

AN ORDINANCE AUTHORIZING THE ISSUANCE OF \$8,754,000 BONDS PLUS ADDITIONAL FINANCING COSTS OF THE CITY TO MEET CERTAIN 2015/2016, 2016/2017 AND 2017/2018 CAPITAL BUDGET APPROPRIATIONS, AND PENDING THE ISSUANCE THEREOF THE MAKING OF TEMPORARY BORROWINGS FOR SUCH PURPOSE

Communication

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WHEREAS, the City Council of the City of West Haven (the "City") has previously adopted the City's 2015/2016 Capital Budget, as amended from time to time (the "2015/2016 Capital Budget"); and

WHEREAS, the City desires to finance a portion of the City's 2015/2016 Capital Budget in an amount up to \$800,000 as shown on Exhibit A attached hereto; and

WHEREAS, the City Council of the City has previously adopted the City's 2016/2017 Capital Budget, as amended from time to time (the "2016/2017 Capital Budget"); and

WHEREAS, the City desires to finance a portion of the City's 2016/2017 Capital Budget in an amount up to \$800,000 as shown on Exhibit A attached hereto; and

WHEREAS, the City Council of the City has previously adopted the City's 2017/2018 Capital Budget, as amended from time to time (the "2017/2018 Capital Budget"); and

WHEREAS, the City desires to finance a portion of the City's 2017/2018 Capital Budget in an amount up to \$7,154,000 as shown on Exhibit A attached hereto; and

WHEREAS, the City Council has determined to authorize bonding for certain capital projects included in the 2015/2016 Capital Budget, the 2016/2017 Capital Budget and the 2017/2018 Capital Budget; and now therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF WEST HAVEN:

Section 1. The sums set opposite the capital projects hereinafter listed in Exhibit A attached hereto (as may be more fully described in the narrative description of such improvements in the 2015/2016 Capital Budget, the 2016/2017 Capital Budget and the 2017/2018 Capital Budget of the City, hereafter the "Projects") are hereby appropriated to meet the costs thereof or so much thereof as may be accomplished within said appropriation, and for architectural, design, engineering, hydraulic, site acquisition, development, demolition and disposal, environmental studies, surveying, infrastructure improvements, paving, material, utility charges, data systems, furniture and fixtures, equipment, testing, insurance, training, administrative, advertising, printing, legal, other consultant fees, and any appurtenances related to the Projects, as well as the cost of the establishment and maintenance of any reserve pursuant to Chapter 109, Chapter 117 and other chapters of the General Statutes of Connecticut, as amended (the "Connecticut Statutes"). Said appropriations to be inclusive of any and all Federal and State grants-in-aid thereof.

Section 2. To meet said appropriations, \$8,754,000 bonds or other obligations of the City (in the amounts set forth in Exhibit A attached hereto) plus an additional amount for all necessary and appropriate financing costs not in excess of three percent of the cost of the Projects, or so much thereof as may be necessary for said purpose (the "Bonds"), may be issued,

maturing not later than the twentieth year after their date, or such later date as may be allowed by law. The Bonds may be issued in one or more series as shall be determined by the Mayor, City Treasurer, and the Director of Finance (collectively, the "Bond Committee"), and the amount of Bonds of each series to be issued shall be fixed by a majority of the Bond Committee. The Bonds shall be issued in an amount up to the City's share of the cost of the Projects determined after considering the estimated amount of any State and Federal grants in aid for the Projects, or the actual amount thereof if such amount is ascertainable, and the anticipated times of receipt thereof, provided that the total amount of Bonds to be issued shall not be less than an amount which will provide funds sufficient, with other funds available for such purpose, to pay the principal of and the interest on all outstanding temporary borrowings issued in anticipation of the receipt of the proceeds of said Bonds, and any administrative, printing and legal costs of issuing the Bonds as determined by a majority of the Bond Committee. The Bonds shall be in the denomination of \$1,000 or a whole multiple thereof, be issued in bearer form or in fully registered form, be executed in the name and on behalf of the City by the manual or facsimile signatures of a majority of the Bond Committee, bear the City seal or a facsimile thereof, be certified by a bank or trust company designated by a majority of the Bond Committee, which bank or trust company may be designated the registrar and transfer agent, be payable at a bank or trust company designated by a majority of the Bond Committee and be approved as to their legality by the City's bond counsel. The Bonds shall bear such rate or rates of interest as shall be determined by a majority of the Bond Committee. The Bonds shall be general obligations of the City and shall comply with all requirements of law, including any debt limit, relating to the authorization or issuance of such Bonds. The Bonds may also be secured as to both principal and interest, to the extent permitted by law, by a pledge of certain revenues or benefit assessments or both. The aggregate principal amount of the Bonds, installments of principal, redemption provisions, if any, the date, time of issue and sale and other terms, details and particulars of such Bonds, including any repayment agreements or memoranda of understanding, or whether any of the Bonds will be issued as taxable bonds, shall be determined by a majority of the Bond Committee, in accordance with the requirements of the Connecticut Statutes.

