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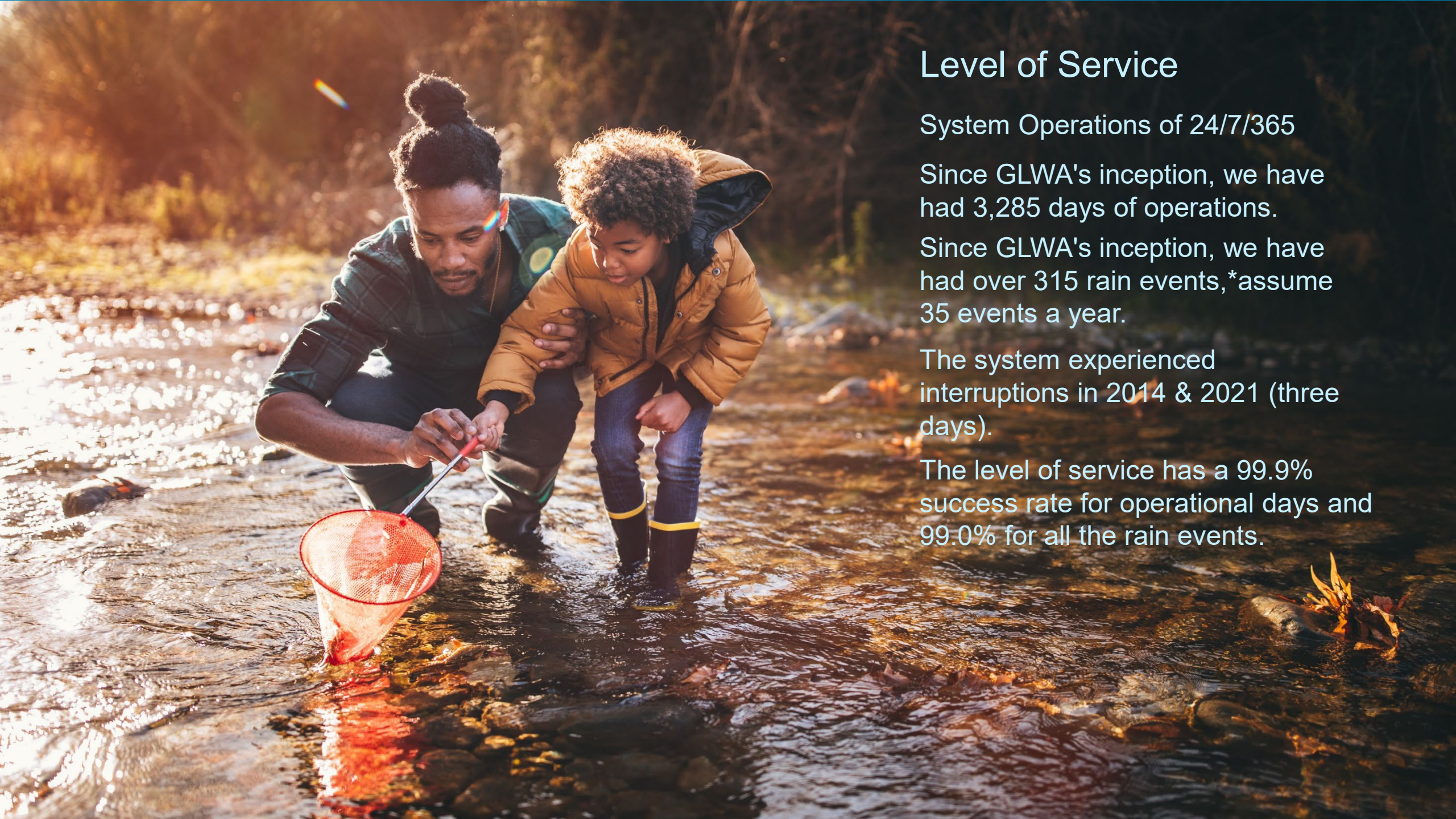
Resiliency Team Progress
GLWA Board of Directors

September 25, 2024 | Navid Mehram, P.E.



