



Building Community_{sm}

Framework to Resiliency

Environmental Symposium

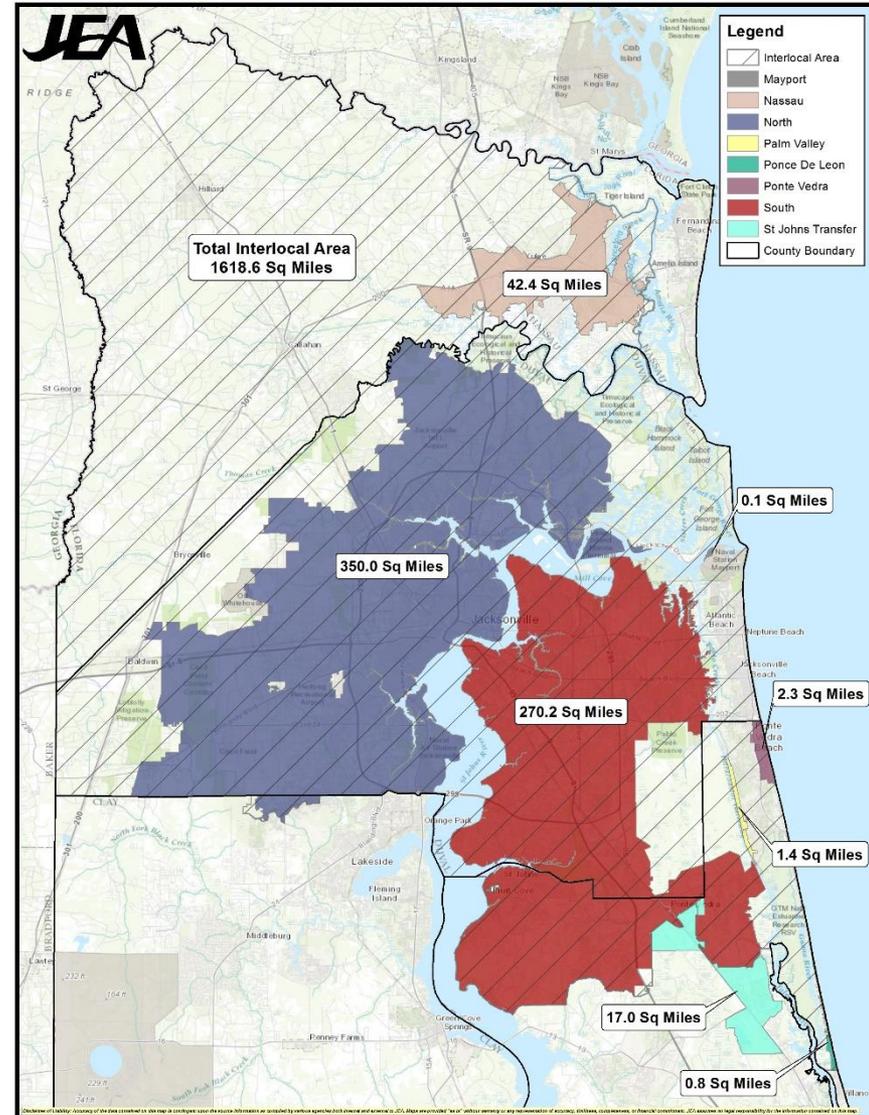
Raynetta Curry Marshall, P.E.

September 14, 2018

1. *Background: Changed Conditions and JEA's Response*
2. *Resilience Activities – Near Term*
3. *Resilience Activities – Mid and Long Term*
 - A. *System Resiliency Plan*
 - B. *Engineering and Design Services*



- ❑ 112 MGD Water Production
- ❑ 82 MGD Wastewater Treated
- ❑ 344,000 Water and 267,000 Sewer Customers
- ❑ 11 Water Reclamation Facilities
- ❑ 1,400+ Wastewater Pump Stations
- ❑ 38 Water Treatment Plants



