2019-2028
TOWN ADMINISTRATOR PROPOSED
CAPITAL IMPROVEMENT PROGRAM

Page #	Description	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
114	***Wastewater Fund***										
115	Wastewater Facilities Plan	425,000	425,000	425,000	425,000	425,000	425,000	425,000			
116	WWTP Major Components Contingency	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000	50,000
117	Collection System Repair/Upgrade (Town/UNH)	30,000									
118	Collection System Repair/Upgrade (Town Only)	65,000									
119	3/4 Ton Pickup Truck Replacement	27,500									
120	18" Force Main Replacement	2,680,000									
121	Beard's Creek Sewer Design	65,000									
122	WWTP Phase III			450,000	2,850,000						
123	Backhoe Replacement (Cost split w/Oper. & Water)				26,500						
124	Commercial Lawnmower				17,500						
	WASTEWATER FUND TOTALS	**3,342,500**	**475,000**	**925,000**	**3,369,000**	**475,000**	**475,000**	**475,000**	**50,000**	**50,000**	**50,000**

PROJECT YEAR	*2019-2025*	**PROJECT COST**	*YEAR 2019 - $425,000*
DESCRIPTION	*Wastewater Facilities Plan*	**DEPARTMENT**	*Public Works - Wastewater*

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

Dept Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

2019 - $425,000 - Grit System Project/Sludge Garage and Storage Tank Odor Control System Design

2020 - $425,000 - Sludge Storage Tank Design/ Sludge Garage Odor Control System

2021 - $425,000 - Sludge Storage Tank Design/ Sludge Garage Odor Control System

2022 - $425,000 - Facility Wide SCADA Upgrade

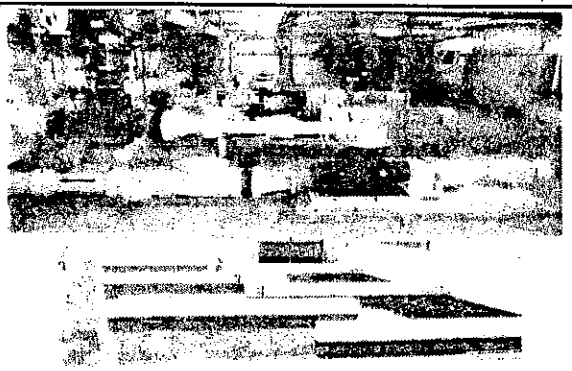
2023 - $425,000 - Primary Gates, Primary Mechanism 1 and 2

2024 - $425,000 - Overall Architectural/Structural Repairs/ Stucco, Plant Process Water

2025 - $425,000 - Upgrade headworks ventilation, investigate solar array for rooftops on buildings

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	**$**	**-**
	FINAL DESIGN AND ENGINEERING	**$**	**-**
	CONSTRUCTION ENGINEERING OVERSIGHT	**$**	**-**
	CONSTRUCTION COSTS	**$**	**425,000**
	CONTINGENCY	**$**	**-**
	TOTAL PROJECT COST	**$**	**425,000**
FINANCING	**OPERATING BUDGET**	**$**	**-**
	UNH - CASH	**$**	**-**
	BOND - TOWN PORTION	**$**	**141,667**
	BOND - UNH PORTION	**$**	**283,333**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**425,000**
IF BONDED:	**NUMBER OF YEARS**		**10**
	TOTAL PRINCIPAL	**$**	**425,000**
	TOTAL INTEREST	**$**	**39,600**
	TOTAL ESTIMATED COST	**$**	**464,600**



CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2019-2028*	**PROJECT COST**	*$50,000*
DESCRIPTION	*WWTP Major Components Contingency*	**DEPARTMENT**	*Public Works - Wastewater*

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

Dept Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

Major Components are typically mechanical, laboratory or processing equipment replacements/upgrades necessary to continuing running the WWTP efficiently. The mechanical equipment within the wastewater division is used 24 hours a day - 7 days a week. This account is used for necessary replacements of these major components when they unexpectedly fail.

