2017-2026 TOWN COUNCIL
CAPITAL IMPROVEMENT PROGRAM

Page #	Description	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
116	***Water Fund***										
117	Town/UNH Water System Modeling	21,000									
118	Town/UNH Shared Water System Improvements	70,000	70,000	70,000	70,000	70,000	70,000				
119	Wiswall Dam Spillway		490,000								
120-121	Madbury Road Water Line Replacement				700,000	975,000					
122	Backhoe Replacement (Cost split w/Oper. & WW)						26,500				
123	One Ton Utility Truck Replacement						40,000				
	TOTAL WATER FUND	**$91,000**	**$560,000**	**$70,000**	**$770,000**	**$1,045,000**	**$136,500**	**$0**	**$0**	**$0**	**$0**

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2017*	**PROJECT COST**	*$21,000*
DESCRIPTION	*Town/UNH Water System Modeling*	**DEPARTMENT**	*Public Works - Water*

IMPETUS FOR PROJECT (IE. MANDATED, COUNCIL GOAL, DEPT INITIATIVE, ETC.)

Department Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

An update to the water system model is needed. This will allow the UNH/Durham Water System to plan and prioritize future water system improvement projects. This cost will be shared 1/3 by the Town and 2/3 by UNH.

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING	$	21,000
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	-
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	21,000
FINANCING	OPERATING BUDGET	$	7,000
	UNH - CASH	$	14,000
	BOND - TOWN PORTION	$	-
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	21,000
IF BONDED:	NUMBER OF YEARS		
	TOTAL PRINCIPAL		
	TOTAL INTEREST		
	TOTAL ESTIMATED COST	$	-

ATTACHMENT A
Scope of Work

DURHAM/UNH WATER MODEL UPDATE

Durham, NH
September 8, 2016

PROJECT UNDERSTANDING AND GOALS

The Durham/UNH water system has an existing water distribution system hydraulic model originally built in the early 1980's by Dufresne-Henry using KY Pipes software. At some point, the model was converted for use with the WaterCAD (Bentley) software package. The Town of Durham/UNH wishes to update the model to reflect distribution system improvements and operational changes made since the model was last updated.

We understand the model was calibrated when it was originally built, but given that this was on the order of 30 years ago, Underwood Engineers recommends validating the calibration with field hydrant flow tests after updating model conditions.

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2018 - 2022*	**PROJECT COST**	*$70,000*
DESCRIPTION	*Town/UNH Shared Water System Improvements*	**DEPARTMENT**	*Public Works - Water*

IMPETUS FOR PROJECT (IE. MANDATED, COUNCIL GOAL, DEPT INITIATIVE, ETC.)

Department Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

2018 - Waterworks Road, Increasing Water Main from 10" to 12" - $70,000

2019 - New Watermain for South Road to connect loop to main feed from WTP - $70,000

2020 - Main St. from Leavitt to Mast Road, Increasing 10" to 12" - $70,000

2021 - Connecting 12" Mains from Strafford Ave to Woodsides from Edgewood - $70,000

2022 - Connecting 12" Mains on Main St in front of NH Hall - $70,000

*Estimated costs are Town's Share of 1/3 of the total cost estimated at $210,000 per year

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING		
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	70,000
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	70,000
FINANCING	OPERATING BUDGET	$	70,000
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	-
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	70,000
IF BONDED:	NUMBER OF YEARS		
	TOTAL PRINCIPAL	$	-
	TOTAL INTEREST	$	-
	TOTAL ESTIMATED COST	$	-

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2018*	**PROJECT COST**	*$490,000*
DESCRIPTION	*Wiswall Dam Spillway*	**DEPARTMENT**	*Public Works - Water*

IMPETUS FOR PROJECT (IE. MANDATED, COUNCIL GOAL, DEPT INITIATIVE, ETC.)

