leading consulting firm providing utility rate and management solutions. The Division and Raftelis worked together throughout 2019 and early 2020 to propose modified rate structures and policies. In order to gather stakeholder input about the proposed changes, several meetings and events were held including: an open house in October 2019, presentations to the Neighborhood Planning Assemblies, and meetings with City Council and Mayor Weinberger. The City Council last heard a presentation on proposed changes during a work session meeting on March 9th, 2020. The following week, the Covid-19 pandemic hit Vermont. Given the significant uncertainties presented during the early phase of the pandemic and our ability to develop a tight COVID-era FY21 budget without rate increases, we determined that we needed to temporarily suspend the rate study.

Given the importance of this project to ensuring sustainable funding for the water resources utilities while simultaneously addressing rate payer affordability, we are updating the Board of Finance and City Council on our plan to restart the project with the goal of implementation for FY 22.

Impetus for Changes to the Division's Rates

The Division of Water Resources provides water, wastewater, and stormwater service to approximately 10,000 customers and 42,000 residents. The Division provides essential services including water treatment and distribution, fire protection, water quality protection, wastewater collection and treatment, stormwater collection and pollution management, and billing and customer service. The Division is organized as three separate enterprise funds for water, wastewater, and stormwater.

The Division faces on-going financial pressure to continue providing these services at an ever higher regulatory standard while maintaining and upgrading aging infrastructure. While the Administration and City Council have supported initiating a generational reinvestment in City water resources infrastructure over the last five years, a significant infrastructure deficit remains for many water resources assets which are beyond their calculated useful life. In order to balance the need for rate increases to sustainably fund water resources services, in an April 2019 Resolution (http://bit.ly/RateAffordability) the City Council charged the Division with developing the following:

- Alternative rate structures, including progressively priced tiers to protect access to "essential" water;
- Alternative revenue sources;
- Affordability frameworks, including discounts for certain qualifying rate payers, water conservation programs and grants and loans for upgrades to service lines; and
- An initial stakeholder process to educate and solicit input on Water Resources rates and a follow-up stakeholder process reporting on the proposed solutions.

In addition to the direct charge from Council, the Division had some of its own goals for the study, which are as follows:

- Ensure affordability of rates
- Apply outside perspective and experience on the long-term financial health of the utilities and pursue potential cost saving and efficiency initiatives
- Develop rate structures that improve financial health and sustainability, and increase revenue predictability
- Ensure utility funds are recouping the costs of all services provided in an equitable manner and in accordance with industry standards:

- Customers receiving additional service may need to pay additional cost e.g. private fire protection (building fire suppression supply, private hydrants)
- Staff and administration costs for new/redevelopment project review (water and sewer connection review, meter sizing, stormwater management plans)

Financial Needs of the Water Resources Division

It is estimated that the FY22 revenue requirements of the water, wastewater, and stormwater utilities are approximately 6%, 7%, and 5% over current rates. Rate increases had been planned for FY21 in concert with a roll out of the new rate structure and affordability program but were not implemented in order to minimize customer impact during uncertain financial times. These increases cover required operation and maintenance of systems; debt service and bond coverage covenants; a prudent mix of cash and debt funding of capital projects; and funding for the Water Resources Assistance Program for qualifying income burdened residential and multifamily customers. As the FY22 budget is finalized, two other funding priorities will be addressed as feasible: contribution to capital reserves and seed funding for other customer assistance programs.

Proposed Rate & Policy Changes

The Division has worked with Raftelis to propose a new rate structure that accomplishes the Division's and Council's goals of financial health, affordability, conservation, and equity among customer classes. It has also incorporated initial community comments into its proposal. Structurally, the proposal (Table 1) is the same as that presented in March 2020, with some focused changes or enhancements to critical implementation details which are outlined below in Table 1.

Table 1. Proposed Changes to Water and Wastewater Rates

Rate Proposals	What is it?	Why do it?
Fixed Charges by Meter Size	A water and wastewater fixed charge that increases based on the size of the customer's water meter	• Is industry best practice – reflects cost of service • Improves revenue stability and predictability • Encouraged by bond rating agencies
Lifeline Rate Tier	"Essential" water consumption (below median usage) is charged at a lower rate, only applicable to single-family residential account holders	• Provides affordability assistance for customers that use "typical" amount of water (400 cf/month) • Incentivizes efficient water use
Class-Based Rates	Different rates for different classes of customers	• Supports all residential customers (single- & multi-family) • Can justify the strains each customer type puts on the utility's infrastructure
Irrigation Rate	A separate, higher rate for those who solely use water for irrigation (with the exception of community gardening initiatives)	• Irrigation often contributes to peak water use, which necessitates system expansion and associated costs • Send price signal to conserve water when use is not for basic needs
Private Fire Protection Charges	A separate, fixed, monthly charge that escalates with connection size for those who have private fire service or hydrants	• Water Resources has invested in system capacity to serve private properties during a fire event, thus the customers who benefit from this service should pay for that capacity
Water Resources Assistance Program (WRAP)	An affordability program that waives the proposed fixed monthly water and wastewater charge for residential customers at or below 185% of the Federal Poverty Level.	• Provides relief to low-income single-family residential customers • Allows greater ability to control their bill (no fixed charge)

Several adjustments and additions have been made since March in order to mitigate the magnitude of the impact on commercial customers while maintaining affordability benefits for residential customers; the impact of the fixed meter charge on fixed income seniors with low water usage; and the impact of the fixed meter charge and fire protection charge on low-income and senior multifamily housing. Those adjustments are:

1. The percentage of revenues recovered from fixed charges was reduced to 10% (from 15% proposed in original March 2020 proposal) to aid affordability by keeping the fixed portion of customer bills as low as is reasonably possible.
2. Private fire protection charges are now set to be phased in over a 5 year period to reduce "rate shock" for customers who will be charged for private fire service for the first time. We will recoup 20% of the cost of service allocated to customers with private fire protection in FY22 with each subsequent year increasing an additional 20% until the full charge is realized in FY26.
3. The commercial rate was lowered and is now equal to other non-residential rates to mitigate the magnitude of bill impacts on businesses.

4. The WRAP program was expanded to include, at a minimum, non-profit multifamily low-income and senior housing developments (e.g., Burlington Housing Authority, Champlain Housing Trust, etc.) and senior-owned single family residential properties. Eligible accounts will have their water and wastewater fixed charge waived.

Proposed FY 22 Water, Fire Protection, Wastewater, and Stormwater Rates

The proposed changes to the Division's rates, including the increased revenue requirements for FY22, result in the rates shown in Table 2. The proposed FY22 rates are compared against the current FY21 rates. Note that currently there is no charge for private fire protection. Stormwater rates will see an estimated 5% across-the-board increase based on revenue requirements but does not have any proposed structural changes. Please note that there may be some small shifts in the final proposed rates listed as we finalize QA/QC activities on customer data and the FY22 budget.

Table 2. Current FY 21 and Proposed FY 22 Water, Wastewater, and Fire Rates

	Water		Wastewater		Private Fire
	Current FY 21	Proposed	Current FY 21	Proposed	Proposed
Fixed Charge per Month					
5/8"	$0.00	$3.34	$0.00	$4.68	$6.70
3/4"	$0.00	$5.02	$0.00	$7.02	$6.70
1"	$22.73	$8.36	$31.67	$11.71	$6.70
1.5"	$45.51	$16.72	$63.39	$23.42	$6.70
2"	$72.68	$26.75	$101.23	$37.46	$6.70
3"	$145.30	$50.16	$202.40	$70.25	$6.70
4"	$248.25	$83.60	$345.80	$117.08	$6.70
6"	$454.06	$167.21	$632.48	$234.15	$19.47
8"	$1,044.35	$267.53	$1,454.73	$374.64	$41.49
10"	N/A	N/A	N/A	N/A	$74.61
Private Fire Hydrant	-	-	-	-	$19.47
Volumetric Rate (per 100 CF)					
Single-family Residential	$4.44	-	$6.20	-	
Tier 1 (0-400 CF)	-	$2.49	-	$6.08	N/A
Tier 2 (401 CF and higher)	-	$6.23	-	$6.08	N/A
Duplex	$4.44	$4.36	$6.20	$6.08	N/A
Triplex	$4.44	$4.36	$6.20	$6.08	N/A
Multi-Family Residential	$4.44	$4.36	$6.20	$6.08	N/A
Mixed Residential & Commercial	$4.44	$4.36	$6.20	$6.08	N/A
Commercial	$4.44	$4.36	$6.20	$6.08	N/A
City	$4.44	$4.36	$6.20	$6.08	N/A
Irrigation/Heating/Cooling	$4.53	$7.48	$6.20	$6.08	N/A

Note: 1" customers and above currently pay a fixed charge in the form of a "minimum" charge. This charge includes a usage allowance. Under the new (lower) fixed charge structure all customers would pay a "ready to serve" charge (lower for 1" and above customers than they currently pay) but will not get a usage allowance.

Customer Impacts of Proposed Rate Structure

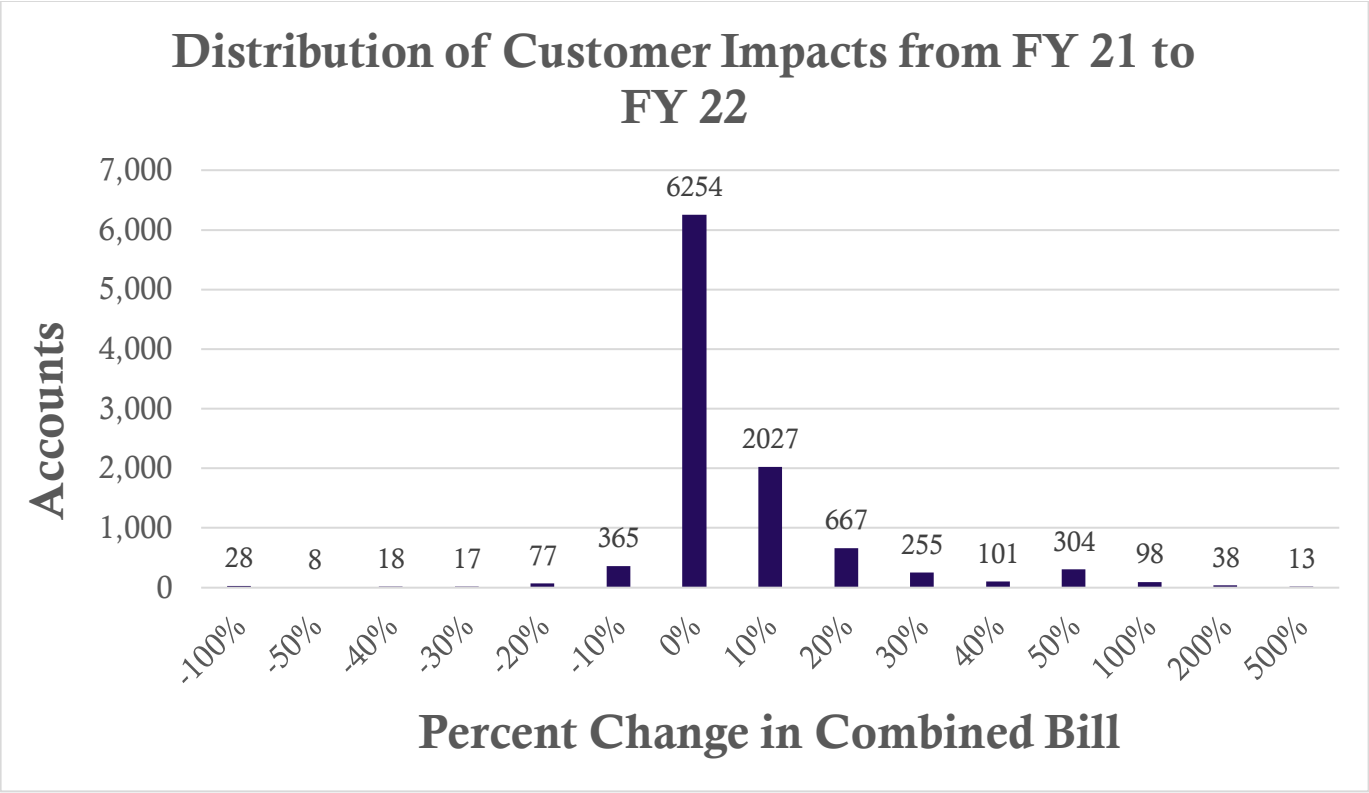
The previously identified projected need for water, wastewater and stormwater rates to increase by 6%, 7%, and 5% respectively would result in across the board overall customer bill increases ***without*** the proposed structural rate changes. The impact of the new structural changes will vary from customer to customer as any increases or decreases in overall bill will be determined by a combination of meter size, future water usage, eligibility for the WRAP program, customer class and the existence of private fire services or hydrants. As such, one of the critical components of our customer outreach will be the advertisement of a variety of methods for requesting an estimate of a customer's bill under the new proposal. Overall, however, we project that the typical single family residential customer using 400 cf/month) will benefit from the structural changes and will see no increase to the water and wastewater portion of their bill. Qualifying low-income or senior owned single family residential customers will see a significant decrease on their bill with the new WRAP program (if they continue to use the same amount of water). Table 3 compares the estimated FY21 annual water, wastewater, stormwater, and fire charges to the expected FY22 totals using the proposed changes for several hypothetical customer groups using the CY19 water usage data.