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COSTS:	PRELIMINARY STUDY, DESIGN AND ENGINEERING	$	-
	FINAL DESIGN AND ENGINEERING	$	-
	CONSTRUCTION ENGINEERING OVERSIGHT	$	-
	CONSTRUCTION COSTS	$	50,000
	CONTINGENCY	$	-
	TOTAL PROJECT COST	$	50,000
FINANCING	OPERATING BUDGET	$	16,667
	UNH - CASH	$	33,333
	BOND - TOWN PORTION	$	-
	BOND - UNH PORTION	$	-
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	50,000
IF BONDED:	NUMBER OF YEARS		N/A
	TOTAL PRINCIPAL	$	-
	TOTAL INTEREST	$	-
	TOTAL ESTIMATED COST	$	-

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2019*	**PROJECT COST**	*$30,000*
DESCRIPTION	*Collection System Repair/ Upgrade (Town/UNH)*	**DEPARTMENT**	*Public Works - Wastewater*

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

Dept Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

Repairs will be made to the Town/UNH shared wastewater collection system including line replacement and line repairs, engineering investigation, sewer manhole rehabilitation or replacement. This project also includes inflow and infiltration within the wastewater collection system. Inflow is the illegal connection of plumbing such as a sump pump into the Wastewater Collection System and infiltration is the seepage of groundwater or stormwater into the Wastewater Collection System.The amount of staff time spent on collection system maintenance will decrease as these problem areas are corrected.

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	**$**	**-**
	FINAL DESIGN AND ENGINEERING	**$**	**-**
	CONSTRUCTION ENGINEERING OVERSIGHT	**$**	**-**
	CONSTRUCTION COSTS	**$**	**30,000**
	CONTINGENCY	**$**	**-**
	TOTAL PROJECT COST	**$**	**30,000**
FINANCING	**OPERATING BUDGET**	**$**	**10,000**
	UNH - CASH	**$**	**20,000**
	BOND - TOWN PORTION	**$**	**-**
	BOND - UNH PORTION	**$**	**-**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**30,000**
IF BONDED:	**NUMBER OF YEARS**		**N/A**
	TOTAL PRINCIPAL	**$**	**-**
	TOTAL INTEREST	**$**	**-**
	TOTAL ESTIMATED COST	**$**	**-**

CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2019*	**PROJECT COST**	*$65,000*
DESCRIPTION	*Collection System Repair/ Upgrade (Town)*	**DEPARTMENT**	*Public Works - Wastewater*

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

Dept Initiative

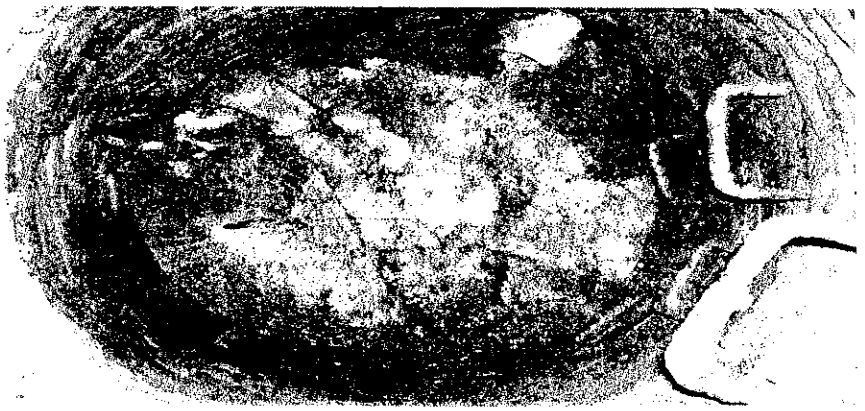
DESCRIPTION (TO INCLUDE JUSTIFICATION)

Repairs will be made to the Town's wastewater collection system including line replacement and line repairs, engineering investigation, sewer manhole rehabilitation or replacement. This project also includes inflow and infiltration within the wastewater collection system. Inflow is the illegal connection of plumbing such as a sump pump into the Wastewater Collection System and infiltration is the seepage of groundwater or stormwater into the Wastewater Collection System.The amount of staff time spent on collection system maintenance will decrease as these problem areas are corrected.