Section 3. In connection with the issuance of any bonds or notes authorized herein (collectively, the "Obligations"), the City, as determined by a majority of the Bond Committee, may exercise any power delegated to municipalities pursuant to the Connecticut Statutes, including the authority to establish credit facilities and to enter into agreements managing interest rate risk. The City, as determined by a majority of the Bond Committee, shall have all appropriate powers under the Connecticut Statutes, including Chapter 748 (Registered Public Obligations Act), Chapter 173 (School Building Projects), Chapter 446k (Water Pollution Control) and Chapter 109 (Municipal Bond Issues), to issue, sell and deliver the Obligations and, further, shall have the full power and authority to do all that is required under the Internal Revenue Code of 1986, as amended, and other applicable laws and regulations of the United States, to provide for issuance of the Obligations in tax exempt form and to meet all requirements which are or may become necessary in and subsequent to the issuance and delivery of the Obligations in order that the interest on the Obligations be and remain exempt from Federal income taxes, including, without limitation, to covenant and agree to restriction on investment yield of bond proceeds, rebate of arbitrage earnings, and expenditure of proceeds within required time limitations. In order to meet the capital cash flow expenditure needs of the City, a majority of the Bond Committee is authorized to collectively allocate and reallocate expenditures incurred for the Projects to any bonds or notes of the City outstanding as of the date of such allocation, and the bonds or notes to which such expenditures have been allocated shall be deemed to have been issued for such purpose, including the bonds and notes herein authorized.

Section 4. Said Bonds shall be sold in a competitive offering or by negotiation as determined by a majority of the Bond Committee. If sold at competitive offering, the Bonds shall be sold by a majority of the Bond Committee at not less than par and accrued interest on the basis of the lowest net or true interest cost to the City, by sealed proposals, auction, or other comparative method. If the Bonds are sold by negotiation, the purchase contract shall be signed by a majority of the Bond Committee. With respect to the receipt of original issuance premium or bid premium upon the sale of the bonds or notes herein authorized, the City is authorized, but not required, to apply original issuance premium and bid premium, if applicable, to fund future debt service payments on the City's bonds and notes or to fund any purpose for which bonds of the City are authorized to be issued, and such application shall reduce the amount of authorized and unissued bonds for the purpose to which the premium was applied, in the amount so applied.

Section 5. Said Bonds may be secured by the City's property taxes, including interest, penalties and related charges, pursuant to Chapter 117 and other chapters of the Connecticut Statutes, and, if deemed necessary or appropriate and in the City's best interest by a majority of the Bond Committee, the Bond Committee, on behalf of the City, is hereby authorized: (i) to establish a property tax intercept procedure and a debt service payment fund pursuant to Chapter 117 of the Connecticut Statutes, §7-560 et seq., and other Chapters of the Connecticut Statutes, on such terms as a majority of the Bond Committee deem necessary or appropriate, and (ii) to take all further actions which a majority of the Bond Committee deem necessary or appropriate to so secure the Bonds or which are contemplated by law. A majority of the Bond Committee, if they determine it to be advisable, necessary or appropriate, is authorized, on behalf of the City, to enter into an indenture of trust and/or a supplemental indenture of trust to any existing indenture of the City (collectively, the "Indenture") with a bank or trust company located within or without the State of Connecticut (the "Trustee"), and to covenant: (i) if the Bonds are issued pursuant to such Indenture that all or a portion of the City's property taxes shall be paid to the Trustee and be held in trust for the benefit of the holders of the Bonds as provided in Chapter 117 and other Chapters of the Connecticut Statutes, and (ii) the terms on which any payments or reserves securing the payment of the Bonds will be paid, and the terms of any reserve or other fund for the benefit of the holders of the Bonds; and, in any event, to amend or supplement the Indenture containing such terms and conditions as a majority of the Bond Committee shall determine to be necessary or advisable and in the best interest of the City, the execution thereof to be conclusive evidence of such determination.

Section 6. The issue of the Obligations aforesaid and of all other bonds or notes of the City heretofore authorized but not yet issued, as of the effective date of this Ordinance, would not cause the indebtedness of the City to exceed any debt limit calculated in accordance with law.

Section 7. The City is authorized to make temporary borrowings in anticipation of the receipt of the proceeds of any series of said Bonds or any anticipated amounts of State and Federal grants in aid for the Projects. Notes evidencing such borrowings shall be signed by the manual or facsimile signatures of a majority of the Bond Committee, have the seal of the City or a facsimile thereof affixed, be payable at a bank or trust company designated by a majority of the Bond Committee, be certified by a bank or trust company designated by a majority of the Bond Committee, pursuant to Section 7-373 of the Connecticut Statutes, and be approved as to their legality by the City's bond counsel. Notes shall be sold in competitive offering or by negotiation as determined by a majority of the Bond Committee. If sold in a competitive offering, the notes shall be sold by a majority of the Bond Committee at not less than par and accrued interest on the basis of the lowest net or true interest cost to the City, by sealed proposals, auction or other comparative method. If the notes are sold by negotiation, the purchase contract shall be signed

by a majority of the Bond Committee. The notes shall be issued with maturity dates which comply with the provisions of the Connecticut Statutes that govern the issuance of such notes. The notes shall be general obligations of the City and shall comply with all requirements of law, including any debt limit, relating to the authorization or issuance of such notes. The net interest cost on such notes, including renewals thereof, and the expense of preparing, issuing and marketing them, to the extent paid from the proceeds of such renewals or said Bonds, shall be included as a cost of the Projects. Upon the sale of said Bonds the proceeds thereof, to the extent required, shall be applied forthwith to the payment of the principal of and the interest on any such temporary borrowings then outstanding or shall be deposited with a bank or trust company in trust for such purpose. The City is also authorized to issue notes in anticipation of the receipt of grants, if applicable, and a majority of the Bond Committee shall determine the terms and conditions of such issuance.