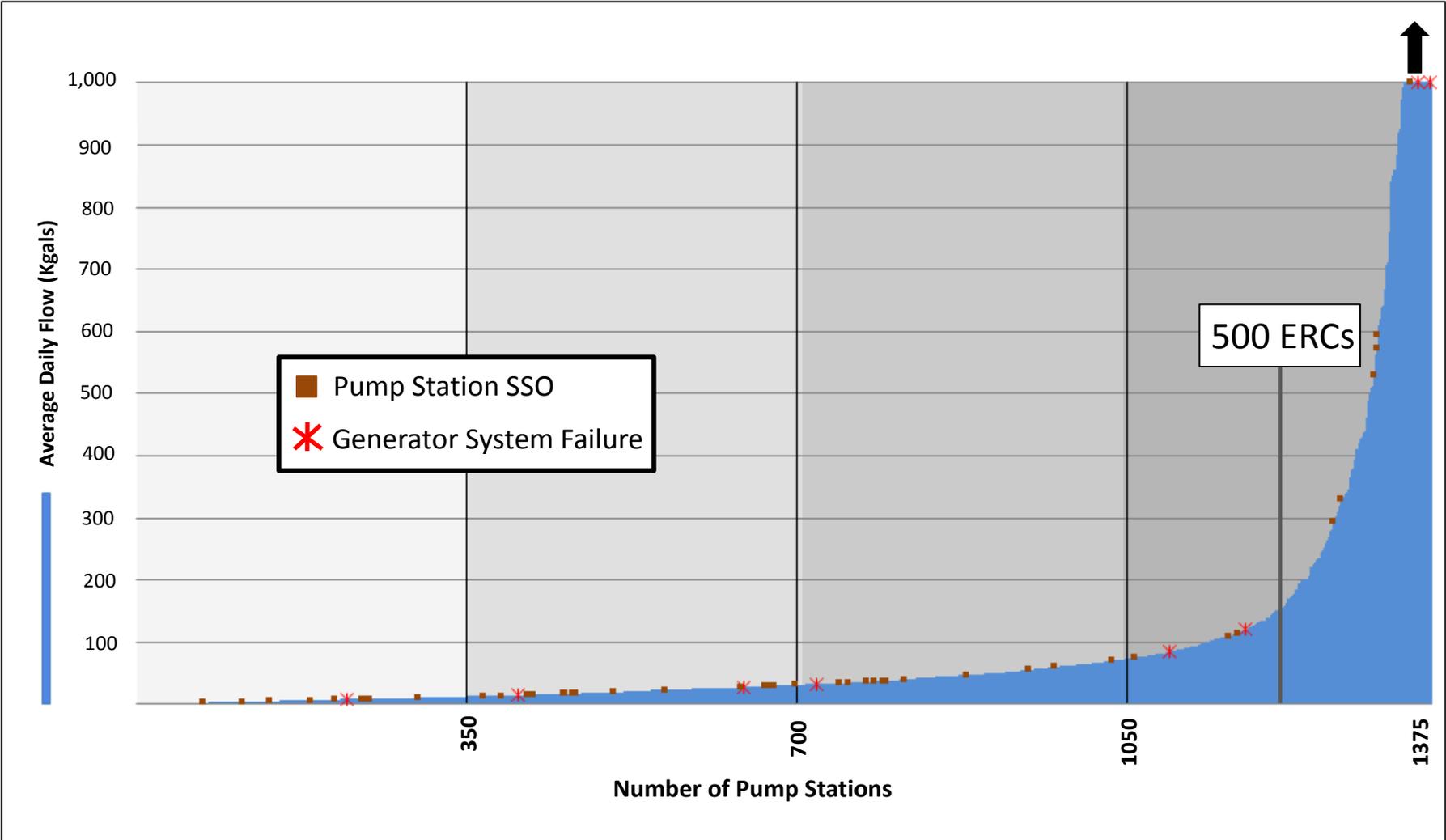
- ❑ Hurricane Matthew hit JEA's service territory on October 7, 2016
- ❑ The storm produced record breaking rainfall
- ❑ Storm surge and flash flooding across northeast Florida
- ❑ Power loss to more than 50% of the pump stations



