

FY2022 Clean Water Revolving Fund
Public Meeting
May 26, 2021

*In-System Storage Devices and Valve
Remote Gates Improvements*



Topics

1. Overview
 - a) Background Information
 - b) Site Locations
2. Existing Conditions Assessment
 - a) In-System Storage Devices
 - b) Valve Remote Gates
3. Improvement Alternatives
4. Engineer's Opinion of Cost Breakdown
5. Recommended Alternative
6. Implementation Schedule

Overview

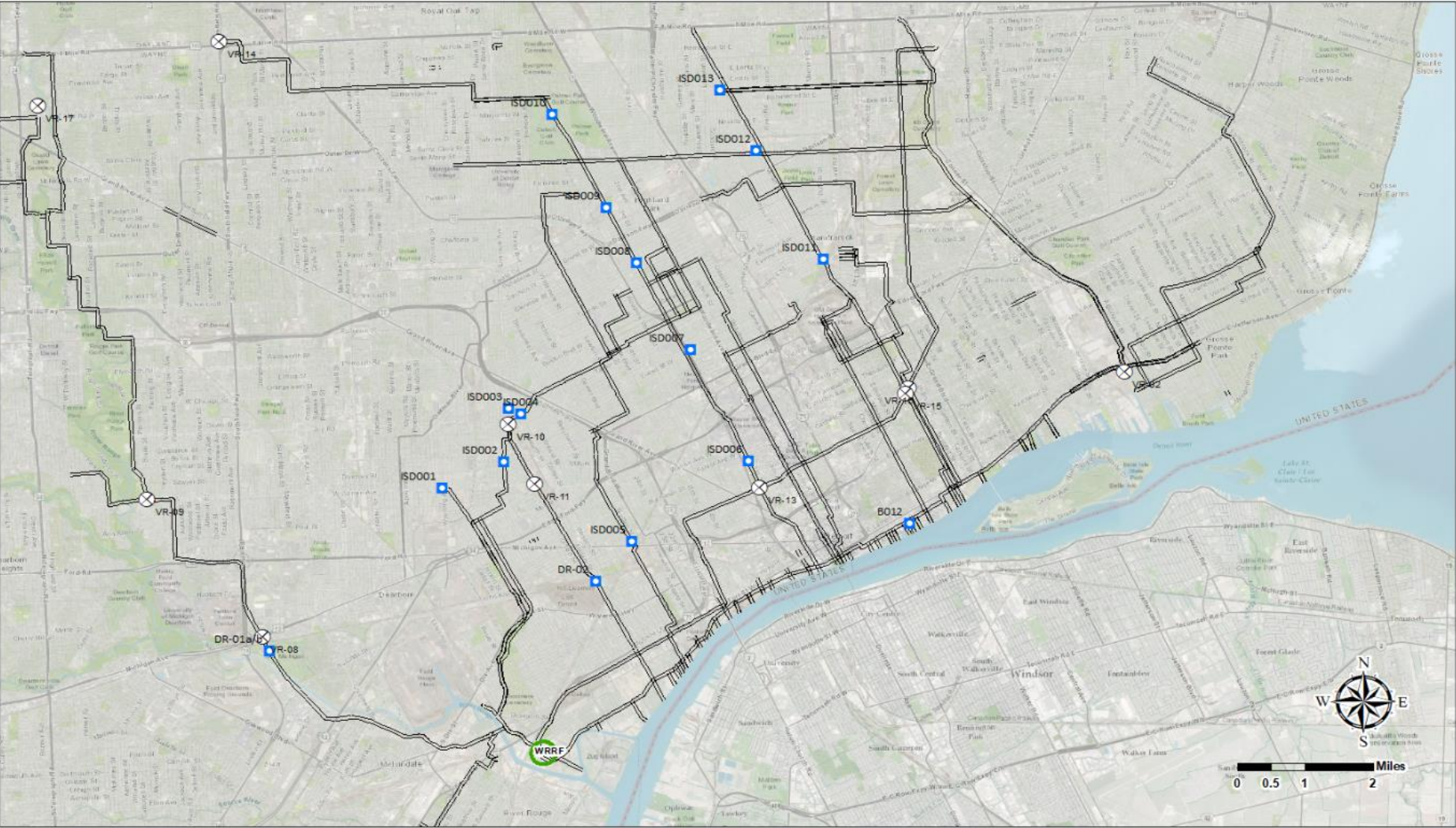
In-System Storage Devices (ISD)