Various manholes within the collection system need to be rehabilitated or replaced, including those on Faculty Road, Park Court, Madbury Road, Dennison Road and Hoitt Drive. Additionally, sewer tv'ing work will continue in order to prioritize future sewer line rehab projects.

Per current Agreement, this project will be funded 100% by the Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	**$**	**-**
	FINAL DESIGN AND ENGINEERING	**$**	**-**
	CONSTRUCTION ENGINEERING OVERSIGHT	**$**	**-**
	CONSTRUCTION COSTS	**$**	**65,000**
	CONTINGENCY	**$**	**-**
	TOTAL PROJECT COST	**$**	**65,000**
FINANCING	**OPERATING BUDGET**	**$**	**65,000**
	UNH - CASH	**$**	**-**
	BOND - TOWN PORTION	**$**	**-**
	BOND - UNH PORTION	**$**	**-**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**65,000**
IF BONDED:	**NUMBER OF YEARS**		**N/A**
	TOTAL PRINCIPAL	**$**	**-**
	TOTAL INTEREST	**$**	**-**
	TOTAL ESTIMATED COST	**$**	**-**



CAPITAL IMPROVEMENTS PROGRAM

PROJECT YEAR	*2019*	**VEHICLE COST**	*$27,510*
DESCRIPTION	*3/4 Ton Pick-Up Replacement*	**DEPARTMENT**	*Public Works - Wastewater*

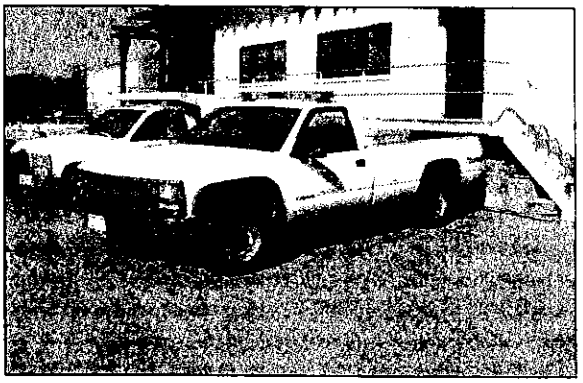
DESCRIPTION (TO INCLUDE JUSTIFICATION):

The Wastewater Treatment Plant motor pool consists of two pick-up trucks which are utilized by five employees. The truck fleet is on a 10 -12 year replacement plan, according to this plan the 2008 ¾ Ton Pick-up Truck will be replaced in 2019. This Division is responsible for the maintenance of the Treatment Plant, Wastewater Collection System and five Pump Stations. No impact to other Departments, normal future maintenance costs (i.e. tires, battery, oil, filters). This division has downsized these vehicles over the past 20 years.

Vehicle to be Replaced: 2008 Ford F250

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COST	**PURCHASE PRICE**	**$**	**29,000**
	ACCESSORIES*	**$**	**-**
	LESS TRADE-IN**	**$**	**(1,500)**
	NET PURCHASE PRICE	**$**	**27,500**
	***Accessories include lighting, radios, striping, misc. equipment.**		
FINANCING	**OPERATING BUDGET**	**$**	**9,167**
	UNH - CASH	**$**	**18,333**
	BOND - TOWN PORTION	**$**	**-**
	BOND - UNH PORTION	**$**	**-**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**27,500**
IF BONDED:	**NUMBER OF YEARS**		**N/A**
	TOTAL PRINCIPAL	**$**	**-**
	TOTAL INTEREST (EST'D)	**$**	**-**
	TOTAL PROJECT COST	**$**	**-**



CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2019*	**PROJECT COST**	*$2,680,000*
DESCRIPTION	*18" Force Main Replacement*	**DEPARTMENT**	*Public Works - Wastewater*

