Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Operations

II. Project Title: Eighth Street Water Tower PAX Mixer

III. Project Description:

Install a PAX mixer (a brand name for a machine that mixes water in a tank with the water coming into the tank/tower) in the Eighth Street water tower. The equipment will even out the chlorine residual and temperature of the water to help reduce the potential for THM formation) in the center of the Eighth Street Water Tower.

IV. Project Justification: (What need is being met, how does this project address the need?)

This project is recommended to evenly distribute chlorine residuals in the tower and to decrease the potential for formation of the Trihalomethanes (THM's) in the Eighth Street tower to meet the Stage 2 Disinfection By-Products (DBP) rule.

V. What Board Goals Does This Project Meet?

- ☐ Supportive Infrastructure
- ☐ Clean/Green Environment
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

2208 S. Lark Avenue (behind Public Works)

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☐	No ☒
b. Maintain a current level of service?	Yes ☐	No ☒
c. Increase a level of service?	Yes ☒	No ☐
d. Represent a "vision"?	Yes ☒	No ☐

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

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IX. Project Alternatives:

None noted

X. Project Dependency:

This tank is scheduled to be re-painted in FY 2014-2015. Installing this mixer at the same time will save money compared to doing the two items separately.

XI. Negative Impacts:

Stratification of the water in the 500,000 gallon Eighth Street tower may contribute to chlorine residual fluctuations and THM formation potential.

XII. Other Considerations:

Funds can be saved if the mixer is installed at the same time the tank is repainted.

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:
Yes ☐ No ☒ If YES, describe:

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	Engineering and PAX Mixer Installation	$	58,000
	SCADA Control Installation		6,000
	TOTAL Capital (One Time Costs)	$	64,000
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
	Annual Electricity (@$0.08/kWh)	$	200
	TOTAL Continuing Annual Operating Costs	$	200

XV. Fiscal Year Requested:

FY 2014-2015

Priority Recommendation: (By CIP Committee)

Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Distribution

II. Project Title: Utility Noggin Smartcart Line Locator

III. Project Description:

Purchase Utility Noggin Smartcart for distribution main and service location.

IV. Project Justification: (What need is being met, how does this project address the need?)

This unit will enable Water Distribution personnel to accurately locate water mains and water service lines for 811 services (ULOCOS). The unit can locate mains, services, cables, culverts, and sewer mains under concrete and asphalt. At this time, these mains and services are estimated because they cannot be found by probing.

V. What Board Goals Does This Project Meet?

- ☐ Fiscally Responsible
- ☐ Supportive Infrastructure
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

Town wide

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☒	No ☐
b. Maintain a current level of service?	Yes ☐	No ☒
c. Increase a level of service?	Yes ☒	No ☐
d. Represent a "vision"?	Yes ☐	No ☒

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

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IX. Project Alternatives:

None

X. Project Dependency:

N/A

XI. Negative Impacts:

XII. Other Considerations:

N/A

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:

Yes ☐ No ☒ If YES, describe: Click here to enter text.

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	Utility Noggin Smartcart Line Locator	$	20,278
	TOTAL Capital (One Time Costs)	$	20,278
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
		$	
	TOTAL Continuing Annual Operating Costs	$	

XV. Fiscal Year Requested:

FY 2014-2015

Priority Recommendation: (By CIP Committee)

Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Distribution

II. Project Title: Conversion to Radio Read Water Meters

III. Project Description:

This project requests funding to convert the current manual read water meters to radio (remote) read meters.

IV. Project Justification: (What need is being met, how does this project address the need?)

By converting the Town's water meters to a radio read system, meter reading will take much less time and will allow Water Division to be more productive. Water meter reading could possibly be combined with other Public Works activities.

American Water Works Association guidelines call for the replacement of all residential meters after they have registered 1,000,000 gallons, or after 10 years. Under this program, all meters would be replaced in 4 years with radio (remotely) readable meters.

V. What Board Goals Does This Project Meet?

- ☐ Fiscally Responsible
- ☐ Supportive Infrastructure
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

Throughout Nags Head

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☐	No ☒
b. Maintain a current level of service?	Yes ☐	No ☒
c. Increase a level of service?	Yes ☒	No ☐
d. Represent a "vision"?	Yes ☒	No ☐

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

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IX. Project Alternatives:

None

X. Project Dependency:

N/A

XI. Negative Impacts:

None

XII. Other Considerations:

N/A

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:

Yes ☐ No ☒ If YES, describe: Click here to enter text.

