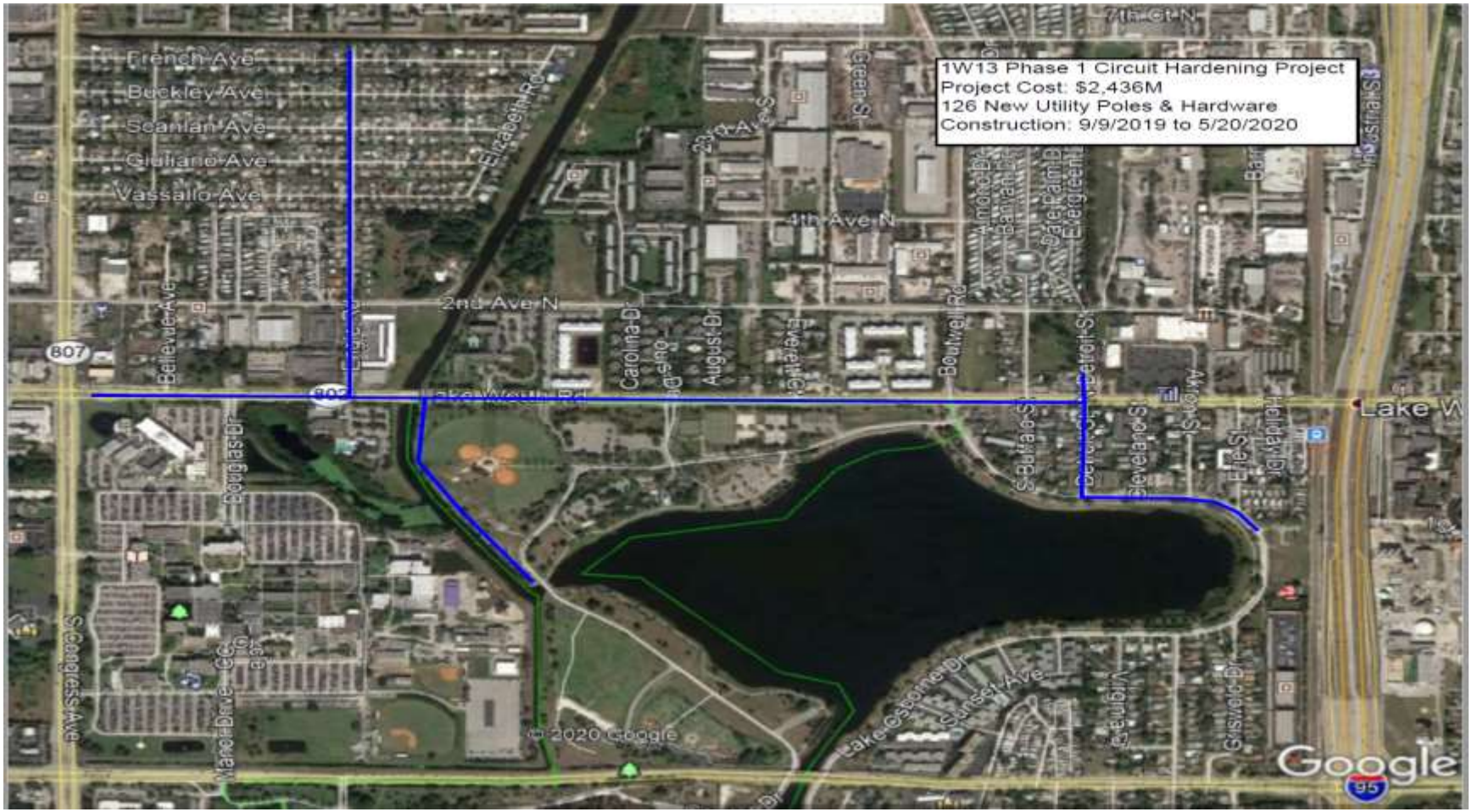
Electric Utility System Hardening and Reliability Improvement Project
Western Circuits - 26B1W13 Update and 26B6001, 26B6003, 26B6004 Hooper Construction $2.4 Million Project

What Has Been Accomplished Thus Far: 26B1W13 Phase 1 Area Covered



26B1W13 Phase 1

- All system circuits were forced ranked by performance (poorest)
  - 26B1W13 ranked #1 as the poorest performing
    - 3 Phase project, phase 1 is complete
      - Work performed by outside contractor L.E. Myers
        - » 126 total poles replaced
          - 72 Class 1 Wood
          - 54 KIP8 Concrete
        - » 18 new transformers
        - » Phase 1 total cost $2436800.00

