Item # 10

WESTPORT, CONNECTICUT

DEPARTMENT OF PUBLIC WORKS
TOWN HALL, 110 MYRTLE AVE.
WESTPORT, CONNECTICUT 06880
(203) 341 1120

September 14, 2018

Mr. James S. Marpe
First Selectman
Town Hall
Westport, CT 06880

Re: 2nd Request - Appropriation from Capital & Non-Recurring Expenditure Fund
Heating and HVAC Upgrades, Westport Police Department

Dear Mr. Marpe,

At their September 5, 2018 meeting the Board of Finance requested additional information to assist in their decision making process for the subject Capital request. We have supplied that additional information in this resubmitted package in the form of a summary of electricity costs for the Police station building and a financial analysis including available Energy incentives from the State. The remainder of this request package is a re-submittal of the package submitted for the September 5, 2018 meeting.

Respectfully submitted,

Peter A. Ratkiewich, P.E
Director of Public Works

cc: Gary Conrad, Finance Director
G:\Pw_off\PAR\APPRQST\PoliceHVAC_DES_CON.doc

FISCAL YEAR 2019

TOWN OF WESTPORT, CT

JUSTIFICATION FOR A CAPITAL PROJECT

DEPARTMENT INFORMATION

DEPT NAME: Department of Public Works – Building Maintenance Division Date: 9/13/18

PROJECT NAME AND DESCRIPTION
Heating and HVAC Upgrades, Westport Police Station

IS IT LISTED IN THE 5-YR CAPITAL FORECAST? YES ☒ NO ☐ Included in Police Dept Forecast for FY2019

If **no**, why not?
If **yes**, answer the following two questions:
Which FY was the project first proposed? FY 2017
Which FY was the project first planned? FY2014 (As far back as I could find records)

		COST IN CAPITAL	
APPROXIMATE COST:	**$796,156**	**FORECAST: $700,000**	
CONTINGENCY (10%):	**$79,616**		
	$875,772	**←TOTAL**	**Request → $876,000**

SOURCE OF FUNDS:

CAPITAL BOND ☒	GEN'L FUND ☐
CNR ☐	GRANT ☐
STATE ☐	OTHER ☐

OTHER, DESCRIBE:

PAYBACK PERIOD:

		EST. COMPLETION	
PROJECTED START DATE:	**11/1/2018**	**DATE:**	**4/30/2019**
ESTIMATED USEFUL LIFE:	**30 years**		

Is this project part of a larger capital project? NO
This is a maintenance effort to upgrade and modernize the multiple, un-coordinated HVAC Systems within the building, and to introduce a Building Management System to coordinate the HVAC on all floors and all areas of the building for maximum efficiency. While there are several capital projects going on simultaneously, this project is isolated to modernizing the HVAC system.

Has an RFP been issued? YES ☐ NO ☒ We are utilizing a prequalified Design-Build contractor

Have bids been received? YES ☐ NO ☒ **Number of bids received:** Design Build Contractor will shop out all trades an part of their construction mgmt

Was the lowest bid the winner? YES ☐ NO ☒ **If not, why?** we are utilizing a prequalified Design-Build Contractor

Who will benefit from the project?
All who utilize, visit, or work in the Westport Police Department.

Is it a replacement? YES ☒ NO ☐

If yes, describe condition of what is to be replaced: Please see attached letter describing existing system and replacement efforts, as well as Energy Efficiency Proposal

Pictures attached? YES ☐ NO ☒

We are attaching per Board of Finance request at their 9/5/2018 meeting, a summary of current energy costs, and an analysis of cost savings, energy incentives, and estimated simple payback from our selected vendor, Environmental Systems Corporation, (ESC). ESC estimates a total annual savings of $40,807 and a simple payback estimate of 19 years.

What other approvals/reviews are necessary to begin this project?
RTM Approval; BOS Contract Award; Building permits

FINANCE

This section to be completed by the Finance Director.

EFFECT ON TOWN FINANCES, INCLUDING DEBT SERVICE:

IF APPROVED:

IF NOT APPROVED:

REVIEW/SIGN-OFF

DEPARTMENT HEAD _____ **DATE:** 9/14/18

FINANCE DIRECTOR _____ **DATE:** 9/18/18

FIRST SELECTMAN _____ **DATE:** 9/17/18

FISCAL YEAR 2019

TOWN OF WESTPORT, CT

JUSTIFICATION FOR A CAPITAL PROJECT

DEPARTMENT INFORMATION

DEPT NAME: **Department of Public Works – Building Maintenance Division** Date: **8/14/18**

PROJECT NAME AND DESCRIPTION
Heating and HVAC Upgrades, Westport Police Station

IS IT LISTED IN THE 5-YR CAPITAL FORECAST? YES ☒ NO ☐ Included in Police Dept Forecast for FY2019

If **no**, why not?
If **yes**, answer the following two questions:
Which FY was the project first proposed? FY 2017
Which FY was the project first planned? FY2014 (As far back as I could find records)

	COST IN CAPITAL		
APPROXIMATE COST:	**$796,156**	**FORECAST: $700,000**	
CONTINGENCY (10%):	**$79,616**		
	$875,772	**←TOTAL**	**Request → $876,000**

SOURCE OF FUNDS:

CAPITAL BOND	GEN'L FUND
☒	☐
CNR	**GRANT**
☐	☐
STATE	**OTHER**
☐	☐

OTHER, DESCRIBE:

PAYBACK PERIOD:

	EST. COMPLETION		
PROJECTED START DATE:	**11/1/2018**	**DATE: 4/30/2019**	
ESTIMATED USEFUL LIFE:	**30 years**		

Is this project part of a larger capital project? NO
This is a maintenance effort to upgrade and modernize the multiple, un-coordinated HVAC Systems within the building, and to introduce a Building Management System to coordinate the HVAC on all floors and all areas of the building for maximum efficiency. While there are several capital projects going on simultaneously, this project is isolated to modernizing the HVAC system.

Has an RFP been issued? YES ☐ NO ☒ We are utilizing a prequalified Design-Build contractor

Have bids been received? YES ☐ NO ☒ **Number of bids received:** Design Build Contractor will shop out all trades an part of their construction mgmt

Was the lowest bid the winner? YES ☐ NO ☒ **If not, why?** we are utilizing a prequalified Design-Build Contractor

Who will benefit from the project?
All who utilize, visit, or work in the Westport Police Department.

Is it a replacement? YES ☒ NO ☐

If yes, describe condition of what is to be replaced: Please see attached letter describing existing system and replacement efforts, as well as Energy Efficiency Proposal

Pictures attached? YES ☐ NO ☒

What other approvals/reviews are necessary to begin this project?
RTM Approval; BOS Contract Award; Building permits

FINANCE

This section to be completed by the Finance Director.

EFFECT ON TOWN FINANCES, INCLUDING DEBT SERVICE:

IF APPROVED:

IF NOT APPROVED:

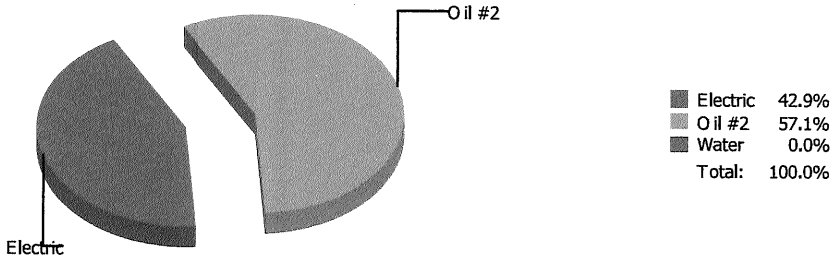
REVIEW/SIGN-OFF

DEPARTMENT HEAD _____ **DATE:** 8/14/18

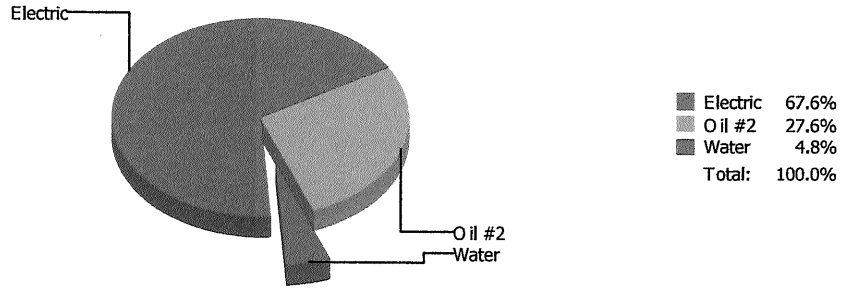
FINANCE DIRECTOR _____ **DATE:** 9/18/18

FIRST SELECTMAN _____ **DATE:** 8/16/18

Energy



Cost



Commodity	Common Use	Energy Use	Energy Use / Area	Total Cost	Cost / Unit	Cost / Area
Place: [TOWNHALL] TOWN HALL [BUILDING]						
Area: 32,628 SqFt						
Billing Period between Jul 2017 and Jun 2018						
ELECTRIC	459,520.00 kWh	1,568 MMBtu	0.048 MMBtu/SqFt	$74,293.70	$0.162 /kWh	$2.277 /SqFt
OIL2	15,025.90 Gal	2,084 MMBtu	0.064 MMBtu/SqFt	$30,351.32	$2.020 /Gal	$0.930 /SqFt
WATER	235.65 Kgal			$5,253.36	$22.293 /Kgal	$0.159 /SqFt
Totals:		**3,652 MMBtu**	**0.112 MMBtu/SqFt**	**$109,898.38**		

Requested by: mfrawley
Client version:
Report version: 7
Filters: Topmost Place Code Equals TOWNHALL; ; Bill is Void Equals 0; Account is Active Equals 1; Bill is from External Vendor Equals 1; ; Billing Period Between Jul 2017 and Jun 2018
Record count: 0