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	Purchase of Mobile Data Collector, Mobile Laptop, Arb-N-Sight Software, Edmunds Interface (for billing) and System Implementation (in Year 1).	$	13,917
	Purchase and Installation of 1,050 meters is Cycle 2		258,371
	Purchase and Installation of 1,214 meters in Cycle 4 (Year 2)		329,520
	Purchase and Installation of,224 meters in Cycle 6 (Year 3)		277,932
	Purchase and Installation of 1,298 meters in Cycle 8 (Year 4)		308,743
	TOTAL Capital (One Time Costs)	$	1,188,483
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
	Annual Maintenance on Mobile Data Collector	$	667
	Annual Maintenance and Software Updates		667
	TOTAL Continuing Annual Operating Costs	$	1,334

XV. Fiscal Year Requested:

FY 2015-2016 through 2018-2019

Priority Recommendation: (By CIP Committee)

CONDENSED RADIO READ PROJECT COST SPREADSHEET

Initial Capital Costs (Year 1 only):

Mobile Data Collector	$5,333.33
Mobile Laptop	$4,500.00
Implementation	$1,250.00
arb-n-sight Software	$1,333.33
Interface with Edmunds (for billing)	$1,500.00
	$13,916.66 "Hard," and Software

Annual Operating Costs:

Maintenance for Mobile Data Collector:	$666.67
Maintenance for Software:	$666.67
Total Annual Operating Costs:	$1,333.34

Meter Replacement Costs:

Year/ Cycle	Meters	Installation	Total Cost, by year	
1/2	$195,825.66	$62,545.00	1	$273,620.66
2/4	$252,679.72	$76,840.00	2	$330,853.06
3/6	$207,052.02	$70,880.00	3	$279,265.36
4/8	$232,642.50	$76,100.00	4	$310,075.84

Total Project Cost: $1,193,814.92

Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Operations

II. Project Title: Eighth Street Ground Storage Tank PAX Mixer

III. Project Description:

Install a PAX mixing device (a brand name for a machine placed in the tank/tower that mixes water in the tank with the water coming into the tank/tower)in the Eighth Street ground storage tank. This will even out the chlorine residual and temp of the water in the tank/tower to help reduce the potential for THM formation) in the center of the Eighth Street ground storage tank.

IV. Project Justification: (What need is being met, how does this project address the need?)

This project is recommended to decrease the THM formation potential in the Eighth Street ground storage tank to meet Stage 2 DBP rule.

V. What Board Goals Does This Project Meet?

- ☐ Supportive Infrastructure
- ☐ Clean/Green Environment
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

2110 Pond Ave

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☐	No ☒
b. Maintain a current level of service?	Yes ☐	No ☒
c. Increase a level of service?	Yes ☒	No ☐
d. Represent a "vision"?	Yes ☒	No ☐

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

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IX. Project Alternatives:

None noted.

X. Project Dependency:

This tank is scheduled to be repaired in FY 2015-2016. Installing this mixer at the same time will save money compared to doing the two items separately.

XI. Negative Impacts:

Stratification of the water in the 500,000 gallon Eighth Street Ground Storage Tank may contribute to chlorine residual fluctuations and THM formation potential.

XII. Other Considerations:

Funds can be saved if the mixer is installed at the same time the tank is repaired

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:
Yes ☐ No ☒ If YES, describe:

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	Engineering and PAX Mixer Installation	$	58,000
	SCADA Control Installation		6,000
	TOTAL Capital (One Time Costs)	$	64,000
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
	Annual Electricity (@ $0.08/kWh)	$	200
	TOTAL Continuing Annual Operating Costs	$	200

XV. Fiscal Year Requested:

FY 2015-2016

Priority Recommendation: (By CIP Committee)

Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Distribution

II. Project Title: Conversion to Chloramines for Disinfection

III. Project Description:

This project will convert the Town's disinfection process from Free Chlorine to Chloramines for the reduction of THM formation potential. New distribution feed equipment would be installed at both the Eighth Street Water Plant and the Gull Street Pump Station.