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

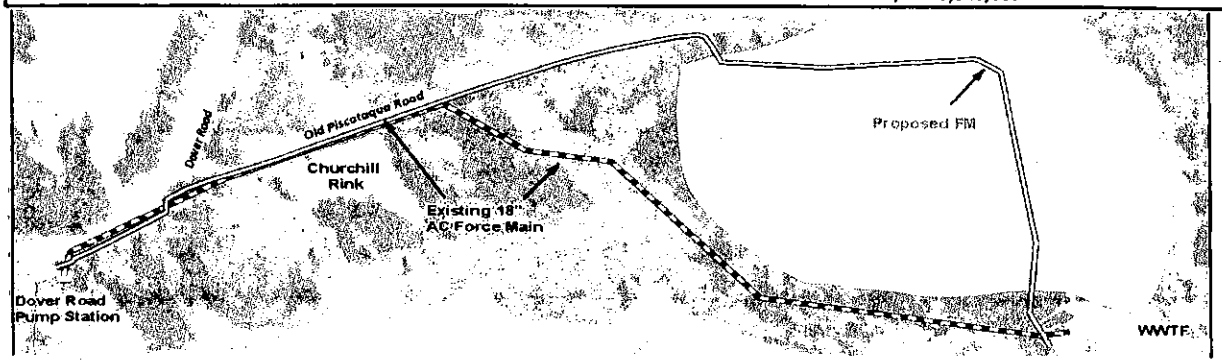
Department Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

This 18-inch diameter wastewater force main carries all of the Town's wastewater (up to 2.4 million gallons per day) under pressure from the Dover Road Wastewater Pump Station to Durham's Wastewater Treatment Plant. This pipe was constructed of asbestos cement in 1967 and is approaching the end of its useful life. An investigation in 2008 revealed signs of diminished pipe capacity. Asbestos cement piping is no longer used in the industry because of its tendency to deteriorate over time, which is particularly a problem with piping that is under pressure. Asbestos pipe is not smooth and creates friction which over time makes the pumping of wastewater more difficult. Alternatives for the force main alignment were examined in a study completed by Wright Pierce in 2013. The current preferred alignment is Alternative 1 which has the least environmental impacts, avoids easement conflicts and would provide for redundancy, utilizing the existing force main during construction.

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	$	-	
	FINAL DESIGN AND ENGINEERING	$	-	$252,000 was approved in 2017 CIP
	CONSTRUCTION ENGINEERING OVERSIGHT	$	140,000	
	CONSTRUCTION COSTS	$	2,420,000	
	CONTINGENCY	$	120,000	
	TOTAL PROJECT COST	$	2,680,000	
FINANCING	**OPERATING BUDGET**	$	-	
	UNH - CASH	$	-	
	BOND - TOWN PORTION	$	893,333	
	BOND - UNH PORTION	$	1,786,667	
	FEDERAL/STATE GRANT	$	-	
	CAPITAL RESERVE ACCOUNT	$	-	
	TOTAL FINANCING COSTS	$	2,680,000	
IF BONDED:	**NUMBER OF YEARS**		20	
	TOTAL PRINCIPAL	$	2,680,000	
	TOTAL INTEREST	$	1,136,000	
	TOTAL ESTIMATED COST	$	3,816,000	



CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2020*	**PROJECT COST**	*$65,000*
DESCRIPTION	*Beards Creek Sewer*	**DEPARTMENT**	*Public Works - Wastewater*