ESC Environmental Systems Corporation
Intelligent Building Solutions

9/10/2018

Westport Police Department: Energy Measure Summary
50 Jesup Road, Westport, CT

No.	Measure Name	Electrical Cost Savings ($/yr)	Natural Gas Cost Savings ($/yr)	Fuel Oil #2 Cost Savings ($/yr)	Total Annual Cost Savings ($/yr)	Measure Cost (w/o tax) ($)	Estimated Base Incentive ($)	Estimated Net Cost ($)	Estimated Simple Payback (yr)	Lifetime (years)	Total Lifetime Cost Savings ($)
ECM-1a	EMS Upgrade - Base	$6,153	$0	$14,411	$20,564	$140,270	$12,304	$91,965	4.47	15	$308,460
ECM-1b	OPTIONAL DDC Exhaust Fan Controls	$0	$0	$0	$0	$50,247	$0	$50,247	0.00	15	$0
ECM-1c	OPTIONAL DDC IT Room Monitoring	$0	$0	$0	$0	$4,811	$0	$4,811	0.00	15	$0
ECM-2a	Convert Boiler Burner to Natural Gas	$0	($15,070)	$35,313	$20,243	$41,163	$0	$41,163	9.31	20	$404,865
ECM-2b	Convert Water Heater Burner to Natural Gas					$4,813	$0	$4,813			
ECM-2c	OPTIONAL Replace 6 HW Circulating Pumps					$14,875	$0	$14,875			
ECM-2d	OPTIONAL Convert Gun Range MAU to Gas					$127,647	$0	$127,647			
ECM-3a	Replace 12 Split Air Conditioning Units	$0	$0	$0	$0	$385,917	$2,825	$383,092	0.00	20	$0
ECM-3b	OPTIONAL Relocate AC-9	$0	$0	$0	$0	$26,413	$0	$26,413	0.00	20	$0
TOTAL		$6,153	($15,070)	$49,724	$40,807	$796,154	$15,129	$781,025	19.14	17	$713,326

Standalone Project	With Base Incentives	With Comprehensive Bonus
Savings to Investment Ratio (SIR): 0.5	Savings to Investment Ratio (SIR): 0.6	Savings to Investment Ratio (SIR): 0.5
Simple Payback Period (Yrs): 19.5	Simple Payback Period (Yrs): 18.3	Simple Payback Period (Yrs): 19.1
Annual Rate of Return: 5.1%	Annual Rate of Return: 5.5%	Annual Rate of Return: 5.2%
Lifetime Project NPV: ($370,126)	Lifetime Project NPV: ($318,997)	Lifetime Project NPV: ($354,997)

Item #12
BOF TABLED 9/5/18

WESTPORT, CONNECTICUT

DEPARTMENT OF PUBLIC WORKS
TOWN HALL, 110 MYRTLE AVE.
WESTPORT, CONNECTICUT 06880
(203) 341 1120

August 14, 2018

Approved for submission
To Board of Finance (8/16/18)

James S. Marpe
First Selectman

Mr. James S. Marpe
First Selectman
Town Hall
Westport, CT 06880

Re: Appropriation from Capital & Non-Recurring Expenditure Fund
Heating and HVAC Upgrades, Westport Police Department

Dear Mr. Marpe,

This office herein requests an appropriation from the Capital and Non-Recurring Expenditure Fund in the amount of $876,000.00 for modernization and upgrades to the various heating and HVAC systems within the Police Department facility. The 20,284 SF building was constructed in the 1950's and renovated in 1986. The building consists of three floors and is a multi-use building that also serves as the town's EMS headquarters.

The building currently has a plethora of different heating and cooling systems that were installed at various stages of the building's history. It has no comprehensive Building Management System, (BMS), and as such is energy inefficient. Some sections of the building are set up such that both heating and cooling can occur simultaneously, and often does. The main fuel source for the various heating systems is oil. All of the existing cooling units run on R22 refrigerant, which has been discontinued, and must be replaced with units that run on 410A refrigerant.

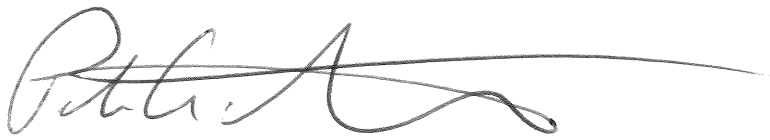
The attached proposal from Environmental Systems Corporation, (ESC), forms a three part Action Plan to a) modernize and upgrade the HVAC systems in the building and connect them to a BMS; b) convert the fuel source to Natural Gas; and c) install twelve new split A/C units running on 410A refrigerant. Effectively when done, the new equipment and BMS controls will replace the myriad of existing independently operating systems with one comprehensive HVAC system operating as efficiently as possible.

Environmental Systems Corporation, (ESC), has worked for Westport previously doing a similar project for Town Hall. As part of this project, ESC will prepare a submission of this project detail along with a utility-grade energy analysis to the Connecticut Energy Efficiency Fund (CEEF) on behalf of Westport Police Department for maximum energy incentives. ESC will also work with utility designated engineers and consultants in the evaluation and auditing of this proposal for quality assurance of the energy use and savings estimates.

ESC is a design/build firm that will shop out trades, engineering, and material purchases for maximum savings and more importantly, long term savings in the form of maximum energy efficiency. Please find attached ESC's comprehensive proposal.

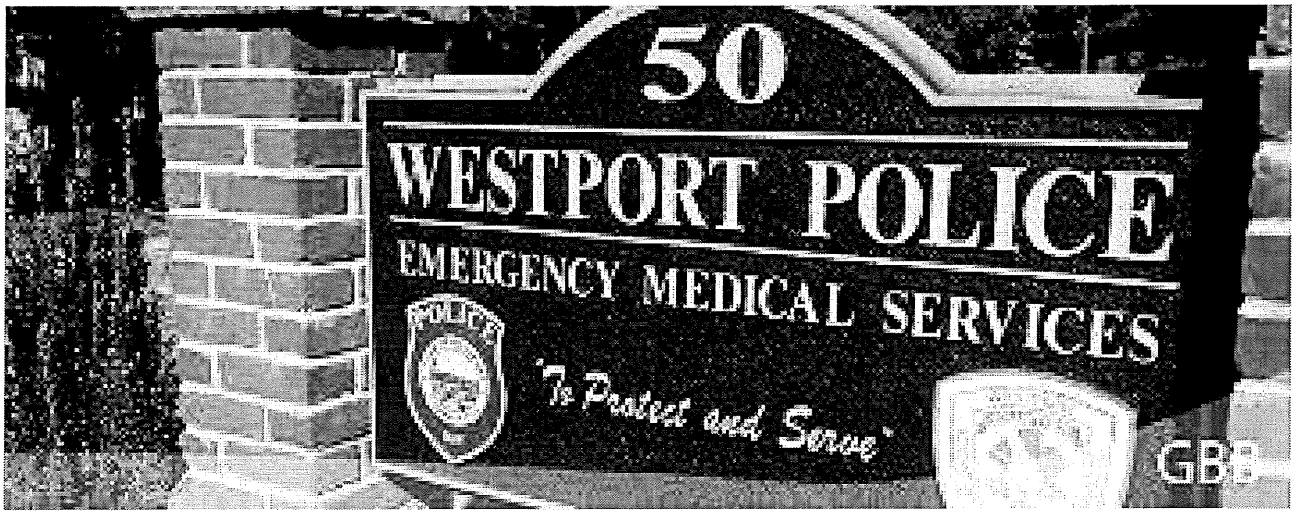
This project is projected in the capital forecast for FY 18-19 at a funding level of $700,000. The Attached ESC proposal totals $796,156.00. Adding a 10% contingency for unknown conditions in this 70-year-old building brings the total to $875,772.00. This office requests an appropriation amount of $876,000.00.

Respectfully submitted,



Peter A. Ratkiewich, P.E
Director of Public Works

cc: Gary Conrad, Finance Director
G:\Pw_off\PAR\APPRQST\PoliceHVAC_DES_CON.doc



Westport Police Department

Energy Efficiency Proposal for 50 Jesup Road, Westport, CT

Comprehensive strategies developed for your facility to cut costs by reducing energy waste. Explains how those actions benefit you directly and the value of each investment.

Monday, April 23, 2018

Ruth Gay • Environmental Systems Corp • 18 Jansen Court, West Hartford, CT 06110 • 860.953.8800

Michael Frawley, Superintendent of Building Maintenance
Town of Westport
300 Sherwood Island Connector, Westport, Ct. 06880

Westport Police Department

Energy Efficiency Proposal for 50 Jesup Road, Westport, CT

Executive Summary

The evaluation of Westport Police Department has resulted in the following proposal of actions you can rely on to cut expenses from your operating budget. ESC has identified energy conservation measures (ECMs) of particular interest to you for their potential to save energy. Our proposal includes engineering, furnishing, installing and commissioning the systems as described in this scope of work for a turnkey energy efficiency solution. We respectfully submit this plan for your review.

Facility Highlights

Westport Police Department building was built in 1950's, and then renovated in 1986. The Police Department is a 20,284 usable square foot public building. The building consists of three floors and is a multi-use building that also serves as the town's EMS headquarters.

The building has twelve split system air handlers of various sized that serve all areas of the building. Each air handler has a single stage of DX mechanical cooling and a 3-way hot water reheat valve on the discharge. All of the condensing units are located on the outside perimeter of the building.

There is an oil-fired boiler and hot water heater located in the basement boiler room. The boiler provides hot water to the reheat valves on the AHUs and several perimeter baseboard radiation valves. There are six hot water circulator pumps delivering hot water to the different areas of the building. The older portion of the building has individual local control at each radiator and the newer section of the building has electric zone valves.

The building has electric thermostats located throughout. Each AHU has a fan/cooling stat and a separate reheat stat, in addition, there is a baseboard zone stat for the newer section at each location. Each stat is user adjustable and often times set for simultaneous heating and cooling.

Action Plan

ESC proposes to modernize and upgrade the HVAC systems in this building including:

- **Building Energy Management System (BMS)**
- **Fuel Conversion from Oil to Natural Gas**
- **Installation of 12 New Split A/C Units**

Item 1: Building Wide EMS System

New networked thermostats will be programmed to implement a setback during unoccupied hours. When unoccupied, minimum ventilation is not required and the space can stabilize more easily. Outdoor air dampers will close, significantly reducing the amount of outdoor air needing to be heated and cooled overnight. Additionally, less heat input will be required to maintain lower space temperatures because there is lower heat loss through the building envelope. Supply fans can cycle on and off only based on maintaining the setback temperature, significantly reducing hours of operation. The control system will have a sensor override control option that will allow the end user to temporarily set the unit to occupied mode for a designated period of time.