Table 3. Current and Proposed Annual Water Resources Bill Under Proposed FY 22 Rates
(For non-residential customers, the bill is calculated using water usage from CY19)

Hypothetical Customer Type	FY 2021	FY 2022 Proposed		
	Bill ($)	Bill ($)	$ Change	% Change
Residential				
Low Volume - 2 Ccf	$ 343	$ 396	$ 52	15.2%
WRAP - Low Volume - 2 Ccf	$ 343	$ 299	$ (44)	-12.8%
Median Volume - 4 Ccf	$ 608	$ 609	$ 1	0.2%
WRAP - Median Volume - 4 Ccf	$ 608	$ 512	$ (95)	-15.7%
High Volume - 6 Ccf	$ 872	$ 915	$ 42	4.9%
WRAP - High Volume - 6 Ccf	$ 872	$ 818	$ (54)	-6.2%
Multi-Family Residential				
Low Income Housing	$ 23,646	$ 24,905	$ 1,259	5.3%
Senior Housing	$ 39,239	$ 38,841	$ (398)	-1.0%
Commercial				
Technology Company	$ 17,550	$ 19,958	$ 2,408	13.7%
Retail Company	$ 27,313	$ 28,495	$ 1,181	4.3%
Institutions				
University	$ 1,685,024	$ 1,803,468	$ 118,445	7.0%
Medical Center	$ 718,016	$ 745,075	$ 27,060	3.8%
School District	$ 114,845	$ 123,299	$ 8,454	7.4%

Table 3 represents only a sample of estimated bill impacts. As mentioned above, although this table represents many of the City's customers and customer types, there will be a variety of impacts to customers depending on the specifics of that customer. To further illustrate this, Chart 1 presents the distribution of estimated impacts by percentage change in the combined Water Resources bill.

Chart 1. Distribution of Customer Impacts



Note: This distribution will continue to be refined as we complete additional QA/QC activities on the customer data and finalize the FY22 budget and final revenue requirements. Additionally, note that the distribution above does not reflect the benefits to single family residential customers who will receive a reduced bill from the WRAP program (as customers must apply and show evidence of being qualified for other income based programs – LiHeap, 3Squares, CEDO Home Repair, Crisis Fuel etc. – they will have their fixed charge waived). The rate model does include assumptions of how many customers might qualify for these programs to ensure we are raising adequate revenue.

Next Steps

Next, the Division will continue its outreach to customers through targeted meetings and messaging materials. It is the intent to implement these changes for FY 22, or on July 1, 2021. These changes would first affect bills received by customers in August 2021.

Proposed Project Schedule

- **January - March 2021 | Public Outreach** (all meetings will be virtual)
  - NPA Meetings
  - DPW Commission
  - Transportation, Utility, Environment Committee
  - Targeted notification to customers with fire services, hydrants, & irrigation meters
  - Meet with key partners and large users
  - Open House Meeting for all rate payers
  - Online availability of presentations and web forms for feedback, questions & impact summary requests
  - Customers can request an estimate of what their new bill will be with the proposed changes.
- **March – June 2021 | Continuous Improvement & QA/QC of data**
  - Fire Service data QA/QC
  - Development of Draft WRAP policy
  - Proposed ordinance changes as necessary

April – June 2021 | Approvals

- City Council vote on project specifics
- City Council vote on FY 22 Mayoral budget & Water Resources rates

July – August 2021 | Implementation

- Additional outreach to customers educating them on the upcoming changes to the bills
- Changes effective in July and reflected on August bills

CITY OF BURLINGTON

Water Resources Division

Rate & Affordability Project

TEUC

January 26, 2021

BURLINGTON, VT PUBLIC WORKS

RAFTELIS

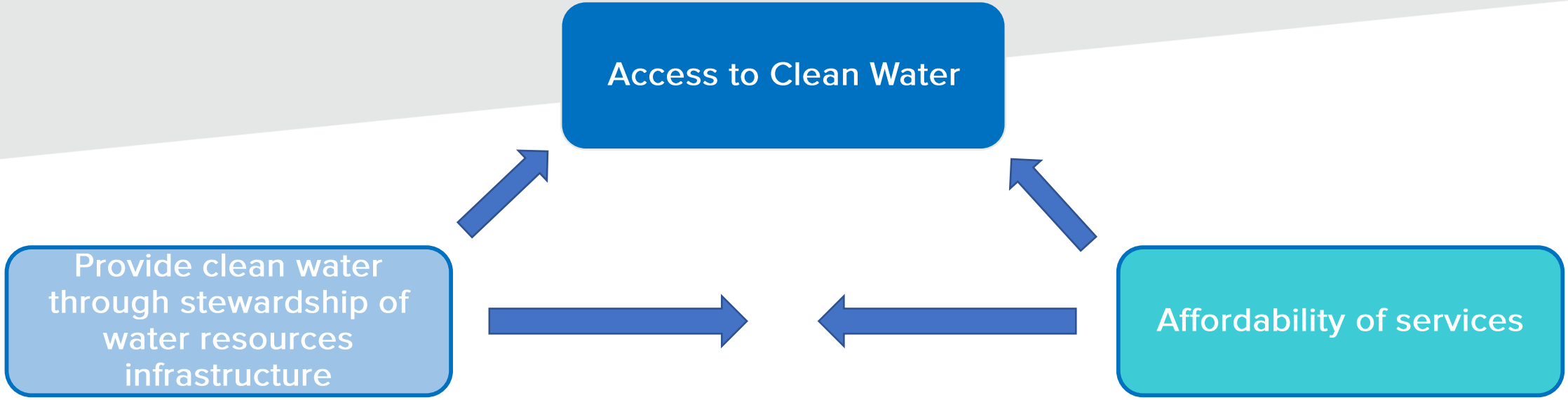
Rates & Affordability Refresher: Who, What, When, Where & Why

- April 2019 – City Council directs Water Resources to evaluate affordability, alternate rate structures, and alternate revenue sources
- Fall 2019 – Hosted open house to gather stakeholder input and embarked on the initial NPA tour
- Studied rate options keeping three objectives in mind: 1) ensure affordability of rates, 2) improve financial health & sustainability, along with revenue stability and 3) ensure rates are recouping the cost of service provided in an equitable manner
- March 2020 – Developed rate, fees and assistance program recommendations, presented to City Council
- Postponed final outreach, approvals & implementation due to uncertainties associated with COVID-19
- January 2021 – Rebooted project, presented to Board of Finance and beginning to restart stakeholder engagement & outreach

Open house on 10/30/19

Ward 1 & 8 NPA meeting on 11/13/19

Crossroads: Our Core Values & Existing Rate Structure

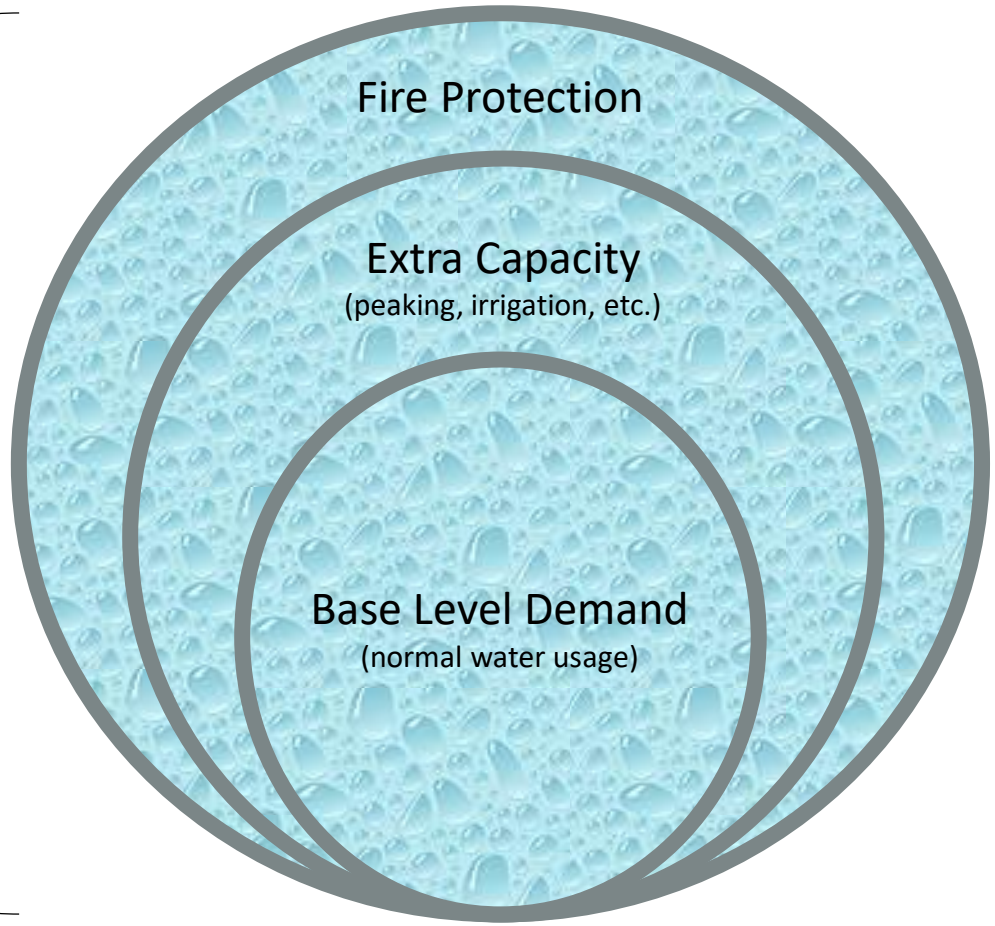


Sustainable funding is crucial to ensuring **access to clean water** because we need money to take care of the infrastructure that produces and delivers clean, safe drinking water and collects, treats and manages wastewater and stormwater before it drains to our rivers and the lake. However, when utility costs are not **affordable** then rate payers may not have equal access to the essential amount of water needed to live.

Costs of Providing Water Service

Why serving certain customer classes costs more…

Sizing requirements for water pipes & other water infrastructure



Proposed Rate & Policy Changes

Proposed Modification from Spring 2020

Rate Proposals	What is it?	Why do it?
Fixed Charges by Meter Size	A water and wastewater fixed charge that increases based on the size of the customer's water meter	• Is industry best practice – reflects cost of service • Improves revenue stability and predictability • Encouraged by bond rating agencies **+ Reduction in fixed fee charge**
Lifeline Rate Tier	"Essential" water consumption (below median usage) is charged at a lower rate, only applicable to single-family residential account holders	• Provides affordability assistance for customers that use “typical” amount of water (400 CF/month) • Incentivizes efficient water use
Class-Based Rates	Different rates for different classes of customers	• Supports all residential customers (single & multi-family) • Can justify the strains each customer type puts on the utility's infrastructure **+ For now, commercial properties will be charged the same rate as multifamily**
Irrigation Rate	A separate, higher rate for those who solely use water for irrigation (with the exception of community gardening initiatives)	• Irrigation often contributes to peak water use, which necessitates system expansion and associated costs • Sends price signal to conserve water when use is not for basic needs
Private Fire Protection Charges	A separate, fixed, monthly charge that escalates with connection size for those who have private fire service or hydrants	• Water Resources has invested in system capacity to serve private properties during a fire event, thus the customers who benefit from this service should pay for that capacity **+ Phase in fee over 5 years**
Water Resources Assistance Program (WRAP)	An affordability program that waives the proposed fixed monthly water and wastewater charge for residential customers at or below 185% of the Federal Poverty Level.	• Provides relief to low-income single-family residential customers • Allows greater ability to control their bill (no fixed charge) **+ Include non-profit affordable or senior housing developments and senior owned single family homes as WRAP eligible**