Section 8. (a) In the case of the capital project set forth in Exhibit A under the heading "Water Pollution Control Authority – Sewer Pump Station Upgrades" (the "Pump Station Project"), \$4,079,000 of interim funding obligations and project loan obligations or any other obligations of the City evidencing an obligation to repay any portion of the costs of the Pump Station Project determined by the State of Connecticut Department of Energy and Environmental Protection, Public Health or other department as applicable to be eligible for funding under Section 22a-475 et seq. of the Connecticut General Statutes, as the same may be amended from time to time (the "Clean Water Fund Program") plus an additional amount for all necessary and appropriate financing costs not in excess of three percent of the cost of the Pump Station Project, or so much thereof as may be necessary for said purpose (the "Clean Water Fund Obligations"), may be issued, maturing not later than the twentieth year after their date, or such later date as may be allowed by law. The Clean Water Fund Obligations may be issued in one or more series as shall be determined by the Bond Committee, and the amount of Clean Water Fund Obligations of each series to be issued shall be fixed by a majority of the Bond Committee. The Clean Water Fund Obligations shall be issued in an amount up to the City's share of the cost of the Pump Station Project determined after considering the estimated amount of any State and Federal grants in aid for the Pump Station Project, or the actual amount thereof if such amount is ascertainable, and the anticipated times of receipt thereof. The issuance of the Clean Water Fund Obligations and of all other bonds or notes of the City heretofore authorized but not yet issued, as of the effective date of this Ordinance, would not cause the indebtedness of the City to exceed any debt limit calculated in accordance with law. The Clean Water Fund Obligations shall be executed in the name and on behalf of the City by the manual or facsimile signatures of a majority of the Bond Committee, bear the City seal or a facsimile thereof. The Clean Water Fund Obligations may be general obligations of the City and shall comply with all requirements of law, including any debt limit, relating to the authorization or issuance of such Clean Water fund Obligations. The Clean Water Fund Obligations may also be secured as to both principal and interest, to the extent permitted by law, by a pledge of certain revenues or benefit assessments or both. The aggregate principal amount of the Clean Water Fund Obligations, installments of principal, redemption provisions, if any, the date, time of issue and sale and other terms, details and particulars of such Clean Water Fund Obligations, including the rate or rates of interest, any repayment agreements or memoranda of understanding, shall be determined by a majority of the Bond Committee, in accordance with the requirements of the Connecticut Statutes; and

(b) any combination of Obligations and Clean Water Fund Obligations for the Pump Station Project as set forth in the preceding Sections may be issued, provided that the total, aggregate principal amount thereof issued, and including the amount of any grant funding

obtained, shall not exceed \$4,079,000 plus an amount needed for necessary and appropriate financing costs related to the Pump Station Project.

Section 9. Resolution of Official Intent to Reimburse Expenditures with Borrowings. The City hereby expresses its official intent pursuant to §1.150-2 of the Federal Income Tax Regulations, Title 26 (the "Regulations"), to reimburse expenditures paid 60 days prior to and after the date of passage of this Ordinance in the maximum amount and for the Projects described above with the proceeds of bonds, notes, or other obligations authorized to be issued by the City. Such obligations shall be issued to reimburse such expenditures not later than 18 months after the later of the date of the expenditure or the substantial completion of the project, or such later date the Regulations may authorize. The City hereby certifies that the intention to reimburse as expressed herein is based upon its reasonable expectations as of this date. The Director of Finance or his designee is authorized to pay project expenses in accordance herewith pending the issuance of reimbursement obligations, and to amend this declaration.

Section 10. The Director of Finance is hereby authorized to exercise all powers conferred by section 3-20e of the Connecticut Statutes with respect to secondary market disclosure and to provide annual information and notices of material events as enumerated in Securities and Exchange Commission Exchange Act Rule 15c2-12, as amended, as may be necessary, appropriate or desirable to effect the sale of the bonds, notes or other obligations authorized by this Ordinance.

Section 11. The Mayor, the Director of Finance and any other duly authorized City, Board of Education or WPCA official is authorized to seek grants and other contributions for the costs of the Projects. Any such grants or contribution received prior to the issuance of any Obligations or Clean Water Fund Obligations authorized herein shall be applied to the costs of the Projects or to pay at maturity the principal of any outstanding bond anticipation note, grant anticipation note or other temporary obligation issued pursuant this Ordinance and shall reduce the amount of Obligations or Clean Water Fund Obligations that can be issued pursuant to this Ordinance. If such grants and contributions are received after the issuance of any Bonds or Clean Water Fund Obligations, they shall be applied to pay either non-financed portions of the Projects or debt service on the Bonds or Clean Water Fund Obligations provided such application does not adversely affect the tax exempt status of the Bonds or Clean Water Fund Obligations.

Section 12. This Ordinance shall be effective immediately upon the Mayor's signature.

ENACTED BY THE CITY COUNCIL ON: _____

APPROVED BY THE MAYOR: _____ DATE: _____

EXHIBIT A

<u>Project Description</u>	<u>2015/2016 Capital Budget Appropriation</u>	<u>2016/2017 Capital Budget Appropriation</u>	<u>2017/2018 Capital Budget Appropriation</u>	<u>Total Bond Authorization</u>
<u>Public Works:</u>				
Beach Street Reconstruction Phase I & II*			\$ 50,000	\$ 50,000
Cove River Flood Mitigation			50,000	50,000
Storm Sewers Decree – MS4			250,000	250,000
Street Paving	\$800,000	\$800,000	800,000	2,400,000
<u>Water Pollution Control Authority</u>				
Sewer Pump Station Upgrades			4,079,000	4,079,000
Consent Decree Order - EPA			725,000	725,000
<u>Board of Education:</u>				
Restoration Upgrades at Carrigan			\$1,200,000	\$1,200,000
TOTAL:	<u>\$800,000</u>	<u>\$800,000</u>	<u>\$7,154,000</u>	<u>\$8,754,000</u>

CITY OF WEST HAVEN, CONNECTICUT
Existing & Proposed Debt Service for FY 2018-19 Budget
General Fund - Bonded Debt & CWF Loans