The boiler room will have full integrated controls. The hot water circulating pumps will be enabled based on outside air conditions and feedback for the field space temps to ensure they work together with the AHU's and prevent overheating in the space.

1a Base EMS $140,270

- ESC shall provide a Tridium Niagara BACnet Web Honeywell Webs Control System. The system can be accessed from any browser (mobile or PC).
- ESC to provide (Qty 1) Supervisory Controller w/ APC UPS
- AC Units 1 – 12 – ESC to provide new Honeywell Controller
    - Space Sensors (Qty 3) Per Unit to Average (Except for Fitness Room AC Unit)
    - Damper Actuators (Qty 2)
    - Fan Start/Stop and Status
    - DX Cooling Stages
    - HW Control Valve – New Valve
    - Filter Switch
    - Discharge Air Temperature
    - Return Air Temperature
    - Return Relative Humidity
    - Return CO2
    - Freezestat

Air Conditioning Unit Serves	
AC-1	Records Dept
AC-2	Detective Dept
AC-3	Detective Dept
AC-4	Records Dept
AC-5	Basement Level, Mustard, M&W Lockers
AC-6	Basement breakrm, shooting range office
AC-7	Training Room
AC-8	EMS 2 offices, Confr rm, M&W bunk rms
AC-9	M&W lock up
AC-10	EMS dispatch, Breakrm, day room
AC-11	PD dispatch
AC-12	Weight Rm

- DDC Control of Boiler Plant (Qty 1 Boiler) – ESC to provide new Honeywell controller
    - Boiler 1 Start/Stop, Status and Alarm
    - Outside Air Temperature/Relative Humidity Sensor
    - HW Heater Start/Stop and Status
    - DDC Control of HW Circulation Pumps Start/Stop and Status (Qty 6)
    - Temperature Sensors (Qty 14) – For Each Zone Supply and Return and Primary Supply and Return

- Includes Electrical and Controls Installation, Startup and Commissioning of new EMS

1b Optional Exhaust Fan Controls $50,247

- Includes electrical, wiring and programming to provide control of 23 Exhaust Fans
- DDC Control of Exhaust Fans (Qty 23)
  - Start/Stop and Status

Exhaust Fans				
Symbol	**Make**	**Model**	**CFM**	**HP**
EF-1	Greenheck	125WB	750.0	0.25
EF-2	Greenheck	SP-25	250.0	0.10
EF-3	Greenheck	SDE-10-32-D	575.0	0.10
EF-4	Greenheck	SQB-10-4	850.0	0.25
EF-5	Greenheck	SQB-12-4	1,125.0	0.25
EF-6	Greenheck	SP-27	330.0	0.10
EF-7	Greenheck	SP-8	90.0	0.10
EF-8	Greenheck	SP-8	100.0	0.10
EF-9	Greenheck	SQD-18-A	412.0	3.00
EF-10	Greenheck	G-180-B	3,500.0	0.75
EF-11	Greenheck	GB-8-4	350.0	0.25
EF-12	Greenheck	SQB-10-4	525.0	0.25
EF-13	Greenheck	SQB-12-3	1,375.0	0.33
EF-14	Greenheck	SQD-75-D	200.0	0.02
EF-15	Greenheck	SQB-10-4	425.0	0.25
EF-16	Greenheck	SQB-12-4	475.0	0.25
EF-17	Greenheck	SQB-12-4	500.0	0.25
EF-18	Greenheck	SP-27	300.0	0.02
EF-19	Greenheck	SDE-10-24D	250.0	0.25
EF-20	Greenheck	SQB-D-4	750.0	0.25
EF-21	Greenheck	BI-I2	600.0	0.50
EF-22	Greenheck	GB-9-4	1,000.0	0.25
EF-23	Greenheck	HI-22	1,240.0	0.10
			15,972.0	7.97

1c Optional IT Room Monitoring $4,811

- DDC Monitoring of Split System IT Rooms
  - Space Temperature

Item 2: Oil to Natural Gas Conversion

The primary heating oil serving the building is oil. ESC proposes to convert to natural gas heat. Natural gas is cleaner burning, reduces maintenance costs, and less expensive than oil. The oil to gas conversion requires: replacing the heating HW boiler burner with a gas-burning burner, replacing the domestic HW heater with a gas HW heater, and replacing the gun range MAU burner with a gas fired burner.

Item 2a: Boiler Burner Conversion $41,163

ESC proposes to supply and install a new gas fired burner on the existing HB Smith cast iron boiler. The installation includes:

- New gas burner with mounting plate
- New gas piping from meter to burner complete with regulator (based on 5 pounds to 6" water column)
- Note: Gas Meter installation not included; location assumed near Radio Tower in back
- New burner will be full modulation complete with Honeywell control links
- Start, test and set up new burner

Item 2b: DHW Water Heater Burner Conversion..... $4,813

The existing oil fired Bock hot water heater is newer and in good condition, and most new heaters would not fit in room due to height limitations. ESC proposes to replace the existing oil burner with a natural gas fired burner, leaving the existing water heater in place. The installation includes:

- Remove old oil burner and install new gas burner
- Provide gas piping and regulator (gas has to already be piped into boiler room)
- Supply and install eight-inch barometric damper in flue
- Start and test
- Note: Chimney liner is not included in the price.

Option 2c: Replace (6) Circulating Pumps $14,875

ESC proposes to supply and install (6) new Bell and Gossett circulating pumps to replace the old existing pumps. The existing pumps are shown in the schedule below.

Hot Water Circulating Pumps				
Symbol	**Make**	**HP**	**Serves**	**comments**
P-1	B&G	0.5	East	2nd floor exist bldg
P-2	B&G	0.5	West	1st & 2nd flr exist
P-3	B&G	0.5		1st & 2nd flr exist
P-4	B&G	2.0	Attic	exist bldg new units
P-5	B&G	0.5	Basement	exist bldg basement
P-6	B&G	2.0	Old Bldg	new addition bsmt, 1st, 2nd flr

Option 2d: Convert Gun Range MAU Burner to Gas $127,647

ESC proposes to convert the existing oil fired makeup air unit serving the pistol range exhaust system to a gas fired makeup air unit. Due to severe space and venting constraints, we propose a direct fired unit which is very compact with a down shot configuration that does not require a chimney.

Proposed Equipment and Materials:

- 1 Powermatic MUA unit with Dual Fuel Burner. Standard Filter rack with 2" Pleated Filters
- (This is a direct replacement for the current unit)
- 1 PennBarry Model D22 Utility Fan with Explosion Proof Premium Eff. Motor, Polyester Painted Finish
- 1 SS-4-20H30W Sure Seal Access Filter Housing with 4" Pre Filters and 22" Bag Filters
- 1 SLD-2-20H30W Sure Lock "B" Side Access HEPA Filter Housing for 12" 99.97% Hi Capacity HEPA Filters

Installation:

- Remove existing MUA unit, Exhaust Fan and Filters
- Connect New Equipment to existing ductwork. Flash weather tight as required
- Install new filter housings as specified above
- Reconnect Flue for MUA Unit
- Install natural gas piping from the boiler room to the MAU.
- All required sheet metal work to install exhaust fan and filter housings to existing ductwork
- Line Voltage Wiring
- Control Wiring

As part of our scope of work we will provide and install the following material and labor:

- Dismantle and remove existing unit with associated oil piping, wiring and duct plenum off premises and cap oil line to tank.
- Reduct/insulate and waterproof ductwork as required.
- Rewire to suit including remote control panel to replace existing wall mounted thermostat at discharge plenum.
- Crane/rigging to remove existing unit, set new one with steel stand.
- Extend 2" sched. 40 BI gas piping from new meter location in vicinity of Radio Tower through building. Paint any exposed piping. Cut walls as needed.
- Balance air to design conditions.
- Start up, adjust, calibrate, pressure test for optimal performance.

Does not include:

- Fire alarm interfacing
- Trenching for gas pipe if required for access into building.
- Oil tank removal
- Taxes or permit fee.

Item 3: Replace 12 Split AHUs

ESC proposes to replace 12 old Air Handler Units (AHUs) with 12 new high efficiency RTUs, upgraded to take advantage of the latest advances in energy saving technology and integrated with the proposed control system.

The existing units have hot water coils for the heating section, using a central oil fired hot water boiler plant. The existing units use R-22, a refrigerant which has been phased out in the US due to its ozone deletion potential. The new HVAC units will no longer use this refrigerant but will use a more environmentally friendly refrigerant such as R-410A.

Item 3a Scope of Work, Replace 12 Split ACs $385,917

ESC proposes to remove and replace 12 split systems that handle the air conditioning for the building including the following:

- Pump down refrigerant into condensers, disconnect all equipment and remove offsite to scrap.
- Supply twelve (12) new "Trane" brand split systems complete with hi-efficiency condensing units and air handlers with Lon or BACNET card factory installed.
- All related rigging of condensers and new air handlers.
- New insulated sheet metal transitions on all new units and auxiliary drain pans for units in the attic.
- Provide refrigeration piping for the twelve (12) new units, brazed, leak tested. All suction lines insulated.
- Electrical Installation
- Provide electrical re-wiring of condensers and air handler complete with new disconnect switches at the condensers.
- Core boring for new piping.
- All condensate piping.
- Start, test and commission systems with ESC Corporation.
- Provide filter changes for the first year.

Does not include:

- Removal and replacement of drop ceilings
- Cutting, patching, and any light construction for new pipe chases
- Prints or stamped drawings.

Option 3b: Relocate AC-9 ..... $26,413

This is the additional cost to tie units AC1 and AC3, AC2 and AC4 together. Using two larger sized units in place of the four existing configuration.

Conclusions and Next Steps

Utility Incentives

As part of this project, Environmental Systems Corporation will prepare a submission of this project detail along with a utility-grade energy analysis[1] to the Connecticut Energy Efficiency Fund (CEEF) on behalf of Westport Police Department for maximum energy incentives. ESC will also work with utility designated engineers and consultants in the evaluation and auditing of this proposal for quality assurance of the energy use and savings estimates.

The ESC Relationship

ESC is experienced in the successful implementation of Energy Efficiency Projects as proposed for Westport Police Department and has installed energy management and control systems in over 180 million square feet of property throughout New England. We value this opportunity to provide you with an energy saving proposal and look forward to working with you to make sure our proposal best meets your needs and provides value to your business.