Current & Proposed Rates

	Water		Wastewater		Private Fire
	Current FY 21	Proposed	Current FY 21	Proposed	Proposed
Fixed Charge per Month					
5/8"	$0.00	$3.34	$0.00	$4.68	$6.70
3/4"	$0.00	$5.02	$0.00	$7.02	$6.70
1"	$22.73	$8.36	$31.67	$11.71	$6.70
1.5"	$45.51	$16.72	$63.39	$23.42	$6.70
2"	$72.68	$26.75	$101.23	$37.46	$6.70
3"	$145.30	$50.16	$202.40	$70.25	$6.70
4"	$248.25	$83.60	$345.80	$117.08	$6.70
6"	$454.06	$167.21	$632.48	$234.15	$19.47
8"	$1,044.35	$267.53	$1,454.73	$374.64	$41.49
10"	N/A	N/A	N/A	N/A	$74.61
Private Fire Hydrant	-	-	-	-	$19.47
Volumetric Rate (per 100 CF)					
Single-family Residential	$4.44	-	$6.20	-	
Tier 1 (0-400 CF)	-	$2.49	-	$6.08	N/A
Tier 2 (401 CF and higher)	-	$6.23	-	$6.08	N/A
Duplex	$4.44	$4.36	$6.20	$6.08	N/A
Triplex	$4.44	$4.36	$6.20	$6.08	N/A
Multi-Family Residential	$4.44	$4.36	$6.20	$6.08	N/A
Mixed Residential & Commercial	$4.44	$4.36	$6.20	$6.08	N/A
Commercial	$4.44	$4.36	$6.20	$6.08	N/A
City	$4.44	$4.36	$6.20	$6.08	N/A
Irrigation/Heating/Cooling	$4.53	$7.48	$6.20	$6.08	N/A

Snapshot of Possible Customer Impacts

Hypothetical Customer Type	FY 2021	FY 2022 Proposed		
	Bill ($)	Bill ($)	$ Change	% Change
Residential				
Low Volume - 200 CF	$343	$396	$ 52	15.2%
WRAP - Low Volume - 200 CF	$343	$299	$ (44)	-12.8%
Median Volume - 400 CF	$608	$609	$ 1	0.2%
WRAP - Median Volume - 400 CF	$608	$512	$ (95)	-15.7%
High Volume - 600 CF	$872	$915	$ 42	4.9%
WRAP - High Volume - 600 CF	$872	$818	$ (54)	-6.2%
Multi-Family Residential				
Low Income Housing	$23,646	$24,905	$ 1,259	5.3%
Senior Housing	$39,239	$38,841	$ (398)	-1.0%
Commercial				
Technology Company	$17,550	$19,958	$ 2,408	13.7%
Retail Company	$27,313	$28,495	$ 1,181	4.3%
Institutions				
University	$1,685,024	$1,803,468	$ 118,445	7.0%
Medical Center	$718,016	$745,075	$ 27,060	3.8%
School District	$114,845	$123,299	$ 8,454	7.4%

Caveat! These are estimated customer bills based on CY19 customer class trends (Pre-Covid).

Actual bills will vary based on water consumption.

Meter size, private fire service size and # of private hydrants affects bills.

Includes a 5% increase to stormwater for all customers.

Customers should complete an “Account impact summary request form” to understand the impact to their specific bill(s).

Customer Impacts of New Rate Structure

Who will see lower bills?	Opportunities to further lower Bills
Low income or senior customers who are eligible and sign up for WRAP discount will see reduced bills because of the fixed meter charge waiver.	Customers can further shrink their bill by implementing water conservation practices to reduce consumption above the Tier 1 level (i.e., 400 CF).
Single family residential customers with typical consumption will see little or no increase in the water and wastewater portion of their bills because of the lifeline rate.	All single family residential customers can implement water conservation practices to reduce consumption above the Tier 1 level (i.e., 400 CF).
Who will see increases on their bills?	**Opportunities to mitigate bill increases**
All properties with private fire services or hydrants will see increased bills because of the fixed charge per protective infrastructure.	Customers can remit updated information about their fire protection infrastructure for validation against existing records.
Irrigation customers will see increased bills because of the fixed meter charge and rate.	Customers can decide whether to retain their irrigation system or explore removal.
Customers with large meters but low usage will see increased bills because the minimum allowance has been eliminated.	Customers can request an evaluation of whether their existing meter(s) can be reduced in size.
Customers with vacant homes or very low usage will see increased bills because of the fixed meter charge.	Customers can decide whether to have their meter removed and water shut off during an extended period of vacancy.

Water Resources Assistance Program (WRAP)

Proposed Assistance Program: Rate Assistance	
Rate Assistance Goals	Provide meaningful financial relief to low income or fixed income seniors living in single family residential homes, along with providing relief to non-profit affordable or senior living housing developments.
	Limit administrative burden on Water Resources to implement and maintain program by leveraging existing programs that verify income or non profit housing status. Explore developing an expansion plan to include other residential property types or low income metrics.
Rate Assistance Details	Waive the monthly fixed charge on both water & wastewater for eligible properties.
	Households must be living at or below 185% of the Federal Poverty Level; or demonstrate owner is 65 years old or older.
	Eligible residents will need to apply and provide proof of age or enrollment in an existing State or Federal benefit program (e.g., Lifeline, 3SquaresVT, Crisis Fuel, SSI, Reach Up, etc.) to be qualified for one year waiver.

FUTURE Assistance Programs	
Infrastructure Assistance	Make grant funding available to all residential rate payers for condition assessments of sewer laterals.
	Make low interest (or no interest) loans available to all residential rate payers to replace failing water services or sewer laterals.
Conservation Assistance	Provide efficiency rebates for low flow toilets and energy star appliances. Provide real time water usage data.
	Provide free tools (e.g., rain barrels) to implement improved stormwater management practices.

Next Steps

Website:
https://www.burlingtonvt.gov/DPW/Water/AffordabilityProject

- **Outreach (January-March 2021)**
  - Attend NPAs, DPW Commission & TEUC
  - Targeted notification to customers with fire services, hydrants & irrigation meters
  - Meet with key community partners and other large users
  - Host open house public meeting for all rate payers
  - Maintain a robust online presence where customers can review all presentations to date, provide feedback via web forms and request an estimated account impact summary.
- **Continuous Improvement (March 2021-July 2021)**
  - Incorporate feedback from all stakeholders
  - Review, validate and respond to impact summary requests
  - Ongoing QA/QC with data and required updates to billing system
  - Draft WRAP policy and any needed ordinance changes
- **Approvals (April 2021-June 2021)**
  - City Council approval of rate & fee structure changes including WRAP
  - City Council approval of budgets & rates for FY 22
- **Implementation (July 2021-August 2021)**
  - Changes will be effective beginning July 2021 and reflected on August bills
  - Additional round of outreach to all customers in advance of August bills

City of Burlington
Department of Public Works
645 Pine Street
Burlington, VT 05402
802.863.9094 P
802.863.0466 F

Date: January 26, 2021

To: Transportation, Energy and Utilities Committee of the Burlington City Council

From: Chapin Spencer, Director Public Works
Martha Keenan, Capital & Asset Management Program Manager
Gustave Sexauer, Asset Management Administrator
Megan Moir, Water Resources Division Director
Brian Lowe, Chief Innovations Officer

Subject: Asset Management Program - Amending Asset Management Consultant Contract; Authorizing Clean Water and Drinking Water State Revolving Fund Loans, GIS hosting contract and CMMS platform contract

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Request:
The Department of Public Works ("DPW") is requesting the Transportation, Energy and Utilities Committee of the Burlington City Council to sponsor:

1. The award of a contract with DTS to implement their VUEWorks CMMS/EAM software for $449,000.00.
2. The amendment of the Asset Management Consultant Contract to KCI Technologies, Inc. that was awarded April 13, 2020 for an additional $120,000.00 from $124,750.00 to $244,750.00.
3. The award of a contract with a GIS hosting and management vendor to host and manage our GIS platform for up to $75,420.00, pending an updated procurement process.
4. A resolution for a Vermont Clean Water State Revolving Fund planning loan amendment increasing the existing loan from $49,791.00 to up to $275,846.40.
5. A resolution for a Vermont Drinking Water State Revolving Fund planning loan amendment increasing the existing loan from $44,321.00 to up to $245,834.60.

Background:
The Department of Public Works (DPW) requests approval for a number of items related to the implementation of the City's Asset Management Program. Specifically, we are seeking approval for advancing a contract with Data Transfer Solutions (DTS) to implement their VUEWorks software as a Computerized Maintenance Management System (CMMS) & Enterprise Asset Management (EAM) application. To support the CMMS & EAM contract, DPW is also seeking to amend the existing contract with KCI Technologies, Inc. (KCI) to assist the City through Task 3 of the City's asset management and implementation program. Integral to the success of the asset management software implementation effort, DPW is advancing a contract with a GIS hosting and management vendor to host the City's GIS data in a cloud-based server. Lastly, DPW requests approval for an amendment to the existing Drinking Water and Clean Water (Wastewater/Stormwater) State Revolving Fund planning loans to fund the Water Resources portion of the above costs.

City Council adopted the Asset Management Program and Implementation Resolution on 1/27/2020, supporting this scope of work as it recognized such a program can reduce the total cost of ownership of City assets while also improving the level of service to the public. Given the newly developing financial constraints related to the pandemic, this is a timely opportunity to improve the management of, and minimize the costs associated with purchasing, maintaining, and renewing the City's assets, including property, infrastructure, facilities, vehicles, and

equipment. It is critical to the City's long-term financial health and sustainability to proceed with this project now by approving agreements with DTS, KCI, and a GIS hosting vendor.

Data Transfer Solutions (DTS):

The Capital and Asset Management Team in collaboration with the Water Resources Division and other General Fund Departments has been working with KCI to plan for asset management and select a vendor for a CMMS/EAM Software as noted in the Board of Finance/City Council memo dated April 13, 2020. A Request For Proposals (RFP) for a CMMS/EAM software was posted on October 2, 2020, with 19 proposals received. A short-list was created with input from all involved departments, and the top four vendors were interviewed in December. Staff from divisions across DPW, Innovations, Burlington Parks, Recreation & Waterfront (BPRW), and Burlington International Airport (BIA) participated in the interviews and post-demonstration discussions to determine the top candidate. DTS, the makers of the asset and work management system VUEWorks, was selected as the vendor that would best suit all of the involved teams' needs.

The proposal from DTS outlines a 12-month schedule from kick-off to final implementation. The VUEWorks software will be linked to the City's existing hosted GIS services, and would store non-spatial assets such as facility equipment and fleet within its owned database. Additionally, work orders and service requests would be tracked and managed through the new system. The implementation process begins by assessing what each City work group will require so that the proper workflows and asset registries can be developed. Data from systems the City will abandon will be migrated to VUEWorks, and integrations will be established to transfer data between legacy systems that the City will continue using, such as SeeClickFix for residents' service requests and GraniteXP for CCTV pipeline inspections. City users will be organized into four "asset groups" for DTS to lead through the training and configuration phases of VUEWorks with each having their own go-live implementation dates. The order of the roll out has been determined based on the relative readiness of the existing asset inventories and work order management systems across the various divisions.

VUEWorks software will provide significant improvements in how we steward City infrastructure, including:

- Improvements to risk evaluation,
  - Condition scores can be calculated for assets via inspections, enabling the calculation of business risk exposure by analyzing likelihood of failure and consequence of failure metrics.
- Life cycle cost tracking,
  - The work order system can track labor, parts, equipment used, and contracting costs during maintenance activities which can then be summarized for each individual asset or group of assets. Life-cycle planning may be assessed by viewing an asset's depreciation curve.
- Reporting of assets,
  - Managers can quickly review real time data with charts, graphs, and other key performance indicators.
- Emphasizing proactive work,
  - Tipping the scales from reactive, emergency work, to proactive and preventative generates cost savings and efficiencies, maximizing remaining life from existing assets.
- Intra and inter-departmental coordination
  - Staff will more clearly see the interrelationship of assets in a more holistic manner.

KCI Technologies Inc. (KCI):

Through an RFP for Asset Management Development Phase II, KCI was selected in February 2020 to provide the City with consulting services in the assessment, procurement, and now implementation of a CMMS & EAM application with the purpose of enabling cross-departmental management of work orders, customer inquiries, asset inventories, and preventative maintenance scheduling. They were also tasked with assisting the City in developing best-in-class asset management practices and workflows to achieve the lowest cost of ownership for our assets, minimizing operational and capital costs for the City in perpetuity.

After completing the Tasks 0, 1, and 2, the KCI contract now requires an amendment to specify the scope of work (SOW) for Task 3.
From the April 13, 2020 memo (Attachment C):

Task 0: Project Initiation and Project Management
Task 1: Procurement of CMMS/EAM Solution
Task 2: Selection of CMMS/EAM Solutions
Task 3: Implementation Oversight and Support*
**Contract calls for an amendment to define Task 3 at the completion of Task 2*

KCI has come in under budget on the Tasks 0, 1, and 2. Their proposed amendment for Task 3 has been reduced from the estimated $160,172.00 (seen in Attachment C, Table 1) to $120,000.00.

