CITY OF FAIR OAKS RANCH

AWIA ASSISTANCE RRA & ERP OVERVIEW

January 6, 2022

FREESE AND NICHOLS

MEETING AGENDA

1. Project Overview
2. Project Schedule
3. RRA Overview
4. ERP Overview
5. Summary of Project Progress

PROJECT OVERVIEW – AWIA ORIGINS

Public Health Security & Bioterrorism Preparedness & Response Act

- Prompted by 2001 anthrax attacks
- Required utilities >3,300 people to perform security assessments re: bioterrorism

National Infrastructure Protection Plan

- Expanded scope of RAMCAP to include natural hazards

America's Water Infrastructure Act

- Requires utilities >3,300 people to perform risk assessments & emergency response plans

2002   **2004**   **2006**   **2010**   **2018**

Risk Analysis & Management for Critical Asset Protection

- Prompted by 9/11
- ASME
- Focused on malevolent attacks

AWWA J100

- Guidance document
- Standardized RAMCAP framework for Water/WW Sector

PROJECT OVERVIEW – AWIA DEADLINES

CERTIFICATION DEADLINES

Population Served	Risk Assessment	Emergency Response Plan
≥ 100,000	March 31, 2020	September 30, 2020
50,000 – 99,999	December 31, 2020	June 30, 2021
3,301 – 49,999	June 30, 2021	December 30, 2021

NOTES

- Emergency response plan certifications are due six months from date of risk assessment certification.

- Risk assessment must be reviewed and recertified every 5 years

PROJECT SCHEDULE

Task	December	January	February	March	April	May	June	July	August	September	October	November	December
Phase 1- Risk and Resilience Assessment													
Project Kickoff Meeting, Data Collection and Review	■												
Identification of Critical Assets and Threats		■	■										
Cybersecurity Evaluation					■	■							
Risk and Resilience Analysis			■	■	■								
Risk and Resilience Management					■	■							
Final RRA Report and Cortication Compliance						■							
RRA Deadline							★						
Phase 2- Emergency Response Plan							■						
Coordination Meeting, Data Collection and Review								■					
Review of Existing Plans and Prepare ERP Outline								■	■				
Emergency Response Plan Preparation Workshop									■	■			
Draft Emergency Response Plan										■	■		
Final ERP and Certification of Compliance												■	
ERP Deadline													★