Sincerely,

ESC - COMMITMENT FOR CEEF FUND

Mike Amedeo
Energy Division Manager
Cell: (860) 805- 2104
m.amedeo@esccontrols.com

YEARLY MAINTENANCE COSTS

Notes on Pricing

1. Pricing Does **Not** Include CT State Sales Tax.
2. Pricing valid until December 31, 2018.
3. Pricing does not include permits or bonds.
4. Pricing does not include Prints or Drawings
5. Pricing excludes Testing and Balancing except where otherwise noted
6. Pricing excludes Davis Bacon Pricing
7. Invoices will be generated monthly for labor and materials.
8. All work to be completed during normal business hours. 7am-3:30pm M-F.
9. Testing, remediation or removal of hazardous materials such as asbestos is not included.
10. Cutting, patching, and painting or channeling of walls, floors or ceilings is not included.
11. Pricing Includes Prevailing Wage Rates
12. Replacement of existing Perimeter HW Valves is excluded
13. IP address by Owner
14. Smoke detectors provided and installed by others. Monitoring by the fire alarm system by others
15. Smoke dampers, fire/smoke dampers and fire dampers are excluded and will be provided, wired, and installed by others
16. Installation or any field wiring of equipment not supplied by ESC is expressly excluded from the scope
17. Sound Attenuators are excluded
18. Premium or overtime costs associated with overtime are not included.
19. Included is 1 year onsite warranty for all labor and materials, unless otherwise specified.

Environmental Impact

The energy saved could fuel and energize 9 homes and results in the same environmental impacts as removing 27 average passenger cars off the road, or reforesting 31 acres of trees.

Pollution Reduction Due to Proposed Energy Measures	
Type of Pollution	**Annual Reduction**
Sulfur Dioxide [SO_2] (lb)	2,827
Nitrogen Oxides [NO_x] (lb)	249
Mercury [Hg] (mg)	1,293
Carbon Dioxide and Equivalents [CO_2] (lb)	303,891

Please Note:

This is not a performance contract. Any incentive, cost, and/or energy savings numbers referenced are estimates only and should not be interpreted as a commitment or guarantee for any referenced project. Estimates are made based on information provided by the customer, vendors providing services for the customer, or other sources and are not guaranteed to be error-free. Any figures may change due to program changes, calculation errors, inaccurate project data discovered at any point, product or scope changes, or for any other reason. For this reason, any change in project parameters may change the final energy and cost estimates for a project.

---

[i] The Utility Grade Energy Analysis is developed by our in-house Certified Energy Manager.

WESTPORT, CONNECTICUT

DEPARTMENT OF PUBLIC WORKS
TOWN HALL, 110 MYRTLE AVE.
WESTPORT, CONNECTICUT 06880
(203) 341 1120

August 17, 2018

Mr. James S. Marpe
First Selectman
Town Hall
Westport, CT 06880

Re: Appropriation from Capital & Non-Recurring Expenditure Fund
Street light buyout program; replacement with LED lights

Dear Mr. Marpe,

This office herein requests an appropriation from the Capital and Non-Recurring Expenditure Fund in the amount of $1,077,250 for the buyout of the Eversource-owned street lights, and replacement with Town-owned LED streetlights. This initiative is pursuant to a Connecticut Conference of Municipalities, (CCM), program started in 2014 to assist Connecticut municipalities in purchasing the street lights that they currently pay the Electric Utilities to operate. After purchase, the municipality converts the lights to LED lights and pays Eversource a lower rate for the electricity. Even with maintenance costs included, the lower electric rate for the LED's combined with a lower electricity consumption creates a payback period for the investment of approximately five years.

In 2014 CCM prequalified 3 vendors though a competitive RFQ process. The Town recently put out an RFP to each of the prequalified vendors, and received three responses. This office has reviewed the responses and has selected two for a shortlist interview at this time. By the October 3rd Board of Finance meeting we will have selected a vendor.

The above request is based on the higher of the two proposals along with lighting controls on each of the 1273 lights. The use of the higher proposal is to account for the numerous options available for lighting types, along with a 5% contingency for unforeseen items encountered during construction.

Respectfully,

Peter A. Ratkiewich, P.E
Director of Public Works

cc: Gary Conrad, Finance Director
G:\Pw_off\PAR\APPRQST\Streetlight_buyout_DES_CON

FISCAL YEAR 2019

TOWN OF WESTPORT, CT

JUSTIFICATION FOR A CAPITAL PROJECT

DEPARTMENT INFORMATION

DEPT NAME: Department of Public Works – Engineering Division **Date: 9/13/18**

PROJECT NAME AND DESCRIPTION

Streetlight Buyout Program –Program to purchase Streetlights from Eversource, replace High Pressure Sodium and other varieties of lights with LED fixtures, add controls to lights, and take over maintenance and operation. Buyout will result in a lower electric rate paid for the electricity the lights use. LED replacements will result in much lower electricity consumption. The combination of the purchase and conversion will result in savings that will pay for the project in approximately 5 years.

IS IT LISTED IN THE 5-YR CAPITAL FORECAST?	**YES** ☒	**NO** ☐

If **no**, why not?
If **yes**, answer the following two questions:
Which FY was the project first proposed? 2019
Which FY was the project first planned? 2014

APPROXIMATE COST:	**$1,025,950 (incl. controls)**	**COST IN CAPITAL FORECAST: $1,000,000**	
CONTINGENCY (5%):	**$51,298**		
	$1,077,248	**←TOTAL**	**REQUEST→ $1,077,250**

SOURCE OF FUNDS:

CAPITAL BOND ☒	**GEN'L FUND** ☐
CNR ☐	**GRANT** ☒
STATE ☐	**OTHER**

OTHER, DESCRIBE:

Depending on the financing terms of the Vendor there is a possibility that Vendor financing may be more favorable than Municipal Bonding. The Finance Department will participate in Vendor Interviews and selection prior to the BOF meeting

PAYBACK PERIOD: Approximately 5 years

PROJECTED START DATE:	**January 2019**	**EST. COMPLETION DATE: November 2019**
ESTIMATED USEFUL LIFE:	**LED fixtures are estimated to last 20 years as opposed to 5 to 7 years for the existing HPS lights**	

Is this project part of a larger capital project? NO

Has an RFP been issued?	YES ☒	NO ☐	3 prequalified vendors have been shortlisted to two. One will be selected prior to the BOF meeting
Have bids been received?	YES ☒	NO ☐	**Number of bids received:** three

Was the lowest bid the winner? YES ☐ NO ☐ If not, why? Low bid is not the only deciding factor in choosing a vendor for this work. Past performance, experience, and price are all considered

Who will benefit from the project? The Town as a whole will benefit from reduced electrical costs for Street lighting, which currently costs the Town approximately $240,000 per year, by approximately 50-70%.

Is it a replacement? YES ☒ NO ☐

If yes, describe condition of what is to be replaced: Under this program the Town purchases the street lights that we currently pay Eversource to own, maintain and operate. Once they are in the Town's ownership, the electric rate we pay goes down, and in addition by replacing the existing High pressure Sodium lights with LED lighting, they use only about 20% of the power.

Pictures attached? YES ☐ NO ☒

Proposals from the prequalified vendors are available for review

What other approvals/reviews are necessary to begin this project?

RTM Approval, BOS Award of Contract

**Note this project is endorsed by the Green Task Force

FINANCE

This section to be completed by the Finance Director.

EFFECT ON TOWN FINANCES, INCLUDING DEBT SERVICE:

IF APPROVED:

IF NOT APPROVED:

REVIEW/SIGN-OFF

DEPARTMENT HEAD _____ DATE: 9/17/18

FINANCE DIRECTOR _____ DATE: 9/18/18

FIRST SELECTMAN _____ DATE: 9/17/18

FROM TANKO LIGHTING PROPOSAL (#2 BIDDER)

APPENDIX A

Financial Analysis- Eaton/Cooper				
Existing Fixture Wattages	Fixture Quantity	Replacement Fixture Model No.	Per Fixture All-In Estimated LED Conversion Unit Cost	Extended Cost
70HPS- CH	716	ARCH-AF16-30-D-U-T2R-4N7-10MSP-7030-AP	$ 242.00	$ 173,272.00
100HPS- CH	187	ARCH-AF16-40-D-U-T2R-4N7-10MSP-7030-AP	$ 246.00	$ 46,002.00
150HPS- CH	40	ARCH-AF24-70-D-U-T2R-4N7-10MSP-7030-AP	$ 276.00	$ 11,040.00
250HPS- CH	275	ARCH-AF24-90-D-U-T2R-4N7-10MSP-7030-AP	$ 282.00	$ 77,550.00
400HPS- CH	11	ARCH-M-AF48-140-D-U-T2R-4N7-10MSP-7030-AP	$ 347.00	$ 3,817.00
LED	6	n/a	$ -	$ -
250W- FLOOD	7	UFLD-C25-D-U-66-Y-AP-4N7-7030-10MSP	$ 495.00	$ 3,465.00
400W- FLOOD	29	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 15,312.00
1000W- FLOOD	2	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 1,056.00

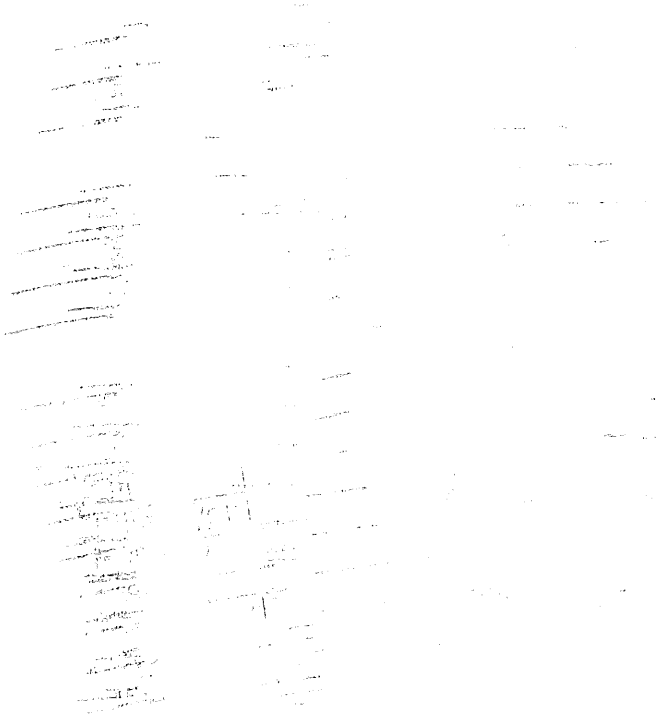
1	Total Estimated Cost of Audit and GIS Mapping		$ 19,095.00
2	Total Estimated LED Streetlight Conversion Cost		$ 331,514.00
3	Total Estimated Acquisition Cost		$ 445,550.00
4	Total Estimated Annual Maintenance Cost		$ 38,190.00
5		**Total Cost**	$ 834,349.00
6	Total Estimate Rebates		$ 167,462.00
7	Total Estimated Annual Energy Cost Savings		$ 28,853.00
8	Total Estimated Rate 117 Savings		$ 11,406.00
9		**Total Savings**	$ 207,721.00
10	Sample Project Payback (5 Divided by 9)		4.016681029

Note on Controls: Given that the Town did not provide a specification in its RFP for controls, Tanko Lighting will work with the Town to identify its preferences, assist with determining if controls make sense for the Town's needs, and provide specific pricing for controls at that time. In the meantime, Tanko Lighting recommends a budgetary pricing amount of $150/fixture for controls.