Fiscal Year	Existing GF Bonded Debt			Existing CWF loans paid by the GF			Existing BANs (\$9M WHHS)		Proposed New Debt Service			Total - Existing & Proposed		
	Principal	Interest	P&I	Principal	Interest	P&I	Interest		Principal	Interest	P&I	Principal	Interest	P&I
2018-19	\$ 14,325,000	\$ 3,884,908	\$ 18,209,908	\$ 683,415	\$ 33,285	\$ 716,700	\$ -	\$ -	\$ 287,241	\$ 287,241	\$ -	\$ 15,008,415	\$ 4,205,434	\$ 19,213,849
2019-20	14,470,000	3,369,952	17,839,952	639,088	19,788	658,875	-	-	393,930	393,930	-	15,109,088	3,783,669	18,892,757
2020-21	13,525,000	2,816,014	16,341,014	352,211	8,917	361,128	464,000	383,490	847,490	847,490	464,000	14,341,211	3,208,421	17,549,632
2021-22	13,765,000	2,222,649	15,987,649	200,476	4,204	204,680	465,000	362,588	827,588	827,588	465,000	14,430,476	2,589,440	17,019,916
2022-23	5,805,000	1,652,401	7,457,401	101,362	592	101,954	465,000	341,663	806,663	806,663	465,000	6,371,362	1,994,656	8,366,018
2023-24	7,200,000	1,326,339	8,526,339	-	-	-	460,000	320,850	780,850	780,850	460,000	7,660,000	1,647,189	9,307,189
2024-25	7,240,000	964,511	8,204,511	-	-	-	460,000	300,150	760,150	760,150	460,000	7,700,000	1,264,661	8,964,661
2025-26	4,945,000	649,406	5,594,406	-	-	-	460,000	279,450	739,450	739,450	460,000	5,405,000	928,856	6,333,856
2026-27	2,975,000	456,513	3,431,513	-	-	-	460,000	258,750	718,750	718,750	460,000	3,435,000	715,263	4,150,263
2027-28	2,640,000	324,700	2,964,700	-	-	-	460,000	238,050	698,050	698,050	460,000	3,100,000	562,750	3,662,750
2028-29	715,000	247,491	962,491	-	-	-	460,000	217,350	677,350	677,350	460,000	1,175,000	464,841	1,639,841
2029-30	715,000	217,913	932,913	-	-	-	460,000	196,650	656,650	656,650	460,000	1,175,000	414,563	1,589,563
2030-31	700,000	187,400	887,400	-	-	-	460,000	175,950	635,950	635,950	460,000	1,160,000	363,350	1,523,350
2031-32	700,000	156,200	856,200	-	-	-	460,000	155,250	615,250	615,250	460,000	1,160,000	311,450	1,471,450
2032-33	700,000	125,000	825,000	-	-	-	460,000	134,550	594,550	594,550	460,000	1,160,000	259,550	1,419,550
2033-34	700,000	93,800	793,800	-	-	-	460,000	113,850	573,850	573,850	460,000	1,160,000	207,650	1,367,650
2034-35	675,000	63,100	738,100	-	-	-	460,000	93,150	553,150	553,150	460,000	1,135,000	156,250	1,291,250
2035-36	320,000	40,000	360,000	-	-	-	460,000	72,450	532,450	532,450	460,000	780,000	112,450	892,450
2036-37	320,000	24,000	344,000	-	-	-	460,000	51,750	511,750	511,750	460,000	780,000	75,750	855,750
2037-38	320,000	8,000	328,000	-	-	-	460,000	31,050	491,050	491,050	460,000	780,000	39,050	819,050
	\$ 92,755,000	\$ 18,830,296	\$ 111,585,296	\$ 1,976,553	\$ 66,785	\$ 2,043,338	\$ -	\$ 8,294,000	\$ 4,408,161	\$ 12,702,161	\$ 103,025,553	\$ 23,305,242	\$ 126,330,795	

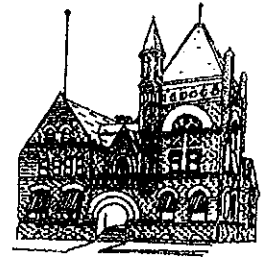
CITY OF WEST HAVEN
Proposed New Debt Service - Detail
New BANs & Bond 2018 - \$8,754,000

Fiscal Year	Proposed \$8.7M BAN			Proposed \$8.7M Bond			Total New Debt Service		
	Principal	Interest	P&I	Principal	Interest	P&I	Principal	Interest	P&I
2018-19	\$ -	\$ 91,370	\$ 91,370	\$ -	\$ 195,871	\$ 195,871	\$ -	\$ 287,241	\$ 287,241
2019-20	-	-	-	-	393,930	393,930	-	393,930	393,930
2020-21	-	-	-	464,000	383,490	847,490	464,000	383,490	847,490
2021-22	-	-	-	465,000	362,588	827,588	465,000	362,588	827,588
2022-23	-	-	-	465,000	341,663	806,663	465,000	341,663	806,663
2023-24	-	-	-	460,000	320,850	780,850	460,000	320,850	780,850
2024-25	-	-	-	460,000	300,150	760,150	460,000	300,150	760,150
2025-26	-	-	-	460,000	279,450	739,450	460,000	279,450	739,450
2026-27	-	-	-	460,000	258,750	718,750	460,000	258,750	718,750
2027-28	-	-	-	460,000	238,050	698,050	460,000	238,050	698,050
2028-29	-	-	-	460,000	217,350	677,350	460,000	217,350	677,350
2029-30	-	-	-	460,000	196,650	656,650	460,000	196,650	656,650
2030-31	-	-	-	460,000	175,950	635,950	460,000	175,950	635,950
2031-32	-	-	-	460,000	155,250	615,250	460,000	155,250	615,250
2032-33	-	-	-	460,000	134,550	594,550	460,000	134,550	594,550
2033-34	-	-	-	460,000	113,850	573,850	460,000	113,850	573,850
2034-35	-	-	-	460,000	93,150	553,150	460,000	93,150	553,150
2035-36	-	-	-	460,000	72,450	532,450	460,000	72,450	532,450
2036-37	-	-	-	460,000	51,750	511,750	460,000	51,750	511,750
2037-38	-	-	-	460,000	31,050	491,050	460,000	31,050	491,050
2038-39	-	-	-	460,000	10,350	470,350	460,000	10,350	470,350
	\$ -	\$ 91,370	\$ 91,370	\$ 8,754,000	\$ 4,327,141	\$ 13,081,141	\$ 8,754,000	\$ 4,418,511	\$ 13,172,511