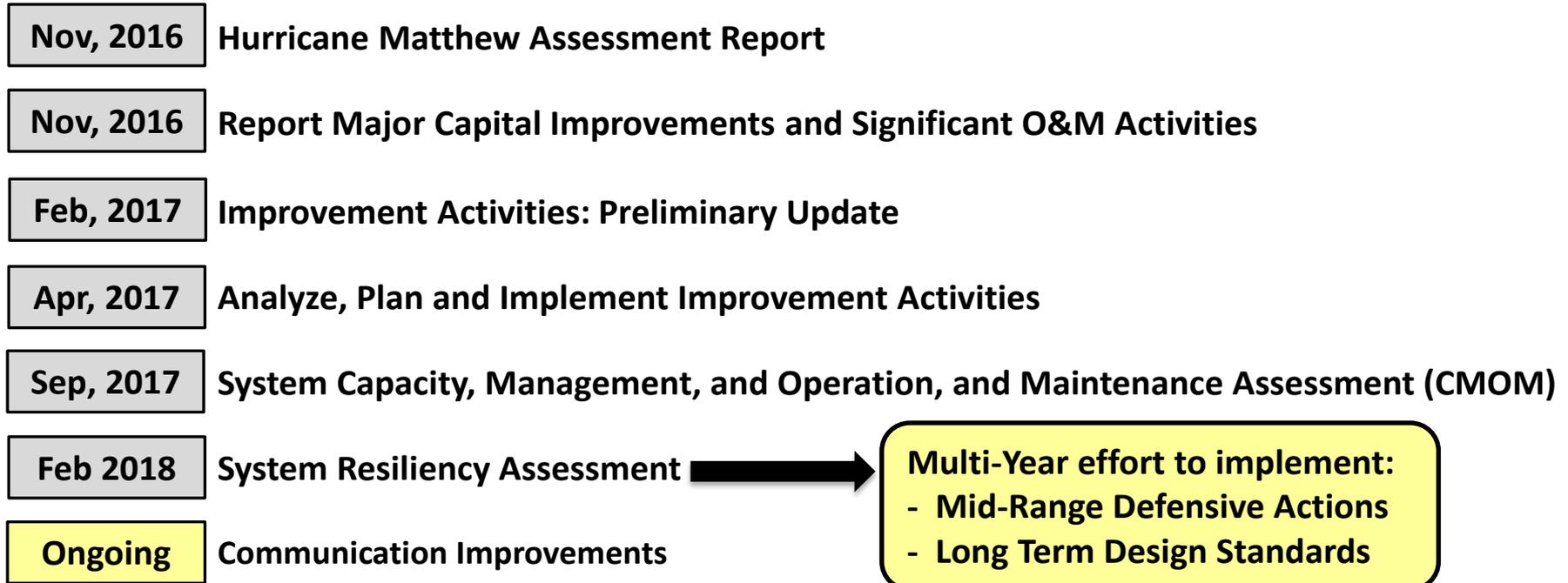
- ❑ 67 Sanitary Sewer Overflow (SSO) events
- ❑ 55 were pump station related
- ❑ Estimated volume > 11MG



Hurricane Matthew: Pump Stations with SSOs



Milestones



- Multi-year assessment, implementation and adaptation strategies
- **Periodically update the Board and Stakeholders**

Resilience Activities: Assessed Key Pump Stations

	Pump Station Address	FM ≥ 12"	Peak Flow (GPM)
1	94 32ND ST E	Yes	2352
2	5233 5TH ST W	No	1875
3	6640 HARLOW BV	No	1569
4	9801 BEAVER ST W	Yes	1143
5	8362 TOUCHTON RD	Yes	943
6	7663 ARGYLE FOREST BV	No	824
7	4467 SAN PABLO RD S	No	722
8	1700 SAN PABLO RD S	No	698
9	12858 GLEN KERNAN PY	Yes	673
10	5490 SWAMPFOX RD	No	665
11	5900 TOWNSEND RD	No	588
12	1520 HAMMOND BV	No	570
13	2197 SAN PABLO RD S	No	558
14	1060 ELLIS RD N	No	498
15	1818 WILLOWBRANCH TERRACE	Yes	471
16	6630 BROADWAY AV	No	470
17	4211 WOODMERE ST	Yes	452
18	2962 MANGROVE AV	No	452

	Pump Station Address	FM ≥ 12"	Peak Flow (GPM)
19	11637 ETHEL RD	Yes	383
20	9846 FT CAROLINE RD	Yes	352
21	7998 QUAIL COVE LN	Yes	312
22	250 BRYAN ST	Yes	264
23	10837 BLUE PACIFIC CT	Yes	258
24	2251 MCCOY CREEK BV	Yes	258
25	3092 HUFFMAN BV	Yes	251
26	4950 SAN PABLO RD S	Yes	230
27	79 NOCATEE VILLAGE DR	Yes	179
28	5103 KERNAN BV S	Yes	157
29	15598 MOSS HOLLOW DR	Yes	100
30	3500 BOATWRIGHT WY	Yes	96
31	8617 WESTERN WY	Yes	50
32	4130 SUNBEAM RD	Yes	44
33	11933 ACOSTA RD	Yes	40
34	635 SHEARWATER PY	Yes	31
35	2446 TALLEYRAND AV	Yes	20

The 8 pump stations experienced SSOs due to the impacts of Hurricane Matthew.

