ELECTRIC PROGRAM

The Electric Program is administered by the Utilities Department. The program is designed to achieve five primary strategic objectives:

1) Replace and/or rehabilitate aging infrastructure;
2) Maintain or increase system reliability;
3) Improve system efficiency;
4) Address system growth; and
5) Regulatory compliance.

The City owns and maintains the electric distribution system within the City limits. The electrical system consists of 205 miles of primary lines; 15,150 electric meters, 6 electric substations, and 31 diesel generators that are used to reduce electric costs in the City. The annual peak electric load is 140 megawatts (MW).

PRIOR YEAR ACCOMPLISHMENTS

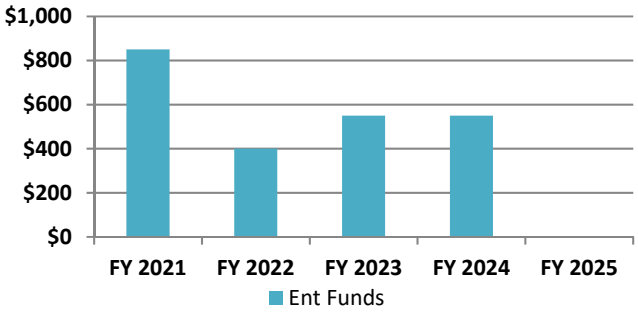
The Electric Program is investing every year in ongoing projects to maintain and upgrade the electrical distribution infrastructure including placing Overhead Lines Underground (E-033), Transmission & Distribution Maintenance (E-030), and Substation Capacity/Reliability Improvements (E-037).

The spending on maintenance and upgrades of the electrical distribution directly contributes to the City's excellent power service availability of 99.99%. This translates to less than 52 minutes of outage time for the average consumer in a year.

THE FIVE-YEAR PLAN (FY 2021 – FY 2025)

The FY 2021 Five-Year Capital Improvement Program (CIP) includes $2,350,000 in Enterprise Funds (Electric Fund).

FY 2021 funding consists of a $850,000 transfer from the Electric Fund.



(Dollars in Thousands)

FY 2021 CAPITAL PROJECTS

New Fiber Optic Loop/Ring (E-032)
Install new fiber optic cabling to provide priority services and improve reliability of critical infrastructure networks and public safety services from Prince William Street to Buckner Road.

LED Streetlight Replacement (E-034)
Upgrade all Manassas City streetlights (approximately 2,800) to LED over seven years.

Manassas Airport Distribution Improvements (E-035)
Develop an electrical infrastructure replacement and upgrade plan at the Airport to include adding switching options for redundancy an upgrade of backup generation.

Point of Woods Substation Circuit Tie-Point (E-036)
Design and build an alternate tie to the Airport Substation Circuit to increase operational flexibility and allow maintenance at the substation.

FY 2021 MAINTENANCE CAPITAL PROJECTS

Transmission & Distribution Maintenance (E-030)
Replace cables and terminations on Bayberry Avenue and within Georgetown South (Phase 1).

Alternative Generation Initiatives (E-031)
Ongoing investments to diesel generation assets to meet emissions requirements and investigate new technologies for alternative peak-shaving methods.

Place Overhead Lines Underground (E-033)
Relocation of utility services underground along Jefferson Avenue, Lincoln Avenue, and School Street.

Substation Capacity/Reliability Improvements (E-037)
Perform major maintenance of the transformer and bus at Battery Heights.

Circuit Automation (E-038)
Improve reliability and switching operations by replacing manual switches with automatically operated devices.

NEW CAPITAL PROJECTS

There are no new projects proposed for the Electric Program.

SUMMARY OF ELECTRIC CAPITAL PROJECTS

($ in Thousands)

CostEstimates:	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project	5-Year CIP
Planning	175	-	-	-	-	-	-	175	-
Land	-	-	-	-	-	-	-	-	-
Construction	1,005	850	400	550	550	-	-	3,355	2,350
Total Cost	**1,180**	**850**	**400**	**550**	**550**	**-**	**-**	**3,530**	**2,350**
Funding Sources:									
General Fund	-	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-	-
Electric Fund	1,180	850	400	550	550	-	-	3,530	2,350
Stormwater Fund	-	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-	-
Total Funding	**1,180**	**850**	**400**	**550**	**550**	**-**	**-**	**3,530**	**2,350**
Operating Impacts:									
Revenue	-	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-	-
Program (Costs) Saving	-	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

ELECTRIC CAPITAL PROJECT LISTING

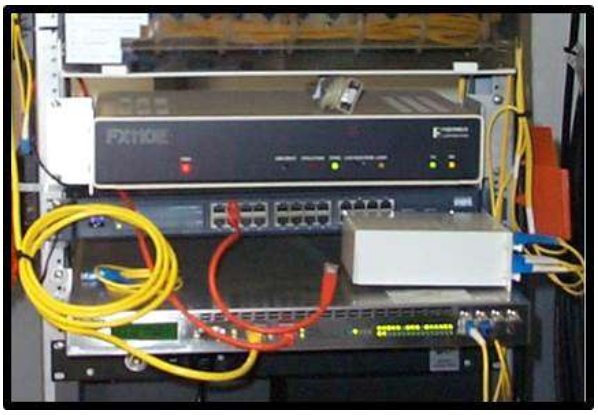
($ in Thousands)

Project Name	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project	5-Year CIP
New Fiber Optic Loop/Ri	355	150	-	-	-	-	-	505	150
LED Streetlight Replace	350	100	100	100	100	-	-	750	400
Manassas Airport Distrib	175	400	300	450	450	-	-	1,775	1,600
Point of Woods Substati	300	200	-	-	-	-	-	500	200
Total	**1,180**	**850**	**400**	**550**	**550**	**-**	**-**	**3,530**	**2,350**