Level of Service

System Operations of 24/7/365

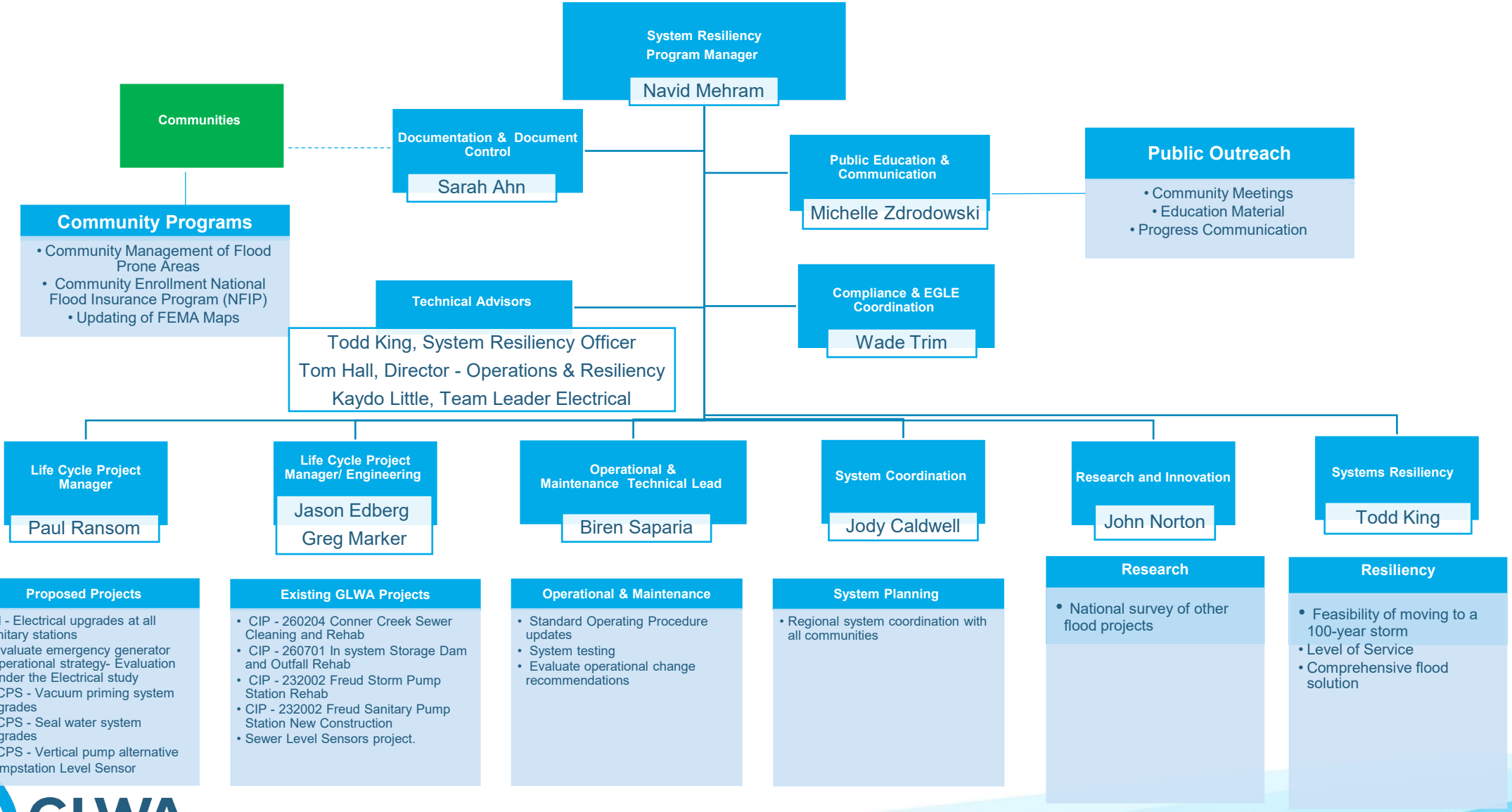
Since GLWA's inception, we have had 3,285 days of operations.

Since GLWA's inception, we have had over 315 rain events,*assume 35 events a year.

The system experienced interruptions in 2014 & 2021 (three days).

The level of service has a 99.9% success rate for operational days and 99.0% for all the rain events.

Resiliency Delivery Team



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CCPS – Conners Creek Pump Station
CIP – Capital Improvement Project

GLWA System Resiliency Efforts

Independent Investigation of 2021 Flooding Status of 33 Recommendations

- **18** of the measures have been **completed**
  - **78% Short term, 46% of the Medium term, 45% of the Long Term**
- **13** of the measures are currently **in progress**
  - **8** will be completed **in the Regional Flood Mitigation Study** (U.S. Army Corps of Engineers (USACE))
- **2** of the measures have not started
  - The items not started are dependent on the completion of the projects currently in progress.

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Executive Summary - Short Term Measures

Project Milestone	Project Status			
	Not Started	In Progress	Completed	Notes
Short Term Measures				
General Recommendation				
Pump availability during storm events.				GLWA has continued to monitor the system closely to ensure no more than 1 pump out of service at each station.
Pump Stations				
Testing of the Vacuum Priming System.				
Pump sequence testing.				
Operational documentation and communication.				This effort is ongoing, several standard operating procedures (SOPs) have been reviewed with some minor modifications.
Electric Equipment				
Power conversion from Public Lighting Department (PLD) to DTE.				
Back up generator measures.		→		This measure is being evaluated as part of the larger electrical resiliency project anticipated to be completed June 2024.
Confirm that the power supply for each DTE can support the entire station.		→		This review is incorporated in the larger electrical resiliency project.
Mechanical Equipment				
Conner Pumpstation Seal Water System.		→		Work has been completed.
Vacuum Priming System upgrade.				Contract has been awarded.