- ISDs are inflatable dams located throughout the system (16 Sites in Project)
- Control chamber/buildings consisting of mechanical and electrical operating equipment
- Naturally in a deflated state
- Inflated during elevated flow to utilize GLWA's in-system storage
 - Typically operated during smaller storms
- Storing flow helps reduce Combined Sewage Overflows (CSOs)

Valve Remote (VR) Gates

- VR Gates are slide gates that are located on trunk sewer interconnections (19 Sites in Project)
- Hydraulic or electric actuated gates that are controlled remotely or locally
- Intended to route or divert flow to relieve stress on the interceptors
- Secondary purpose of flow isolation for inspection and/or construction purposes

Overview



Existing Conditions Assessment

In-System Storage Devices

- Missing or disconnected blower and vacuum pumps
- Actuator valves are disconnected or non-operational
- Dams have major air leaks and experience pressure loss
- Instrumentation is outdated and does not perform intended purpose



Existing Conditions Assessment

Valve Remote Gates

- Weathered/Corroded hydraulic actuators
- Outdated and/or non-functional instrumentation
- Corroded conduits and mechanical equipment in control chambers
- Corroded and/or broken access hatches



Improvement Alternatives

Alternative 1: No Action

- Monitor and maintain existing equipment as-is
- Create schedules to inspect and perform routine maintenance
- Requires minimal capital costs and no construction

Estimated Capital Cost:
\$ 0

Alternative 2: Rehabilitation

- Targeted repairs to the portions of the sites in poor condition
- Replace equipment as necessary
- Requires extensive work, but is more cost effective than full replacement

Estimated Capital Cost:
\$ 8,165,000

Alternative 3: Full Replacement

- Full replacement of all equipment
- Create schedules to inspect and perform routine maintenance
- Significant extension of life cycle
- Alternative with highest capital cost

Estimated Capital Cost:
\$ 30,866,000

Engineer's Opinion of Cost Breakdown

Item	Alternative 1	Alternative 2	Alternative 3
Capital Cost*	\$0	\$8,165,000	\$30,866,000
Interest During Construction	\$0	\$302,000	\$1,142,000
Salvage Value (at 20 years)	\$0	\$0	\$0
O&M Cost (Annual)**	\$129,000***	\$129,000	\$486,000
O&M Cost (Present Worth)	\$2,130,000***	\$2,130,000	\$8,052,000
Present Worth of Replacement Costs	\$0	\$0	\$0
Total Present Worth	\$2,130,000	\$10,597,000	\$40,075,000
Equivalent Annual Cost	\$129,000	\$640,000	\$2,421,000

* Includes construction, engineering (design and construction), plus administrative costs (numbers rounded)

** Assume 30% of construction cost for Present Worth O&M Costs

*** Due to there being no costs for Alternative 1, Alternative 2's O&M Costs were used for Alternative 1.

Recommended Alternative: Rehabilitation

In-System Storage Devices

- Urethane grouting of surfaces that experienced water damage
- Replace regenerative blowers with improved make and model
- Rehabilitate inflatable dams
 - Replace anchor bolts and seal air leaks
- Replace electric actuators in-kind
- Replace check valves as necessary
- Upgrade heaters, ventilation systems and sump pumps

Valve Remote Gates

- Rehabilitation of the slide gates
 - Replace hardware, stems, stem guides and power wash frames
- Replace hydraulic/electric actuators as necessary
- Upgrade transducers and transmitters
- Rehabilitate or replace broken access hatches
- Remove abandoned equipment from control chambers

Implementation Schedule

Project Activity	Project Milestone
Post Draft SRF Project Plan and Public Hearing Notice (Start of 30-Notice Period)	April 16, 2021
Public Hearing (33 days after Public Hearing Notice)	May 26, 2021
Submit Project Plan to EGLE	June 1, 2021
Procure Design Engineering Consultant	October 22, 2019
Start of Construction Phase 1	December 2021
Complete Construction Phase 1	September 2022
Start of Construction Phase 2	March 2022
Complete Construction Phase 2	March 2023



GLWA

Great Lakes Water Authority