

**Capital Improvement Plan
Fiscal Year 2015-2016 through 2019-2020
Project Description**

I. Requesting Department: IT

II. Project Title: Fire Station 21 LAN Connection

III. Project Description:

Reduce the connection cost for Fire Station 21 by replacing leased fiber with a wireless microwave connection.

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

Fire Station 21 is currently connected to the Nags Head Town Hall via leased optical fiber from Charter Cable. This lease cost \$7,200 annually. The Town has paid approximately \$67,000 to maintain this connection over the past 9 years and 4 months.

The lease contract expired in September 2010 and the provider has stated they no longer offer leased dark fiber. The service has continued on a month to month basis. However, the service could be terminated on short notice at any time.

Based on an assumed 2% cost of capital, return on investment calculations for the proposed project yield an initial payback of 124% of the original investment in 6 years. We expect the proposed solution to be adequate for a minimum of 7 years and possibly longer. Should the equipment be replaced or upgraded in year 7 at a cost of \$25,000, a 119% return on investment is realized in year 10. (See attached ROI analysis.)

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)

Transceivers will be installed at Fire Station 21 and on the Nags Head Town Hall cell tower.

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

- | | | |
|--|---|-----------------------------|
| a. Correct an unsatisfactory level of service? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| b. Maintain a current level of service? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| c. Increase a level of service? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| d. Represent a "vision"? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

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

1 of 1

IX. Project Alternatives:

The IT Department has priced solutions from many different providers. These solutions included other wireless point to point connections, copper connections, and virtual private network connections offered by the phone company, cable company, and various other private contractors. All solutions considered were either higher in cost or less desirable.

X. Project Dependency:

The project does not depend on other factors.

XI. Negative Impacts:

**CAPITAL IMPROVEMENT PROGRAM
ITEM/PROJECT DESCRIPTION FORM**

- 2 -

The proposed system is more susceptible to failure from storm (wind) damage than the existing in-ground fiber cable. The Town will own this equipment so repair, replacement and upgrade cost will be the Town's responsibility. Unusually intense rain can slow the connection somewhat but the connection should remain adequate.

XII. Other Considerations:

The costs, considerations and projections presented here are intended to be worst case scenario figures. The following quote is from the vendor: "this system is highly reliable and installed on towers all over the country so, these "failures, and Mother Nature events" are very few and far between. These radios when mounted properly, have a high windload tolerance and radio defects/failures are less than a 1/2 percent. This is carrier-grade equipment and way more reliable versus any 802.11 technology." The North Carolina State Highway Patrol utilizes this same equipment for a 3.5 mile connection in the Raliegh, NC area. Additionally, the cost of this project includes cold spare transceivers that can be installed to replace either transceiver should one fail.

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.](#)

XIV. ESTIMATED COSTS

a. Capital/ One Time Costs	Description of Capital/One Time Costs	Cost (Round to Nearest \$)
		\$ 32,650
	TOTAL Capital (One Time Costs)	\$ 32,650
b. Continuing Annual Operating Costs	Description of Continuing Annual Operating Costs	
		\$
	TOTAL Continuing Annual Operating Costs	\$

XV. Fiscal Year Requested:

FY 2015-2016

Priority Recommendation: (By CIP Committee)

The Town of Nags Head
 Capital budgeting—return-on-investment (ROI) analysis
 2/19/2015

Data cell key	
Formula cells: Totals are calculated and filled in automatically.	

Investment overview	
Project name:	Replace Leased Fiber - Town Hall/Fire Station 21
Project sponsor:	Information Technology Dept
Date of request:	February 19, 2015
General description of benefits: Eliminate the ongoing \$600 monthly cost of leased fiber connecting Nags Head Town Hall with Fire Station 21 by replacing the current connection with a wireless backhaul solution.	

Cash flow and ROI statement												
BENEFIT DRIVERS	YEAR											
	0	1	2	3	4	5	6	7	8	9	10	
Annual Savings Over Current Lease Agreement		\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200
Total annual benefits		\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200
Implementation filter		100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total benefits realized		\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200	\$7,200

Costs	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Total	\$32,650	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	\$0	\$0	\$0

Benefits	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Annual benefit flow	(\$32,650.00)	\$7,200.00	\$7,200.00	\$7,200.00	\$7,200.00	\$7,200.00	\$7,200.00	\$7,200.00	(\$17,800.00)	\$7,200.00	\$7,200.00	\$7,200.00
Cumulative benefit flow	(\$32,650.00)	(\$25,450.00)	(\$18,250.00)	(\$11,050.00)	(\$3,850.00)	\$3,350.00	\$10,550.00	(\$7,250.00)	(\$50.00)	\$7,150.00	\$14,350.00	

Discounted benefit flow	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Discounted costs	\$32,650.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$21,764.00	\$0.00	\$0.00	\$0.00
Discounted benefits	\$0.00	\$7,058.82	\$6,920.42	\$6,784.72	\$6,651.69	\$6,521.26	\$6,393.39	\$6,268.03	\$6,145.13	\$6,024.64	\$5,906.51
Total discounted benefit flow	(\$32,650.00)	\$7,058.82	\$6,920.42	\$6,784.72	\$6,651.69	\$6,521.26	\$6,393.39	(\$15,495.97)	\$6,145.13	\$6,024.64	\$5,906.51
Total cumulative discounted benefit flow	(\$32,650.00)	(\$25,591.18)	(\$18,670.76)	(\$11,886.04)	(\$5,234.35)	\$1,286.91	\$7,680.30	(\$7,815.67)	(\$1,670.54)	\$4,354.10	\$10,260.61

Initial investment	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Initial investment (Installation and Equipment Cost)	\$32,650										
Replacement/Upgrade of Transceivers in 7th Year								\$25,000			
Total costs	\$32,650	\$0	\$0	\$0	\$0	\$0	\$0	\$25,000	\$0	\$0	\$0

ROI measures												
Cost of capital	2%											
Net present value	\$10,260.61											
Return on investment		22%	43%	64%	84%	104%	124%	86%	97%	108%	119%	
Payback (in years)	8.01											