USACE – US Army Corps of Engineers
SOP – Standard Operating Procedure

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Executive Summary - Medium Term Measures

Project Milestone	Project Status			
	Not Started	In Progress	Completed	Notes
Medium Term Measures				
General Recommendation				
Prioritization of the Wastewater Capital Improvement Planning (CIP) projects.				Complete/Ongoing.
Evaluation of future rainfall beyond the Atlas 14.				This task will be captured within Water Resource Development Act with USACE.
Take into consideration other climate change factors into the design.				This task will be captured within Water Resource Development Act with USACE.
Pump Station				
Continue with the Freud Pump Station projects.				In progress/contract awarded.
Electrical Equipment				
Upsize the transformers at each facility to run the entire facility.				This review is incorporated in the larger electrical resiliency project anticipated to be completed June 2024.
Electrical reliability study for Freud and Conner Pump Stations.				
Mechanical Equipment				
Complete other scenarios as proposed through the Clemson Engineering scale model.				
Review the idea of vertical pumps for the Conner Storm Station.				
Operational Measures				
Inspection and monitor the Intake Flow Conditioning (IFC) in both the Conner and Freud Pump Stations.				This item is pending the improvements to Freud and Conner Pump Stations.
Review of previous studies.				GLWA continues to review prior studies as new projects progress.
Studies				
Level of service.				This task will be captured within Water Resource Development Act with USACE.
Dynamic System Operations Study				This task will be captured within Water Resource Development Act with USACE.
Stormwater/Wastewater Master Plan				This task will be captured within Water Resource Development Act with USACE.

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USACE – US Army Corps of Engineers
SOP – Standard Operating Procedure

Executive Summary - Long Term Measures

Project Milestone	Project Status			
	Not Started	In Progress	Completed	Notes
Long Term Measures				
General Recommendation				
Feasibility of moving to a 100-year storm.				This task will be captured within Water Resource Development Act with (USACE).
Local government program for voluntary purchase of flood prone areas.				
Local government public outreach campaign for flood risk and purchasing flood insurance.				
National research of other large-scale flood reduction projects.				GLWA began communication with other utilities in the US alternative approach, the survey is being considered.
Pump Stations				
Medium-term solutions are not successful.				The project team has incorporated this into the Conner Storm project schedule.
Further automation of the pumping stations.				Steps are being taken toward this effort. An example includes the seal water system for Conner.
Regional System Coordination				
Review of the member partners' optional strategy to find alternative operations.				GLWA has started discussion around the Regional Operational Plan. Additionally, GLWA is coordinating with member partners during major storm events.
Local government engagement in the National Flood Insurance Program (NFIP).				
Local government should consider updating the flood maps.				
GLWA community outreach.			→	Regular cadence has been established.
Community flood collection data to provide guidance into modeling validation.				This task will be captured within Water Resource Development Act with USACE.

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USACE – US Army Corps of Engineers
SOP – Standard Operating Procedure

Conner Creek PS Seal Water and Vacuum System

2303832 – Pump Seal Water Improvements

- Contract Price of $595,400
- 02/27/24 - Notice to Proceed
- 04/09/24 – Work began Onsite
- 05/24/24 – Hydraulic Tie-Ins Complete
- 07/12/24 – New Panels to arrive Onsite
- 08/25/24 – Substantial Completion
- **09/06/24 – Electrical Tie-Ins Complete***
- 09/24/24 – Final Completion

2304058 – Pump Vacuum Priming Level Switch Addition

- Estimated Contract Price of $458,500
- 07/25/24 – Advertisement Date
- 07/18/24 – Solicitation Meeting/Site Tour
- 07/25/24 – Questions Due
- 08/14/24 – Bids Due
- **09/16/24 – Contract Awarded***
- 10/07/24 – Notice to Proceed
- 07/04/25 – Substantial Completion
- 08/03/25 – Final Completion