BUREAU OF ENGINEERING

City of West Haven
355 Main Street
West Haven, CT 06516



City Hall
1896-1968

Nancy R. Rossi
Mayor

Abdul Quadir
Engineer

BEACH STREET RECONSTRUCTION PHASE 1

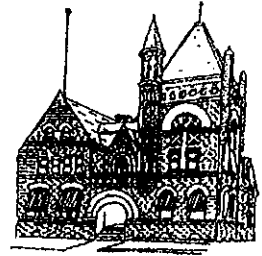
This project involves raising Beach Street from Monahan Place to just south of the water pollution control plant and also providing designs for the second phase which will raise Beach Street to Morse Avenue. Existing funding will provide construction funding and this additional funding will be to supplement design services for the second phase.

Existing funding is provided by HUD \$ 2,946,300, City \$575,000 and CDA \$ 50,000, for a total of \$ 3,571,300.



BUREAU OF ENGINEERING

City of West Haven
355 Main Street
West Haven, CT 06516



City Hall
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Nancy R. Rossi
Mayor

Abdul Quadir
Engineer

COVE RIVER FLOOD MITIGATION

This Project involves clearing existing West Branch of Cove River from Lower Lake Phipps to tidal marsh south of West Main Street and installing riprap along the banks on the upstream channel from West Main Street to Lake and installing concrete channel downstream from Main St. to marsh. Total project cost is \$ 441,866 of which @ 219,000 is provided by the City bonding . Remaining funding will be from this \$ 50,000 request and balance from LOCIP funds.

EDUCATIONAL SPECIFICATIONS FOR THE MAY V. CARRIGAN INTERMEDIATE SCHOOL ENERGY CONSERVATION UPGRADES

PROJECT RATIONALE

The West Haven Board of Education is committed to the continued improvement of their facilities to ensure a safe, clean and optimal learning environment for their students. A review of the operational costs of the May V. Carrigan Intermediate School demonstrated a higher cost for energy (natural gas and electricity) when compared with schools of similar size. The cost of electricity for the May V. Carrigan Intermediate School exceeds \$140,000 annually, and continues to rise, resulting in the operational cost constraints and financial threats to provide core educational investments. Consequently, the West Haven Board of Education requested a team of engineers to review the current facility conditions, as it relates to energy efficiency, and make recommendations to improve building conditions and lower the facilities energy costs. The recommendations included the following criteria, (1) developing and implementing infrastructure improvements to improve the long-term operational efficiencies of the building, (2) improve the overall energy efficiency of the building, (3) meet the State of Connecticut renewable energy standards.

Following several months of research the Team presented a number of recommendations, three of which make up this grant application, they are;

- Replace all single-pane windows with new Energy Star rated, double-pane windows,
- Replace the existing pneumatic heating and ventilation controls with State-of the Art, DDC system,
- Install a solar panel array on the recently installed new roof.

LONG RANGE PLANS

The long range plans for the May V. Carrigan Intermediate School calls for the provision of a safe, healthy learning environment and the ability to proactively manage long-term operational costs of the facility. Cost pressures from all facets of operating a school facility are a real and present challenge for West Haven Public Schools.

In order to proactively manage rising energy costs, the proposed window, upgraded digital controls and solar photovoltaic system will provide the ability for the school to reduce its reliance on purchased natural gas and electricity of which there is little to no control over rising prices. In addition, the solar photovoltaic system will produce approximately 30% of the annual electricity consumption of the May V. Carrigan Intermediate School. The solar photovoltaic system will meet the RPS maximum requirements as a percentage of electricity consumption set by the State of Connecticut through 2020.

THE PROJECT

The project is in the area of energy conservation as it relates to facility improvement, specifically the installation of new windows, upgraded energy controls and the installation of a roof mounted, photo-voltaic solar array. The existing school was constructed in 1968 with some renovations completed in 1990. The facility

contains classrooms, cafeteria, media center, gymnasium and administration as well as storage and mechanical spaces.

1. Window Replacement Project

The existing windows are single glazed windows with no thermal break, in either aluminum or steel frames. They are original to the 1968 construction and replacement of these windows will result in a significant reduction to heat loss. In addition, issues related to egress and rescue windows will be addressed as part of this renovation project. The windows being replaced as part of this project make up 100% of the buildings windows. The intention is to conduct hazardous materials testing on all window systems and to remove any contaminated materials, if found. This will be followed by the complete removal of the window structure and the re-installation of either an aluminum or vinyl framed window that will meet the high performance energy standards adopted by the State of Connecticut for all school construction projects.

2. Direct Digital Controls

The existing thermal control system is 1960's technology that is obsolete. It is a pneumatic system that is prone to leaks and very limited in its ability to control building temperatures. This inefficiency is further compounded by subsequent major capital improvements to the mechanical systems that have become more sophisticated than the controls that run them. The new system will address the inefficiency.