E-032 New Fiber Optic Loop/Ring

Year Introduced: 2015
Change: Increased Estimate
Associated Proj: E-032
Program Area: Electric
Managing Dept: Utilities
Manager: T. Dawood
Plan Conformance:
Comprehensive Plan 7.7

Est. Start: 7/1/2016
Est. Complete: 6/30/2021



Description:

Identify needs of self-healing rings/loops using fiber optic paths for priority services. Install new fiber optic cabling to provide priority services to the necessary redundancy loops/rings. This will improve reliability of critical infrastructure networks and public safety services.
FY20: VMEA to Quarry Road (28,000') and Ball Field to Micron (1,200');
FY21: Prince William Street to Buckner Road (12,100')

Cost Estimate: ($ in 1,000s)	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project
Planning	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Construction	355	150	-	-	-	-	-	505
Total Cost	**355**	**150**	**-**	**-**	**-**	**-**	**-**	**505**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	355	150	-	-	-	-	-	505
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**355**	**150**	**-**	**-**	**-**	**-**	**-**	**505**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-034 LED Streetlight Replacement

Year Introduced: 2017
Change: No change
Associated Proj: E-034
Program Area: Electric
Managing Dept: Utilities
Manager: T. Dawood
Plan Conformance:
Comprehensive Plan 8.3

Est. Start: 7/1/2016
Est. Complete: 6/30/2024

Description:

Upgrade all Manassas City streetlights (approx. 2,800) to LED over seven years. First year activities include planning, design, and specifications of fixtures including public input and investigation of other local municipalities that have changed to LED.

Cost Estimate: ($ in 1,000s)	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project
Planning	50	-	-	-	-	-	-	50
Land	-	-	-	-	-	-	-	-
Construction	300	100	100	100	100	-	-	700
Total Cost	**350**	**100**	**100**	**100**	**100**	**-**	**-**	**750**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	350	100	100	100	100	-	-	750
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**350**	**100**	**100**	**100**	**100**	**-**	**-**	**750**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-035 Manassas Airport Distribution Improvements

Year Introduced: 2020
Change: Increased Estimate
Associated Proj: E-035
Program Area: Electric
Managing Dept: Utilities
Manager: T. Dawood
Plan Conformance:
Comprehensive Plan 7.7.9

Est. Start: 7/1/2019
Est. Complete: 6/30/2024

Description:

The electrical distribution system at Manassas Regional Airport has been installed over time without a coordinated plan for redundancy and reliability. This project will study the new loads planned at the Airport and develop a replacement and upgrade plan for the electrical infrastructure. This will include adding switching options for redundancy and a review and upgrade of the backup generation. The design will also include adding renewable energy utility-level battery storage and a study of solar options to tie to the battery system (2023-2024).

Cost Estimate: ($ in 1,000s)	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project
Planning	75	-	-	-	-	-	-	75
Land	-	-	-	-	-	-	-	-
Construction	100	400	300	450	450	-	-	1,700
Total Cost	**175**	**400**	**300**	**450**	**450**	**-**	**-**	**1,775**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	175	400	300	450	450	-	-	1,775
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**175**	**400**	**300**	**450**	**450**	**-**	**-**	**1,775**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-036 Point of Woods Substation Circuit Tie-Point

Year Introduced: 2020
Change: No change
Associated Proj: E-036
Program Area: Electric
Managing Dept: Utilities
Manager: T. Dawood
Plan Conformance:
Comprehensive Plan 7.7.9

Est. Start: 7/1/2019
Est. Complete: 6/30/2021

Description:

The Point of Woods substation has no alternate feed for Circuit 203 to enable offloading the substation for maintenance. Currently, three feeders must be daisy-chained together in order to perform major maintenance at the substation. This project will design and build an alternate tie to the Airport Substation Circuit 306 to increase operational flexibility and allow maintenance at the substation without lowering reliability for customers.

Cost Estimate: ($ in 1,000s)	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project
Planning	50	-	-	-	-	-	-	50
Land	-	-	-	-	-	-	-	-
Construction	250	200	-	-	-	-	-	450
Total Cost	**300**	**200**	**-**	**-**	**-**	**-**	**-**	**500**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	300	200	-	-	-	-	-	500
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**300**	**200**	**-**	**-**	**-**	**-**	**-**	**500**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

ELECTRIC MAINTENANCE CAPITAL PROJECT LISTING

($ in Thousands)

The City identifies Capital Projects as projects with a cost greater than $100,000 **and** a useful life of 10+ years. The City recognizes that there are additional projects/needs that are capital in nature but do not meet the requirement set forth for a capital project. These additional projects/needs are considered Maintenance Capital Projects, a list of which is provided below for the Electric Program.

Project Name	Prior Years	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	Future	Total Project	5-Year CIP
Electric T&D Maintenanc	3,740	400	400	400	400	400	-	5,740	2,000
Alternative Generation In	1,750	300	300	300	300	300	-	3,250	1,500
Place Overhead Lines U	1,725	500	400	580	500	500	-	4,205	2,480
Substation Capacity and	225	325	325	450	350	350	-	2,025	1,800
Circuit Automation	110	-	110	-	110	-	-	330	220
Total Cost	**7,550**	**1,525**	**1,535**	**1,730**	**1,660**	**1,550**	**-**	**15,550**	**8,000**
Funding Sources									
General Fund	-	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-	-
Electric Fund	7,406	1,525	1,535	1,730	1,660	1,550	-	15,406	8,000
Stormwater Fund	-	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-	-
Bonds	144	-	-	-	-	-	-	144	-
State	-	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-	-
Total Funding	**7,550**	**1,525**	**1,535**	**1,730**	**1,660**	**1,550**	**-**	**15,550**	**8,000**