RISK & RESILIENCY ASSESSMENT

ASSET/THREAT CHARACTERIZATION

Assets

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Threats

Threat-Asset Pairs

- Assets Critical to Operation and Function of Water System Should be Evaluated
- Potential Threats Fall Under Three Categories:
  - Natural Hazards
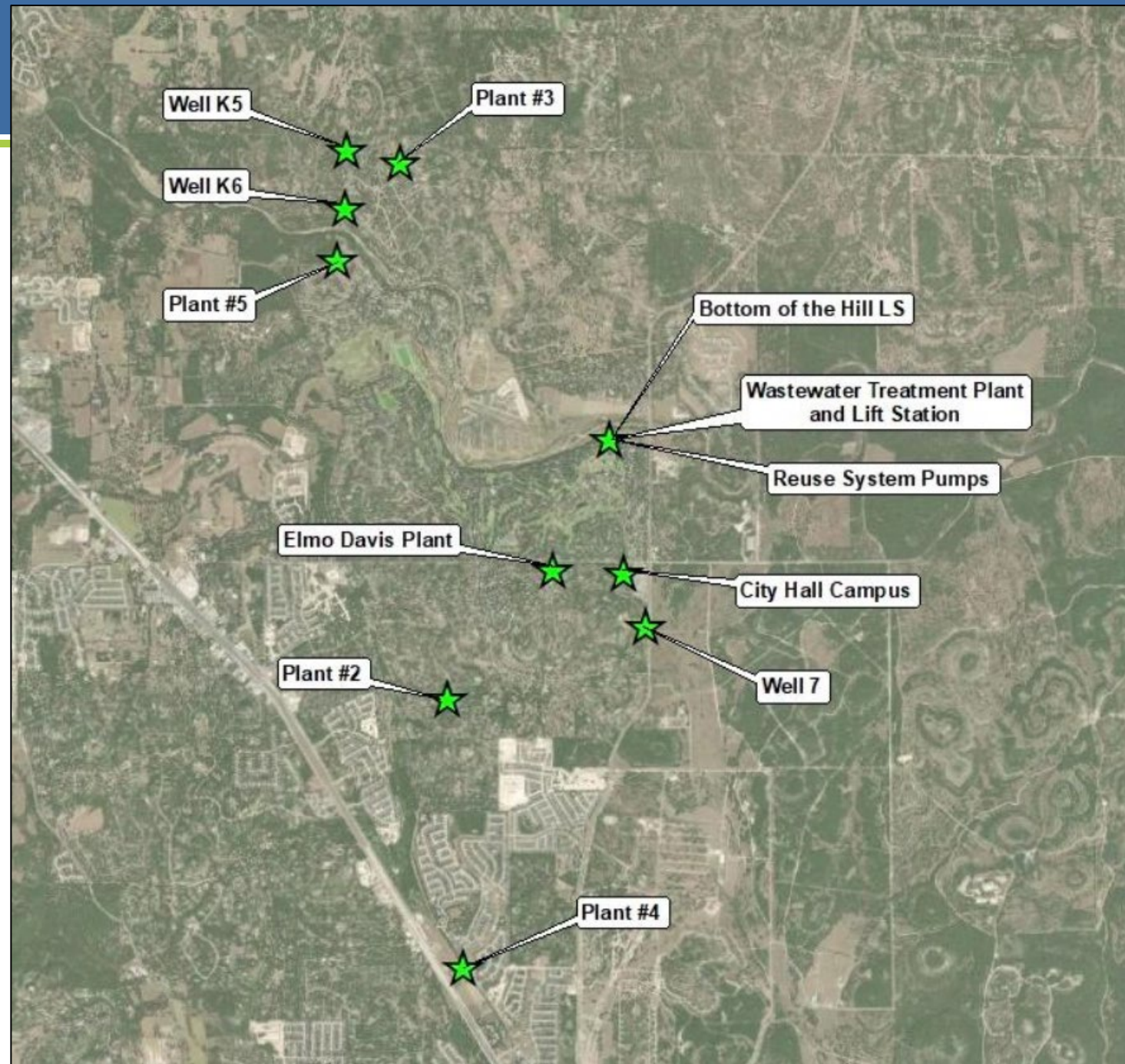 - Malevolent Activities
  - Dependencies

ASSET CHARACTERIZATION

- What is an Asset?
  - An item of value or importance that if targeted, exploited, destroyed, or incapacitated could result in injury, death, economic damage to the owner of the asset or to the community it serves, or destruction of property.