NHDES Mandated

DESCRIPTION (TO INCLUDE JUSTIFICATION)

The Wiswall Dam was constructed in 1912 and although the abutments have been rehabilitated, including complete replacement of the left abutment in 2011, the spillway has not had any attention in all these years. Part of the 2011 Wiswall Dam Repair and Fishladder Project was to include repair of the dam's spillway and installation of rock anchors in the dam's spillway to improve the dam's stability and reduce the risk of failure. During the 2011 construction it was determined rock anchor installation could not be performed as designed due to the presence of large boulders cast into the spillway's concrete. A geotechnical investigation conducted in July 2012, which included the extraction of two core samples into the spillway confirmed the presence of the boulders and provided concrete strength values needed for the design of the stability solution. The 2014 CIP included $70,000 for preliminary design and the 2015 CIP included $90,000 for final design and permitting.

$70,000 (bond) was approved in 2014 and $90,000 (bond) approved in 2015 towards this project.

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING	$	-
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	490,000
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	490,000
FINANCING	OPERATING BUDGET	$	-
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	490,000
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	490,000
IF BONDED:	NUMBER OF YEARS		10
	TOTAL PRINCIPAL	$	490,000
	TOTAL INTEREST	$	46,200
	TOTAL ESTIMATED COST	$	536,200

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2020*	**PROJECT COST**	*$700,000*
DESCRIPTION	*Madbury Road Water Line (Garrison - Edgewood)*	**DEPARTMENT**	*Public Works - Water*

IMPETUS FOR PROJECT (IE. MANDATED, COUNCIL GOAL, DEPT INITIATIVE, ETC.)

Department Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

The Madbury Road water line from Garrison Road to Edgewood Road (approx. 2300 ft) is a combination of 6" and 8" old pit cast iron pipe. The Town has experienced 3 water main ruptures in the past 10 years along this stretch of pipe. This project entails replacing the old, undersized pipe with new 12" ductile iron pipe which has a life expectancy of 80-100 years.

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING	$	160,000
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	540,000
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	700,000
FINANCING	OPERATING BUDGET	$	-
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	700,000
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	700,000
IF BONDED:	NUMBER OF YEARS		20
	TOTAL PRINCIPAL	$	700,000
	TOTAL INTEREST	$	184,500
	TOTAL ESTIMATED COST	$	884,500

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2021*	**PROJECT COST**	*$975,000*
DESCRIPTION	*Madbury Road Water Line (Edgewood - Rte 4)*	**DEPARTMENT**	*Public Works - Water*

IMPETUS FOR PROJECT (IE. MANDATED, COUNCIL GOAL, DEPT INITIATIVE, ETC.)

Department Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

The Madbury Road water line from Edgewood Road to Route 4 (approx. 3300 ft) is a combination of 6" old pit cast iron pipe. The Town has experienced 4 water main ruptures in the past 10 years along this stretch of pipe. This project entails replacing the old, undersized pipe with new 12" ductile iron pipe which has a life expectancy of 80-100 years.

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING	$	225,000
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	750,000
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	975,000
FINANCING	OPERATING BUDGET	$	-
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	975,000
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	975,000
IF BONDED:	NUMBER OF YEARS		20
	TOTAL PRINCIPAL	$	975,000
	TOTAL INTEREST	$	252,100
	TOTAL ESTIMATED COST	$	1,227,100

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2022*	**PROJECT COST**	*$26,500*
DESCRIPTION	*Backhoe Replacement*	**DEPARTMENT**	*Public Works- Operations, Water, WW*

DESCRIPTION (TO INCLUDE JUSTIFICATION):

Replace the 2006 JCB 4 Wheel Drive Backhoe. This piece of equipment is scheduled for replacement in 2022. The 2006 JCB was on a 12 year replacement schedule, however with the purchase of the rubber tired excavator in 2013, we were able to push this out further due to the excavator picking up a good percentage of the jobs. The machine is an essential piece of equipment for all Public Works Divisions and programs and is used year round. FUNDING: 50% Operations ($53,000), 25% Water ($26,500), 25% Wastewater ($26,500 of which is 2/3 funded by UNH) will fund this purchase.