GIS Hosting and Management:

In light of the potential contract with DTS, the Innovation & Technology Department (I&T) does not believe that the City's current GIS infrastructure is adequate to support a new CMMS/EAM software over the next five years. The GIS servers that that department hosts on-site are not built for this scale of use, are not managed to provide the system uptime required, are expected to reach end of life before the conclusion of the asset management contract time period, and were not designed to handle the increased traffic that will come with a move to a GIS based asset management and work order system. Additionally, the City does not have effective disaster recovery (DR) infrastructure to support this system, so either a software or hardware failure could result in significant down time for the CMMS/EAM software. To provide the necessary level of service would require new hardware and service investments, as well as likely the creation of a new FTE position to manage this GIS system, and would also reverse the effort of the I&T team over the past 2.5 years to limit future local hosting and associated hardware costs and risks. Further, the I&T team previously explored multiple DR options, and all proved cost prohibitive and of limited longevity as new options emerge for managing City data. For these reasons, I&T had also independently been evaluating cloud-based GIS service provision options that would be hosted and managed by a third-party. In 2019, I&T reached out for three quotes for a cloud-based managed service. Out of the three options, ROK Technologies (ROK) was selected as the best fit for the City. However, at that time there were insufficient funds to execute a contract.

ROK met with City staff and KCI in January, 2021 to gain information about the City's GIS needs and produced an updated quote of $75,420.00 for GIS hosting and managing services. This cost covers the implementation and first year of support. Currently, the Capital and Asset Management Team are working with I&T and KCI to find additional quotes for GIS hosting and management services equivalent to the services detailed in the ROK quote.

Funding:

The Capital and Asset Management Team has budgeted $300,000 from the General Fund FY21 Capital Budget to finance the DTS, KCI, and GIS managed services contracts. Water Resources will be amending the Step I Planning loans with both the Clean Water State Revolving Fund (CWSRF) and Drinking Water State Revolving Fund (DWSRF) to provide a significant component of the total funding for this project. The CWSRF loan offers up to a 10 year repayment schedule and the DWSRF a 5 year repayment schedule, both at 0% financing. Additionally, repayment on both loans can be deferred for up to 5 years at the City's choosing. The CWSRF loan includes a 50% planning loan subsidy in the form of loan forgiveness at the end of the project, up to $100,000. Based on the requirements of the SRF programs, and the opinion of bond counsel, this type of Step I Planning borrowing only requires approvals of Board of Finance and City Council and not the voters.[1]

The expected cost of the DTS contract is $449,000 for the implementation and first year hosting and support costs. Task 3 of the KCI contract is not to exceed $120,000. Year one costs of the GIS hosting and

[1] Pursuant to 24 V.S.A. Section 4756(e), the City Council may authorize and incur debt on behalf of the City for preliminary engineering plans and studies without prior voter approval. In the event that the planning loans result in a construction project, such debt shall be included in any subsequent public authorization of indebtedness necessary to construct the project for which the planning loans are used.

management based on ROK costing totals $75,420. Table 1 shows the cost breakdown across the different funding sources. The General Fund Capital Project expense for implementation is well below the budgeted $300,000 at $247,489.

Table 1. Cost Breakdown for DTS, KCI, and ROK Contracts

Proposal			General Fund		Drinking Water SRF Eligibility		Clean Water SRF Eligibility	
Contract	Task	Fee	%	$	%	$	%	$
DTS	**Project Management and Work Plan**	$30,000.00	**40%**	$12,000.00	**30%**	$9,000.00	**30%**	$9,000.00
	Implementation Planning	$30,000.00	**40%**	$12,000.00	**30%**	$9,000.00	**30%**	$9,000.00
	Data Migration	$30,000.00	**30%**	$9,000.00	**35%**	$10,500.00	**35%**	$10,500.00
	Implementation	$60,000.00	**30%**	$18,000.00	**35%**	$21,000.00	**35%**	$21,000.00
	System Integration							
	SeeClickFix	$22,500.00	**25%**	$5,625.00	**35%**	$7,875.00	**40%**	$9,000.00
	New World (optional)	$18,000.00	**60%**	$10,800.00	**20%**	$3,600.00	**20%**	$3,600.00
	FlexiBill	$18,000.00	**0%**	$-	**50%**	$9,000.00	**50%**	$9,000.00
	ArcGIS	$2,500.00	**0%**	$-	**50%**	$1,250.00	**50%**	$1,250.00
	PAVER	$6,000.00	**100%**	$6,000.00	**0%**	$-	**0%**	$-
	TreeWorks	$6,000.00	**100%**	$6,000.00	**0%**	$-	**0%**	$-
	RTA	$8,000.00	**80%**	$6,400.00	**10%**	$800.00	**10%**	$800.00
	CivicRec	$6,000.00	**100%**	$6,000.00	**0%**	$-	**0%**	$-
	GraniteXP	$12,000.00	**0%**	$-	**0%**	$-	**100%**	$12,000.00
	SCADA (optional)	$18,000.00	**0%**	$-	**50%**	$9,000.00	**50%**	$9,000.00
	DigSafe (new)	$6,000.00	**0%**	$-	**100%**	$6,000.00	**0%**	$-
	User Acceptance Testing	$8,000.00	**50%**	$4,000.00	**25%**	$2,000.00	**25%**	$2,000.00
	Training	$24,000.00	**40%**	$9,600.00	**30%**	$7,200.00	**30%**	$7,200.00
	Software	$100,000.00	**20%**	$20,000.00	**35%**	$35,000.00	**45%**	$45,000.00
	Hosting	$24,000.00	**20%**	$4,800.00	**35%**	$8,400.00	**45%**	$10,800.00
	Support and Maintenance	$20,000.00	**20%**	$4,000.00	**35%**	$7,000.00	**45%**	$9,000.00
KCI	**Consulting Task 3**	$120,000.00	**50%**	$60,000.00	**25%**	$30,000.00	**25%**	$30,000.00
	Consulting Task 0-2	$124,750.00	**25%**	$30,638.00	**36%**	$44,321.00	**40%**	$49,791.00
GIS Services Vendor (Based on ROK costing)	**Activate Managed Cloud Services**	$19,500.00	**30%**	$5,850.00	**33%**	$6,435.00	**37%**	$7,215.00
	GIS Managed Cloud Services (1 yr)	$55,920.00	**30%**	$16,776.00	**33%**	$18,453.60	**37%**	$20,690.40
Total		**$769,170.00**	**32%**	**$247,489.00**	**32%**	**$245,834.60**	**36%**	**$275,846.40**

This has been a collaborative effort across City departments. While General Fund departments and DPW Water Resources will launch the first phase of the City's formalized Asset Management Program, Burlington International Airport, Burlington Electric Department and the Burlington School Department have all be engaged to date and have shown genuine interest in participating in a future phase.
If you have any questions, please contact Martha Keenan, Capital & Asset Management Program Manager (mkeenan@burlingtonvt.gov); Gustave Sexauer, Asset Management Administrator (gsexauer@burlingtonvt.gov); or Megan Moir, DPW Division Director – Water Resources (mmoir@burlingtonvt.gov).

Attachments:

- Attachment A: Revised Scope of Work for Task 3 of KCI Contract, $120,000.00
- Attachment B: Scope of Work DTS VUEWorks
- Attachment C: April 13, 2020 Memo: "Asset Management Program - Awarding Asset Management Consultant Contract; Authorizing Clean Water and Drinking Water State Revolving Fund Loans"

Motions:

The Department of Public Works respectfully requests that the Transportation, Energy and Utility Commission recommend the approval of these contracts to the Board of Finance and City Council as per the following motions:

Board of Finance Actions:

1. "To approve and recommend that the City Council authorize the Director of Public Works to sign a contract Agreement with DTS VUEWorks for the hosting, implementation and management of the CMMS platform system for the City of Burlington for $449,000.00, subject to approval by the Chief Administrative Officer and City Attorney."
2. "To approve and recommend that the City Council authorize the Director of Public Works to amend the Engineering Services Agreement with KCI Technologies, Inc. for the Computerized Maintenance Management System and Enterprise Asset Management Application Assessment, Procurement, & Implementation Guidance project for an additional $120,000.00 from $124,750.00 to $244,750.00, subject to approval by the Chief Administrative Officer and City Attorney."
3. "To approve and recommend that the City Council authorize the Director of Public Works to sign a contract Agreement with a GIS services vendor for the hosting and management of the GIS system for the City of Burlington for a cost not to exceed $75,420.00, subject to approval by the Chief Administrative Officer and City Attorney."
4. "To approve and recommend that the City Council approve the attached resolution authorizing an amended planning loan from the Vermont **Clean Water** State Revolving Fund for up to $275,846.40."
5. "To approve and recommend that the City Council approve the attached resolution authorizing an amended planning loan from the Vermont **Drinking Wate**r State Revolving Fund for up to $245,834.60."

City Council Actions:

1. "To approve and authorize the Director of Public Works to amend the Engineering Services Agreement with KCI Technologies, Inc. for the Computerized Maintenance Management System and Enterprise Asset Management Application Assessment, Procurement, & Implementation Guidance project for an additional $120,000.00 from $124,750.00 to $244,750.00, subject to approval by the Chief Administrative Officer and City Attorney."
2. "To approve and authorize the Director of Public Works to sign a contract Agreement with a GIS hosting and management vendor for the hosting and management of the GIS system for the City of Burlington for a cost not to exceed $75,420.00, subject to approval by the Chief Administrative Officer and City Attorney."
3. "To approve and authorize the Director of Public Works to sign a contract Agreement with DTS VUEWorks. for the hosting, implementation and management of the CMMS platform system for the City of Burlington for $449,000.00, subject to approval by the Chief Administrative Officer and City Attorney."
4. "To adopt and approve a resolution authorizing execution of a planning loan from the Vermont **Clean Water** State Revolving Fund for up to $275,846.40 subject to final review and approval by the City's bond counsel or the City Attorney."
5. "To adopt and approve a resolution authorizing execution of a planning loan from the Vermont **Drinking Water** State Revolving Fund for up to $245,834.60 subject to final review and approval by the City's bond counsel or the City Attorney."

Thank you for your consideration of these requests.

Introduction

The objective of the City of Burlington's Asset Management Program is to implement asset management leading practices for infrastructure investment and management decision making. The ultimate goal of asset management is to optimize reinvestment in the life cycle of the City's infrastructure by understanding and delivering levels of service to customers and stakeholders while balancing the tradeoffs between cost of service and risks associated with asset failure. Asset management is a way of doing business and ultimately needs to be integrated into day-to-day operations and decision making. The City is moving forward with the selection and implementation of an enterprise asset management (EAM) system, which is a technology enabler used to advance asset management best practices.

The scope of work and approach described herein is an extension of the work to help the City *evaluate* and *procure* Enterprise Asset Management software. The scope of work described herein focuses on supporting the City during the software *implementation* phase by providing GIS and asset management professional services. KCI will perform work on an on-call, as-needed basis. The tasks described below have been identified as possible areas of need by the City of Burlington and will serve as the foundation for the work performed by KCI. Additional professional services may also be provided on a time and materials basis.

The following scope of services and work plan assumes the Asset Management Administrators will coordinate and schedule meetings, workshops, etc. and will secure adequate resources as needed. Due to COVID-19 restrictions and precautions, it is assumed the following scope of work will be delivered remotely, unless otherwise stated herein.

Scope of Work - Implementation Phase

Task 3.0: Project Management, Coordination and Reporting (Implementation Phase)

Project Management, Coordination and Reporting

KCI's project manager will work closely with the Asset Management Administrators and the KCI team members to ensure all tasks are completed on schedule, within budget, and are of high quality.

The project manager will perform these key activities:

- Prepare monthly project status reports. The status report will report work accomplishments, planned activity, issues for resolution, and the project's financial status.
- Maintain formal and informal communication in the form of progress meetings and update calls with the Asset Manager and appropriate stakeholders.
- Update the project schedule.
- Coordinate all tasks within the scope of work.

Task 3.1: On-Call Implementation Support

KCI will serve as a trusted advisor during the implementation of the selected software to verify the CMMS / EAM solution is well planned. The nature of the work will vary based on the system selected by the City of Burlington and the services included in the vendor's implementation plan. However, regardless of the solution chosen, proper planning leads to efficient implementation. In addition, KCI will help translate end-user needs discussed during the needs assessment phase with the selected vendor to maximize user satisfaction. During implementation, KCI will assist the City in making informed decisions, evaluate options presented by the vendor, and assist with written and oral technical communication. The selected software will serve divisions funded by water enterprise funds and those funded by the general fund. It is assumed the tasks required to the implementation for each division will be similar.

Work performed under this task may include preparing agendas; documenting meeting minutes; preparing position statements; and / or facilitating meetings. Implementation oversight and support work performed by KCI may include, but is not limited to:

Vendor negotiations

KCI will provide support to the City while negotiating scope and fee with the selected software vendor. Experience has shown that in some cases, it is beneficial to have a neutral third party facilitate discussion and negotiation to ensure both sides are fairly represented, and the project commences amicably. KCI will act on the behalf of the City of Burlington and facilitate meetings with the vendor, share KCI knowledge gained from other similar implementations, and review documents. Work will be performed upon request and as needed.

