# 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 to ensure that relocations and underground projects are accomplished together with transportation projects so community disruptions are minimized.

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

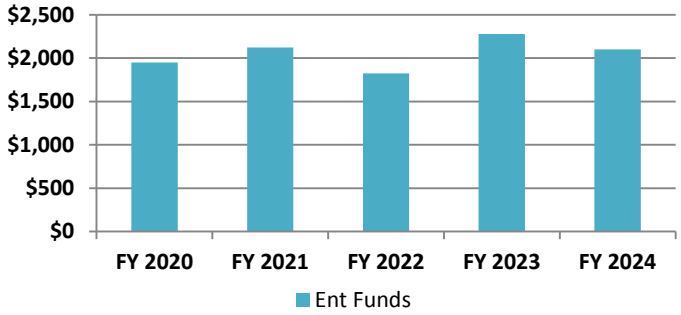
The electric utility is investing every year in ongoing projects to maintain and upgrade the electrical distribution infrastructure including placing Overhead Lines Underground (E-033), Underground Cable/Termination Replacement (E-030), and Substation Capacity/Reliability Improvements (E-037).

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 2020 – FY 2024)

The FY 2020 Five-Year Capital Improvement Program (CIP) includes $10,280,000 in Enterprise Funds (Electric Fund).

FY 2020 funding consists of a $1,950,000 transfer from the Electric Fund.




*(Dollars in Thousands)*

## FY 2020 CAPITAL PROJECTS

*Underground Cable/Termination Replacement (E-030)*
Replace cable and terminations along Liberia Avenue

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

*(Dollars in Thousands)*

*Place Overhead Lines Underground (E-033)*
Relocation of utility services underground along Foster Drive from Technology Drive to Dean Drive.

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

*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

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

## FY 2020 MAINTENANCE CAPITAL PROJECTS

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

## NEW CAPITAL PROJECTS

Manassas Airport Distribution Improvements (E-035)
Point of Woods Substation Circuit Tie-Point (E-036)
Substation Capacity/Reliability Improvements (E-037)

## SUMMARY OF ELECTRIC CAPITAL PROJECTS

*($ in Thousands)*

| CostEstimates: | Prior Years | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Future | Total Project | 5-Year CIP |
|---|---|---|---|---|---|---|---|---|---|
| Planning | 420 | 185 | 85 | 185 | 10 | 10 | 150 | 1,045 | 475 |
| Land | - | - | - | - | - | - | - | - | - |
| Construction | 6,250 | 1,765 | 2,040 | 1,640 | 2,270 | 2,090 | 2,500 | 18,555 | 9,805 |
| **Total Cost** | **6,670** | **1,950** | **2,125** | **1,825** | **2,280** | **2,100** | **2,650** | **19,600** | **10,280** |
| **Funding Sources:** | | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - | - |
| Electric Fund | 6,670 | 1,950 | 2,125 | 1,825 | 2,280 | 2,100 | 2,650 | 19,600 | 10,280 |
| Stormwater Fund | - | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - | - |
| **Total Funding** | **6,670** | **1,950** | **2,125** | **1,825** | **2,280** | **2,100** | **2,650** | **19,600** | **10,280** |
| **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 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Future | Total Project | 5-Year CIP |
|---|---|---|---|---|---|---|---|---|---|
| Underground Cable and | 3,340 | 400 | 400 | 400 | 400 | 400 | - | 5,340 | 2,000 |
| Alternative Generation In | 1,450 | 300 | 300 | 300 | 300 | 300 | - | 2,950 | 1,500 |
| New Fiber Optic Loop/Ri | 355 | - | - | - | - | - | - | 355 | - |
| Place Overhead Lines U | 1,275 | 450 | 500 | 400 | 580 | 500 | - | 3,705 | 2,430 |
| LED Streetlight Replace | 250 | 100 | 100 | 100 | 100 | 100 | - | 750 | 500 |
| Manassas Airport Distrib | - | 175 | 300 | 300 | 450 | 450 | - | 1,675 | 1,675 |
| Point of Woods Substati | - | 300 | 200 | - | - | - | - | 500 | 500 |
| Substation Capacity and | - | 225 | 325 | 325 | 450 | 350 | 2,650 | 4,325 | 1,675 |
| **Total** | **6,670** | **1,950** | **2,125** | **1,825** | **2,280** | **2,100** | **2,650** | **19,600** | **10,280** |