APPENDIX A PRICE OPTIONS FROM TANKO LIGHTING PROPOSAL, 8-16-18

Financial Analysis- Eaton/Cooper				
Existing Fixture Wattages	Fixture Quantity	Replacement Fixture Model No.	Per Fixture All-In Estimated LED Conversion Unit Cost	Extended Cost
70HPS- CH	716	ARCH-AF16-30-D-U-T2R-4N7-10MSP-7030-AP	$ 242.00	$ 173,272.00
100HPS- CH	187	ARCH-AF16-40-D-U-T2R-4N7-10MSP-7030-AP	$ 246.00	$ 46,002.00
150HPS- CH	40	ARCH-AF24-70-D-U-T2R-4N7-10MSP-7030-AP	$ 276.00	$ 11,040.00
250HPS- CH	275	ARCH-AF24-90-D-U-T2R-4N7-10MSP-7030-AP	$ 282.00	$ 77,550.00
400HPS- CH	11	ARCH-M-AF48-140-D-U-T2R-4N7-10MSP-7030-AP	$ 347.00	$ 3,817.00
LED	6	n/a	$ -	$ -
250W- FLOOD	7	UFLD-C25-D-U-66-Y-AP-4N7-7030-10MSP	$ 495.00	$ 3,465.00
400W- FLOOD	29	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 15,312.00
1000W- FLOOD	2	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 1,056.00
1	Total Estimated Cost of Audit and GIS Mapping			$ 19,095.00
2	Total Estimated LED Streetlight Conversion Cost			$ 331,514.00
3	Total Estimated Acquisition Cost			$ 445,550.00
4	Total Estimated Annual Maintenance Cost			$ 38,190.00
5			**Total Cost**	$ 834,349.00
6	Total Estimate Rebates			$ 167,462.00
7	Total Estimated Annual Energy Cost Savings			$ 28,853.00
8	Total Estimated Rate 117 Savings			$ 11,406.00
9			**Total Savings**	$ 207,721.00
10	Sample Project Payback (5 Divided by 9)			4.016681029

Note on Controls: Given that the Town did not provide a specification in its RFP for controls, Tanko Lighting will work with the Town to identify its preferences, assist with determining if controls make sense for the Town's needs, and provide specific pricing for controls at that time. In the meantime, Tanko Lighting recommends a budgetary pricing amount of $150/fixture for controls.



PRICE OPTIONS FROM TANKO LIGHTING PROPOSAL, 8-16-18

Financial Analysis- Philips				
Existing Fixture Wattages	Fixture Quantity	Replacement Fixture Model No.	Per Fixture All-In Estimated LED Conversion Unit Cost	Extended Cost
70HPS- CH	716	RFS-25W16LED4K-G2-R2-UNV-DMG-API-RCD7-GY3	$ 253.00	$ 181,148.00
100HPS- CH	187	RFS-35W16LED4K-G2-R2-UNV-DMG-API-RCD7-GY3	$ 253.00	$ 47,311.00
150HPS- CH	40	RFS-54W16LED4K-G2-R2-UNV-DMG-API-RCD7-GY3	$ 262.00	$ 10,480.00
250HPS- CH	275	RFM-108W48LED4K-G2-R2-UNV-DMG-API-RCD7-GY3	$ 299.00	$ 82,225.00
400HPS- CH	11	RFL-215W96LED4K-G2-R2-UNV-DMG-API-RCD7-GY3	$ 436.00	$ 4,796.00
LED	6	N/A	$ -	$ -
250W- FLOOD	7	UFLD-C25-D-U-66-Y-AP-4N7-7030-10MSP	$ 495.00	$ 3,465.00
400W- FLOOD	29	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 15,312.00
1000W- FLOOD	2	UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$ 528.00	$ 1,056.00
1	Total Estimated Cost of Audit and GIS Mapping			$ 19,095.00
2	Total Estimated LED Streetlight Conversion Cost			$ 345,793.00
3	Total Estimated Acquisition Cost			$ 445,550.00
4	Total Estimated Annual Maintenance Cost			$ 38,190.00
5			**Total Cost**	$ 848,628.00
6	Total Estimate Rebates			$ 164,696.00
7	Total Estimated Annual Energy Cost Savings			$ 28,790.00
8	Total Estimated Rate 117 Savings			$ 11,469.00
9			**Total Savings**	$ 204,955.00
10	Sample Project Payback (5 Divided by 9)			4.140557683

Note on Controls: Given that the Town did not provide a specification in its RFP for controls, Tanko Lighting will work with the Town to identify its preferences, assist with determining if controls make sense for the Town's needs, and provide specific pricing for controls at that time. In the meantime, Tanko Lighting recommends a budgetary pricing amount of $150/fixture for controls.

PRICE OPTIONS FROM TANKO LIGHTING PROPOSAL, 8-16-18

Financial Analysis- GE				
Existing Fixture Wattages	Fixture Quantity	Replacement Fixture Model No.	Per Fixture All-In Estimated LED Conversion Unit Cost	Extended Cost
70HPS- CH	716	ERL1003B330AGRAYR	$ 265.00	$ 189,740.00
100HPS- CH	187	ERL1004B330AGRAYR	$ 271.00	$ 50,677.00
150HPS- CH	40	ERL1008B330AGRAYR	$ 299.00	$ 11,960.00
250HPS- CH	275	ERLH011B330AGRAYR	$ 349.00	$ 95,975.00
400HPS- CH	11	ERL2025B330AGRAYR	$ 582.00	$ 6,402.00
LED	6	N/A	$ -	$ -
250W- FLOOD	7	EFH1010CC77740ADK1BLCKR	$ 600.00	$ 4,200.00
400W- FLOOD	29	EFM1010CC77740ADK1BLCKR	$ 774.00	$ 22,446.00
1000W- FLOOD	2	EFH1010EE77740ADK1BLCKR	$ 801.00	$ 1,602.00
1	Total Estimated Cost of Audit and GIS Mapping			$ 19,095.00
2	Total Estimated LED Streetlight Conversion Cost			$ 383,002.00
3	Total Estimated Acquisition Cost			$ 445,550.00
4	Total Estimated Annual Maintenance Cost			$ 38,190.00
5			**Total Cost**	$ 885,837.00
6	Total Estimate Rebates			$ 169,726.00
7	Total Estimated Annual Energy Cost Savings			$ 27,753.00
8	Total Estimated Rate 117 Savings			$ 11,502.00
9			**Total Savings**	$ 208,981.00
10	Sample Project Payback (5 Divided by 9)			4.238839895

Note on Controls: Given that the Town did not provide a specification in its RFP for controls, Tanko Lighting will work with the Town to identify its preferences, assist with determining if controls make sense for the Town's needs, and provide specific pricing for controls at that time. In the meantime, Tanko Lighting recommends a budgetary pricing amount of $150/fixture for controls.

APPENDIX D

August 13, 2018

Mr. Morgan Melendrez
Energy Advisor
Tanko Lighting, Inc.
220 Bayshore Blvd
San Francisco, CA 94124

Re: Streetlight Conversion Project - Municipal Lease/Purchase Financing

Dear Mr. Melendrez:

TCF Equipment Finance, a division of TCF National Bank ("TCF") is pleased to propose to the City of Westport, CT the following tax-exempt lease/purchase transaction as outlined below. Under this transaction, the City of Westport, CT would enter into a municipal lease/purchase agreement with TCF for the purpose of financing your street light conversion project. This transaction is subject to formal review and approval by both the Lessor and Lessee.

LESSEE:	City of Westport, Connecticut
LESSOR:	TCF Bank, its affiliates or assignees
EQUIPMENT:	Streetlight LED Conversion Project. More fully described in the Tanko Lighting proposal
FINANCING TERM:	Five (5), Seven (7) or Ten (10) years
INTEREST RATE:	Five (5) years – 4.09% Seven (7) years – 4.12% Ten (10) years – 4.25%
NET PROJECT COST:	$538,564.00
MONTHLY PAYMENTS:	Five years - $10,110.92 Seven years - $7,519.07 Ten years - $5,615.31 First payment delayed 6 months to allow for project installation
DOCUMENTS SIGNED:	On or about September 15, 2018
FIRST PAYMENT DUE:	March 15, 2019

PRICING:	The Rate and Payments outlined above are locked, provided this transaction is closed/funded prior to **September 15, 2018.** After that date, the final Rate and Payments shall be adjusted commensurately to the market in effect at the time of funding and shall be fixed for the entire lease term. This proposal shall expire if it is not accepted by the Lessee within **10 days** of the proposal date.
CLOSING FEES:	A $500.00 escrow fee will be charged and can be added to the amount to finance.
DOCUMENTATION:	Lessor shall provide all of the documentation necessary to close this transaction. This documentation shall be governed by the laws of the State of Minnesota and shall be subject to annual appropriation.
TITLE / INSURANCE:	Lessee shall retain title to the equipment during the lease term. Lessor shall be granted a perfected security interest in the equipment and the Lessee shall keep the equipment free from any/all liens or encumbrances during the term. Lessee shall provide adequate loss and liability insurance coverage, naming Lessor as additional insured and loss-payee.
CREDIT UNDERWRITING:	Transaction has been pre-screened by the Lessor. The Lessee shall provide any additional information that the Lessor may need in order to complete its final credit due-diligence.