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CITIZEN OWNED ENERGY

SYSTEM HARDENING S·H·R·I·P RELIABILITY IMPROVEMENT

26B1W13 Phase 1 Project Example

Early 2019 the 26B1W13 Circuit was ranked the poorest performing circuit
August 2019 – Phase 1 Construction Started
October 2019 – Mid-point Reclosers into Service
Work Complete – Normal Configuration July 2020

	2019	2020	% Reduction
Customers Affected	11235	1942	-82.7%
Trip/Close Operation	6	5	-16.7%
Breaker Lockout	6	1	-83.3%
Outage Minutes	6812	5082	-25.4%
Customer Outage Minutes	711732	119952	-83.1%
Outages	48	39	-18.8%

Since July 2020 the 26B1W13 circuit has not had any breaker operations or lockouts. This work has had a direct impact on the reliability of service to 2,205 customers.

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What's Next?
26B1W13 Phases 2 & 3

- Phases 2 & 3 are currently at 95% design
- Construction of Phases 2 & 3 is currently scheduled to begin by summer of this year.

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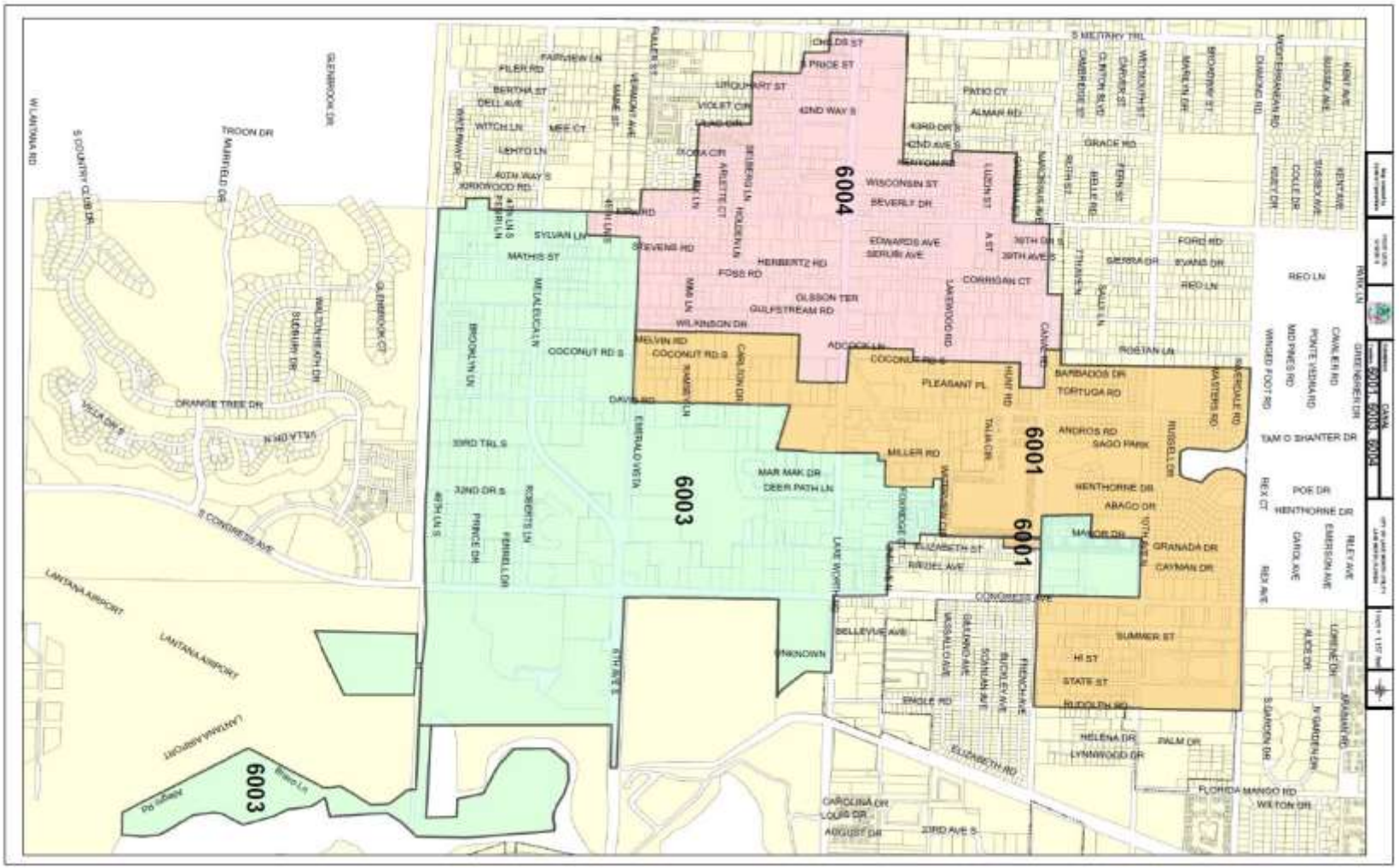
System Hardening and Reliability Improvement
Hooper Construction $2.4 Million Project
26B6001, 26B6003, 26B6004

