ELECTRIC PROGRAM

The Electric Program is administered by the Electric division of 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

Each capital project is reviewed by staff to ensure it is both economically justifiable and consistent with the Utilities Strategic Plan. Projects are coordinated with Public Works to ensure that relocations and underground projects are accomplished together with transportation projects so community disruptions are minimized. Electric utility relocations related to such projects are reflected in the Transportation Program beginning in FY 2018.

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

Airport Substation Expansion (E-021)
Completed circuit 306 to support load growth in the Gateway Development area

Advanced Meter Infrastructure (E-029)
Project completed

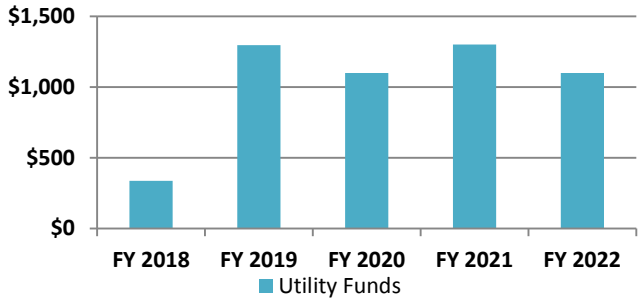
Place Overhead Lines Underground (E-033)
Efforts continue to replace overhead electric service with underground services to improve reliability.

Underground Cable/Termination Replacement (E-030)
Efforts continue to replace the underground cables & terminations throughout the City that have reached their useful life. This will improve reliability.

THE FIVE-YEAR PLAN (FY 2018 – FY 2022)

The FY 2018 Adopted Five-Year Capital Improvement Program (CIP) includes $5,131,000 in Enterprise Funds (Electric Fund).

FY 2018 funding consists of a $336,000 transfer from the Electric Fund.



(Dollars in Thousands)

FY 2018 CAPITAL PROJECTS

Underground Cable/Termination Replacement (E-030)
Replace cable and terminations along Rolling Road, an alternate feed to the hospital (Funding from prior years).

New Generation Initiatives (E-031)
Ongoing contributions to maintain and upgrade diesel generation through the 2020 bid year, to relocate units behind the meter, and to investigate new energy technologies to provide peak shaving.

Place Overhead Lines Underground (E-033)
Relocation of utility services to underground lines along Landgreen Street from Liberia Avenue to Weems Road (Funding from prior years).

New Fiber Optic Loop/Ring (E-032)
Install new fiber optic cabling from VMEA to Quarry, 28,000' (Funding from prior years).

LED Streetlight Replacement (E-034)
Investigating opportunities for turn-key installations based on input from LED lighting vendors.

FY 2018 MAINTENANCE CAPITAL PROJECTS

Replace/Automate Pad Mount Fuse Cabinets (E-004)
Continue efforts to replace metal fuse cabinets with pad-mount switch cabinets.

SUMMARY OF ELECTRIC CAPITAL PROJECTS

($ in Thousands)

CostEstimates:	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Future	Total Project	5-Year CIP
Planning	1,210	-	10	10	10	10	10	1,260	40
Land	-	-	-	-	-	-	-	-	-
Construction	8,240	336	1,285	1,090	1,290	1,090	1,075	14,406	5,091
Total Cost	**9,450**	**336**	**1,295**	**1,100**	**1,300**	**1,100**	**1,085**	**15,666**	**5,131**
Funding Sources:									
General Fund	-	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-	-
Electric Fund	5,450	336	1,295	1,100	1,300	1,100	1,085	11,666	5,131
Stormwater Fund	-	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-	-
Bonds	4,000	-	-	-	-	-	-	4,000	-
State	-	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-	-
Total Funding	**9,450**	**336**	**1,295**	**1,100**	**1,300**	**1,100**	**1,085**	**15,666**	**5,131**
Operating Impacts:									
Revenue	-	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-	-
Program (Costs) Saving	-	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Program Highlights:

The FY 2018 Adopted Five-Year CIP includes $5,131,000 for the Electric Program, which reflects a decrease of $6,874,000 or 57.3% from the FY 2017 Adopted Five-Year CIP. Changes in the adopted CIP include $1.8 million in roll-off from FY 2017 projects and the movement of $5 million of projects to the transportation program.