We appreciate this opportunity to offer a TCF Financing Solution. Please do not hesitate to contact me if you have any questions at **(713) 206-1252**. Upon acceptance of this proposal, please scan and e-mail to my attention at tborger@tcfef.com. Thank you again.

Sincerely,

Timothy A. Borger

Timothy A. Borger
Municipal Finance Representative

5. FINANCIAL ANALYSIS

5.1. Bid Form

Financial Analysis				
Existing Fixture Wattages	**Fixture Quantity**	**Replacement Fixture Model No.**	**Per Fixture All-In Estimated LED Conversion Unit Cost**	**Estimated Extended Cost**
6300 Lumen 70W HP Sodium	714	24W_ARCH-AF16-20-D-U-T2R-4N7-10MSP-7030_AP	$260.76	$186,181
9500 Lumen 100W HP Sodium	185	32W_ARCH-AF16-30-D-U-T2R-4N7-10MSP-7030-AP	$260.76	$48,240
8500 Lumen 100W MH	1	42W_ARCH-AF16-40-D-U-T2R-4N7-10MSP-7030-AP	$265.70	$266
16,000 Lumen 150W HP Sodium	39	74W_ARCH-AF24-70-D-U-T2R-4N7-10MSP-7030-AP	$299.03	$11,662
27500 Lumen 250W HP Sodium	269	94W_ARCH-AF24-90-D-U-T2R-4N7-10MSP-7030-AP	$305.20	$82,099
50000 Lumen 400W HP Sodium	12	141W_ARCH-M-AF48-140-D-U-T2R-4N7-10MSP-7030-AP	$378.04	$4,537
4100 Lumen LED	4	32W_ARCH-AF16-30-D-U-T2R-4N7-10MSP-7030-AP	$260.76	$1,043
4800 Lumen LED	1	42W_ARCH-AF16-40-D-U-T2R-4N7-10MSP-7030-AP	$265.70	$266
13300 Lumen LED	1	141W_ARCH-M-AF48-140-D-U-T2R-4N7-10MSP-7030-AP	$378.04	$378
27500 Lumen 250W HP Sodium Flood	29	85W_UFLD-C25-D-U-66-Y-AP-4N7-7030-10MSP	$537.88	$15,599
50000 Lumen 400W HP Sodium Flood	8	128W_UFLD-C40-D-U-66-Y-AP-4N7-7030-10MSP	$574.92	$4,599
1	Total Estimated LED Streetlight Cost			$354,870
2	Total Estimated Acquisition Cost			$445,550
3	Total Estimated Annual Maintenance Cost			$15,156
4			TOTAL COST	**$815,576**
5	Total Estimated Rebates			$106,461
6	Total Estimated Annual Energy Cost Savings			$63,764
7	Total Estimated Rate 117 Savings			$125,479
8			TOTAL SAVINGS	**$295,703**
9	Simple Project Payback (4 divided by 8)			2.76

The formula in the Financial Analysis accounts for items 5, 6, & 7 as yearly recurring energy cost savings, including rebates, as well as rate 117 savings. However, the rebate would be a single occurrence positive cash flow, very likely right after the installation completion. Therefore, for analysis purposes, we recommended the following as a simple payback formula:

Total cost (excluding annual maintenance cost) minus total estimated rebates equals net project cost, which is then divided by the sum of the total annual energy and cost savings and the total rate 117 savings, including the annual maintenance cost:

1	Total Estimated LED Streetlight Cost	$354,870
2	Total Estimated Acquisition Cost	$445,550
4	TOTAL COST	**$800,420**
5	Total Estimated Rebates	-$106,461
6	NET PROJECT COST	**$693,959**
7	Total Estimated Annual Energy Cost Savings	$63,764
8	Total Estimated Rate 117 Savings	$125,479
3	Total Estimated Annual Maintenance Cost	-$15,156
9	TOTAL SAVINGS	**$174,086**
10	Simple Project Payback (6 divided by 9)	3.99

Proposed LED Replacements

At the RFP stage, RTE is proposing Eaton Lighting (former Cooper Lighting) Archeon Series and UFLD Series LED luminaires as LED replacements. The proposed LED luminaires are smart-ready luminaires with 7-pin receptacles and dimmable drivers.

As described in section 4.3., RealTerm Energy is a product agnostic integrator and therefore will collaborate with the Town to select the most appropriate product(s) following the GIS audit and pilot installation phases.

Lighting Control System

As a value-added option please find below our proposal for a CIMCON Wireless Control System.

Item	Description	Qty
Gateway-E	**Wireless Gateway @ 120-277VAC "Ethernet" Version** Note: Connects to customers Router. Does not include any cellular fees for Communications between the Gateway and CIMCON LightingGale Central Management Software (CMS).	3
iSLC3100-7P-277-INV-A-G-IO-CATC-5-T	**CIMCON intelligent Site Lighting Controller "Node" @ 120VAC - 277VAC In/Out 7-Pin Version/W Control System Configuration-Included** 0-10VDC Dimming, On/Off, Fault Monitoring, Scheduling, AstroClock metering @ 0.5%, Class C Surge Protection, GPS, 10 Year Warranty NEMA 7-Pin Connector Mount (ANSI C136.41 Receptacle By Others)	1,263
LG-SaaS	**LightingGale Web-based Software (CMS) Hosted by CIMCON the first year only.** CIMCON Web-based CMS fee is billed annually, or 24, 36, 48 or 60 MO. contracts are available.	1,263
LGCONFIG	Control System Configuration Fee (Onetime program & configuration fee).	1,263
SUPPORT	Project Mgmt, Remote Support & Commissioning, & On-Site Training	1
Installation	Gateway installation	3
	TOTAL CONTROL PRICE ADDER	**$109,280**
	AVERAGE CONTROL UNIT PRICE ADDER	**$86.50**

5.2. Financing

Tax Exempt Lease Financing	
Item	
Estimated Interest Rate	**3.35%**
Years Financed	5
Number of Payments	5
LED Upgrade Project (with Photocells)	$354,870
Acquisition from Utility	$445,550
Incentives	-$106,461
Net Project Cost - Photocell Option	**$693,959**
Financing Cost	**$71,274**
Estimated Annual Payments	$153,047
Estimated Project Cost Including Financing Cost	$765,233
Estimated Annual Savings	$174,086
Effective Payback	**4.4**
LED Upgrade Project with Controls	$464,150
Acquisition from Utility	$445,550
Incentives	-$139,245
Net Project Cost - Control Option	**$770,455**
Financing Cost	**$79,131**
Estimated Annual Payments	$169,917
Estimated Project Cost Including Financing Cost	$849,586
Estimated Annual Savings	$174,086
Effective Payback	**4.9**

Annexe E you can find a Tax-Exempt Lease proposal with financing rates for 5,7 and 10 years prepared by Municipal Leasing Consultants (MLC).

Net Project Savings over 5-year Loan Period (With Photocells)							
	Payments ("Outlays") by Town ($)			Project Savings ($)			
Year	Total Annual Financing Payments	Maintenance Services	Total (1)	Annual Utility Savings	Cumulative Utility Savings	Annual Net Savings	Cumulative Net Savings
1	$153,047	$15,156	$168,203	$189,242	$189,242	$21,039	$21,039
2	$153,047	$15,459	$168,506	$194,919	$384,161	$26,414	$47,453
3	$153,047	$15,768	$168,815	$200,767	$584,928	$31,952	$79,405
4	$153,047	$16,084	$169,130	$206,790	$791,718	$37,660	$117,065
5	$153,047	$16,405	$169,452	$212,994	$1,004,711	$43,542	$160,606
Total	**$765,233**	**$78,872**	**$844,105**	**$1,004,711**		**$160,606**	

Net Project Savings over 5-year Loan Period (With Smart Controls)							
	Payments ("Outlays") by Town ($)			Project Savings ($)			
Year	Total Annual Financing Payments	Maintenance Services	Total (1)	Annual Utility Savings	Cumulative Utility Savings	Annual Net Savings	Cumulative Net Savings
1	$153,047	$15,156	$168,203	$189,242	$189,242	$21,039	$21,039
2	$153,047	$15,459	$168,506	$194,919	$384,161	$26,414	$47,453
3	$153,047	$15,768	$168,815	$200,767	$584,928	$31,952	$79,405
4	$153,047	$16,084	$169,130	$206,790	$791,718	$37,660	$117,065
5	$153,047	$16,405	$169,452	$212,994	$1,004,711	$43,542	$160,606
Total	**$765,233**	**$78,872**	**$844,105**	**$1,004,711**		**$160,606**	

5.3. Maintenance Costs

10-Year Routine Maintenance Cost

	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
Monthly (Per Fixture)	$1.00	$1.02	$1.04	$1.06	$1.08	$1.10	$1.12	$1.14	$1.16	$1.18
Yearly (Per Fixture)	$12.00	$12.24	$12.48	$12.72	$12.96	$13.20	$13.44	$13.68	$13.92	$14.16
Estimated Total	$15,156	$15,459	$15,762	$16,065	$16,368	$16,672	$16,975	$17,278	$17,581	$17,884

Clarifications

1. The monthly per-fixture price includes the labor warranty maintenance of the failed LED luminaires and photocells during normal business hours, Monday through Friday, provided that the failure rate does not exceed 1% annually. If this failure rate is exceeded, these failures will be considered catastrophic failures and must be negotiated in good faith between Realterm Energy, the municipality and the failing equipment manufacturer.
2. If a luminaire is not replaced (i.e. photocell failure, wire failure, etc.) its lenses will be cleaned during the repair.
3. Preventive maintenance: Annual visual inspection of all the streetlights to determine maintenance requirements

The routine maintenance cost does not include maintenance costs related to the lighting infrastructure as fuses, wires, brackets, arms and poles, etc. Those items will be billed based on time and materials, as required.

Emergency Repair Services

Emergency Repair Services are based on a time and materials basis.