Project Area



#2,#3 & #4 on the Poorest Performing Circuits List

- The circuits were ranked 1 to 41 in 5 separate categories with 41 being the poorest rating. These 5 categories included customers affected, breaker operations, outage minutes per customer, total outage minutes, and number of outages on the circuit.

CIRCUIT #	CIRCUIT COUNT	CUSTOMERS AFFECTED	TRIP/ CLOSE	# AFFECTED T/C	OUTAGE MINUTES	TOTAL OUTAGE MINUTES	OUTAGE COUNT	C	D	F	G	H	WORST
26B1W13	1600	20564	7	11000	4142	568686	48	44	44	42	42	42	214
26B6004	1500	9408	4	12000	9433	714474	77	39	40	44	43	44	210
26B6003	2600	9500	4	10200	6541	562568	54	40	41	43	41	43	208
26B6001	1800	8575	4	3620	3926	908437	21	38	39	41	44	41	203
26B1W05	4680	10435	4	18820	1392	301055	16	41	42	32	38	40	193
26B5002	2550	10450	0	0	1125	388358	12	42	22	26	40	37	167
26B1E09	1350	8318	0	0	1470	241489	15	37	21	33	37	39	167
26B1801	500	600	4	2000	1885	31485	15	25	38	36	26	38	163
4R0602	1000	2097	0	0	2035	142815	8	35	20	38	36	30	159
26B0603	650	815	2	1300	1477	53625	8	27	35	34	31	29	156

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Project area issues

Metal Brackets
Old Insulators
Open Wire Secondary
Pole Bonding
Animal Guard
Automatic Conductor
Sleeves
Bad Poles

Internal Staff has identified 1948 poles, that will need to be looked at and corrected

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- **Images of what happens if the Identified Issues are not Addressed**
- Early Morning February 17th 2021 Pole Fire - causing 2 Breaker reclosing events affecting 1373 customers - sustained outage for 174 customers for 2 hours – extended outage for 20 customers for 7 hours

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- Internal Line Crews began the work and have done an excellent job
- due to the sheer magnitude of the project - it was discussed and decided to have contactors attack the area

Hooper Construction, with Commission Approved $2.4 Million Work Order, will pick up where internal labor crews left off accomplishing the following:

- Remove/Replace steel cross-arms with fiberglass cross-arms
- Remove/Replace open-wire secondary with 4/0 triplex
- Remove any Automatic Conductor Sleeves and Replace with Compression Type
- Install animal guards
  - Middle Φ on cross-arms/vertical/Modified-vertical construction
  - Install insulated bird-wire on transformers, fuse switches and LA's
  - Install eel-guard on feeder jumpers/junctions
- Replace blown or damaged LA's
- Remove/Replace deteriorated wood cross-arms as needed
- Remove/Replace deteriorated wood poles; CLWB approval required
- Remove/Replace leaking or deteriorated transformers; CLWB approval required

Work Tasks (cont):

- Test all ground rod locations; maximum 25 Ohm's, record per location
- Repair/replace missing/damaged pole bonds
- Replace broken or missing down-guys
- Inform CLWB team areas requiring vegetation management
- Contractor to coordinate all planned outages
  - Hang door notices 72 hours in advanced
  - Provide CLWB with outage schedule, address & location
- Contractor shall be responsible for all property, landscaping, grassed and sidewalk restoration as needed
- Contractor shall be responsible for all Maintenance of Traffic and required MOT permits as needed
- Substantial completion in 90 Business Days, Final Completion in 110 Business Days upon issuance of NTP or Purchase Order

What to Expect

Images of our own
Internal Labor's Work


We
Are
Here
For
You!
Altec
UTILITIES
100 YEARS

End…..Questions