

Infrastructure Repair and Mitigation

Cary Knight

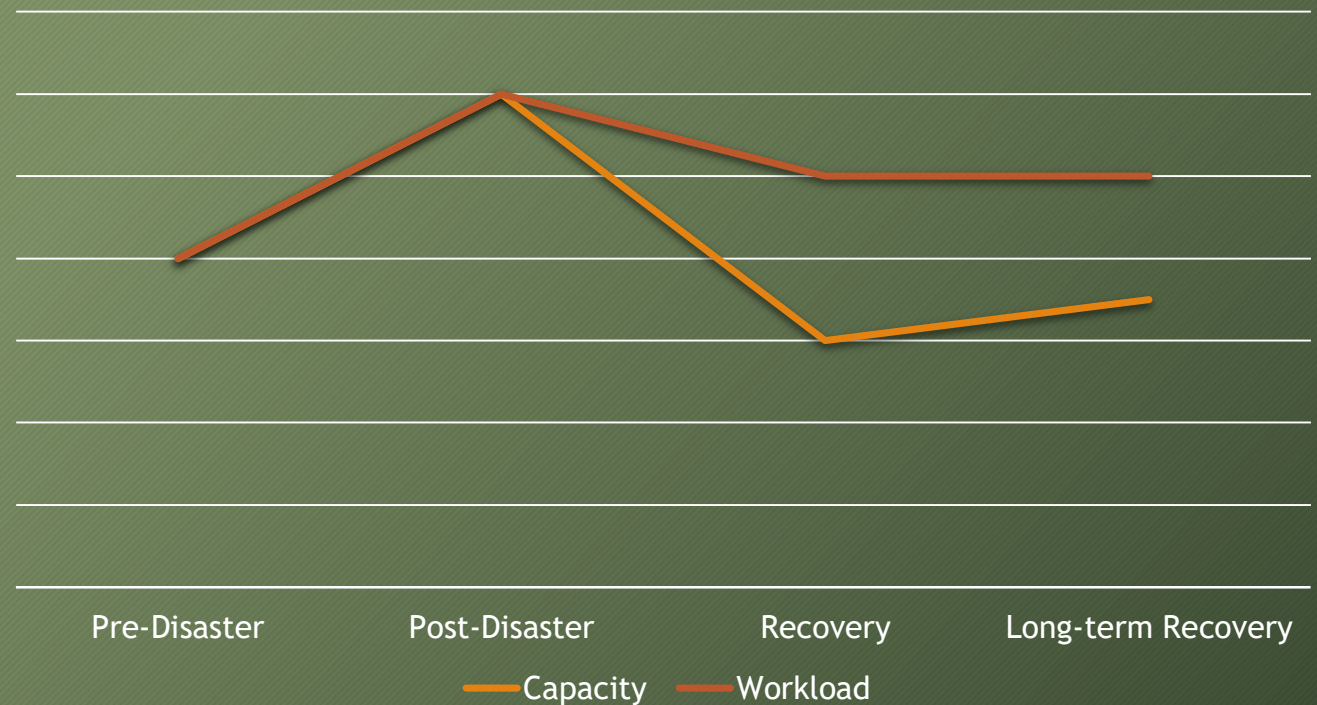
Monroe County Director of Project Management

Post Disaster Recovery Challenges



- Pre-disaster workforce capacity versus Post-disaster workforce capacity
- FEMA Timeline
- Funding Resources (County Line of Credit)

Capacity vs. Workload



Infrastructure Resilience



Successful Resilience:

- ✓ Roads and Bridges
- ✓ Electrical Power Grid
- ✓ Wastewater System
- ✓ Water System



Florida Keys Electric Cooperative



Saturday, September 23, 2017

13 days after landfall, the last of FKEC's members who were able to receive power were reconnected. This was done without a single lost-time injury during the entire restoration effort