ESTIMATED COST				
	PURCHASE PRICE	$	26,500	Water Fund Portion Only
	ACCESSORIES*	$	-	
	LESS TRADE-IN**	$	-	
	NET PURCHASE PRICE	$	26,500	

*Accessories include lighting, radios, striping, misc. equipment.

FINANCING			
	OPERATING BUDGET	$	26,500
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	-
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	26,500

IF BONDED:			
	NUMBER OF YEARS		N/A
	TOTAL PRINCIPAL	$	-
	TOTAL INTEREST (EST'D)	$	-
	TOTAL PROJECT COST	$	-

VEHICLE(S) TO BE REPLACED (info as of August 2016)

YEAR/MAKE/MODEL	2006
CONDITION	Good
CURRENT MILEAGE/HOURS:	**6,007 hours**
MAJOR REPAIRS DONE	hydraulic hoses, replace hydraulic pump, replaced back hoe bucket, bucket pins, stabilizer pads

Will this vehicle be traded-in or used for other purpose?

If other purpose, please specify:

Trade in

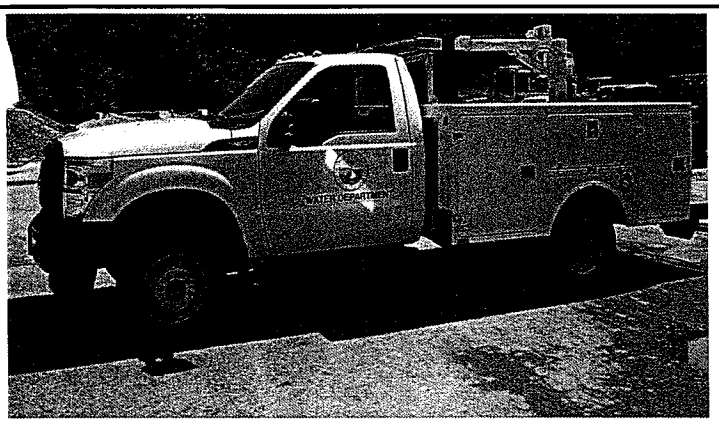
CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2022*	**VEHICLE COST**	*$40,000*
DESCRIPTION	*1-Ton Utility Truck Replacement*	**DEPARTMENT**	*Public Works - Water*

DESCRIPTION (TO INCLUDE JUSTIFICATION):

Replace the Water Division's 2012 Ford 1-ton utility truck.
The current vehicle is a 2012 and on a 10 -12 year replacement schedule. Current unit is the only service vehicle in the Water Division and will have approximately 145,000 miles in 2022. This vehicle is equipped with numerous tools and equipment, such as a generator and a 2 ton crane.
According to the New England Water Works Association equipment replacement survey 2022 is the optimum time to replace this piece of equipment. We anticipate a $4,500 trade in.

ESTIMATED COST	**PURCHASE PRICE**	$	43,500
	ACCESSORIES*	$	1,000
	LESS TRADE-IN**	$	(4,500)
	NET PURCHASE PRICE	$	40,000
	*Accessories include lighting, radios, striping, misc. equipment.		
FINANCING	**OPERATING BUDGET**	$	-
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	40,000
	UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	40,000
IF BONDED:	**NUMBER OF YEARS**		7
	TOTAL PRINCIPAL	$	40,000
	TOTAL INTEREST (EST'D)	$	3,200
	TOTAL PROJECT COST	$	43,200



VEHICLE TO BE REPLACED (info as of August 2016)

YEAR/MAKE/MODEL: 2012 Ford Utility Truck

CONDITION: Good

CURRENT MILEAGE/HOURS: 34,472 miles

MAJOR REPAIRS DONE: tires, front brakes, oil changes.

Will this vehicle be traded-in: YES