3. Solar Photovoltaic System – Roof Top System Components

In order for the City of West Haven to meet the State of Connecticut's Renewable Portfolio Standards ("RPS"), renewable energy credits are purchased from 3rd Parties through electric generation contracts. As the RPS requirements continue to rise, the costs borne by the Town rise proportionately. An on-site solar photovoltaic system will allow the City of West Haven to meet the RPS requirements by generating Class 1 renewable energy thus eliminating the need to procure costly Class 1 renewable energy credits from 3rd parties, who often are out-of-state entities. The solar photovoltaic system will also reduce electricity costs on a year-round basis as the electricity produced by the solar photovoltaic system will reduce electricity purchases from the Eversource Company electric grid.

The May V. Carrigan Intermediate School's roof provides an optimal opportunity to take advantage of the sun's southern exposure. The new roof will provide the opportunity to implement a solar photovoltaic system with a minimum life expectancy of twenty-five (25) years. The expected useful life of the solar photovoltaic system will be in alignment with the life expectancy of the newly installed roof. The roof-top solar photovoltaic system components will consist of a ballasted aluminum racking system that will support the solar photovoltaic modules and the DC-AC micro-inverters. The roof-top components will include the AC wiring and conduit that is tied back to the Building's Main Electrical Distribution panel.

The proposed solar photovoltaic system will include a real-time energy monitoring dashboard that will be linked to the School's website. This dashboard will allow students the ability to track and monitor energy production of the system. In addition, educational solar photovoltaic panels will be provided to the science department to allow students to interact with the renewable energy technology and provide an opportunity for learning of this emerging technology.

AC wiring from the roof-top solar PV modules is run inside metallic conduit back to the main electrical distribution mechanical room located on the main floor of the building. The electrical conduit is fed into a dedicated solar PV distribution panel that will be installed in the electrical room. From the solar PV distribution panel, the solar PV electrical feeders will be run to the exterior of the building and fed through a United

Illuminating-approved AC manual disconnect and utility meter which will be mounted to the exterior of the Building in an approved location by United Illuminating. The electrical feeders will then be fed back into the electrical room and tied into a dedicated solar PV circuit breaker in the main electrical distribution panel.

Current Space: The May V. Carrigan Intermediate School includes the following instructional and support spaces: general classrooms, Pre-K, kindergarten, special education classrooms, library/media center, computer lab, gymnasium, cafeteria, kitchen, administration offices, nurse's office, custodial services, storage, boiler room and electrical room.

Construction: The installation of the windows and the DDC controls will be accomplished during the summer months and will result in little to no disruption of the educational program. The construction of the photovoltaic roof-mounted array will not impact any of these spaces. There will be minor modifications to the existing building in the vicinity of the electrical room.

Final Space: See *Current Space* above.

FF&E: None

BUILDING SYSTEMS

Roof: PV system will be installed compliant with the roof warranty
Security: Not applicable
Public Address: Not applicable
Technology: The installation of Compute based Energy Management System with DDC
Phone System: Not applicable
Clocks: Not applicable

INTERIOR BUILDING ENVIRONMENT

Acoustics: Not applicable
Lighting: Not applicable
HVAC: Coordination of electrical inter-connection of the PV system to the existing electrical system will be part of the scope of work
Plumbing: Not applicable
Windows/Doors Not applicable

SITE DEVELOPMENT

Site Acquisition: Not applicable.
Parking: Not applicable.
Drives: Not applicable.
Walkways: Not applicable
Outdoor Athletic Not applicable.
Facilities The installation of new windows and a roof-mounted Photo-Voltaic array
Landscaping: Not applicable.

Site Improvements: Not applicable.

CONSTRUCTION BONUS REQUEST

May V. Carrigan Intermediate School does not house any of the special programs eligible for a school construction bonus which can be designated for this project.

School Readiness:	C.G.S. 10-285a(e) – Not applicable
Lighthouse Schools;	C.G.S. 10-285a(f) – Not applicable
CHOICE:	C.G.S. 10-285a(g), as amended – Not applicable
Full-day Kindergarten:	C.G.S. 10-285a(h) – Applicable
Reduced Class Size:	C.G.S. 10-285a(h) – Not applicable
Regional Vo-Ag Center:	C.G.S. 10-65 – Not applicable
Interdistrict Magnet School:	C.G.S. 10-264h – Not applicable
Interdistrict Cooperative School:	C.G.S. 10-158a – Not applicable
Regional Special Education Center:	C.G.S. 10-76e – Not applicable

FACILITY USES

May V. Carrigan Intermediate School will be designated to facilitate activities during school hours, before and after school hours, and throughout the entire calendar year.

- a. School theatre performances will take place in the auditorium.
- b. School music and choral performances will take place in the auditorium.
- c. PTO will use conference rooms and media center for meetings before and after school.
- d. Neighborhood and meetings will take place at the school.
- e. After school programs.
- f. Adult education.

Cove River Pump Station construction

The Cove River Pump Station was originally constructed in 1973 and upgraded twenty years ago in 1998. The typical life expectancy to the mechanical equipment in the station is fifteen to twenty years. To address the mechanical and electrical reliability, wholesale improvements are proposed. The improvements include mechanical and electrical rehabilitation to return the station to full operating capacity and provide continued pumping of wastewater flows. All pumps and motors will be replaced as well as valves that have outlasted their intended life. To provide improved pump protection, grinders will be installed in the channels upstream of the pumps to protect from "flushable" wipes, rags and other debris in the wastewater. The electrical system has also outlasted its intended life and will be completely replaced. To support the mechanical and electrical improvements, the building's roof, the HVAC system, and the pump station control panel will be replaced. Additionally, minor structural and plumbing improvements will be made in the building. These improvements will extend the life and improve the operation of the pump station.