ELECTRIC CAPITAL PROJECT LISTING

($ in Thousands)

Project Name	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Future	Total Project	5-Year CIP
Airport Substation Expan	4,636	-	-	-	-	-	-	4,636	-
Underground Cable and	2,940	-	400	400	400	400	400	4,940	1,600
New Generation Initiativ	914	236	300	300	300	300	-	2,350	1,436
New Fiber Optic Loop/Ri	160	-	195	-	-	-	-	355	195
Place Overhead Lines U	750	-	300	300	500	300	585	2,735	1,400
LED Streetlight Replace	50	100	100	100	100	100	100	650	500
Total	**9,450**	**336**	**1,295**	**1,100**	**1,300**	**1,100**	**1,085**	**15,666**	**5,131**

E-021 Airport Substation Expansion

Year Introduced: 2006
Change: No change
Associated Proj: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 7.7

Est. Start: 7/1/2005
Est. Complete: 6/30/2018

Description:

Phase I: Upgraded 115KV to 230KV system and upgrade substation transfer. Substation expansion will provide adequate capacity for the electric system as yearly peak loading continues to increase and as commercial development of the Route 28 corridor advances. Phase I completed.
Phase II: Add new distribution circuit (306) to serve the Gateway Development.

Cost Estimate: ($ in 1,000s)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Future**	**Total Project**
Planning	800	-	-	-	-	-	-	800
Land	-	-	-	-	-	-	-	-
Construction	3,836	-	-	-	-	-	-	3,836
Total Cost	**4,636**	**-**	**-**	**-**	**-**	**-**	**-**	**4,636**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	636	-	-	-	-	-	-	636
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	4,000	-	-	-	-	-	-	4,000
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**4,636**	**-**	**-**	**-**	**-**	**-**	**-**	**4,636**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-030 Underground Cable and Termination Replacement

Year Introduced: 2010
Change: No change
Associated Proj: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 7.7

Est. Start: 7/1/2010
Est. Complete: 6/30/2023

Description:

The utility has experienced an above average number of failures on the 15KV main feeder circuits because cables have been in use long past their expected service life. This is a formal program for replacing cables and terminations based on test results, age, and the number of faults experienced.
FY 2018 (prior year funding) - Rolling Road; FY 2019 - Confederate Trail; FY 2020 - Liberia Avenue
FY 2021 Georgetown South Tie Point Phase I; FY 2022 - Georgetown South Tie Point Phase II

Cost Estimate: ($ in 1,000s)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Future**	**Total Project**
Planning	210	-	10	10	10	10	10	260
Land	-	-	-	-	-	-	-	-
Construction	2,730	-	390	390	390	390	390	4,680
Total Cost	**2,940**	**-**	**400**	**400**	**400**	**400**	**400**	**4,940**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	2,940	-	400	400	400	400	400	4,940
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**2,940**	**-**	**400**	**400**	**400**	**400**	**400**	**4,940**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-031 New Generation Initiatives

Year Introduced: 2011
Change: No change
Associated Proj: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 7.7
Comprehensive Plan 8.3

Est. Start: 7/1/2010
Est. Complete: 6/30/2023

Description:
Maintain and upgrade the diesel generation assets to meet changing emissions requirements. Investigate new technologies to provide alternative peak-shaving methods.

Cost Estimate: ($ in 1,000s)	Prior Years	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	Future	Total Project
Planning	150	-	-	-	-	-	-	150
Land	-	-	-	-	-	-	-	-
Construction	764	236	300	300	300	300	-	2,200
Total Cost	**914**	**236**	**300**	**300**	**300**	**300**	**-**	**2,350**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	914	236	300	300	300	300	-	2,350
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**914**	**236**	**300**	**300**	**300**	**300**	**-**	**2,350**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-032 New Fiber Optic Loop/Ring

Year Introduced: 2015
Change: No change
Associated Proj: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 7.7

Est. Start: 7/1/2016
Est. Complete: 6/20/2021

Description:

Identify needs of self-healing rings/loops using fiber optic paths for priority services. Install new fiber optic cabling to provide priority services the necessary redundancy loops/rings. This will improve reliability of critical infrastructure networks and public safety services.
FY 2018 (prior year funding) - VMEA to Quarry (28,000')
FY 2019 - Point of Woods to VMEA (20,000') and Ball Field to Micron (1,200');
FY 2020 - Prince William to Buckner (12,100')

Cost Estimate: ($ in 1,000s)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Future**	**Total Project**
Planning	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Construction	160	-	195	-	-	-	-	355
Total Cost	**160**	**-**	**195**	**-**	**-**	**-**	**-**	**355**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	160	-	195	-	-	-	-	355
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**160**	**-**	**195**	**-**	**-**	**-**	**-**	**355**
Operating Impacts: ($ in 1,000s)								
Revenue	-	-	-	-	-	-	-	-
Staffing (Costs) Savings	-	-	-	-	-	-	-	-
Facility (Costs) Savings	-	-	-	-	-	-	-	-
Program (Costs) Savings	-	-	-	-	-	-	-	-
Debt Service	-	-	-	-	-	-	-	-
Net Revenue	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

E-033 Place Overhead Lines Underground (Non-Transportation)

Year Introduced: 2016
Change: No change
Associated Proj: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 7.6.3

Est. Start: 7/1/2016
Est. Complete:

Description:

Place overhead electric, telephone, cable, and fiber lines underground, improving reliability and aesthetics and lowering maintenance costs.
FY 2018 (prior year funds) - Landgreen St (Liberia Ave. to Weems Rd.)
FY 2019 and FY 2020 - Foster Dr. (Technology Dr. to Dean Dr.)
FY 2021 - Sudley Rd (Digges Rd. to Godwin Dr.)
FY 2022 - Sudley Rd (Stonewall Rd. to Digges Rd.)

Cost Estimate: ($ in 1,000s)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Future**	**Total Project**
Planning	-	-	-	-	-	-	-	-
Land	-	-	-	-	-	-	-	-
Construction	750	-	300	300	500	300	585	2,735
Total Cost	**750**	**-**	**300**	**300**	**500**	**300**	**585**	**2,735**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	750	-	300	300	500	300	585	2,735
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**750**	**-**	**300**	**300**	**500**	**300**	**585**	**2,735**
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: N/A
Program Area: Electric
Managing Dept: Utilities
Manager: D. Jones
Plan Conformance:
Comprehensive Plan 8.3

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

Description:

Upgrade all Manassas City streetlights 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. The estimates replacement schedule is 6-years.

Cost Estimate: ($ in 1,000s)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Future**	**Total Project**
Planning	50	-	-	-	-	-	-	50
Land	-	-	-	-	-	-	-	-
Construction	-	100	100	100	100	100	100	600
Total Cost	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**650**
Funding Sources: ($ in 1,000s)								
General Fund	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-
Electric Fund	50	100	100	100	100	100	100	650
Stormwater Fund	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-
Total Funding	**50**	**100**	**100**	**100**	**100**	**100**	**100**	**650**
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 2018	FY 2019	FY 2020	FY 2021	FY 2022	Future	Total Project	5-Year CIP
Replace/Automate Pad	317	55	55	55	55	55	55	647	275
Total Cost	**317**	**55**	**55**	**55**	**55**	**55**	**55**	**647**	**275**
Funding Sources									
General Fund	-	-	-	-	-	-	-	-	-
Sewer Fund	-	-	-	-	-	-	-	-	-
Water Fund	-	-	-	-	-	-	-	-	-
Electric Fund	317	55	55	55	55	55	55	647	275
Stormwater Fund	-	-	-	-	-	-	-	-	-
Airport Fund	-	-	-	-	-	-	-	-	-
School Fund	-	-	-	-	-	-	-	-	-
Bonds	-	-	-	-	-	-	-	-	-
State	-	-	-	-	-	-	-	-	-
Federal	-	-	-	-	-	-	-	-	-
NVTA	-	-	-	-	-	-	-	-	-
Other Sources	-	-	-	-	-	-	-	-	-
Total Funding	**317**	**55**	**55**	**55**	**55**	**55**	**55**	**647**	**275**