- Types of Assets
  - Physical – pumps, pipes, tanks, power supplies, buildings, etc.
  - Human – operators, maintenance, IS/IT, management, etc.
  - Cyber – SCADA, payment processing, vital records, communications, electronic security, financial processes, etc.
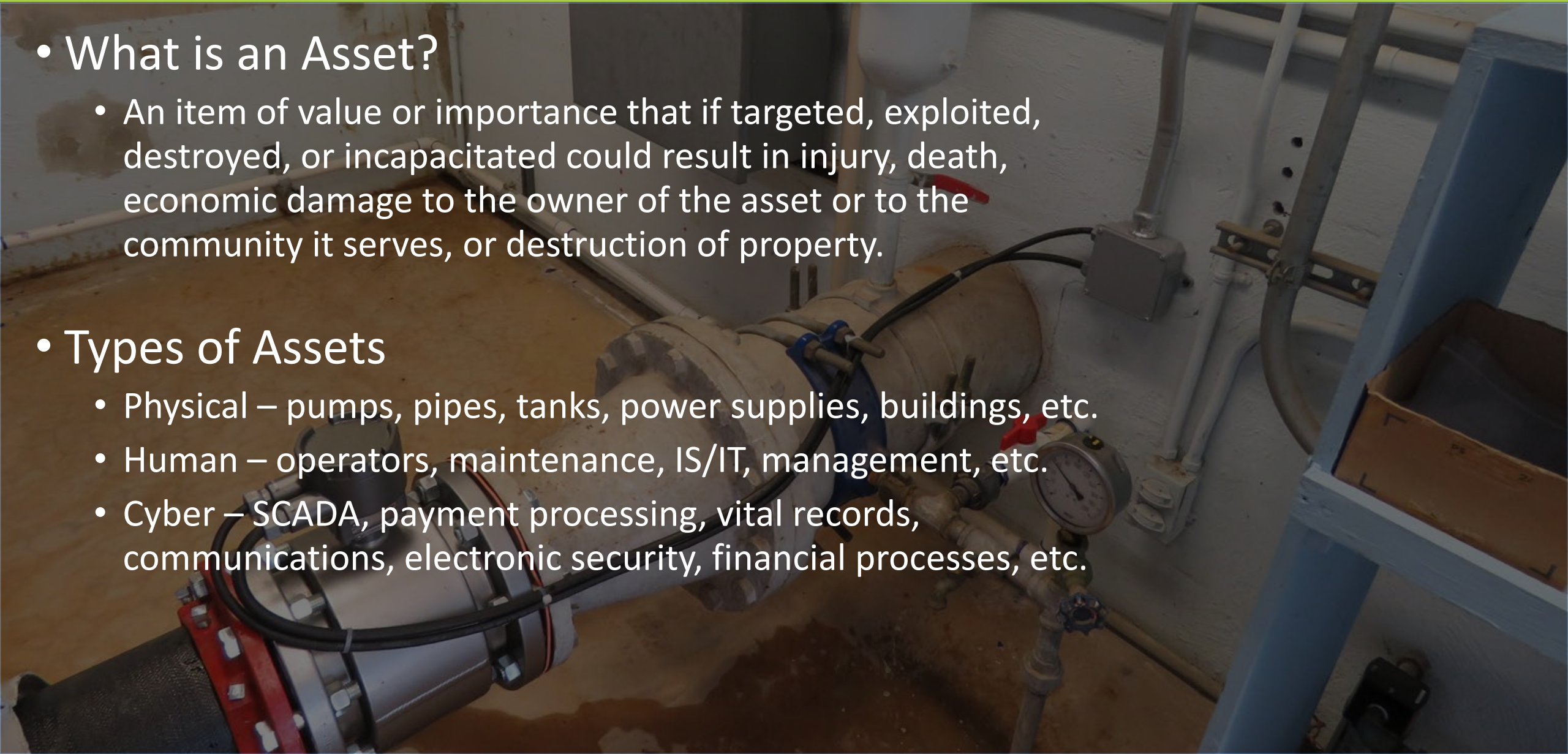
CRITICAL ASSETS

- **Plants –** Elmo Davis, #2, #3, #4, #5

- **Wells** – K5, K6, 7, and 17

- **City Hall Campus**

- **WWTP** – Overall WWTP, Bottom of the Hill LS, WWTP LS, and Reuse System Pumps

THREAT CHARACTERIZATION

Types of Threats

- Malevolent Acts
  - Contamination
  - Sabotage
  - Diversion or Theft
  - Attacks

- Natural Hazards
  - Hurricanes
  - Earthquakes
  - Tornadoes
  - Floods
  - Winter Storm
  - Wildfire