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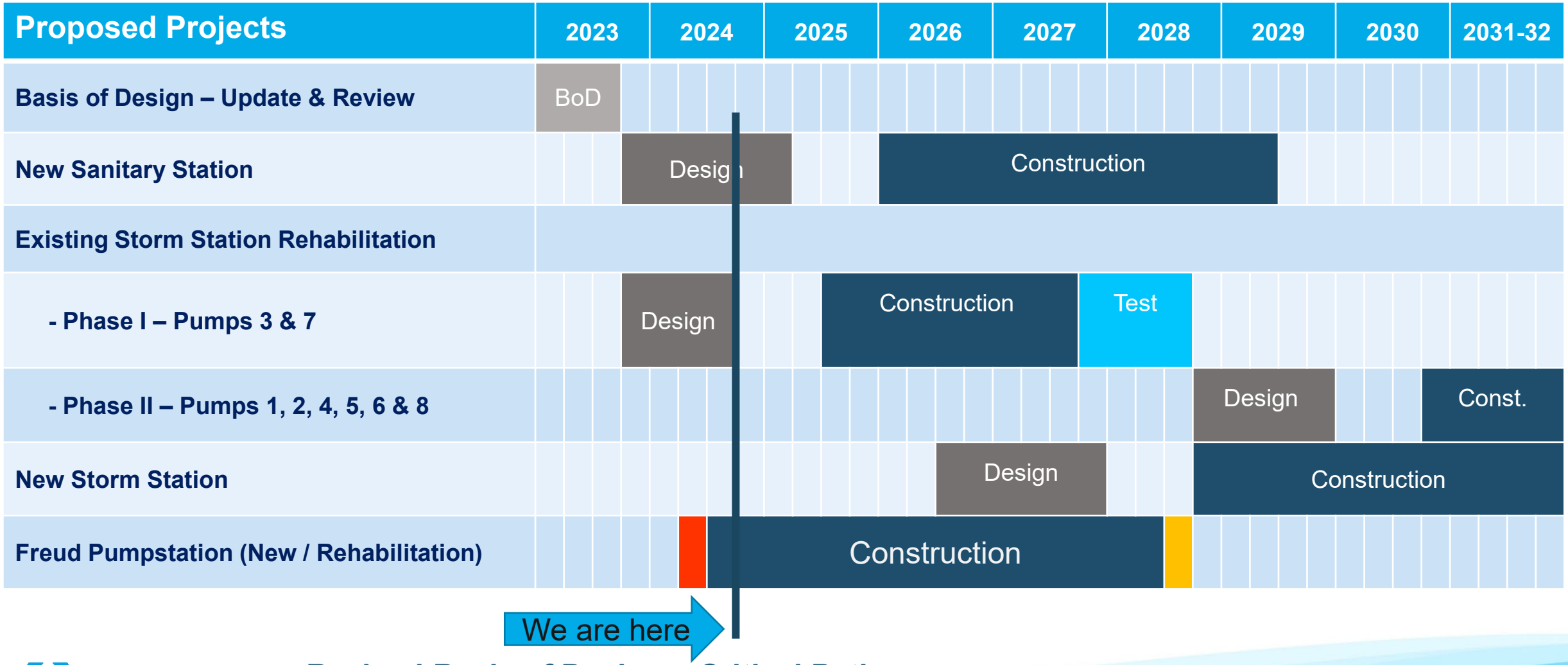
**current status*

Conner Pump Station Design/Construction Road Map



- Revised Basis of Design – Critical Path
  - Workshops: May – July
  - Review: August – September

Existing GLWA Projects

- **CIP - 260701 In System Storage Devices (ISD), Valve Remotes (VR), and Outfall Infrastructure Elements Rehab**
  - **Outfall Infrastructure Project**
    - Structural improvements and modifications to the regulators are complete at 24 of 36 outfalls.
    - Backwater gates have been installed at 25 of 47 outfalls.
    - Instrumentation and controls are installed at 6 of the 54 sites and are being tested for acceptance at outfall B-21/22.
    - Coordination with the United States Coast Guard at outfall B-7 is ongoing.

  - **ISDs and VRs Project**
    - ISD equipment installation is complete or nearing completion at ISD 1 through 13.
    - Improvements at B-25, B-48, B-83, B-86, and B-95 are complete.
    - Equipment startup and testing by the contractor and GLWA staff is ongoing.
    - Improvement and repairs to VR gates are ongoing.
    - All ISD sites manhole modifications are complete.
    - Engineer-directed repairs to the inflatable dams are underway.
    - Improvements and repairs to VR-14 were removed from the project to coordinate with a future
    - project by the Oakland County Water Resources Commissioner.

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Existing GLWA Projects Continued

- **CIP - 260204 Conner Creek Sewer Cleaning and Rehab**
  - Grouting, rebar coating, and spot repairs continue under the airport and continue next down to I-94. These repairs are the critical path for the project and will continue till the end of the project.
  - The project is close to starting the access hatch that will be permanently located in the Stellantis green space just north of Jefferson for sewer cleaning access to facilitate this work and the upcoming Freud and Conner pump station replacement project.
  - Slip lining between Six and Seven Miles has begun, at Seven Mile headed south and is almost complete. Slip lining south of Seven mile begins shortly.
  - The project has added design of forebay modifications upstream of Conner Combined Sewer Overflow (CSO) to allow the facility to perform debris removal in the future for better maintenance operations. The work is being added to the current project.