# 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:**
**Est. Complete:**

**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.
FY20: Liberia Avenue
FY21 : Georgetown South Tie Point Phase I; FY22: Georgetown South Tie Point Phase II
FY23: Acer Lane Circuit Tie Point 103/302; FY24: Park Avenue/Park Street Neighborhood

| **Cost Estimate:** ($ in 1,000s) | **Prior Years** | **FY 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | 220 | 10 | 10 | 10 | 10 | 10 | - | 270 |
| Land | - | - | - | - | - | - | - | - |
| Construction | 3,120 | 390 | 390 | 390 | 390 | 390 | - | 5,070 |
| **Total Cost** | **3,340** | **400** | **400** | **400** | **400** | **400** | **-** | **5,340** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | 3,340 | 400 | 400 | 400 | 400 | 400 | - | 5,340 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **3,340** | **400** | **400** | **400** | **400** | **400** | **-** | **5,340** |
| **Operating Impacts:** ($ in 1,000s) | | | | | | | | |
| Revenue | - | - | - | - | - | - | - | - |
| Staffing (Costs) Savings | - | - | - | - | - | - | - | - |
| Facility (Costs) Savings | - | - | - | - | - | - | - | - |
| Program (Costs) Savings | - | - | - | - | - | - | - | - |
| Debt Service | - | - | - | - | - | - | - | - |
| **Net Revenue** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |

# E-031 Alternative Generation Initiatives

**Year Introduced:** 2011
**Change:** Expanded Scope
**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:**
**Est. Complete:**

**Description:**

Maintain and upgrade the diesel generation assets to meet changing emissions requirements and investigate new technologies to provide alternative peak-shaving methods.
Projects in development: Gas turbine tie to Prince William Substation; Dean Park generators relocation; study generators for peaking; Osbourn HS generator replacement.

| **Cost Estimate:** ($ in 1,000s) | **Prior Years** | **FY 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | 150 | - | - | - | - | - | - | 150 |
| Land | - | - | - | - | - | - | - | - |
| Construction | 1,300 | 300 | 300 | 300 | 300 | 300 | - | 2,800 |
| **Total Cost** | **1,450** | **300** | **300** | **300** | **300** | **300** | **-** | **2,950** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | 1,450 | 300 | 300 | 300 | 300 | 300 | - | 2,950 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **1,450** | **300** | **300** | **300** | **300** | **300** | **-** | **2,950** |
| **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:** 6/30/2020

**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.
FY19: VMEA to Quarry Road (28,000') and Ball Field to Micron (1,200');
FY20: Prince William Street to Buckner Road (12,100')

| **Cost Estimate:** ($ in 1,000s) | **Prior Years** | **FY 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | - | - | - | - | - | - | - | - |
| Land | - | - | - | - | - | - | - | - |
| Construction | 355 | - | - | - | - | - | - | 355 |
| **Total Cost** | **355** | **-** | **-** | **-** | **-** | **-** | **-** | **355** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | 355 | - | - | - | - | - | - | 355 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **355** | **-** | **-** | **-** | **-** | **-** | **-** | **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:** Increased Estimate
**Associated Proj:** N/A
**Program Area:** Electric
**Managing Dept:** Utilities
**Manager:** D. Jones
**Plan Conformance:**
Comprehensive Plan 7.6.2

**Est. Start:**
**Est. Complete:**

**Description:**

Place overhead electric, telephone, cable, and fiber lines underground, improving reliability and aesthetics, and lowering maintenance costs. 86% of lines are underground and approximately 3,900 feet are undergrounded annually.
FY20: Foster Drive Phase II (Technology Drive to Dean Drive); FY21: Jefferson Avenue/Lincoln Avenue/School Stree
FY22: Sudley Road (Southside; Digges Road to Godwin Drive); FY23: Sudley Road (Southside; Stonewall Road to Digges Road)
FY24: Portner Avenue (Main Street to Sudley Road Tie Point 404/104)

| **Cost Estimate:** ($ in 1,000s) | **Prior Years** | **FY 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | - | - | - | - | - | - | - | - |
| Land | - | - | - | - | - | - | - | - |
| Construction | 1,275 | 450 | 500 | 400 | 580 | 500 | - | 3,705 |
| **Total Cost** | **1,275** | **450** | **500** | **400** | **580** | **500** | **-** | **3,705** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | 1,275 | 450 | 500 | 400 | 580 | 500 | - | 3,705 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **1,275** | **450** | **500** | **400** | **580** | **500** | **-** | **3,705** |
| **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 (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 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | 50 | - | - | - | - | - | - | 50 |
| Land | - | - | - | - | - | - | - | - |
| Construction | 200 | 100 | 100 | 100 | 100 | 100 | - | 700 |
| **Total Cost** | **250** | **100** | **100** | **100** | **100** | **100** | **-** | **750** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | 250 | 100 | 100 | 100 | 100 | 100 | - | 750 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **250** | **100** | **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:** New Project
**Associated Proj:** N/A
**Program Area:** Electric
**Managing Dept:** Utilities
**Manager:** D. Jones
**Plan Conformance:**
Comprehensive Plan 7.7.9