- Dependency Hazards
  - Utilities
  - Key Suppliers
  - Key Customers
  - Proximity
  - Employees
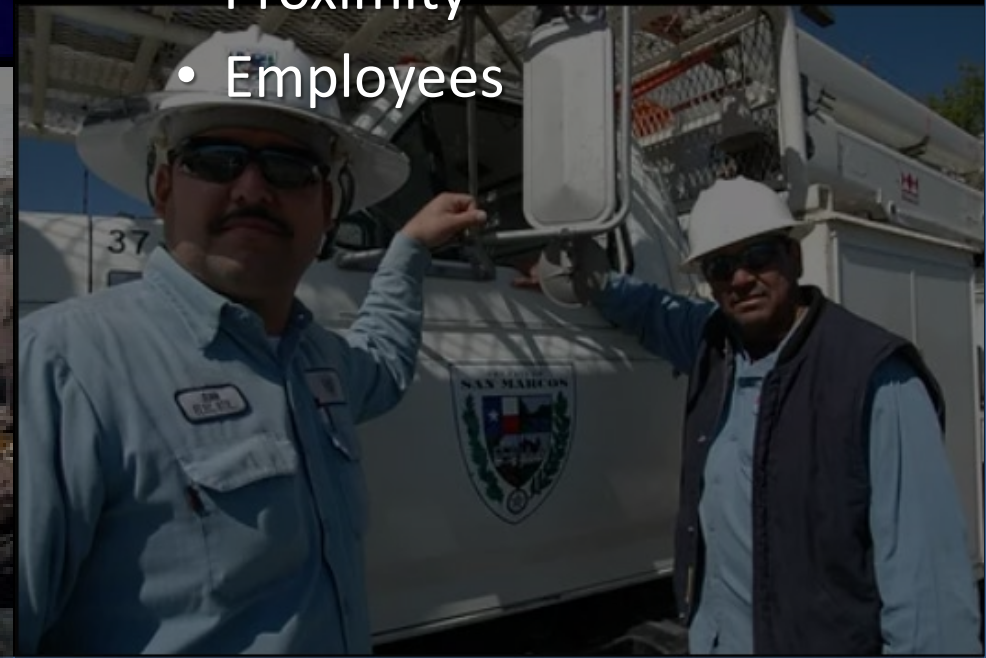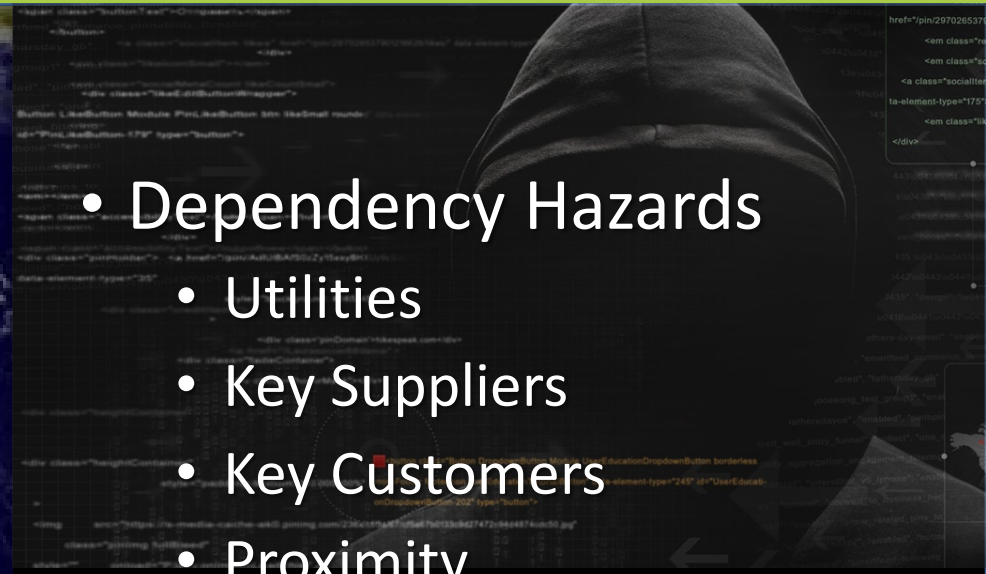
SUMMARY OF BASELINE RISK

Top 18 asset-threat pairs of 247 evaluated.

			A	B	C	A x B x C
Threat Category	Threat	Critical Asset	Consequence*	Vulnerability*	Threat Likelihood*	Base Risk per Year
Theft	Cyber - Outsider	City Hall Campus	$500,000	0.50	0.30	**$75,000**
Sabotage	Cyber - Insider	City Hall Campus	$500,000	0.50	0.30	**$75,000**
Theft	Cyber - Insider	City Hall Campus	$500,000	0.30	0.30	**$45,000**
Sabotage	Cyber - Outsider	City Hall Campus	$500,000	0.30	0.30	**$45,000**
Sabotage	Cyber - Insider	WWTP	$157,790	0.50	0.10	**$7,890**
Sabotage	Physical - Insider	City Hall Campus	$208,000	0.50	0.05	**$5,200**
Sabotage	Cyber - Outsider	WWTP	$157,790	0.30	0.10	$4,734
Sabotage	Physical - Outsider	Plant #4	$100,000	0.80	0.05	$4,000
Sabotage	Physical - Insider	WWTP	$157,790	0.50	0.05	$3,945
Dependency	Loss of Suppliers	Plant #5	$39,155	1.00	0.10	$3,915
Sabotage	Physical - Outsider	Well K6	$30,000	0.80	0.05	$1,200
Sabotage	Physical - Outsider	Well K5	$30,000	0.80	0.05	$1,200
Sabotage	Physical - Outsider	Well 7	$30,000	0.80	0.05	$1,200
Dependency	Loss of Employees	WWTP	$25,000	0.43	0.10	$1,075
Attack	Car	City Hall Campus	$208,000	0.50	0.0039	$406
Natural	Flood	Bottom of the Hill LS	$56,558	0.15	0.01	$85
Natural	Flood	Plant #4	$17,646	0.15	0.01	$26
Attack	1 Assailant	City Hall Campus	$23,420,000	0.30	0.000001	$7