Initial assessment has 35 of the 184 JEA pump stations, from a total of 1,375, which meet either of two newer design conditions of the discharge Force Main (FM) > 12-inch diameter or peak flow > 441 GPM (175,000 gallons average daily flow)

Resilience Activities: Capital Investment

Fixed Asset (purchased): FY17

Asset Type	Number of Units	Dollar Spent
Generator	47	\$5.3M

Portable Asset (leased):

Asset Type	Number of Units	Dollar Spent
Generator	100	\$0.9M

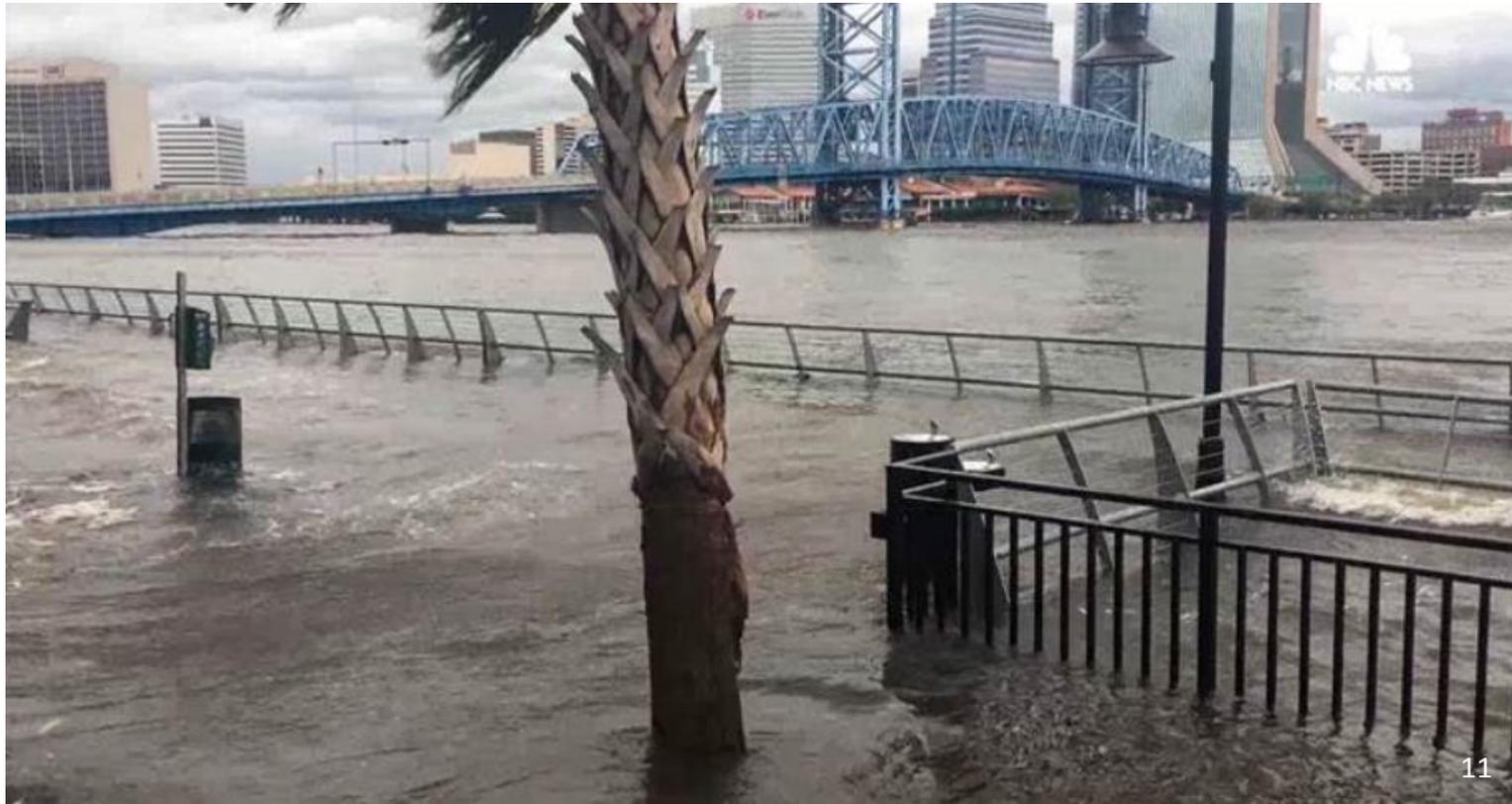
\$6.2M



- ❑ Visited every pump station for post-storm assessment
- ❑ Increased tree trimming program and over head to underground electric service conversion
- ❑ Initiated electrical and control upgrades including remote start, control, and monitoring
- ❑ Enhanced lease agreement for mobile generators
- ❑ Enhanced storm preparation protocols and staffing