Cove River Pump Station	
Discipline	Cost
Process/Mech	\$1,603,000
Electrical	\$1,360,000
Architectural	\$73,000
Structural	\$12,000
Plumbing	\$49,000
HVAC	\$146,000
I&C	\$304,000
Estimated Construction Cost	\$3,547,000
Bidding & Construction Engineering	\$532,000
Total	\$4,079,000

Bid Item	Bid Item Description and	Unit	Estimated	Engineer's Estimate	
		Measure	Quantity	Unit Cost	Total Cost
1a	Furnish and install 8-inch Cured-in-place pipe liner	LF	4,960	\$ 30	\$ 148,800
1b	Furnish and install 10-inch Cured-in-place pipe liner	LF	775	\$ 35	\$ 27,125
1c	Furnish and install 18-inch Cured-in-place pipe liner	LF	1,760	\$ 65	\$ 114,400
1d	Furnish and Install Full Wrap Top Hat	EA	5	\$ 2,500	\$ 12,500
1e	Cured-in-Place Spot Repair, 8-inch to 10-inch Sewer, All Depths	EA	2	\$ 4,400	\$ 8,800
1f	Cured-in-Place Spot Repair, 12-inch to 18-inch Sewer, All Depths	EA	1	\$ 5,500	\$ 5,500
1g	Heavy Hydraulic Cleaning and Root Removal preparatory cleaning of existing sewers	LF	1,500	\$ 7	\$ 9,900
1h	Removal of Existing Protruding taps, the "Per Each" price of	EA	23	\$ 310	\$ 7,130
1i	Reinstate active service connections after CIP lining	EA	206	\$ 220	\$ 45,320
1j	Cured-in-Place Spot Repair, 24-inch Sewer, All Depths	EA	1	\$ 7,500	\$ 7,500
2a	Raise buried manhole cover to grade (0' to 1')	EA	2	\$ 1,050	\$ 2,100
2b	Remove existing manhole frame and cover and Replace with Standard Frame and Cover	EA	14	\$ 1,470	\$ 20,580
2c	Reset existing manhole frame and cover	EA	9	\$ 425	\$ 3,825
2d	Rebuild Chimney	EA	16	\$ 1,500	\$ 24,000
2e	Seal Chimney	EA	11	\$ 380	\$ 4,180
2f	Rebuild Bench	EA	5	\$ 2,050	\$ 10,250
2g	Rebuild Invert	EA	2	\$ 1,620	\$ 3,240
2h	Clean, Repair and Install monolithic lining	VF	27	\$ 400	\$ 10,800
2i	Install new manhole (at manhole 14-24)	LS	1	\$ 3,800	\$ 3,800
3a	Policing	Allowance	1	\$ 20,000	\$ 20,000
3b	Mobilization	LS	1	\$ 25,000	\$ 25,000
3c	Miscellaneous Work and Cleanup	LS	1	\$ 15,000	\$ 15,000
				TOTAL = \$ 529,750	

Contingency = \$ 40,000
Construction Phase Engineering = \$ 80,000
TOTAL PROJECT COST = \$ 649,750

Dawson Avenue Area rehabilitation design, Contract 1

In 2016, the Dawson Avenue Area was studied to evaluate sources of clean water entering the sewer system. The clean water consumes valuable sewer capacity and results in unnecessary operating costs. The sources fall into two categories, infiltration and inflow (I/I). The study identified sewer pipes and manholes that were in need of rehabilitation to correct various deficiencies. CDM Smith ranked the deficiencies by priority and divided the work into six separate contracts, to be completed in successive years.

The design in Contract 1 includes rehabilitation of high priority deficiencies throughout the Dawson Avenue Area. There will be approximately 110 pipe segments in this design, consisting of point repairs, pipe replacement, lining, and heavy cleaning. CDM Smith will develop bid documents including plans and specifications detailing the repairs described above.

Total design cost = \$75,000

Pilot Area construction

In 2015, the Pilot Area was studied to evaluate sources of clean water entering the sewer system. The clean water consumes valuable sewer capacity and results in unnecessary operating costs. The sources fall into two categories, infiltration and inflow (I/I). The study identified sewer pipes and manholes that were in need of rehabilitation to correct various deficiencies. CDM Smith designed a construction contract consisting of sewer pipe repairs using trenchless cure-in-place pipe liners and manhole repairs. The project is ready for bidding.

The Engineer's estimate for the project is \$650,000 (Total Project Cost). This total includes construction (\$530,000), construction phase engineering (\$80,000), and contingency (\$40,000). More detailed information can be found on the following page.

CITY OF WEST HAVEN
Proposed New Debt Service - Detail
New BANs & Bond 2018 - \$8,754,000