Participation in vendor meetings

KCI will participate in and facilitate (if requested) onsite and remote meetings on an as needed basis to support vendor information gathering and progress meetings. In addition, if or when issues arise, KCI will participate in meetings and guide the City in an objective way to resolve them. In addition, KCI can help translate the City's needs and priorities into technical jargon that the software vendor can relate to and execute. KCI will act on the City's behalf, as needed by providing detailed requirements to the chosen vendor, which will result in efficient mobilization and startup of the implementation.

Technical review

KCI can act as a key reviewer of any communications, documents or decisions presented to the City by the CMMS vendor. KCI will evaluate and always present to the City an honest and objective opinion based on industry standards, best practices and experience.

Task 3.2: Configuration Preparation

The selected software vendor assumes the City's data is ready to load into the system and is ready to make key decisions about configuration. In some cases, the data may be vendor-ready, but in other cases, the City will need to prepare data or make decisions related to configuring the software to support existing and future business processes. Under this task, KCI will assist the City prepare for software configuration. Configuration preparation work performed by KCI may include, but is not limited to:

Definition of WO prioritization codes. KCI will provide as needed support and advisory services to develop a universal framework for prioritizing reactive and proactive work orders. KCI will help the City decide on a numbering convention and associated descriptions that can be used by all business units and associated work orders. This work will result in a written framework that can be shared with end users and used when creating work orders.

Condition framework. The condition of an asset contributes to the likelihood the asset will fail. Different asset classes have different failure modes that should be considered when defining and quantifying the condition of the asset. In addition, the CMMS software is highly configurable and should support how the City wants to capture and quantify asset condition in a way that will be most useful for planning for future maintenance and renewal activities. KCI will help the City define the condition framework by considering and answering questions relative to the software configuration such as:

- What is the highest level asset in the *asset inventory* that all ratings should roll up to?
- What categories should be considered to quantify functional, physical, operational, maintenance, and / or service-related characteristics?
- What rating factors should be used? And should they be weighted?

The outcome of this task is a framework to serve as the basis for configuring inspections of all asset classes.

Risk framework. This task will result in a City-wide definition of asset risk. Formalizing the concept of risk across all asset classes helps the City manage risk, compare risk amongst asset classes, and maintain an acceptable level of risk that does not compromise level of service and cost. This task will begin by defining the general framework for consequence of failure at a level that can be applied across all asset classes. A standard rating scale will be discussed and decided upon to ensure uniformity throughout the process of risk modeling across various asset groups. The risk framework will build upon past studies performed for Water Resources, as appropriate. Likelihood and consequence of failure matrices will be developed for a piloted asset class identified by the City using best available data.

Formalize asset class lifecycle management strategies. Under this task, KCI will assist the City develop guidelines for replacement, renewal, O&M and inspection/condition assessment strategies for asset class(es) identified by the City. This task will

identify what the appropriate treatment options for each asset class (e.g. open trench replacement, lining, periodic flushing, and/or condition assessment for water mains). In collaboration with the relevant business units, KCI will develop a list of appropriate treatment options and the criteria to be used to trigger the intervention. KCI will facilitate workshops/meetings with the asset "owners" to develop treatment criteria viable for Burlington. For each asset class, the following will be determined:

- Candidate assets and associated asset attributes (*e.g.* install date, size, effective life, material, and replacement cost)
- Replacement strategies
- Rehabilitation strategies
- Operations management strategies
- Maintenance management strategies

PM Program planning. Planning a preventive maintenance program results in a clear definition of what the objectives of the program are, how the work will be prioritized and implemented, and how the efficacy of the program will be measured. Under this task, KCI will help the City formalized existing or new preventive maintenance programs with two objectives in mind: 1. Is there asset data that the City desires to collect that can / should be collected during routine activities and 2. Determination of how the City's business units want to load preventive maintenance work orders into the new system. KCI will assist the city answer these questions for select asset classes identified by the City. KCI will then help the City align the outcomes with the objectives, while instilling industry standards and best practices.

Task 3.3: Asset Register Development

KCI will augment City staff as needed to manage the work load associated with preparing the asset register for the new CMMS implementation and associated asset management decision making. This includes preparing the asset inventory and associated attributes that make up the asset registers. Types of tasks that support moving the data from the source format to the target format may include:

- Further refinement of the asset hierarchies including identification of detailed attribution, relationships and appropriate system levels.
- Mapping of source to target in the case of migrating existing data into the proposed asset hierarchy. Individual data elements will be mapped from the current source systems to the new hierarchy and format.
- Extract-transfer-load (ETL) routines to migrate data from existing sources to the new hierarchy and format.
- Manual conflation of data sources.
- Definition of critical assets.
- Quality assurance and quality control of existing data sources.
- Documentation of data inventories as well as processes and procedures.

In addition, KCI is available to help advise and review work already performed by the City to define and quantify asset-level consequence of failure.

Asset inventory compilation/clean-up

Many CMMS / EAM solutions rely upon GIS to be the authoritative asset inventory, which requires an accurate and complete asset registry. This task involves evaluating Burlington's existing inventories for accuracy / completeness and assisting the City enhance the existing GIS by compiling and cleaning-up data as needed. The objective is to provide the cleanest data possible to the CMMS/ EAM. Under this task, KCI will evaluate what is stored as attributes; how the assets are uniquely named; what information is needed for future asset management initiatives; and how assets are organized in hierarchies. Hierarchical organization is important for the configuration of the software, especially when implementing complex facilities such as buildings, treatment plants, traffic intersections, etc. Ease of use is greatly dependent upon these decisions; therefore, KCI will guide the City through this process.

Task 3.4: GIS System Architecture / Data Governance / Organizational Development Support

GIS System architecture

Depending on the City's needs, KCI can help Burlington stand up the required GIS system architecture either by providing the City with guidance and recommendations or providing actual implementation support. Implementation services performed under this task

may include selection of an appropriate GIS hosting platform, negotiation of services, implementation of Esri software, configuration of Esri software, documentation and training to utilize the new environment. If Burlington chooses a cloud-hosted solution, then connectivity between the CMMS solution and the City's GIS data is required. If the solution is implemented on premise, then KCI can provide recommendations or actual implementation support for staging the appropriate system architecture needed. KCI may also prepare network diagrams to illustrate final configuration. If chosen to do so, KCI will act as the GIS Administrator and coordinate with IT and Asset Managers on a regular basis to monitor the infrastructure, perform Esri software upgrades, develop GIS editing and publication workflows and be relied as a resource for GIS administration.

Organizational Development

Because GIS is intended to be the central inventory of record for the City, KCI will help the City implement organizational changes recommended in the Asset Management Program Development Organizational Structure Report prepared by Barton and Loguidice. KCI will draw from past experiences planning and implementing GIS / data management programs for other clients to develop a long-term strategy for managing and administrating GIS on behalf of the entire City.

As the use of GIS expands deeper and wider, there is a need to establish a business unit to manage all city-owned assets in a consistent manner that aligns with industry best practice. Currently, the business units must provide their own resources to implement and maintain GIS within their respective organizations, which requires more resources than a centralized approach. Typical services required to sustain GIS include on-going support to end users, maintenance, end-user and administrative-level training, and expansion.

To improve upon current conditions, KCI has the experience and know-how to bridge existing gaps, set policy, and develop a sustainable roadmap that fulfills the short-term and long-term vision for GIS data management. **The outcome of this task is a written memo that brings all elements of the "system" (i.e. people, process, technology and culture) together to create a sustainable, viable organization whose function is to maintain the integrity of the City's GIS data.**

3.5 Workflow Enhancement

KCI will conduct cross functional workflow workshops with water resources and general-fund divisions to discuss and enhance workflows identified by the City. Following each workflow analysis workshop, KCI will draft the existing workflows, including relevant service request types and workflows using Visio. Along with the creation of the existing workflows, an improved "to-be" workflow will be drafted based on the workshop feedback, identified inefficiencies in the existing workflows, and implementation of the selected CMMS. The enhanced to-be workflows will focus on shifting the process form reactive to proactive and maximizing total benefit. The **CIP planning process** is one workflow that may be evaluated under this task. Elements of this workflow to be considered include:

- Process for adding projects to the CIP
- Consideration of whole lifecycle costing
- Tying LOS to future investments – maintain, heighten, or decrease?
- Performance guidelines for CIP to measure improvements

3.6 Performance Management

One of the key components of asset management is identifying and defining the Levels of Service (LOS) that customers and other stakeholders require. LOS connects the strategic direction of the City of Burlington to the performance requirements established within the various business units. LOS includes specific, measurable indicators that provide the organization with a focus when planning the physical (asset) infrastructure and functional (organizational) infrastructure required to deliver the service.

This task focuses on refining existing and identifying new performance measures for Burlington, with an emphasis on aligning them with BTV Stat. The AWWA Benchmarking Survey will serve as the foundation for this task, as appropriate.

Collaboratively with City staff, KCI will compile existing metrics and develop new metrics that Burlington desires to track formally. This list will be maintained in Excel format (referred to as the Performance measure inventory sheet).

3.7 Written Plans / Procedures

To assist the City of Burlington successfully and sustainably implement the enhanced workflow(s), KCI will prepare supporting documents, including but not limited to standard operating procedures (SOPs), policy documents, asset specific Asset Management

Plans and / or user reference guides. KCI will work collaboratively with the City Asset Managers to identify the desired documents before proceeding with this task. KCI will tailor the content to the intended audience so that it is user friendly and useful for day-to-day operations. KCI will share draft documents and solicit feedback from the intended audience and the Asset Managers, at a minimum. Draft documents will be revised to incorporate feedback and a final draft will be submitted in a format requested by the City (e.g. MS Word, pdf).

Deliverables

The deliverables associated with this task are dependent on the nature of the work performed. Each deliverable will be discussed in detail with the Asset Management Administrators at the beginning of each work assignment. Example deliverables are shown below but are subject to change. KCI will provide updates and deliverables in a format that is consistent with systems used by the City of Burlington.

Tentative Project Deliverables	• Project Schedule • Monthly Invoices and Progress Reports • Meeting Notes, as needed • Meeting facilitator • Participation in meetings • Written and/or oral opinions • Written framework for prioritizing work orders • Condition framework • Risk framework • Lifecyle management strategies for select asset classes	• Asset hierarchies • Data mapping • GIS-based asset register(s) • Data Migration Plan(s) • Functionality Migration Plan(s) • Organizational Development Technical Memo • As-is and To-be Workflows • Performance Management Framework • Performance metric computation and visualization • Standard Operating Procedures • Asset Management Plan(s)

Project Schedule

KCI will provide up to 12 months of on-call professional services, which aligns with the tentative software implementation schedule. It is assumed professional services will be provided remotely due to the ongoing COVID-19 pandemic. Conditions associated with the outbreak are continuously evolving but are not likely to impact the project schedule.

Cost Estimate

The professional services provided by KCI will be billed on a time and material basis (including reimbursable expenses), not to exceed a total fee of $123,000. Project costs will be tracked and managed by funding source assuming the following:

- General Fund = 50% ($61,500)
- Drinking Water SRF = 25% ($30,750)
- Clean Water SRF = 25% ($30,750)

City of Burlington, VT

VUEWorks® Scope of Work

Prepared for:
City of Burlington, VT

Prepared by:
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dts
MAKERS OF VUEWorks®

Proposed Scope of Services for City of Burlington, VT

The following proposed Scope of Services are a combination of remote consultation, configuration and training services designed to provide services to properly configure VUEWorks and train City of Burlington staff to ensure successful use of VUEWorks in meeting City of Burlington's operational needs and goals.

To set the stage for the following tasks and activities, the following definitions apply:

In-Scope Items

1. Project Consultation and Implementation activities as defined in the project schedule.
2. VUEWorks Software configuration activities.
3. Training Activities as defined below.
4. DTS will provide a Dev, Test, and Production license of VUEWorks for the City. DTS will host and maintain these instances on our cloud hosted solution and will provide scripted updates related to software releases and builds as part of normal maintenance and support agreement.
5. Data Migration Activities as defined below.
6. Software Integrations as defined below.

Out-of-Scope Items

1. Data Cleansing, Normalization, Manipulation, Editing, unless agreed upon by VUEWorks Project Manager.
2. GIS data server configuration or network configuration on the City's IT infrastructure.
3. Database administration of any kind related to the City's IT Infrastructure. This includes the creation of database views for data integration activities from any data source.

The Scope of Services will be used to implement VUEWorks in a phased approach. Each phase will follow a similar process and workflow. Each area of focus will include a mix of one or more of the following service categories:

- Project Management
- Consultation
- Documentation
- Configuration
- Training
- Support Services

The recommended phases for this implementation are as follows:

- Phase 1: Project Management and Work Plan
- Phase 2: Software
- Phase 3: Implementation Planning
- Phase 4: Data Migration
- Phase 5: Implementation
- Phase 6: System Integration
- Phase 7: User Acceptance Testing
- Phase 8: Training
- Phase 9: Support and Maintenance

Phase 1 – Project Management and Work Plan

The project kickoff meeting will occur remotely with the City of Burlington. The kickoff meeting is where the project goals and objectives are laid out to the project team, team members and support personnel who will be involved in the process. The VUEWorks implementation tasks, goals, schedule and timeline will be shared with the project team.