*Consequence, vulnerability, and threat likelihood data based on information from the EPA's *Community Water System Emergency Response Plan Template,* AWWA's *M19 Manual Emergency Planning for Water and Wastewater Utilities*, and AWWA's *J100 Risk and Resilience Management of Water and Wastewater Systems.*

MITIGATION: CYBERSECURITY THREATS

- FNI recommends fully implementing the recommendations identified in the Local Government Security Assessment Report prepared by CyberDefenses in 2020

- Mitigation measure: hire a cybersecurity consultant to implement recommendations

- Assumed 75% reduction in vulnerability

- Mitigation measure, specific to IT closets: security cameras (fire extinguishers were also recommended but have already been implemented)
- Assumed 50% reduction in vulnerability

EMERGENCY RESPONSE PLAN OVERVIEW

- Purpose and Approach

- Utility Overview

- Emergency Operations

- Emergency Actions and Procedures

- Training, Exercises, and Plan Maintenance

- Certification

ERP: PURPOSE AND APPROACH

- Applies to the functions, operations, and resources necessary to deliver potable water to the City's customers and preserve the mission of the City's Utilities Department

- EPA's *Community Water System Emergency Response Plan Template*

- AWWA M19 Manual *Emergency Planning for Water and Wastewater Utilities*

ERP: UTILITY OVERVIEW

- Report includes detailed summary of water service provider's current assets

- Water production facilities, booster stations, ground and elevated storage tanks, interconnections, emergency response equipment, safety equipment, wastewater treatment plants*, lift stations*

* Not required to be evaluated

ERP: EMERGENCY OPERATIONS (ICP/EOC)

Levels of Activation	ICP Status	EOC Status	Example Triggers
No ICP or EOC Activation	Not activated	Not activated	• Normal operations • Alarms, warnings, or other alerts that an event may have occurred or may be imminent.
ICP Activated	Activated	Not activated	• Line break or pump station that does not affect critical customers or hinder emergency services.
Level 1: EOC Activated	Activated (support to EOC)	Limited Activation	• Severe thunderstorms with damaging hail or winds • Localized flooding • Hazardous materials spill or leak.
Level 2: EOC Activated	Activated (support to EOC)	Limited or Full Activation	• Line break or pump station that affects critical customers and/or hinders emergency services. • Displacement of a large number of residents for an extended period of time.
Level 3: EOC Activated	Activated (support to EOC)	Full Activation - Other entity than PW/WU as Incident Commander	• Large-scale Tornado • Major flooding • Terror attack • Encompasses a larger geographical area than the City of Fair Oaks Ranch • Chlorine leak