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Southeast Michigan Flood Resiliency Study

- GLWA's Office of Resiliency is teaming with USACE to perform a General Investigation Study
- USACE has been funded from the approved federal budget with $500K for FY 24 and is in the proposed federal budget with an amount of $600K for FY 25
- GLWA will match USACE funding efforts on a 50/50 basis with in-kind services
- A three-day comprehensive design charrette was held September 16 -18, 2024
- A formal signing ceremony will be held September 30, 2024, at the Conner Creek Combined Sewer Overflow (CSO) Facility

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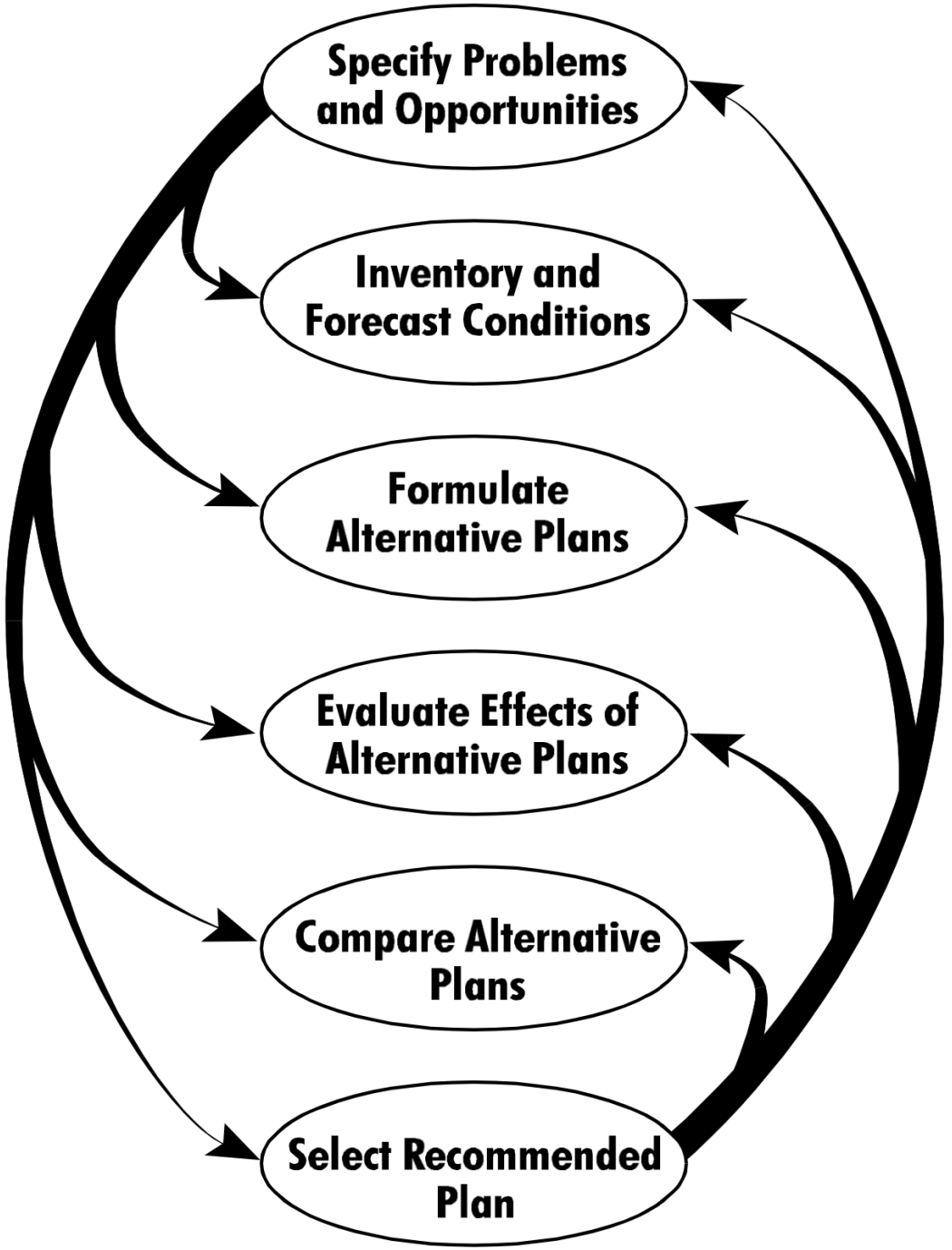
USACE PLANNING CHARRETTE
Six-Step Process

1. Identify problems & opportunities
2. Inventory and forecast
3. Formulate alternative plans
4. Evaluate alternative plans
5. Compare alternative plans
6. Plan selection



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Southeast Michigan Flood Resiliency Study – MAJOR MILESTONES

- ✓ USACE and GLWA have executed a Feasibility Cost Sharing Agreement (FCSA)
- ✓ Received USACE funding to begin the Southeast Michigan Flooding Study
- ✓ Feasibility study is completed that identifies a recommended plan
- ✓ Chief's report will be submitted to Congress requesting construction authorization & appropriations
- ✓ Engineering/design and construction follows, pending availability of funds