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

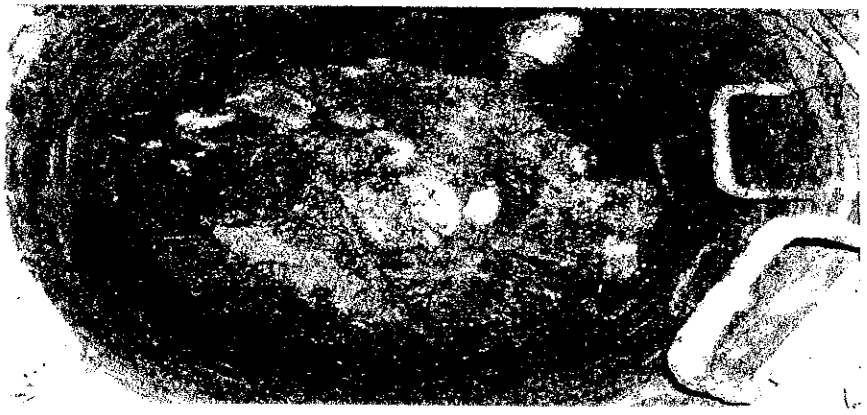
Dept Initiative

DESCRIPTION (TO INCLUDE JUSTIFICATION)

Design Phase - Upgrade to the Beards Creek Sewer crossing from Young Drive to the Pettee Brook Interceptor.

Per current Agreement, this project will be funded 100% by the Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	**$**	**-**
	FINAL DESIGN AND ENGINEERING	**$**	**65,000**
	CONSTRUCTION ENGINEERING OVERSIGHT	**$**	**-**
	CONSTRUCTION COSTS	**$**	**-**
	CONTINGENCY	**$**	**-**
	TOTAL PROJECT COST	**$**	**65,000**
FINANCING	**OPERATING BUDGET**	**$**	**-**
	UNH - CASH	**$**	**-**
	BOND - TOWN PORTION	**$**	**6,500**
	BOND - UNH PORTION	**$**	**-**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**65,000**
IF BONDED:	**NUMBER OF YEARS**		**N/A**
	TOTAL PRINCIPAL	**$**	**65,000**
	TOTAL INTEREST	**$**	**5,500**
	TOTAL ESTIMATED COST	**$**	**70,500**



CAPITAL IMPROVEMENT PROGRAM

PROJECT YEAR	*2022*	**PROJECT COST**	*$2,850,000*
DESCRIPTION	*WWTP Phase III*	**DEPARTMENT**	*Public Works - Wastewater*

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

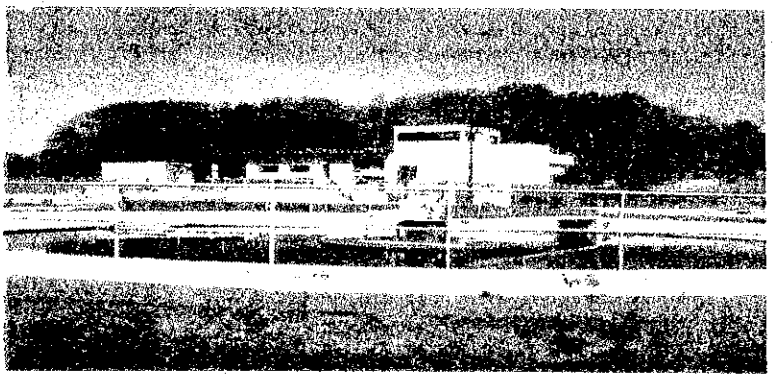
Mandated

DESCRIPTION (TO INCLUDE JUSTIFICATION)

The NPDES discharge permit is a federal permit which allows the Town of Durham Wastewater Treatment Facility to safely discharge (treated) effluent into the Oyster River.
NPDES Permit renewal was due in 2005. EPA should have issued a new draft and final NPDES permit in 2004 for the 2005-2010 time frame. As of the writing of this document the town has still not received a new NPDES Permit. Stricter limits on Copper, Zinc, Nitrogen and Ammonia are expected. The Wastewater Facilities Plan update prepared by Wright-Pierce recommended upgrading the Treatment Plan to an enhanced biological nutrient removal process and carry out a pilot test to evaluate the best treatment options. This was completed in 2014 with the Sludge Dewatering and Four Stage Bardenpho Nutrient Removal Pilot Project. Results of the pilot are still being studied. The final phase of this project is the full conversion of the treatment process for enhanced nutrient removal based on the NPDES permit utilizing results of the pilot study.
The Town is in serious discussion about combining our stormwater management permit, MS4 and this NPDES permit into one intergrated permit.