IV. Project Justification: (What need is being met, how does this project address the need?)

This project is recommended to decrease the potential for THM formation in the Town's distribution system. If necessary, this conversion would be done to meet the Stage 2 DBP Rule.

V. What Board Goals Does This Project Meet?

- ☐ Supportive Infrastructure
- ☐ Clean/Green Environment
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

2110 S. Pond Avenue and 104 Gull Street

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☒	No ☐
b. Maintain a current level of service?	Yes ☐	No ☒
c. Increase a level of service?	Yes ☒	No ☐
d. Represent a "vision"?	Yes ☐	No ☒

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

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IX. Project Alternatives:

None noted

X. Project Dependency:

N/A

XI. Negative Impacts:

Increase in annual operation budget for additional gas chlorine, liquid ammonia, Cl-17 reagents, and daily and monthly water analysis.

XII. Other Considerations:

None

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:

Yes ☐ No ☒ If YES, describe:

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	Engineering Design and Permitting	$	10,000
	2 Ammonia Feed Systems - $3,000/Each		6,000
	3 CL-17 Monitors to Measure Free and Total Chlorine Residual - $3,323/Each		9,969
	2 Regal Smart Valves for Residual Control of Chlorine - $4,999/Each		9,998
	TOTAL Capital (One Time Costs)	$	35,967
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
	3,000 Gallons of Aqueous Ammonia/Year - $3.32/Gallon	$	9,960
	Additional 5,500 Pounds of Chlorine/Year - $.85/Pound		4,675
	TOTAL Continuing Annual Operating Costs	$	14,635

XV. Fiscal Year Requested:

FY 2015-2016

Priority Recommendation: (By CIP Committee)

Capital Improvement Plan
Fiscal Year 2014-2015 through 2018-2019
Project Description

I. Requesting Department: Water Operations

II. Project Title: 1 Million Gallon Treatment Train at the NRO and Two New Wells

III. Project Description:

To pay for the construction of an additional 1-million gallon reverse osmosis (R/O) treatment train at the Dare County North R/O (NRO) Regional Water Plant and the development cost to install two new production wells.

IV. Project Justification: (What need is being met, how does this project address the need?)

This project was originally recommended in the November 2000 Master Water Plan Update. It will be required if Nags Head consumes 90% of its 3.5 million gallon per day allocation of water from Dare County for two consecutive days. To date, the maximum day for Nags Head has been 2.805 million gallons on July 4 2008 (80% of our allocation).

V. What Board Goals Does This Project Meet?

- ☐ Supportive Infrastructure
- ☐ Livable Neighborhoods
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.
- ☐ Choose an item.

VI. Project Location: (Attach a map if applicable)

Dare County NRO Plant, 600 Mustian Street Kill Devil Hills

VII. Department Priority: (Choose One) Does the requested project:

a. Correct an unsatisfactory level of service?	Yes ☐	No ☒
b. Maintain a current level of service?	Yes ☒	No ☐
c. Increase a level of service?	Yes ☐	No ☒
d. Represent a "vision"?	Yes ☐	No ☒

VIII. Departmental Rank: (Prioritize your request in relation to other departmental project request)

6 of 6

IX. Project Alternatives:

None noted

X. Project Dependency:

This project will be dependent upon the location of viable production wells. Four inch test wells will be installed on proposed well sites to insure there is an adequate supply of raw (feed) water.

XI. Negative Impacts:

None

XII. ON/Other Considerations:

None

XIII. Additional Funding Sources:

Are there grants or additional funds which might be used in conjunction with the CIP to fund this project:

Yes ☐ No ☒ If YES, describe: Click here to enter text.

CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	**Description of Capital/One Time Costs**		**Cost (Round to Nearest $)**
	2 4-inch test wells and 2 production wells	$	880,000
	1 Million Gallon R/O train and associated equipment		$2,500,000
	TOTAL Capital (One Time Costs)	$	3,380,000
b. Continuing Annual Operating Costs	**Description of Continuing Annual Operating Costs**		
		$	
	TOTAL Continuing Annual Operating Costs	$	

XV. Fiscal Year Requested:

FY 2018-2019

Priority Recommendation: (By CIP Committee)