Doug Finger
photographer

Infrastructure Failures: Communications



Points of Failure

- Lack of resilience in Communications Systems in 2018
 - Cellphone dependency during emergencies
 - TWO Fiber Optic Cables: Crossing the bridges
- COMCAST - credit card readers

Finding Communications Solutions

- Satellite and BGAN to create another layer of Redundancy
- Microwave System Investment
- Back to the old HAM system

Critical Facilities: Hospitals

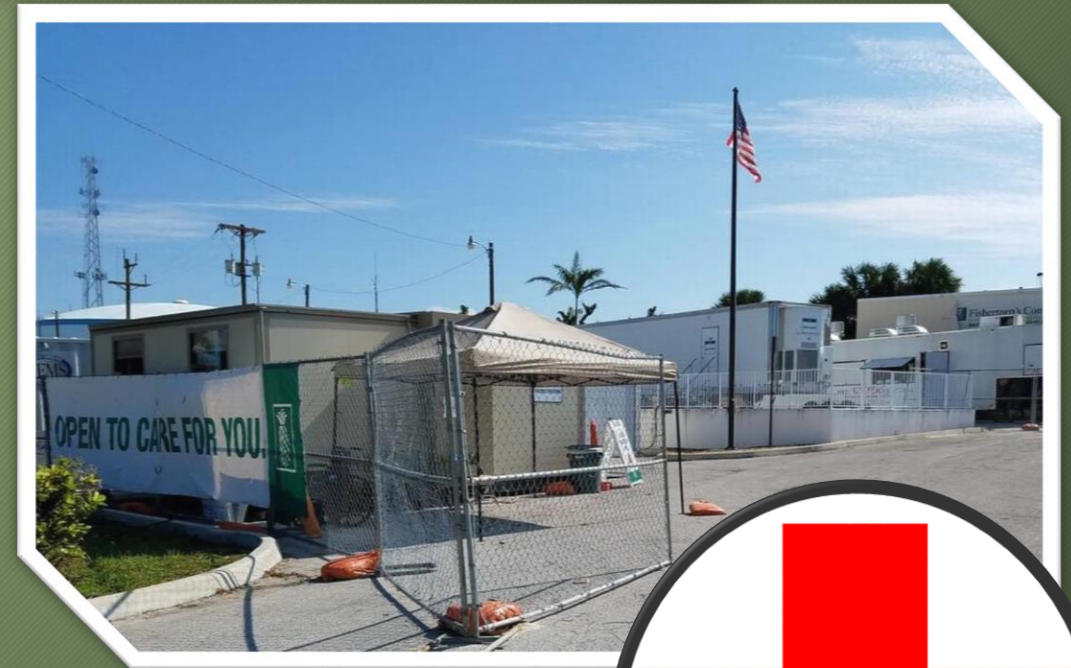


All three hospitals in Monroe County failed

1. Internal Failure: sprinkler system filled up the inside of the sealed structure,
2. Structural Damage: Complete rebuild
3. Structural Damage: Repairs possible

Reconstruction

- Are we building more resilient structures?
- Difference between meeting the Florida Building Code and being a resilient critical facility (\$400 sqft vs \$900 sqft)



Critical Facilities: Emergency Operations Center (EOC)



- Shortfall of the Old EOC in Marathon
- Relocation to Alternate EOC: COOP
- Building a new, resilient EOC in Monroe County

Critical Facilities: Others



- Monroe County Sheriff's Office: repair and mitigation
 - Displace administrative capability
- Libraries / Community Centers
- Fire Headquarters - Delay in repairs, taped off portions of the stations - workers displaced

Critical Facilities: The true cost of repair



- Mold and Mildew
 - 90 percent of the buildings needed remediation
 - modern building code is more stringent
 - Direct correlation with time
 - Demolish or repair
- Success in sealing the buildings... increased damage due to mold and mildew
- Generators - 83 generators - Maintenance
 - Specialized technical expertise - the County will hire two generator technicians to maintain all of the generators