Fiscal Year	Proposed \$8.7M BAN			Proposed \$8.7M Bond			Total New Debt Service		
	Principal	Interest	P&I	Principal	Interest	P&I	Principal	Interest	P&I
2018-19	\$ -	\$ 91,370	\$ 91,370	\$ -	\$ 195,871	\$ 195,871	\$ -	\$ 287,241	\$ 287,241
2019-20	-	-	-	-	393,930	393,930	-	393,930	393,930
2020-21	-	-	-	464,000	383,490	847,490	464,000	383,490	847,490
2021-22	-	-	-	465,000	362,588	827,588	465,000	362,588	827,588
2022-23	-	-	-	465,000	341,663	806,663	465,000	341,663	806,663
2023-24	-	-	-	460,000	320,850	780,850	460,000	320,850	780,850
2024-25	-	-	-	460,000	300,150	760,150	460,000	300,150	760,150
2025-26	-	-	-	460,000	279,450	739,450	460,000	279,450	739,450
2026-27	-	-	-	460,000	258,750	718,750	460,000	258,750	718,750
2027-28	-	-	-	460,000	238,050	698,050	460,000	238,050	698,050
2028-29	-	-	-	460,000	217,350	677,350	460,000	217,350	677,350
2029-30	-	-	-	460,000	196,650	656,650	460,000	196,650	656,650
2030-31	-	-	-	460,000	175,950	635,950	460,000	175,950	635,950
2031-32	-	-	-	460,000	155,250	615,250	460,000	155,250	615,250
2032-33	-	-	-	460,000	134,550	594,550	460,000	134,550	594,550
2033-34	-	-	-	460,000	113,850	573,850	460,000	113,850	573,850
2034-35	-	-	-	460,000	93,150	553,150	460,000	93,150	553,150
2035-36	-	-	-	460,000	72,450	532,450	460,000	72,450	532,450
2036-37	-	-	-	460,000	51,750	511,750	460,000	51,750	511,750
2037-38	-	-	-	460,000	31,050	491,050	460,000	31,050	491,050
2038-39	-	-	-	460,000	10,350	470,350	460,000	10,350	470,350
	\$ -	\$ 91,370	\$ 91,370	\$ 8,754,000	\$ 4,327,141	\$ 13,081,141	\$ 8,754,000	\$ 4,418,511	\$ 13,172,511

CITY OF WEST HAVEN, CONNECTICUT
Existing & Proposed Debt Service for FY 2018-19 Budget
General Fund - Bonded Debt & CWF Loans

Fiscal Year	Existing GF Bonded Debt			Existing CWF loans paid by the GF			Existing BANS (\$9M WHHS)		Proposed New Debt Service			Total - Existing & Proposed		
	Principal	Interest	P&I	Principal	Interest	P&I	Interest		Principal	Interest	P&I	Principal	Interest	P&I
2018-19	\$ 14,325,000	\$ 3,884,908	\$ 18,209,908	\$ 683,415	\$ 33,285	\$ 716,700	\$ -	\$ -	\$ 287,241	\$ 287,241	\$ -	\$ 15,008,415	\$ 4,205,434	\$ 19,213,849
2019-20	14,470,000	3,369,952	17,839,952	639,088	19,788	658,875	-	-	393,930	393,930	-	15,109,088	3,783,669	18,892,757
2020-21	13,525,000	2,816,014	16,341,014	352,211	8,917	361,128	464,000	383,490	847,490	847,490	464,000	14,341,211	3,208,421	17,549,632
2021-22	13,765,000	2,222,649	15,987,649	200,476	4,204	204,680	465,000	362,588	827,588	827,588	465,000	14,430,476	2,589,440	17,019,916
2022-23	5,805,000	1,652,401	7,457,401	101,362	592	101,954	465,000	341,663	806,663	806,663	465,000	6,371,362	1,994,656	8,366,018
2023-24	7,200,000	1,326,339	8,526,339	-	-	-	460,000	320,850	780,850	780,850	460,000	7,660,000	1,647,189	9,307,189
2024-25	7,240,000	964,511	8,204,511	-	-	-	460,000	300,150	760,150	760,150	460,000	7,700,000	1,264,661	8,964,661
2025-26	4,945,000	649,406	5,594,406	-	-	-	460,000	279,450	739,450	739,450	460,000	5,405,000	928,856	6,333,856
2026-27	2,975,000	456,513	3,431,513	-	-	-	460,000	258,750	718,750	718,750	460,000	3,435,000	715,263	4,150,263
2027-28	2,640,000	324,700	2,964,700	-	-	-	460,000	238,050	698,050	698,050	460,000	3,100,000	562,750	3,662,750
2028-29	715,000	247,491	962,491	-	-	-	460,000	217,350	677,350	677,350	460,000	1,175,000	464,841	1,639,841
2029-30	715,000	217,913	932,913	-	-	-	460,000	196,650	656,650	656,650	460,000	1,175,000	414,563	1,589,563
2030-31	700,000	187,400	887,400	-	-	-	460,000	175,950	635,950	635,950	460,000	1,160,000	363,350	1,523,350
2031-32	700,000	156,200	856,200	-	-	-	460,000	155,250	615,250	615,250	460,000	1,160,000	311,450	1,471,450
2032-33	700,000	125,000	825,000	-	-	-	460,000	134,550	594,550	594,550	460,000	1,160,000	259,550	1,419,550
2033-34	700,000	93,800	793,800	-	-	-	460,000	113,850	573,850	573,850	460,000	1,160,000	207,650	1,367,650
2034-35	675,000	63,100	738,100	-	-	-	460,000	93,150	553,150	553,150	460,000	1,135,000	156,250	1,291,250
2035-36	320,000	40,000	360,000	-	-	-	460,000	72,450	532,450	532,450	460,000	780,000	112,450	892,450
2036-37	320,000	24,000	344,000	-	-	-	460,000	51,750	511,750	511,750	460,000	780,000	75,750	855,750
2037-38	320,000	8,000	328,000	-	-	-	460,000	31,050	491,050	491,050	460,000	780,000	39,050	819,050
	\$ 92,755,000	\$ 18,830,296	\$ 111,585,296	\$ 1,976,553	\$ 66,785	\$ 2,043,338	\$ -	\$ 8,294,000	\$ 4,408,161	\$ 12,702,161	\$ -	\$ 103,025,553	\$ 23,305,242	\$ 126,330,795