All team members will be made aware of when their support will be needed throughout the process, so they can plan for their involvement ahead of major and minor deadlines. This transparency is crucial to the success of the project and to mitigate any risks related to the inevitable change experienced by these team members.

Upon the assemblage of a Project Team, an initial Project Work Plan will be developed and provided to the City by the VUEWorks Project Manager; this will be the cornerstone for the project. The Project Work Plan will lay out the project timeline and will be used as the basis for the agenda for frequent project status meetings coordinated by VUEWorks. The Project Work Plan also includes formal communication paths between and within the City's organization and VUEWorks, with issue resolution procedures defined.

The PM and appropriate team members will also participate in regular progress meetings with City of Burlington to present work completed, receive input from City of Burlington staff, discuss upcoming work, arrange subsequent meetings, and make collaborative decisions. Progress meetings will provide continuous updates to ensure all team members are able to participate in the decision-making process and promote the timely convergence of ideas necessary to maintain the project schedule.

Meeting agendas will be prepared and emailed to prospective attendees in advance of the meeting for review. Within two days of the conclusion of each formal meeting, the PM will prepare meeting minutes or notes and distribute to the project team for review and approval.

The PM will work collaboratively with City of Burlington to identify appropriate meeting intervals outside of scheduled workshops and reviews. Our flexibility provides for a natural partnership allowing informal

meetings and/or site visits to be conducted as dictated by the needs of the project.

As a component of our communication strategy, DTS will submit monthly progress reports indicating the status of project deliverables, work completed during the subsequent reporting period, anticipated work for the next period, and schedule adherence. Should an issue be encountered, the PM will immediately notify City of Burlington and bring project team members together to resolve the issue. Through the implementation of our communications strategy, our organizations will be able to identify, prioritize, and successfully address key project issues in a timely manner necessary to drive schedule compliance.

After this phase, VUEWorks will provide the following deliverables:

1. **Kickoff Meeting Minutes and Action Items**
2. **Project Work Plan Document**
3. **Project Schedule**
4. **Progress Meetings, Agendas, and Meeting minutes**
5. **Monthly Progress Reports**
6. **Monthly Invoices**

Phase 2 – Software

As part of this phase, DTS will install a dev, test, and production instance of VUEWorks on DTS's hosted cloud infrastructure. These environments will be utilized in the proceeding phases. Services include initial data loading into VUEWorks from the City's ArcGIS Server via consuming of Map Services.

DTS will schedule remote System Administrator training with the City after the kickoff. Part of the training provided deals specifically with training those who will be administering the software moving forward. The goal of training the system administrators is to give them the tools to grow VUEWorks over time.

DTS will also schedule remote VUEWorks software overview meetings with City power/end users, which will begin prior to configuration so that power users and end users have a better understanding of how VUEWorks can be configured. This helps Asset Group SME's to provide VUEWorks implementation resources more thought-out workflows/information based on what seeing what VUEWorks is capable of.

After this phase, VUEWorks will provide the following deliverables:

1. **Installation of VUEWorks Dev, Test, and Production instances on DTS cloud**
2. **System Administrator Training**
3. **Power/End User Functionality Overview**

Phase 3 – Implementation Planning

DTS will take a phased approach to plan, configure, integrate and train the City of Burlington. The recommended phasing by Asset Groups with Work Groups identified within is as follows, and is based on phasing in an Asset Group at a time (total of four go-lives):

1. **Water/Sewer/Storm**
    a. Water Distribution
    b. Water Meter Shop
    c. Wastewater Collection (really the Street Maintenance Group)

d. Stormwater
e. Water Resources Customer Service
f. Water Resources Engineering/Technical Services
g. Street Maintenance ROW

2. **Parks, Recreation and Waterfront**
   a. Facilities
   b. Tree Crew
   c. Ground Maintenance Crew
   d. Conservation/Bike Path
   e. Parks + Planning
   f. General Fund DPW Customer Service
   g. Customer Service Team
3. **Water/Sewer (Vertical Assets)**
   a. Water Treatment
   b. Wastewater Treatment and Pump Stations
   c. Water Resources Engineering/Technical Services
4. **ROW/Roads/Parking/Traffic**
   a. Street Maintenance ROW
   b. Traffic Operations
   c. Parking
   d. Fleet Maintenance
   e. General Fund DPW Engineering/Technical Services

These Work Groups are not part of a go-live, but will be utilizing some aspect of VUEWorks:

- Innovation Technology
- Clerk/Treasurer's Office

First, DTS will hold discovery meetings with the Work Groups within each Asset Group to review their current business requirements and workflows. These meetings can happen on-site if agreed to by both DTS and the City, or remote if needed. DTS will work with the Asset Group Subject-Matter-Experts (SMEs) to determine which modules are desired for configuration:

- VUEWorks® Core
- VUEWorks® Facilities
- VUEWorks® Service Call
- VUEWorks® Work Order
- VUEWorks® Resource Manager
- VUEWorks® Condition
- VUEWorks® Risk
- VUEWorks® Valuation
- VUEWorks® Projects
- VUEWorks® Budget Forecasting
- VUEWorks® WorkOrderVUE
- VUEWorks® FacilityVUE
- Standard and Custom Reporting

Understanding each Asset Group's goals and priorities, desired business processes, and state of existing data are key to establishing the foundation of the software design. During the discovery meetings, DTS uses the opportunity to educate participants on the standard tools and functionality of the software and

may do additional software demonstrations to help the team visualize options. The City team will be asked to gather data and make decisions during this phase. Things that may be requested include:

- List of Service Request Issues
- List of Work Order activities (Reactive, Preventative, Inspections)
- How is each issue/work order assigned (individual, role, crew etc.)?
- Examples of current work order forms being utilized (if applicable)
- What information is needed to be tracked on a work order form?

Upon completion of each discovery meeting, DTS will then create a detailed Configuration Design Document that serves as a roadmap guide for how the system will be configured during the Implementation phase. The intent for the configuration design plan is to formalize the discussed design and obtain input and feedback from the project team. Major adjustments that are easily incorporated during the implementation planning phase introduce project risk if introduced during the implementation phase. The configuration design plan provides a recipe for the implementation phase and ensures all project participants are able to validate that the configuration meets the intended design.

DTS will send the document to the City for their review, and then a web meeting will be scheduled between the City and DTS to review the document and any questions. The document will need to be approved by the City prior to DTS beginning the Implementation phase.

After this phase, VUEWorks will provide the following deliverables:

1. **Configuration Design Document for each Asset Group (4 total design documents)**
2. **Remote review meeting per Asset Group between the City and DTS (approval required prior to beginning Implementation)**

Phase 4 – Data Migration

DTS will hold discovery sessions to discuss the data migration requirements. The City has identified the following software datasets as needing migration into VUEWorks:

- **RTA** – DTS will perform a one-time data load of City vehicles and equipment into VUEWorks resource manager so that the items can be utilized on Work orders for cost tracking.
- **Facility Dude** - Burlington is currently using Facility Dude for work order management on City-owned buildings and facility assets. The City will provide DTS with an inventory of existing assets to be migrated to VUEWorks. In addition, the City will extract and provide any related work order activities to be migrated to VUEWorks in order to represent historical work performed on these assets.
- **Manager Plus** – Manager Plus is used to track work orders for the water treatment plant and associated assets. The City will provide an extract of the asset inventory for DTS to migrate to VUEWorks. While this inventory is not complete, it does provide a good starting point for the new system.
- **KeepTraK** - KeepTraK is used to track work orders for the wastewater treatment plants and pump stations. The City will provide an extract of the asset inventory for DTS to migrate to the VUEWorks. While this inventory is not complete, it does provide a good starting point for the VUEWorks

- **ArcGIS Water Resources Service/Work Orders -** Work items for Water Resource assets are currently tracked in GIS related tables which link to the GIS assets. This includes activities such as pipe cleanings, pipe videos (Granite XP), hydrant inspections/maintenance, hydrant flow tests, valve exercising, water breaks, catch basin cleaning and inspection records etc. The City will provide the related tables for DTS to migrate into VUEWorks in order to preserve the work order history related to the assets
- **Go Canvas data –** the City has some amount of data in this system which can certainly be replaced with VUEWorks. The City is currently checking in-house to get a data list and to see what would need to be migrated.

Since VUEWorks is a GIS-centric system, it can support consuming GIS data the City may be utilizing in ESRI's Collector application, as well as consuming GIS data that may be created later, such as sidewalk inventory. This is handled as part of VUEWorks native GIS integration.

The Migration tasks that could be used for this project include:

- Investigate existing asset systems operational features and database structure for asset data.
- Functional requirements for the asset data by asset type.
- Identification of asset types and fields that will be migrated to GIS feature classes for use by VUEWorks.
- Identification of asset types and fields that will be migrated to the VUEWorks modules.
- Identification of the asset hierarchy that will be replicated in the VUEWorks modules.
- Identification and migration of dropdown field data that will be transferred. The functional aspects of the dropdown fields will be migrated to GIS domains or VUEWorks dropdowns as appropriate.
- Define data structure and templates required in the GIS or VUEWorks modules.
- Identification of any special considerations for the migration. (ex. numerical data should be migrated to a numerical field even if numerical data is currently stored in a text field).
- Identification of any data that will not be transferred (obsolete data or data that has no value to the City).
- DTS will provide templates where applicable to migrate data over into VUEWorks, and work with the City in outlining how templates will need to be populated
- Plan to accommodate final migration of data immediately prior to the Go Live date.

Prior to beginning the Implementation phase, DTS will work with the City to migrate the identified data agreed upon in this Phase into the City's VUEWorks Dev instance. This will allow the City to review the data migration results prior to the data being migrated into their production environment. During this Phase, DTS will document data integrity issues discovered during the process and address them with the City. Data integrity issues consist mostly of misspellings and/or inconsistent terminology. While it may be possible to address some data integrity issues, DTS will be limited to documenting any issues discovered that may be addressed in the future by the City.

After this phase, VUEWorks will provide the following deliverables:

1. **Data Migration into VUEWorks DEV instance**
2. **Remote review meeting between the City and DTS**
3. **Data Migration Plan**

Phase 5 – Implementation

This Phase will focus on implementing VUEWorks configurations using the approved Configuration Design Document for the following Asset Groups:

1. Water/Sewer/Storm
2. Parks, Recreation and Waterfront
3. Water/Sewer (Vertical Assets)
4. ROW/Roads/Parking/Traffic

VUEWorks module configurations will first take place in the City's Dev instance of VUEWorks. Each module will be configured based on the workflows identified with the SMEs and will follow an iterative process for each Work Group. As part of the configuration, DTS will configure up to 10 Work Order forms for each Work Group, and up to 5 custom reports for each Asset Group. Part of the training will revolve around training system administrators to configure additional work order forms, as well training users on creating reports.

Sprint 1 for each Asset Group will focus on configuring each module as defined in the Configuration Design Document. Sprint 2 will focus on configuring around the system integrations for each Asset Group.

After this phase, VUEWorks will provide the following deliverables:

1. **Configuration review meeting with each Asset Group**
2. **DTS updates to configuration based on review meeting**
3. **Configuration acceptance review meeting with each Asset Group**

Phase 6 – System Integration

Working sessions will be held with the application administrator, business users, and supporting IT professionals to identify the business need for the desired system integrations, assess the viability, and identify the tasks needed to accomplish the integration. A system integration plan will document the outcome of the assessment.

DTS understands that the City is requesting SeeClickFix to be a bi-directional integration, and the other software will use a one-way integration (bringing data into VUEWorks). VUEWorks will support these integrations as part of this consulting agreement. The actual scope of work for these integrations will be determined as part of the business process analysis functions of this project. This process will identify the type of integration needed:

- **Extract, Transform, Load (ETL) One-Way** – Interface is developed to read in data from source database at a desired frequency (Hourly, Daily, Weekly, Monthly, etc.)
- **Data Link** – Direct database connection between source data and VUEWorks. Data is accessed in real-time by VUEWorks.
- **Bi-Directional** – Data is accessed and loaded into VUEWorks using available APIs

The City has identified the following software as integration points:

System	Brief Description	Action
See Click Fix	Citizen service request portal	Integrate – Bi-directional
FlexiBill	Water Resources Customer contact information, water meter usage data (last 12 months), meter work orders	Integrate – one way
ArcGIS	GIS asset inventories	Integrate – bi-directional
Civic Rec	Park facility reservations	Integrate – one way
RTA	Fleet management	Integrate – one way
Tree Works	Tree management	Integrate – one way
PAVER	Pavement condition scores	Integrate – one way
Granite XP	CCTV pipeline inspection software	Integrate – one way
Facility Dude	Facilities / Buildings work order management	Replace
GoCanvas	Inspection forms	Replace
KeepTraK	Wastewater treatment plant work order management	Replace
ManagerPlus	Water treatment plant work order management	Replace
New World	Financial System	Integrate – one way
*Dig Safe	Email request for buried line detection prior to digging	Integrate – one way
*SCADA (optional)	Instrumentation at plants	Integrate

Upon review and approval of the system integration plan, integration tasks and timelines will be incorporated into the overall project schedule.