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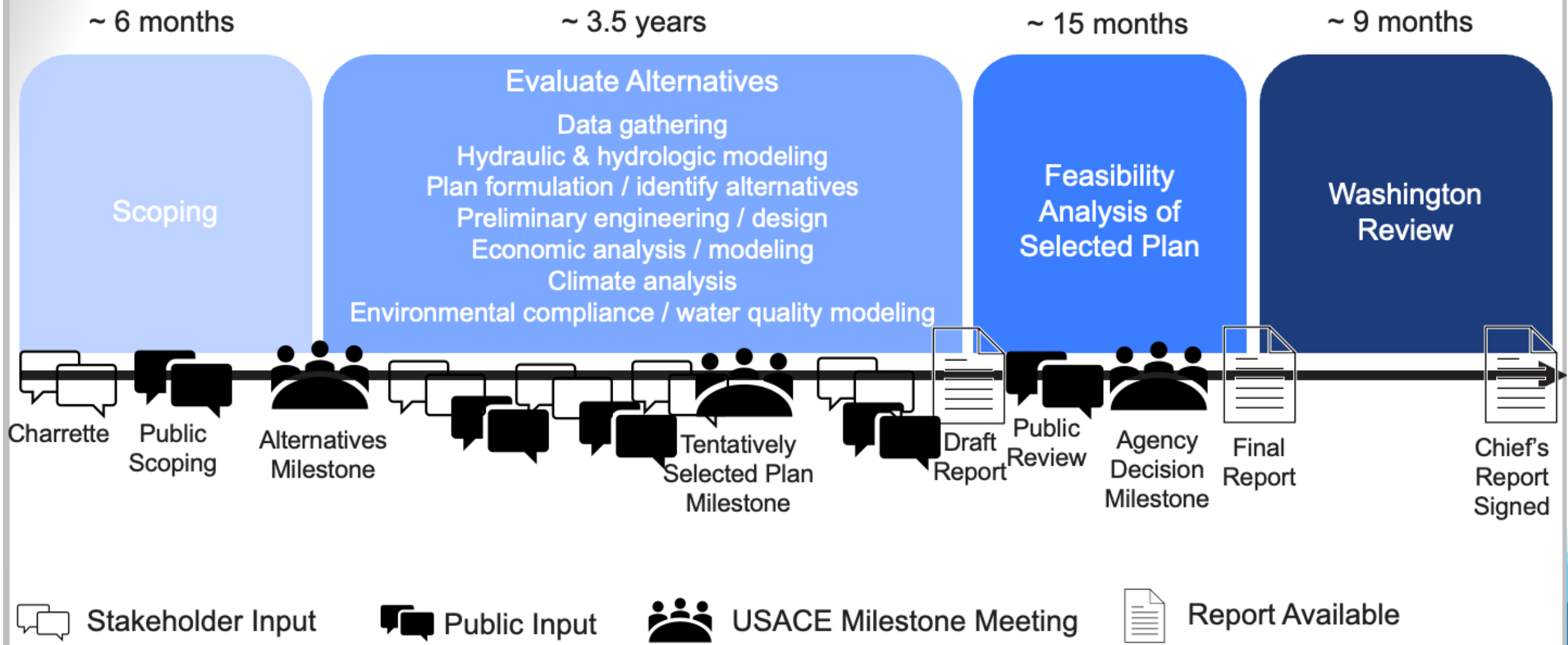
TENTATIVE STUDY TIMELINE

U.S. ARMY

Stakeholder / public input **throughout**



Southeast Michigan Flood Resiliency Study – Next Steps and Report Outs

- USACE will be developing the scope of work to incorporate information received from our charrette
- Draft work plan will be available late fall
- Series of USACE led meetings being proposed for Wayne, Macomb, and Oakland Counties
- Report outs to Member Partners will be through Wastewater Analytics Task Force and One Water Partnership meetings

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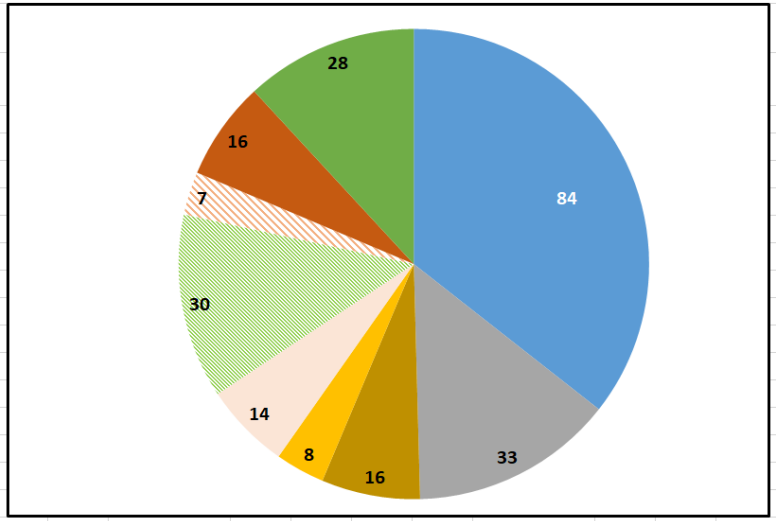
GLWA continues to review the sewer system instrumentation and make corrections in a phased approach.