Emergency Repair Services		
ITEM	**Unit**	**Unit Price Y1**
Service call rate per hour (including labor and equipment).	Each	$270.00
Call out rate (minimum fee for a service call).	Lump Sum	$675.00
Overtime rate per hour, weekday (before 7:00am or after 4:00pm).	Each	$390.00
Overtime rate per hour, weekend and holidays.	Each	$474.00
Materials (mark up on cost).	Percentage	18%

Please note: The above rates are valid for the first year. From the second year, the rates will increase annually by 2% inflation rate.

5.4. Financing Options

The cash flows associated with implementing energy efficiency projects create unique opportunities for alternative financing structures. RealTerm Energy recommends a Tax Exempt Lease-Purchase (TELP) agreement.

Tax Exempt Lease-Purchase Agreement (TELP)

Numerous municipalities have opted for TELP for their LED upgrades. RealTerm Energy possesses extensive experience in structuring this financing option. **We have provided a preliminary TELP financing model in our fee proposal.**

Advantages of TELP

- No creation of debt
- Typically, no voter approval needed
- Conservation of working capital
- Building of Equity
- Full ownership
- Flexibility, convenience and cost-effectiveness

Several other important factors to consider:

- Provides effective solutions during revenue shortfalls and other unexpected situations
- Enables the prompt acquisition of modern equipment and technology upgrades, and continues to provide quality public services
- Appropriates annually
- Ties to the useful life of the equipment
- Allows for the lowering of costs to administer a lease versus a bond

Energy Performance Contract (EPC)

A growing number of municipalities across North America are achieving performance efficiencies without increasing capital expenses and/or tax payer burden through EPCs. RealTerm Energy has successfully negotiated, installed and is now operating dozens of EPCs across North America.

Advantages of an EPC

RealTerm Energy:

- Finances 100% of the up-front capital investment by the Town with an agreement to provide a fixed repayment structure, based on the calculated energy savings.
- Guarantees the LED upgrade will yield a specified reduction in energy over a contracted term.
- Ensures the guaranteed savings generated will be sufficient to finance the total project without pursuing capital funding.
- Directs a share of the energy and maintenance savings to the municipality from year one.
- Includes streetlight maintenance costs in the monthly payment for a period of 10 years.
- Transfers any operating risks from the Town to itself.
- Ensures that at contract completion, the Town retains the full value of the energy and maintenance savings.

With an EPC, the Town can immediately take advantage of energy-efficient LED technology without having to add stress to its ratepayer base or borrow project funds. This frees up municipal resources that can then be assigned to other uses deemed important by the Town.

6. VALUE-ADDED SERVICES

As an additional element to our submission, we can also explore the economics and benefits of adding adaptive controls and other value-added services to its streetlight network, should the Town be interested.

Please note that we have included a smart controls deployment estimate within the fee proposal. Once the GIS audit is complete, the local infrastructure examined, and the Town's needs analyzed in more detail, a more accurate smart control fee proposal can be developed.

6.1. Smart City Approach

RealTerm Energy takes a thoughtful approach to Smart City design, emphasizing the need for both citizen and city surveys to identify requirements, pain points, and opportunities. Once the specific benefits are well understood and have been appropriately considered, we can implement an open, scalable, secure and reliable platform which will allow the Town to spend as much, or as little as their needs dictate today, and as far as we can together see into the future.

Our Smart City initiatives are focused on the following four categories: Governance and Government; Society and Community; Environment and Natural Resources; and Urban Development and Infrastructure.

Evaluation and Deployment of Adaptive Controls

RealTerm Energy is uniquely positioned in that it has managed various adaptive controls and Smart City pilot projects on behalf of clients throughout the Northeast United States. RTE takes a thoughtful approach to adaptive streetlight controls and Smart City design, emphasizing the need for both citizen and municipal surveys to identify requirements, pain points, and opportunities. We only select an open, scalable, secure and reliable platform that allows our clients to spend as much or as little as their needs dictate today, and into the future.

We have deployed or are currently deploying adaptive controls and Smart City pilots and municipality-wide projects within the following municipalities:

- City of Brockton, Massachusetts (City-wide deployment)
- Town of Mount Desert, Maine (Pilot)
- Town of Wells, Maine (Pilot)
- Town of Falmouth, Maine (City-wide deployment)
- City of South Portland, Maine (Pilot)
- City of Peterborough, Ontario (City-wide deployment)

In October of 2017, RealTerm Energy conducted a Request for Proposal process for adaptive controls for approximately 7,500 luminaires, inviting 9 of the largest adaptive streetlighting control manufacturers to bid. RTE ran another adaptive streetlighting controls RFP on behalf of the Village of Great Neck in Q4 of 2017. The list of respondents for both RFPs are listed below.

Peterborough, Ontario (7,446 luminaires)		**Great Neck, New York (832 luminaires)**
RFP Respondents		
DimOnOff Inc.	CIMCON Lighting Inc.	DimOnOff Inc.
Current (GE)	Acuity	Echelon Corp.
Philips Lighting	Telensa Inc.	Philips Lighting
Echelon Corp.		CIMCON Lighting Inc.

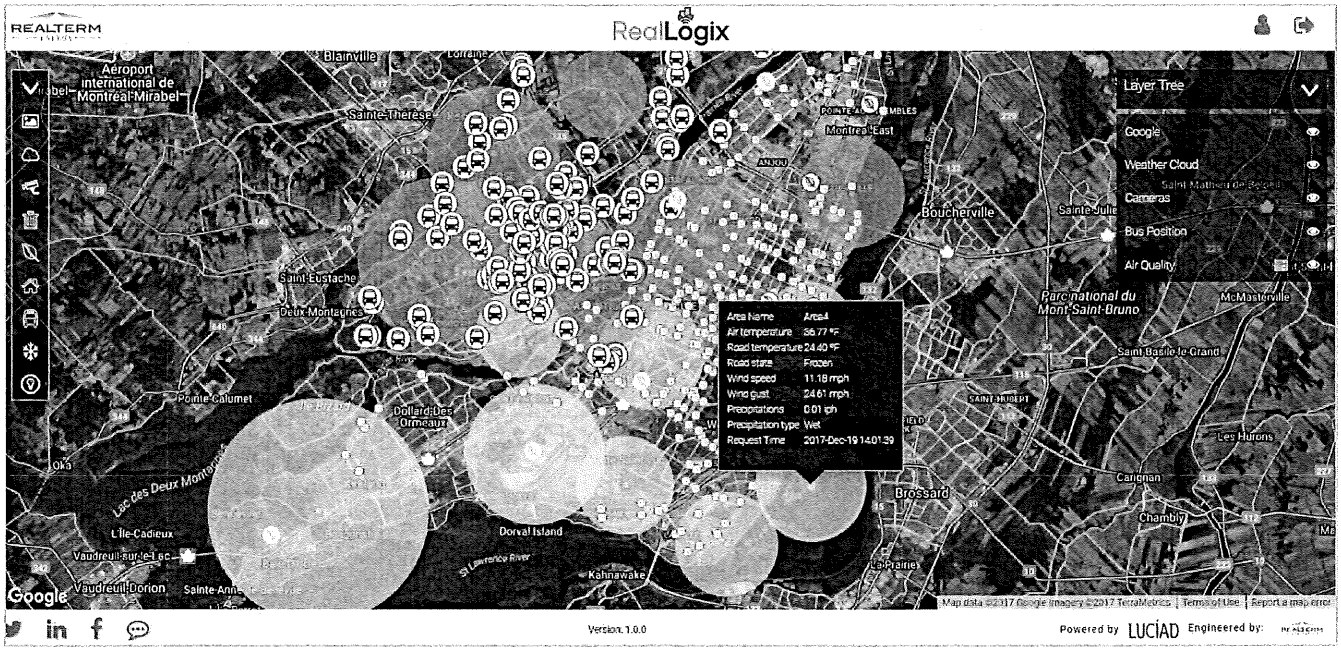
RTE was responsible for developing and evaluating the RFP responses and providing a final award recommendation to both municipalities. We verified the technical requirements (e.g. open communication protocols), company financials, installation base, and checked references. The Town will benefit from RTE's experience in this space.

RealTerm Energy's RealLogix Smart City Platform

RealLogix, developed by RealTerm Energy, is the first truly open Smart City platform solution that is hardware independent, and thus able to aggregate data from multiple competing solutions. RealLogix was designed with the goal to connect to and work with all.

RealLogix seamlessly fuses data from multiple sources, sensors, and systems into a single, real-time visualization map-based interface powered by Luciad. The intuitive touch interface provides all the GIS functionalities to pinch & zoom as well as pan & tilt. This platform aggregates real-time data from multiple systems onto a single interactive map, permitting the visualization of real-time information to create a holistic view of the area. RealLogix is accessible from any device with a web browser and uses a military grade GIS distribution engine capable of transmitting millions of data points in real time.

In its 2017 POCD, the Town of Westport cited a number of citizen concerns, among them, traffic congestion and parking. These are both issues that can be addressed with the RealLogix Smart City platform. Using the app, citizens will be able to avoid congested areas, find better routes and locate parking spaces.



Key Features:

- Displays multiple layers of data sources in a real-time geospatial visualization platform (examples: Water Sensors, Buses, Traffic Flow, Live Traffic Cameras, Traffic Accidents, Streetlight Controls, Parking, Citizen Applications)
- Open data ecosystem – enables integration to almost any subsystem for easy connection to third party systems

- Data exchange between layers creates synergies and enhanced value
- Built-in weather information, including valuable street-level micro-climate forecasts for public works crews and first responders
- Option to quickly & easily add private data layers
- Customizable presentation layer allows for a unique look and feel for each organization/city
- Capability to add algorithms to create synergy between the different layers
- Options to provide/extend Public Wi-Fi coverage, Micro Cell for cellular densification, and edge processing for advanced applications

WESTPORT, CONNECTICUT

WESTPORT GREEN TASK FORCE
TOWN HALL, 110 MYRTLE AVE.
WESTPORT, CONNECTICUT 06880
greentaskforce@westportct.gov

September 24, 2018

Westport Board of Finance
Westport Town Hall

Re: October 3, 2018 Agenda items

Dear Board Members,

The Green Task Force has been asked by Public Works Director Peter Ratkiewich to comment on an item on the Agenda for the October 3, 2018 meeting, namely the project to purchase the Town's streetlights from Eversource with the intention of replacing the lights with LED streetlights.