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COSTS:	**PRELIMINARY STUDY, DESIGN AND ENGINEERING**	**$ -**
	FINAL DESIGN AND ENGINEERING	**$ 350,000**
	CONSTRUCTION ENGINEERING OVERSIGHT	**$ -**
	CONSTRUCTION COSTS	**$ 2,500,000**
	CONTINGENCY	**$ -**
	TOTAL PROJECT COST	**$ 2,850,000**
FINANCING	**OPERATING BUDGET**	**$ -**
	UNH - CASH	**$ -**
	BOND - TOWN PORTION	**$ 950,000**
	BOND - UNH PORTION	**$ 1,900,000**
	FEDERAL/STATE GRANT	**$ -**
	CAPITAL RESERVE ACCOUNT	**$ -**
	TOTAL FINANCING COSTS	**$ 2,850,000**
IF BONDED:	**NUMBER OF YEARS**	**20**
	TOTAL PRINCIPAL	**$ 2,850,000**
	TOTAL INTEREST	**$ 1,167,000**
	TOTAL ESTIMATED COST	**$ 4,017,000**



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 is funded by UNH) will fund this purchase.

Vehicle to be Replaced: 2006 JCB Backhoe

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COST	**PURCHASE PRICE**	$	26,500
	ACCESSORIES*	$	-
	LESS TRADE-IN**	$	-
	NET PURCHASE PRICE	$	26,500
	***Accessories include lighting, radios, striping, misc. equipment.**		
FINANCING	**OPERATING BUDGET**	$	-
	UNH - CASH	$	-
	BOND - TOWN PORTION	$	8,833
	BOND - UNH PORTION	$	17,667
	FEDERAL/STATE GRANT	$	-
	CAPITAL RESERVE ACCOUNT	$	-
	TOTAL FINANCING COSTS	$	26,500
IF BONDED:	**NUMBER OF YEARS**	$	7
	TOTAL PRINCIPAL	$	26,500
	TOTAL INTEREST (EST'D)	$	3,180
	TOTAL PROJECT COST	$	29,680

CAPITAL IMPROVEMENTS PROGRAM

PROJECT YEAR	*2022*	**EQUIPMENT COST**	*$17,500*
DESCRIPTION	*Commercial Lawnmower Replacement*	**DEPARTMENT**	*Public Works - Wastewater*

DESCRIPTION (TO INCLUDE JUSTIFICATION):

Replacement of 2013 zero turning radius commercial lawn mower needed to maintain the five acre Wastewater Treatment site. The current mower will be 9 years old in 2022 and due to wear and tear and reduced performance needs to be replaced. Minor routine maintenance is estimated at $300/year.

Equipment to Replace: 2013 John Deere

Per current Agreement, these projects would be funded 2/3 UNH and 1/3 Town.

ESTIMATED COST	**PURCHASE PRICE**	**$**	**17,500**
	ACCESSORIES*	**$**	**-**
	LESS TRADE-IN**	**$**	**-**
	NET PURCHASE PRICE	**$**	**17,500**
	***Accessories include lighting, radios, striping, misc. equipment.**		
FINANCING	**OPERATING BUDGET**	**$**	**5,833**
	UNH - CASH	**$**	**11,667**
	BOND - TOWN PORTION	**$**	**-**
	BOND - UNH PORTION	**$**	**-**
	FEDERAL/STATE GRANT	**$**	**-**
	CAPITAL RESERVE ACCOUNT	**$**	**-**
	TOTAL FINANCING COSTS	**$**	**17,500**
IF BONDED:	**NUMBER OF YEARS**		**N/A**
	TOTAL PRINCIPAL	**$**	**-**
	TOTAL INTEREST (EST'D)	**$**	**-**
	TOTAL PROJECT COST	**$**	**-**