Changing Perceptions: Preliminary Damage Assessment



- In modern building code even one inch of water in the house will cause mold and mildew if you can't get back into the house.
- “Affected” versus “major damage”
- If the house is elevated then they can't see the damage



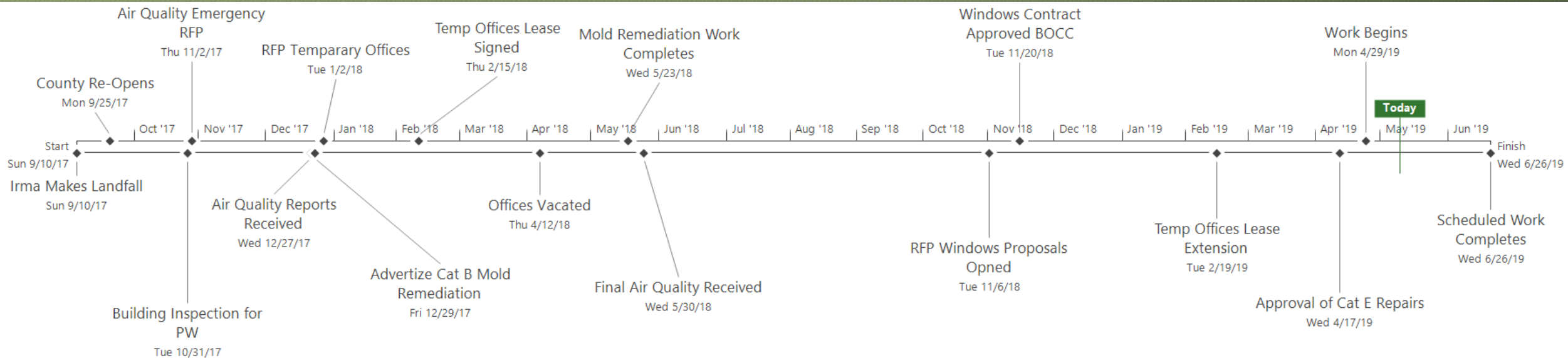
Irma Damage



- 48 structures
- 17 parks
- 7 boat ramps
- 3 towers
- \$23,000,000.00



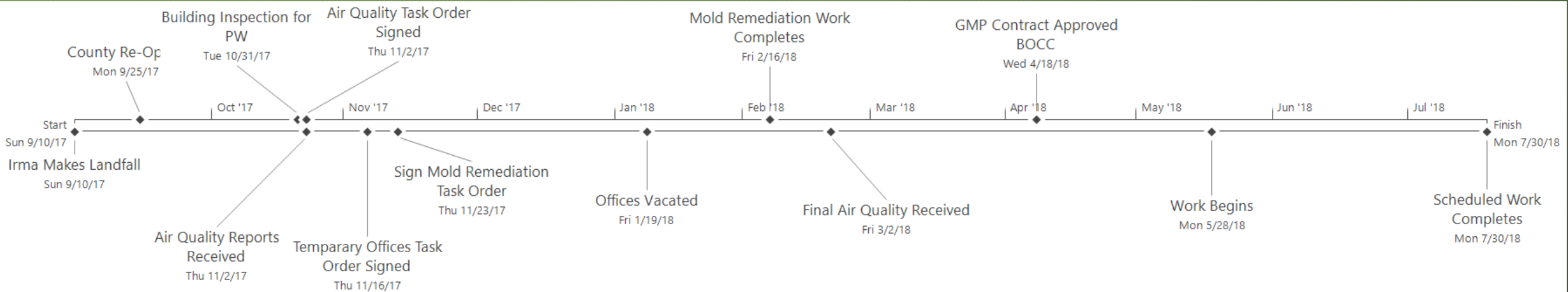
Case Study - Sheriff Administration Offices



Work Timeline with Pre-Disaster Contracts



One Time Year Savings



Side by Side