- ❑ Hurricane Irma hit JEA's service territory on September 10, 2017
- ❑ Set new flood record in northeast Florida
- ❑ Power loss to more than 50% of the pump stations



- ❑ 61 SSO events
- ❑ 41 were pump station related
- ❑ Estimated volume was 2.3 MG (***80% less than Matthew***)



Resilience Activities: Continued Capital Investment

Fixed Asset (purchased):

FY18

Asset Type	Number of Units	Dollar Spent
Diesel Pump	33	\$4.9M
Generator	56	\$6.4M

Portable Asset (purchased):

Asset Type	Number of Units	Dollar Spent
Diesel Pump	12	\$1.0M

Portable Asset (leased):

Asset Type	Number of Units	Dollar Spent
Diesel Pump	50	\$0.4M
Generator	100	\$0.9M

\$13.6M



W/WW System Resiliency Plan and Engineering Design Services

Dec, 2017 Issued Request For Proposals

Jan, 2018 Received proposals and evaluated presentations from consultants

Apr, 2018 Selected CH2M/Jacobs

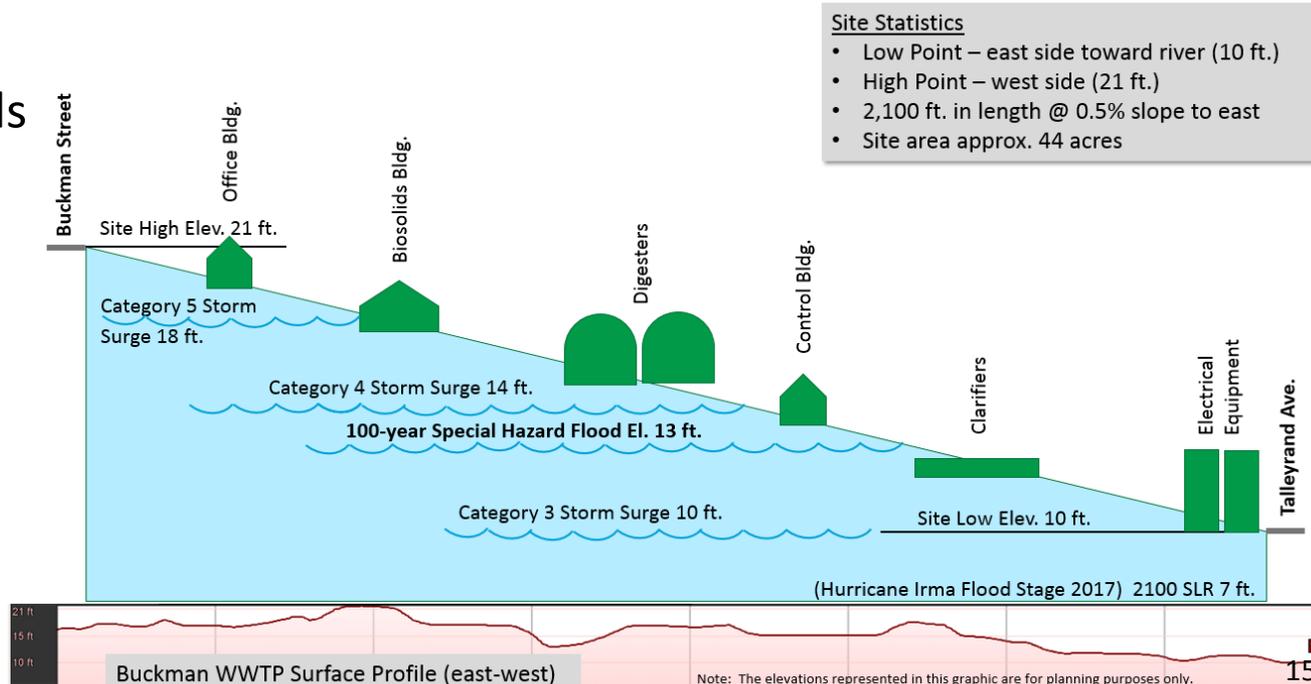
May, 2018 Executed contract with CH2M/Jacobs