When this program was first established in 2014, the Green Task Force endorsed it. The program will cut the Town's utility usage, which will reduce its greenhouse gas emissions and cost our taxpayers less in electricity bills. Additionally the LED lighting can last for up to a 20-year lifespan instead of the current 5 to 7 year lifespan of typical high-pressure sodium lighting. The savings from the program will pay for itself within 4 to 5 years, after which the Town will realize saving of 40 to 60 percent of its electricity bill. This program is a win-win for the Town and for the environment, and is a step towards the Town goal of Net Zero by 2050. The Green Task Force fully endorses the project.

Sincerely,

David Mann
Chairman Westport Green Task Force

WESTPORT, CONNECTICUT

DEPARTMENT OF PUBLIC WORKS
TOWN HALL, 110 MYRTLE AVE.
WESTPORT, CONNECTICUT 06880
(203) 341 1120

September 17, 2018

Mr. James S. Marpe
First Selectman
Town Hall
Westport, CT 06880

Re: Appropriation from Capital & Non-Recurring Expenditure Fund
Burial of Communication Utilities from Avery Place to Gorham Island

Dear Mr. Marpe,

This office herein requests an appropriation from the Capital and Non-Recurring Expenditure Fund in the amount of $328,000.00 for the burial of the remaining overhead communication utilities at the intersection of Main Street, Avery Place, and Parker Harding Road at Gorham Island. The project involves removing three poles and associated communications cables, one of which is only temporarily supported at this time.

This work will allow us to complete the Main Street streetscape project, complete the Main Street Traffic Signal project, prepare Parker Harding Plaza for reconstruction, and allow us to repave Main Street and Avery Place.

Attached is an Opinion of Probable Cost.

Respectfully,

Peter A. Ratkiewich, P.E
Director of Public Works

cc: Gary Conrad, Finance Director
G:\Pw_off\PAR\APPRQST\BurialCommUtilAveryGorhamCON

FISCAL YEAR 2019

TOWN OF WESTPORT, CT

JUSTIFICATION FOR A CAPITAL PROJECT

DEPARTMENT INFORMATION

DEPT NAME: Department of Public Works – Engineering Division Date: 9/13/18

PROJECT NAME AND DESCRIPTION
Burial of Communication Utilities from Avery Place to Gorham Island

IS IT LISTED IN THE 5-YR CAPITAL FORECAST?	YES	NO
	☒	☐

If **no**, why not?
If **yes**, answer the following two questions:
Which FY was the project first proposed? 2019
Which FY was the project first planned? 2013

		COST IN CAPITAL FORECAST
APPROXIMATE COST:	$297,675	FORECAST: $290,000
CONTINGENCY (10%):	$29,767.50	
	$327,442.50 ←TOTAL	REQUEST→ $328,000

SOURCE OF FUNDS:

CAPITAL BOND	GEN'L FUND
☒	☐
CNR	**GRANT**
☐	☐
STATE	**OTHER**
☐	☐

OTHER, DESCRIBE:

PAYBACK PERIOD:

		EST. COMPLETION
PROJECTED START DATE:	ASAP	DATE: Spring 2019
ESTIMATED USEFUL LIFE:	75 years	

Is this project part of a larger capital project? NO

	YES	NO		
Has an RFP been issued?	☐	☒		
Have bids been received?	☐	☒	**Number of bids received:**	Bid invitation to be issued 10/18 for winter or spring construction
Was the lowest bid the winner?	☐	☐	**If not, why?**	

Who will benefit from the project? All who visit the Downtown area. This project is to improve the Streetscape in conjunction with the new Main Street Sidewalks and Downtown Plan by removing the three utility poles going from Avery Place to Gorham Island. Electric utilities have already been buried in 2014. Cable and Frontier are the only utilities left on the poles. The pole at the corner of Avery and Main formerly held the traffic light which was replaced in 2016. The pole at Gorham Island is temporarily guyed off to two Concrete blocks because the mud anchor for the pole let go in 2014. The third pole is in between. The lines need to be buried before we repave Main Street and before we install thermoplastic decorative crosswalks, which was scheduled for 2018 but has been delayed until 2019..

Is it a replacement? YES ☐ NO ☒

If yes, describe condition of what is to be replaced: _____

Pictures attached? YES ☒ NO ☐

What other approvals/reviews are necessary to begin this project? RTM, and BOS

FINANCE

This section to be completed by the Finance Director.

EFFECT ON TOWN FINANCES, INCLUDING DEBT SERVICE:

IF APPROVED:

IF NOT APPROVED:

REVIEW/SIGN-OFF

DEPARTMENT HEAD _____ **DATE:** 9/17/18

FINANCE DIRECTOR _____ **DATE:** 9/18/18

FIRST SELECTMAN _____ **DATE:** 9/17/18

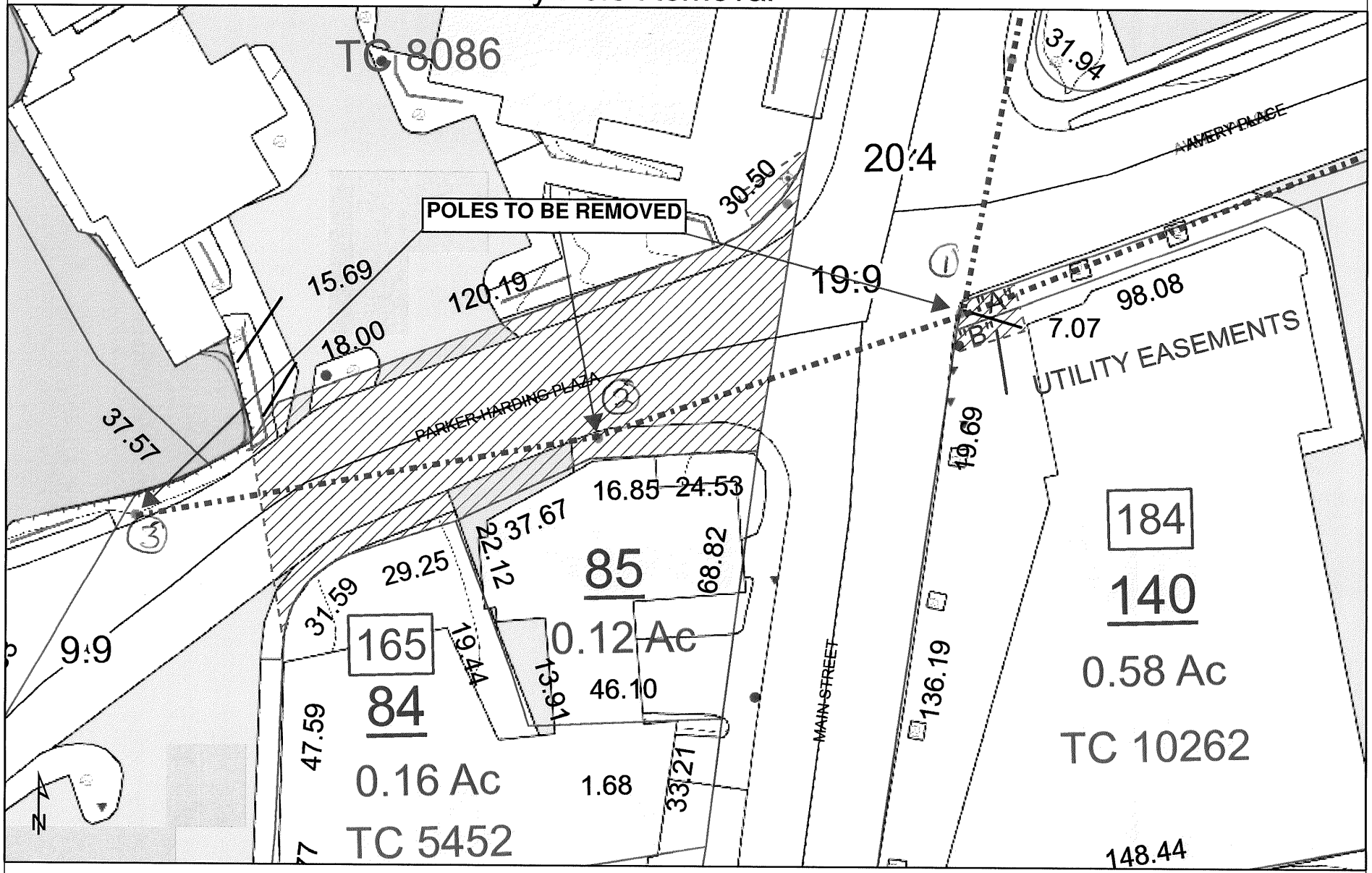
Utility line burial - Avery Place to Gorham Island Opininon of Probable Cost				
Item Description	Qty	Unit	unit price	total price
mobilization	1	LS	$ 5,000.00	$ 5,000.00
saw cut and remove concrete	2400	SF	$ 10.00	$ 24,000.00
trench excavation and backfill	600	LF	$ 80.00	$ 48,000.00
4" Schedule 40 Pvc Conduit x 4 bank assembly	600	LF	$ 20.00	$ 12,000.00
24"x30" quazite handhole	10	EA	$ 1,800.00	$ 18,000.00
Concrete Manhole	2	EA	$ 3,500.00	$ 7,000.00
HMA S1.0 Bituminous concrete patch	125	TON	$ 195.00	$ 24,375.00
HMA S0.375 Bituminous concrete patch	40	TON	$ 195.00	$ 7,800.00
Bituminous Conc lip curb	50	LF	$ 10.00	$ 500.00
Concrete Sidewalk Repair	50	SF	$ 30.00	$ 1,500.00
Brick Sidewalk repair	100	SF	$ 45.00	$ 4,500.00
Est. Frontier charge for pulling wires	1	LS	$ 80,000.00	$ 80,000.00
Est. Cablevision charge for pulling wires	1	LS	$ 65,000.00	$ 65,000.00

Total				$ 297,675.00
10% contingency				$ 29,767.50

Grand total **$ 327,442.50**

Peter Ratkiewich, P.E.
Westport Director of Public Works

Utility Pole Removal



1 inch = 35 feet


1
2
3
PHYS
AVAILABLE


1


STORY
OCTOBER 12-14


3
BUMP


3
CA