ERP: ORGANIZATION

- Level of response is contingent on the nature of the incident

- As the scale of incident grows, additional regional organization may be necessary
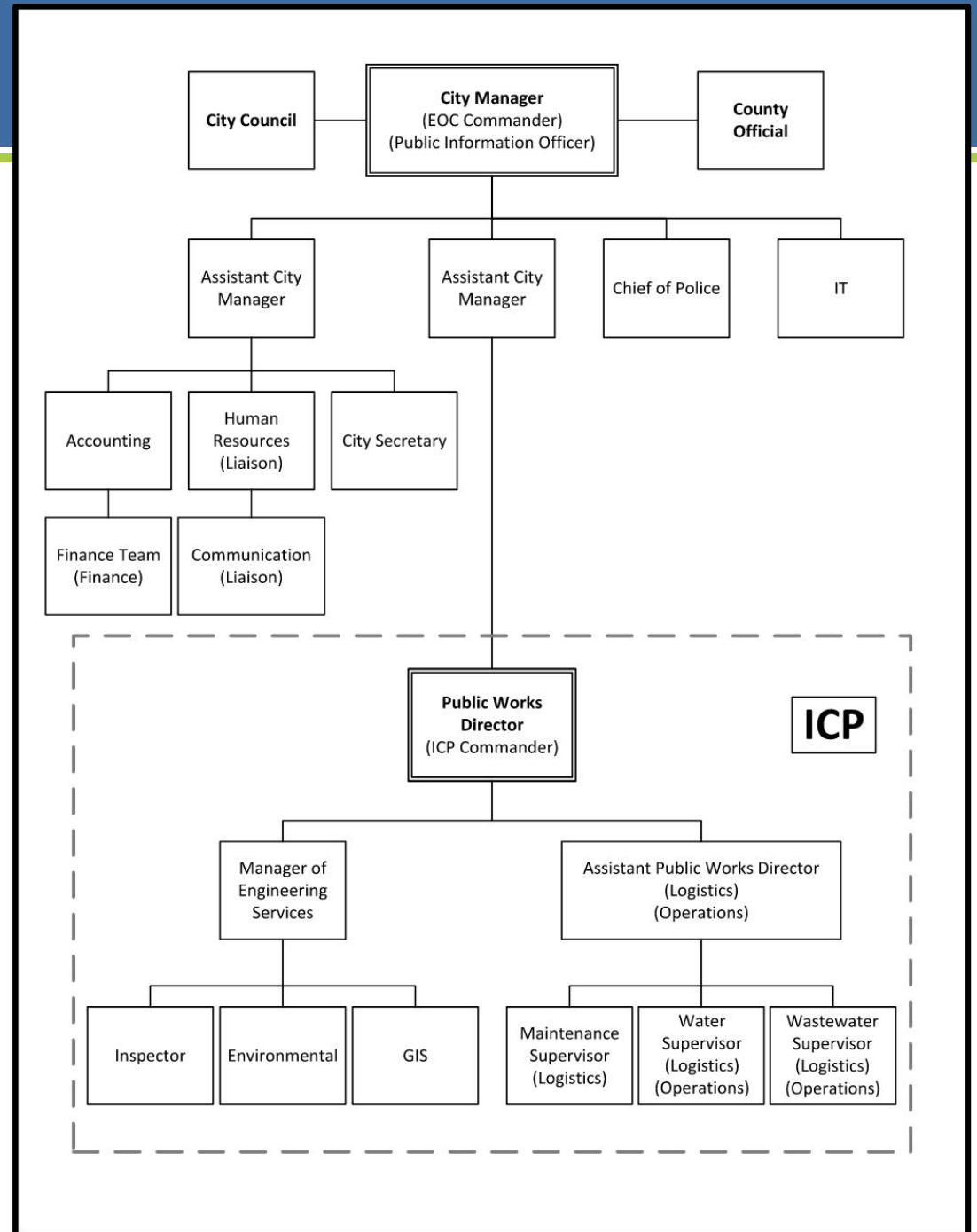
ERP: EMERGENCY ACTIONS AND PROCEDURES

Incident-Specific Response Procedures

Hazard Type	Incident/Emergency
General	General Failure (use with all incidents)
Natural	Extreme Cold and Winter Storms
Natural	Extreme Heat
Natural	Flooding[1]
Natural	Tornado[1]
Natural	Pandemic
Dependency & Proximity	Loss of Utilities[1]
Dependency & Proximity	Loss of Suppliers[1] (Water System Failure)
Cyber Sabotage & Theft	Cyberattack (Outsider)[1]
Contamination	Source Water Contamination
Attack: Assault Team	Active Shooter (1 Assailant)

[1]Credible threats to critical assets identified in the City's RRA.

ERP: TRAINING, EXERCISES, AND PLAN MAINTENANCE

- Training logs may be maintained within ERP document
- Exercises within organization and/or with other City and county agencies in accordance with NIMS/ICS framework
- ERP must be updated every five years at a minimum
  - New facilities, staffing changes, or significant modifications to service area should be catalogued as they occur

ERP: CERTIFICATION

- ERP was certified on December 22nd
- Certification achieved through online portal
- Plan administrator responsible for certification
- Confirmation from EPA via timestamped email response