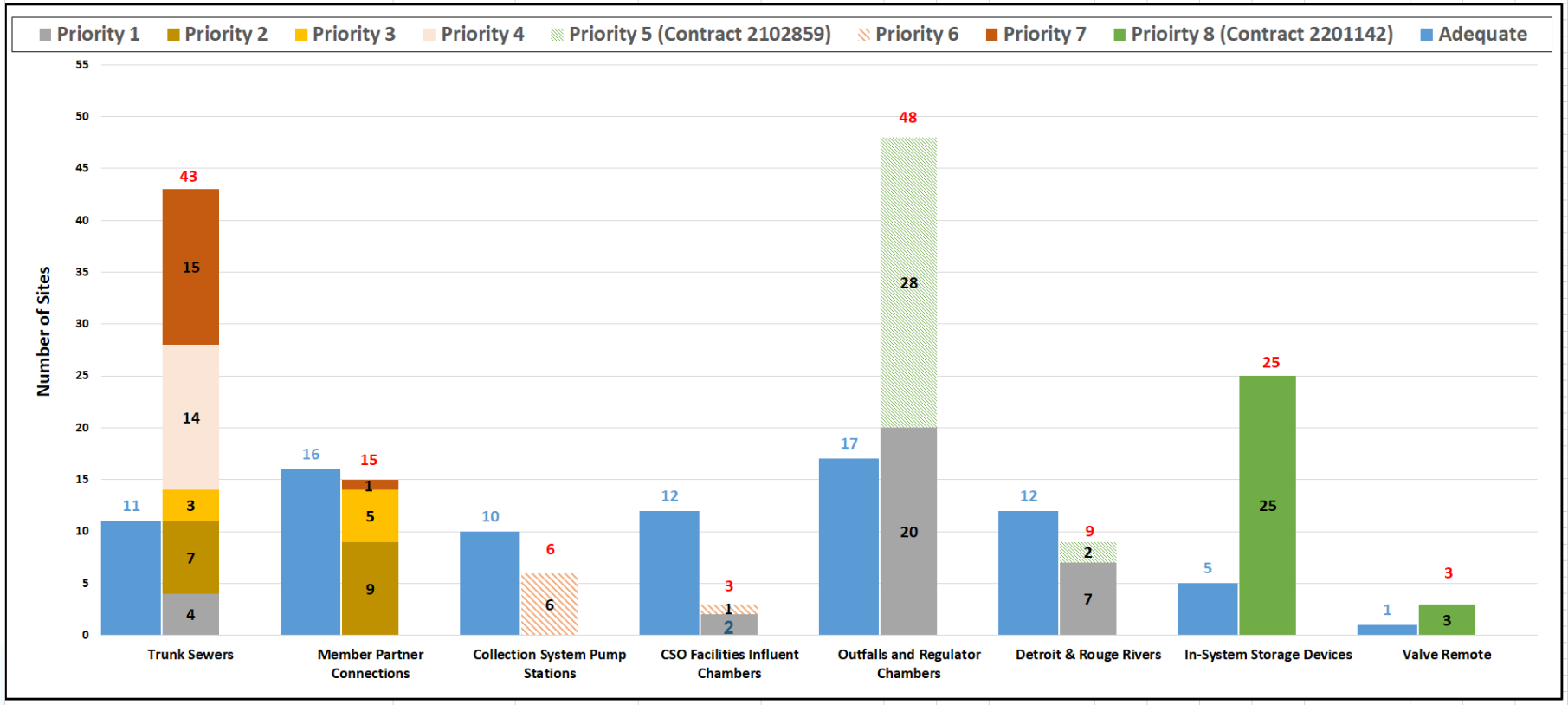
GLWA released around $3.55M for revisions to nearly 87 sites. This will complete Priority 1, 2, 3, 4, & 7 sites.