After this phase, VUEWorks will provide the following deliverables:

1. **Systems Integration Plan**
2. **Systems Integration Deployment**

Phase 7 – User Acceptance Testing

Once configuration is complete, DTS will provide the City with test cases, allowing the City to perform acceptance testing and determine if any configuration changes are required. Upon formal acceptance of the configuration, DTS will promote the Dev instance up to the Test instance.

Upon completion of training, DTS will work with the City to schedule and promote the configuration to the City's Production instance. Go-live dates for each Asset Group will be agreed upon between the City and DTS, and a DTS implementation resource will be available on that day remotely to assist with issues.

After this phase, VUEWorks will provide the following deliverables:

1. **Test Cases and configuration adjustments based on review meetings**
2. **Promotion of configuration/data migration into Production**

Phase 8 – Training

DTS' philosophy is to train early and often throughout the implementation process. DTS recognizes that training and support is one of the most critical of the project phases. DTS will work with the project team to develop a training plan that defines training format, curriculum, number of sessions, and anticipated schedule that is best suited for the City. DTS will hold up to 5 days of productive use training for each Asset Group phasing, utilizing the VUEWorks Test instance. DTS will provide either remote or on-site (if agreed to by DTS and the City) training sessions to select users of the VUEWorks system. Details regarding training location, equipment needs, and attendee lists will also be coordinated.

Instructor led training sessions will be supplemented with standard VUEWorks training material as leave-behinds for future reference. The DTS team is dedicated to our client's long-term success in using our VUEWorks solution. In addition to our end-user training offerings, we perform knowledge transfer with the team of VUEWorks application and business administrators that will be responsible for managing the system. Additional training services through VUEniversity (DTS Learning Management System) can be purchased by the City after go-Live.

After this phase, VUEWorks will provide the following deliverables:

1. **Training for Administrators and Power/End Users**
2. **Standard VUEWorks Training materials (pdfs)**

Phase 9 – Support and Maintenance

DTS understands the challenges that System Administrators face when transitioning staff to a new software. To ease with the transition, the DTS project team will provide roll-out support for the City during the first 60 days. Roll-out support includes weekly pre-set call in time for System Administrators to ask questions or discuss issues that users have reported during the week. The VUEWorks Support team will continue to provide support to administrators beyond the initial roll-out period. DTS will introduce Burlington VUEWorks system administrators to the VUEWorks Support Manager and explain the customer support process as well as the product resources available through the VUEWorks Customer Support Portal. All users will have access to the Customer Support Portal to access the knowledge base, past webinars, and community forum.

Moreover, we provide the following opportunities to remain engaged with our customers, share knowledge, and encourage networking among VUEWorks users.

- Annual Meeting - Facilitated regional user group meetings are held in specific regions annually. In addition, DTS hosts an annual national conference typically held in Orlando. (In 2020, these were virtual.)
- Online Forum - VUEWorks has an internal client only online forum for users to collaborate.
- Resource Documents - Resource and training documents are available online and can be accessed and downloaded by any VUEWorks named user.
- Online Webinars - Online webinars are offered monthly and focus on specific software modules or best practices. These are recorded and made available to users online as well.

Twelve months of support is provided and renewed annually thereafter with the payment of the support and maintenance fee. We offer 8:00 a.m. to 5:00 p.m. Eastern Time telephone support, along with email and web-based support channels. Our technical support staff will provide prompt and helpful support to the City's designated application administrator for troubleshooting assistance, general questions and replicating and documenting defects.

DTS offers a robust release program that is easy to administer. VUEWorks releases version upgrades periodically throughout the year and makes them available on the VUEWorks Customer Support Portal. Each release comes with release notes of the fixes addressed in the build and a description of new features and functionality. VUEWorks is architected such that system configurations persist across versions with the intent of no data loss or substantial configuration impact when performing an upgrade. Clients may apply new builds quarterly or on any schedule of their liking (i.e. biannual, annual, etc.) and our release will apply all appropriate build components of past releases.

After this phase, VUEWorks will provide the following deliverables:

1. **Project Closeout Documentation and Transition to Support**

City of Burlington
Department of Public Works
645 Pine Street
Burlington, VT 05402
802.863.9094 P
802.863.0466 F

Date: April 13, 2020

To: Board of Finance, City Council

From: Chapin Spencer, Director Public Works
Martha Keenan, Capital & Asset Management Program Manager
Peter Egolf, Asset Management Administrator

Subject: Asset Management Program - Awarding Asset Management Consultant Contract; Authorizing Clean Water and Drinking Water State Revolving Fund Loans

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Request:
The Department of Public Works ("DPW") is requesting Board of Finance and City Council authorize:

1. The award of the Asset Management Consultant Contract to KCI Technologies, Inc.
2. The attached resolution for a planning loan from the Vermont Clean Water State Revolving Fund for up to $49,791.
3. The attached resolution for a planning loan from the Vermont Drinking Water State Revolving Fund for up to $44,321.

Background:
The Department of Public Works requests approval for a consulting contract with KCI Technologies, Inc. ("KCI") to lead the City through Phase II of the City's asset management planning and implementation program. City Council adopted the Asset Management Program and Implementation Resolution on 1/27/2020, supporting this scope of work. Given the newly developing financial constraints, this is an even more timely opportunity to effectively manage and minimize the costs associated with purchasing, maintaining, and renewing $500,000,000 worth of City assets, including property, infrastructure, facilities, vehicles, and equipment. It is critical to long-term financial health and sustainability of the City to proceed with this project now.

The City's existing asset management systems are siloed and disjointed with a significant cost to the efficiency and finances of the City. Presently, departments manage assets in at least ten different systems – including paper records, Excel spreadsheets, antiquated software, and modern online systems – which limits understanding, collaboration, and optimal management of our assets.

KCI will provide consulting service guidance in the assessment, procurement, and implementation of a Computerized Maintenance Management System (CMMS) & Enterprise Asset Management (EAM) application to enable cross-departmental management of work orders, customer inquiries, asset inventories, and preventative maintenance scheduling. KCI will also assist the City in developing best-in-class asset management practices and workflows to achieve the lowest cost of ownership for our assets, minimizing operational and capital costs for the City in perpetuity.

The Capital and Asset Management Team is comprised of the Capital and Asset Management Program Manager and Asset Management Administrator. The team has established a Steering Committee to oversee the project which includes the Director of DPW, Assistant Director of DPW (Technical Services), Assistant Director of DPW (Water

Resources), and Water Resources Infrastructure Asset Manager. The team expects to expand the steering committee as other departments are brought into the execution phases of the project.

The City created and posted a Request for Qualifications (RFQ)[1] (Attachment A) for these consulting services in February 2020. The City received and scored five statements of qualifications and subsequently interviewed three firms. KCI Technologies, Inc. provided the most comprehensive qualifications, and the City underwent negotiations to produce a consulting contract, which includes all required tasks:

Task 0: Project Initiation and Project Management
Task 1: Procurement of CMMS/EAM Solution
Task 2: Selection of CMMS/EAM Solutions
Task 3*: Implementation Oversight and Support
*Contract will be amended in the future to include this task when the next phase is ready to proceed

A draft of the proposed contract, as approved by the City Attorney, is included as Attachment B.

Table 1 shows KCI's estimated project costs by task and funding source. Tasks 0, 1, and 2 $113,404. Requested approval amounts in the memo motions and resolutions include 10% contingency to allow for possible changes in the required amount of support (level of effort - Attachment D) that could result from the State's final review (a requirement of the State Revolving Fund Loans that this project is leveraging) of the scope of work, (Attachment C).

Table 1. KCI's Project Cost Table

	Costs & Funding Sources			
	DPW	**Water Resources**		
Tasks	**General Fund**	**Drinking Water SRF**	**Clean Water SRF**	**Total Service Cost**
Tasks 0,1, 2	$27,847.68	$40,291.76	$45,264.56	$113,404.00
Software & Vendor Professional Services (Not included in KCI's bid)	*$150,000.00*	*$112,500.00*	*$112,500.00*	*$375,000.00*
Task 3	*$57,394.97*	*$51,388.52*	*$51,388.52*	*$160,172.00*
Total Project Contribution →	*$235,242.65*	*$204,180.28*	*$209,153.08*	***$648,576.00***

Note: *Italicized values are estimated costs.*

The Capital and Asset Management Team will return to the Board of Finance and City Council after the completion of Task 2 with a revised scope of work to include Task 3, which will be guided by findings from Task 0, 1, and 2. Additionally, the Team will seek approval for separate contracts for the Software & Vendor Professional Services.

While the cost-share to DPW General Fund for Tasks 0, 1, and 2 is $27,848 ($30,632 with contingency), the DPW General Fund will, in the short term, take on the total cost of the contract ($113,404), plus a 10% contingency, for a total of $124,750. This will allow Water Resources the time required to process its funding through the Clean Water and Drinking Water Vermont State Revolving Funds. Once Water Resources receives loan reimbursements, it can reimburse the General Fund for any costs incurred that were related to the Water Resources portion of the project and incurred after the receipt of the authorized letter of funding.

Funding:
The Capital and Asset Management Team has budgeted $124,750 to initially finance the estimated total project expense of $113,404 plus 10% contingency. Given that Water Resource's contribution to the project will ultimately be funded from loans from both Clean Water State Revolving Funds ("CWSRF") and Drinking Water State Revolving Funds ("DWSRF"), the City must follow specific requirements during procurement, design, and implementation of this project. Please see Table 2 below summarizing terms for both CWSRF and DWSRF loans. Based upon the review of the SRF program managers, this project will be funded by Step I planning loans (*italicized*) and will not proceed to the other loan Steps. Based on the requirements of the SRF programs, and the opinion of

[1] An RFQ process is required by the State Revolving Fund program, which is a significant source of funding for his program.

bond counsel, this type of borrowing only requires approvals of Board of Finance and City Council and not the voters.[2]

Table 2. Clean Water & Drinking Water State Revolving Fund Loan Program Terms

Phase	**Interest/Administration Fee**	**Payback Period (years)**	**Local Approval Requirements**
Planning (Step I)	*0%*	*5 to 15 depending on loan value*	*Board of Finance/City Council*
Final Design (Step II)	0%	5 to 15 depending on loan value	Board of Finance/City Council
Construction (Step III)	2%	20 to 30 depending on expected life of asset	Positive bond vote on total project cost and Board of Finance/City Council (Step I-III)

The following is an overview of the anticipated CSWRF and DWSRF borrowing timeline:

Tasks 0, 1, and 2: Project Initiation, Procurement, and Selection

1. Request Board of Finance and City Council authorization to:
    a. apply for DWSRF and CWSRF loans for Tasks 0,1, and 2 amounts plus 10% contingency ($44,321 and $49,791 respectively);
    b. execute final Engineering Services Agreement with KCI Technologies, Inc. for Tasks 0, 1, and 2; and
    c. execute final loan agreements.

2. Pending final review by CAO and City Attorney, submit the application to Vermont Department of Environmental Conservation (VTDEC) for CWSRF and DWSRF loans, including Draft Engineering Services Agreement, Certification of Compliance with the RFQ process, supporting financial information and authorized representative form designating City staff to act as an authorized representative for the City for the purpose of furnishing information, data and documents pertaining to the project(s) (1-2 weeks)

3. City receives documentation of application receipt, including possible planning loan forgiveness subsidy allocated to the project.

4. Submit executed Final Engineering Services Agreement to VTDEC who will issue Authorized Letter of Funding (2-3 weeks); expenses incurred after this date are eligible for reimbursement.

5. VTDEC sends a finalized application to Vermont Municipal Bond Bank (VMBB) to process application (4-6 weeks).

6. Pending final review by CAO and City Attorney, City will execute a loan agreement.

Tasks 3: Software Purchase from Vendor & Implementation Consultant Services

1. Request Board of Finance and City Council authorization to **amend** existing CWSRF and DWSRF loans for amounts related to final consultant phases and purchase of software, **amend** existing Engineering Services Agreement and execute final amended loan agreements.

2. Pending final review by CAO and City Attorney, submit loan amendments to VTDEC to include KCI oversight & support (Task 3), vendor implementation and software purchase costs.

7. City receives documentation of loan amendment application receipt, including possible planning loan forgiveness subsidy allocated to the project.

[2] Pursuant to 24 V.S.A. Section 4756(e), the City Council may authorize and incur debt on behalf of the City for preliminary engineering plans and studies without prior voter approval such debt shall be included in any subsequent public authorization of indebtedness necessary to construct the project for which the planning loans are used.