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

**Description:**

The electrical distribution system at Manassas Municipal 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 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **Future** | **Total Project** |
|---|---|---|---|---|---|---|---|---|
| Planning | - | 75 | - | - | - | - | - | 75 |
| Land | - | - | - | - | - | - | - | - |
| Construction | - | 100 | 300 | 300 | 450 | 450 | - | 1,600 |
| **Total Cost** | **-** | **175** | **300** | **300** | **450** | **450** | **-** | **1,675** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | - | 175 | 300 | 300 | 450 | 450 | - | 1,675 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **-** | **175** | **300** | **300** | **450** | **450** | **-** | **1,675** |
| **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:** New Project
**Associated Proj:** N/A
**Program Area:** Electric
**Managing Dept:** Utilities
**Manager:** D. Jones
**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 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **FY 2024** | **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** | **-** | **-** | **-** | **-** | **-** | **-** | **-** | **-** |

# E-037 Substation Capacity and Reliability Improvements

**Year Introduced:** 2020
**Change:** New Project
**Associated Proj:** N/A
**Program Area:** Electric
**Managing Dept:** Utilities
**Manager:** D. Jones
**Plan Conformance:**
Comprehensive Plan 7.6.1

**Est. Start:** 7/1/2019
**Est. Complete:** 6/30/2025

**Description:**

This project is designed to evaluate and construct substation capacity improvements to the four City-owned distribution substations and also develop and construct a new substation to serve continued growth and future loads.
FY20: Perform major maintenance of the transformer and bus at Battery Heights. This includes de-energizing, draining, and testing the transformer. It also includes high-voltage busing replacements and bus upgrades.
FY21: Design and build a new feeder circuit from Battery Heights Substation. This project will install a new breaker and relaying in the existing empty feeder bay to serve increasing loads towards Wellington Road.

| **Cost Estimate:** ($ in 1,000s) | Prior Years | FY 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Future | Total Project |
|---|---|---|---|---|---|---|---|---|
| Planning | - | 50 | 75 | 175 | - | - | 150 | 450 |
| Land | - | - | - | - | - | - | - | - |
| Construction | - | 175 | 250 | 150 | 450 | 350 | 2,500 | 3,875 |
| **Total Cost** | **-** | **225** | **325** | **325** | **450** | **350** | **2,650** | **4,325** |
| **Funding Sources:** ($ in 1,000s) | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - |
| Electric Fund | - | 225 | 325 | 325 | 450 | 350 | 2,650 | 4,325 |
| Stormwater Fund | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - |
| **Total Funding** | **-** | **225** | **325** | **325** | **450** | **350** | **2,650** | **4,325** |
| **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 2020 | FY 2021 | FY 2022 | FY 2023 | FY 2024 | Future | Total Project | 5-Year CIP |
|---|---|---|---|---|---|---|---|---|---|
| Circuit Automation | - | 110 | - | 110 | - | 110 | - | 330 | 330 |
| **Total Cost** | **-** | **110** | **-** | **110** | **-** | **110** | **-** | **330** | **330** |
| | | | | | | | | | |
| **Funding Sources** | | | | | | | | | |
| General Fund | - | - | - | - | - | - | - | - | - |
| Sewer Fund | - | - | - | - | - | - | - | - | - |
| Water Fund | - | - | - | - | - | - | - | - | - |
| Electric Fund | - | 110 | - | 110 | - | 110 | - | 330 | 330 |
| Stormwater Fund | - | - | - | - | - | - | - | - | - |
| Airport Fund | - | - | - | - | - | - | - | - | - |
| School Fund | - | - | - | - | - | - | - | - | - |
| Bonds | - | - | - | - | - | - | - | - | - |
| State | - | - | - | - | - | - | - | - | - |
| Federal | - | - | - | - | - | - | - | - | - |
| NVTA | - | - | - | - | - | - | - | - | - |
| Other Sources | - | - | - | - | - | - | - | - | - |
| **Total Funding** | **-** | **110** | **-** | **110** | **-** | **110** | **-** | **330** | **330** |