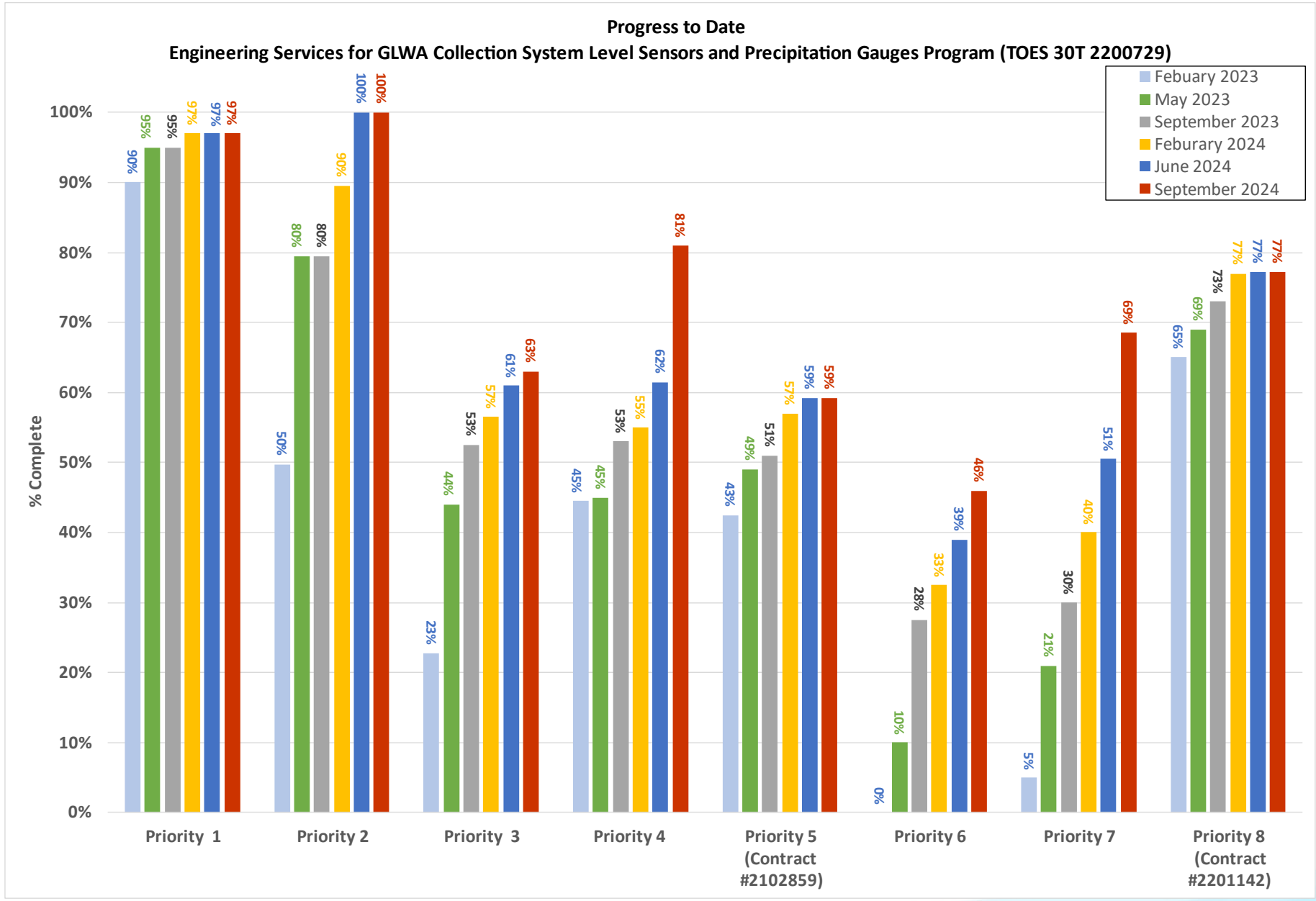
Baseline Conditions

Engineering Services for GLWA Collection System Level Sensors and Precipitation Gauges Program (TOES 30T 2200729)

Level Sensor Group	Priority #	No. of Sites (some sites may include multiple sensors)		
		Adequate Installation	Need Improvement (or New Installation)	Total
Trunk Sewers				
Original L-Series	1, 4, 7	7	24	31
10 L-Sites Surveyed in 2022	1, 2	2	8	10
Sewage Meters (DT-S-00)	1, 4, 7	2	8	10
Hydraulic Viewers	3	0	3	3
Member Partner Connections				
Existing Flow Meters	3, 7	16	6	22
9 Additional Sites (L-Sites & Flow Meters)	2	0	9	9
Collection System Pump Stations	6	10	6	16
CSO Facilities Influent Chambers	6	12	3	15
Outfalls and Regulator Chambers (Contract #2102859)	1, 5	17	48	65
River (Detroit & Rouge) Level Sensors	1, 5	12	9	21
In-System Storage Devices (Contract #2201142)	Other Contracts	5	25	30
Valve Remote (Contract #2201142)	Other Contracts	1	3	4
TOTAL		**84**	**152**	**236**







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Next Steps

Independent Investigation of 2021 Flooding Status of 33 Recommendations

- **Will remain ongoing and carry out until the close of the project**
  - **13** are currently **in progress**
  - **2** will start when a **pilot at Conners Creek Pump Station is completed**
  - **8** will be completed **in the Regional Flood Mitigation Study** (USACE)

Board of Directors Future Project Updates Recommendation

- **The majority of project tasks that can be accomplished to date are completed.**
- **GLWA proposes a change to the frequency of updates to the Board of Directors from Quarterly to Bi-Annual, with the next update scheduled for March 2025.**

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Thank you

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