3. Submit executed Final Engineering Services Agreement to VTDEC who will issue revised Authorized Letter of Funding; amendment related expenses incurred after this date are eligible for reimbursement.

4. VTDEC sends finalized application to Vermont Municipal Bond Bank (VMBB) to process application (4-6 weeks).

5. Pending final review by CAO and City Attorney, City will execute amended loan agreement.

At this time, DPW Water Resources is seeking approval to borrow up to $49,791 in Clean Water State Revolving Loan Funds (CWSRF) as well as up to $44,321 in Drinking Water State Revolving Loan Funds (DWSRF) to cover Water Resources' portion of KCI Technologies scope of work (Tasks 0, 1, and 2). As stated above, DPW intends to return to the Board of Finance and City Council after the software bidding phase (Task 2) to seek approval for software purchase, amend the existing contract with KCI, and amend the SRF loan applications for the costs of software and vendor professional services. Separately the DPW General Fund has allocated $300,000 in the FY20 Capital Budget for General Fund Departments, covering all phases of the project.

It is important to note that the State of Vermont SRF program has confirmed their support of this project, and through COVID-19 pandemic conditions and have not signaled any disruption in the State's ability to finance.

The Capital and Asset Management Team is also exploring the involvement of other City departments (e.g., the Burlington International Airport and DPW's Parking & Traffic Division) to expand the financial resources and subsequent impact of the Asset Management Program.

If you have any questions, please contact Martha Keenan, Capital & Asset Management Program Manager (mkeenan@burlingtonvt.gov) or Peter Egolf, Asset Management Administrator (pegolf@burlingtonvt.gov).

Attachments:

- Attachment A: RFQ
- Attachment B: Draft of proposed contract with KCI Technologies, Inc.
- Attachment C: Scope of Work
- Attachment D: Level of Effort
- Attachment E: Resolution Relating to Authorization for Up to $49,791 Planning Loan from Vermont **Clean Water** State Revolving Fund for Asset Management Application Assessment, Procurement & Implementation
- Attachment F: Resolution Relating to Authorization for $44,321 Planning Loan from Vermont **Drinking Water** State Revolving Fund for Asset Management Application Assessment, Procurement & Implementation

Motions:

The Department of Public Works respectfully requests that the Board of Finance and City Council approve the following motions:

Board of Finance Actions:

1. "To approve and recommend that the City Council authorize the Director of Public Works to execute an Engineering Services Agreement with KCI Technologies, Inc. for the Computerized Maintenance Management System and Enterprise Asset Management Application Assessment, Procurement, & Implementation Guidance project for a total contract amount of up to $124,750, subject to approval by the Chief Administrative Officer and City Attorney."
2. "To approve and recommend that the City Council approve the attached resolution authorizing a planning loan from the Vermont **Clean Water** State Revolving Fund for up to $49,791."
3. "To approve and recommend that the City Council approve the attached resolution authorizing a planning loan from the Vermont **Drinking Wate**r State Revolving Fund for up to $44,321."

City Council Actions:

1. "To approve and authorize the Director of Public Works to execute an Engineering Services Agreement with KCI Technologies, Inc. for the Computerized Maintenance Management System and Enterprise Asset Management Application Assessment, Procurement, & Implementation Guidance project for a total contract amount of $124,750, subject to approval by the Chief Administrative Officer and City Attorney."
2. "To adopt and approve a resolution authorizing execution of a planning loan from the Vermont **Clean Water** State Revolving Fund for up to $49,791 subject to final review and approval by the City's bond counsel or the City Attorney."
3. "To adopt and approve a resolution authorizing execution of a planning loan from the Vermont **Drinking Water** State Revolving Fund for up to $44,321 subject to final review and approval by the City's bond counsel or the City Attorney."

Thank you for your consideration of these requests.

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

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Councilor Franklin Paulino, Chair *North District*
Councilor Jack Hanson, *East District*
Councilor Jane Stromberg, *East District*

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Transportation, Energy and Utilities Committee of the City Council

Minutes – Tuesday, January 26, 2021 5:30 PM

Attendees: Franklin Paulino and Jack Hanson
Not In Attendance: Jane Stromberg

1. **Meeting called to order by Councilor Paulino and started at 5:31 PM.**

2. **Agenda accepted as published by Councilors Paulino and Hanson.**

3. **Public Forum**
   - There were no public comments made.

4. **Asset Management**
   - Martha Keenan (DPW), Megan Moir (DPW), Gustave Sexauer (DPW) presented.
   - DPW requests the TEUC to sponsor five items in conjunction with procuring a new City asset management program and related services.
   - Items to support include a contract with DTS VUEWorks CMMS/EAM software, amendment for contract to KCI, contract with vendor to host and manage our GIS platform, and two resolutions for Vermont CWSRF and DWSRF loan amendments.
   - City has prioritized asset management since 2014 and staff appreciated past TEUC support.
   - Report completed for the City on 2018 resulted in data showing that we need a robust asset management system in order to successfully prioritize community work.
   - Tangible benefits of asset management include optimal asset life, increased asset performance, higher staff morale, and more effective capital planning. Cost savings could be upwards of 20 percent. With City annual capital budget at 20-40M, cost savings could be quite large.
   - Computerized Maintenance Management System (CMMS) and Enterprise Asset Management (EAM) for the City selection included nineteen software proposals, four interviews including calls to references, and team collaboration including DPW, BPRW, BIA, and BED.
   - Data Transfer Solutions (DTS) was selected as the preferred vendor. Contract includes software and hosting, data migration, integrations, training and testing, and support services. This solution is intuitive, has robust tools, has a large user group in the North East, and had the best value.
   - The DTS CMMS/EAM platform is VUEWorks, which was launched in 2002. Accessed via bowser on desktop or mobile devices, pulls from City's GIS datasets, and stores both work order information and non-spatial assets.
   - VUEWorks handles assets, work orders, service requests, inspections, risk analysis, and capital forecasting.
   - KCI Contract Amendment: KCI has been the City's asset management consultant since 2020, has completed tasks under budget, and is able to complete the task of implementation and oversight at seventy five percent of what was projected a year ago.
   - GIS Hosting and Management: The Capital and Asset Management Team is working with I&T to find new location to store the City's GIS servers as the current servers aren't suitable for the increased used that will come with the CMMS software. I&T began looking into a cloud-based hosted and managed GIS environment in 2019 and identified ROK Technologies as a potential vendor. The City has obtained an updated quote from ROK and is waiting to receive two more quotes for similar GIS services before making a final selection.

- Cost: DTS VUEWorks implementation, KCI and GIS Services Total $ 769,170.00. This is planned to be paid from multiple sources: approximately thirty two percent from the capital fund, thirty two percent from the DWSRF loan, and the balance by the CWSRF loan. Completion timeline is projected to run from February 8, 2021 through March 2022 when the last asset group will go live.
- Councilor Discussion
  - Councilor Hanson: A year ago, it sounded great and it seems like what we hoped for was delivered. Have any items not met your expectations? Response: Martha Keenan: KCI has been great. Helped with negotiations and capital forecasting, always willing to talk and answer questions.
    Councilor Hanson: Seemed critical a year ago and still does. Response: Gustave Sexauer: KCI has been a great partner to us and DTS has always been willing to have additional discussions when staff had specific questions.
    Councilor Paulino: If needs were met, it sounds good to him. Looks like a great plan.

- Councilor Paulino made a motion that the TEUC recommend the approval of these contracts to the Board of Finance and City Council:
  1. Award a contract with DTS to implement the VUEWorks CMMS/EAM software for $449,000.00.
  2. Amend the Asset Management consultant contract to KCI Technologies, Inc., from $124,750.00 to up to $244,750.00.
  3. Award a contract with a GIS hosting and management vendor to host and manage our GIS platform for up to $75,420.00.
  4. Draft a resolution for a VCWSR fund planning loan amendment increasing the loan from $49,791.00 to up to $245,846.40.
  5. Draft a resolution for a VDWSR fund planning loan amendment increasing the existing loan from $44,321.00 to up to $245,834.60.

  Seconded by Councilor Hanson.
  All in favor. Passes unanimously.

5. Rate Restructuring and Affordability Program Update

- Jenna Olson (DPW), Jessica Lavalette (DPW), Megan Moir (DPW) presented.
- In April 2019, Burlington City Council requested the DPW Water Resources Division consider alternative rate structures, revenue sources and affordability frameworks as staff explained regular rate increases would be needed to renew aged infrastructure and meet new regulatory requirements.
- Rates and affordability refresher: gathered stakeholder input, studied rate options, developed rate, fees and assistance program recommendations and presented to BOF.
- Why was this done? Sustainable funding is crucial to ensuring access to clean water. At the same time, when utility rates are not affordable rate payers may not have equal access to essential water.
- Questions: How much does it actually cost to provide water? Are Burlingtonians paying their fair share? Why does serving certain customer classes cost more?
- Proposed Rate and Policy Changes, to improve financial stability:
  1. Fixed Changes by Meter Size
  2. Lifeline Rate Tier
  3. Class-Based Rates
  4. Irrigation Rate
  5. Private Fire Protection Charges
  6. Water Resources Assistance Program (WRAP)
- Current and Proposed Rates:
  - Fixed Charges (per month): Water, Wastewater, Private Fire Service - have added fixed charges for all meter sizes
  - Volumetric Rate (per 100 CF) – propose to divide single family residential into two tiers
- Snapshot of Possible Customer Impacts – based on hypothetical customer type, staff outlined FY21 bill VS. FY22 proposed bill, $ change and % change.
- Customer Impacts of New Rate Structure:
  Who will see lower bills? Low income and seniors, WRAP, single family with typical consumption.
  Who will see increases? Properties with private fire service, irrigation customers, customers with large meters but low usage, customers with vacant homes.
  Opportunities to further lower bills: implement water conservation practices.
  Opportunities to mitigate bill increases: remit updated information, explore removal of irrigation, request and evaluation, water shut off if vacant.
- Water Resources Assistance Program (WRAP)
  - Rate Assistance Goals and Rate Assistance Details
  - Future Assistance Programs: Infrastructure Assistance and Conservation Assistance

- Next Steps
  - January through March 2021 – Additional outreach
  - April through June 2021 – Secure Council approach
  - June on -- Implementation
- Councilor Discussion

  Councilor Hanson: Please explain more about Tier One VS. Tier Two
  Megan Moir: Tier two is more expensive to encourage to use less water.
  Councilor Paulino: How did you select the cost for tier two? From a policy standpoint, why do people need more water?
  Jessica Lavalette: Generally the usage goes up in the summer with irrigation and possibly pools. Holidays see more usage also.
  Councilor Hanson: Why is the cost of wastewater dropping?
  Megan Moir: In order to level out the bills and not have the cost go up. Wastewater is a fixed number.
  Councilor Paulino: What size meter do most homeowners have?
  Jessica Lavalette: 5/8"
  Councilor Hanson: Why are we planning to charge the low usage customers a higher proposed amount? Is it not better to have the lower usage customers be rewarded and increase the rates for the higher usage? By lowering the wastewater, charge there is less incentive to use less water. Likes the future assistance programs. Believes these will capture a lot of interest.
  Megan Moir: Having the wastewater rates lower, it is a way to level out the proposed billing. We have additional charts showing a wider range of rate proposals.
  Councilor Paulino: Future assistance programs are a good opportunity to do water resource upgrades while remodeling their homes.
  Councilor Hanson: Importance of getting the word out and getting people enrolled in the WRAP program. Concerned that the biggest increase is to the lowest volumetric user. Is there a way to shift that? University doesn't pay taxes so might be a good place to shift increases.
  Megan Moir: We could see if we could change this. Because the low volume user uses so little water the numbers seem skewed. Could look at increasing rates for technology and retail. Willing to see if there is a solution.
  Councilor Paulino: Thanks for a good presentation. Council will want to see more data and an alternative way to have low volume users pay less. Do you feel like the way that you get paid is the best? Seems old school.
  Megan Moir: looking at payment options and how to make it faster.

6. Director's Update

- Director Spencer updated the TEUC on the following items:
  - Waterfront Rail and Bike Path Relocation Project: Thank you for your support on the Amtrak and passenger rail project at last night's Council meeting.
  - Consolidate Collection: We will be returning to the TEUC in February or March to present our conceptual budget for a municipally operated consolidated collection service per the committee's request.
  - Burlington High School Relocation: DPW is working with school to manage parking and traffic around the interim high school location in the former Macy's building.

7. Councilor's Update

- Councilor Hanson: When will we have an update on when the North Winooski Ave Parking Management Plan will get underway?

  Director Spencer: We are getting underway soon, but will follow up with staff to get you a more detailed answer.

8. Next Meeting

- Tuesday, February 23, 2021. 5:30 PM

9. Meeting Adjourn

- Councilor Paulino moved to adjourn the meeting. Seconded by Councilor Hanson at 7:01 PM. All in favor passed unanimously.