May, 2018 Program Kick-off Meeting

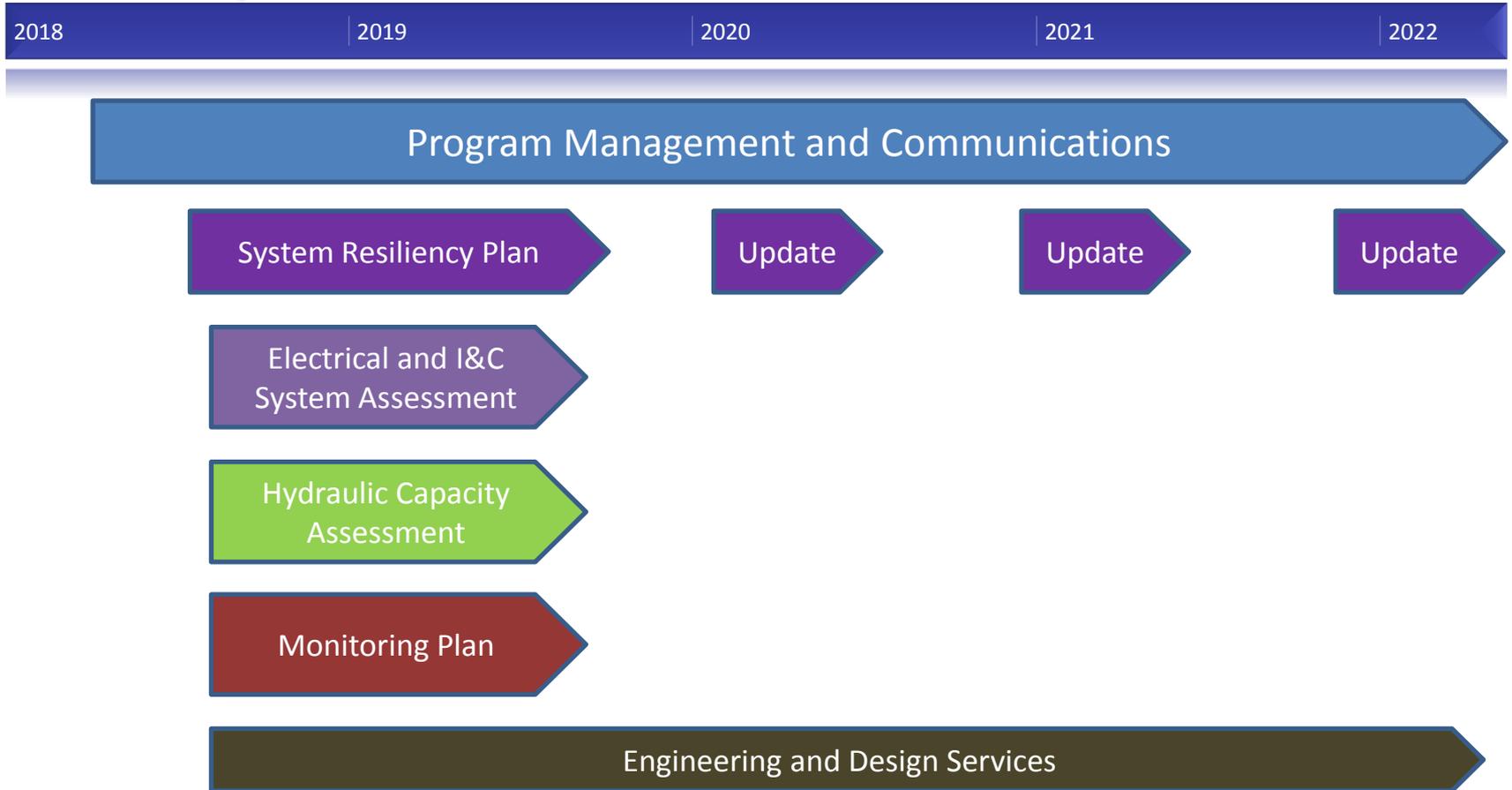
System Resiliency Plan will assess current and future risk from sea level rise, storm surge, and rainfall and recommend CIP projects and changes to policies/design standards

Assessment Approach

- ❑ Model extreme weather scenarios
- ❑ Identify at-risk systems, facilities and equipment
- ❑ Quantification of risks with costs
- ❑ Prioritize mitigation requirements and investments
- ❑ Implement adaptation strategies
 - Preventative
 - Protective
 - New Standards



Resiliency Program: Current Tasks



Raynetta Curry Marshall, P.E.
Director W/WW Planning & Development
(904) 665-7613
marsrc@jea.com

JEA Information:
www.jea.com

