

TACWA

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Partnership to Renew Lake Arlington Raw Water Pump Stations: Shared Operations Improvements

Justin Kirchdoerfer, P.E. – Arlington Water Utilities

John Logan, P.E. – Trinity River Authority of Texas



Trinity River Authority of Texas

Enriching the Trinity basin as a resource for Texans



Partnership to Renew Lake Arlington Raw Water Pump Station: Shared Operations Improvements



TACWA
11/15/2019



Shared Operations Improvements



Two Owners
in partnership
using one site to
serve two areas



One Project
with combined
designed efforts



**Different
Operational
Requirements**
means closer
coordination is
needed



**Shared
Operational
Considerations**
affects both
parties



**Combined
Procurements**
expedite the
process

TCWPS RWPS and LARWPS – PS Locations

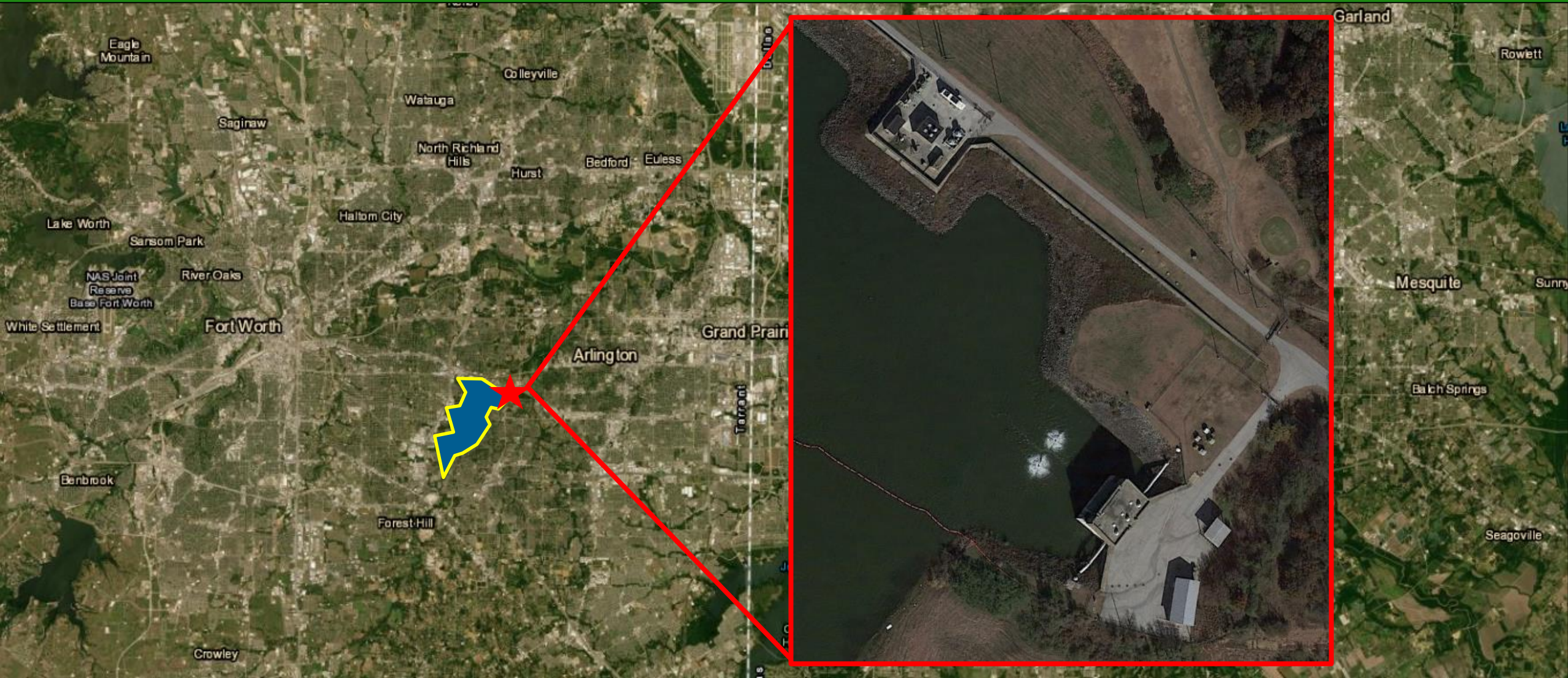
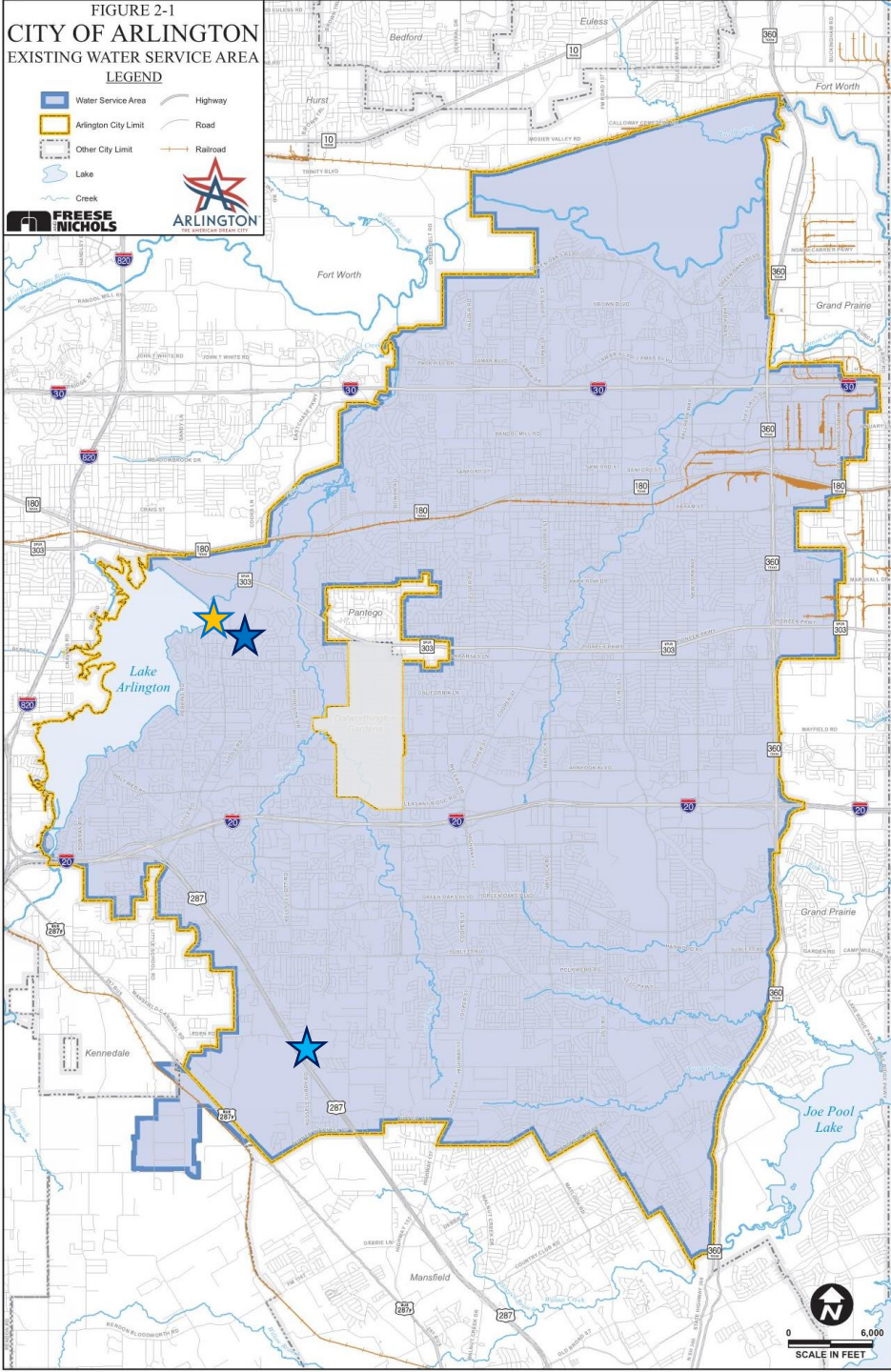


FIGURE 2-1
 CITY OF ARLINGTON
 EXISTING WATER SERVICE AREA
 LEGEND



Partners: Arlington Water Utility (AWU)

- City Water Utility
- Service Area
- Raw Water and Treated Facilities
 - ★ ■ LARWPS (1974)
 - Multi-Level Intake
 - ★ ■ Pierce-Burch WTP
 - ★ ■ John F. Kubala WTP
- Arlington City Council

Existing LARWPS



The existing PS was constructed in 1974. The facility will be configured with pumps to provide needed capacity for both AWU and TRA.



Partners: Trinity River Authority (TRA)

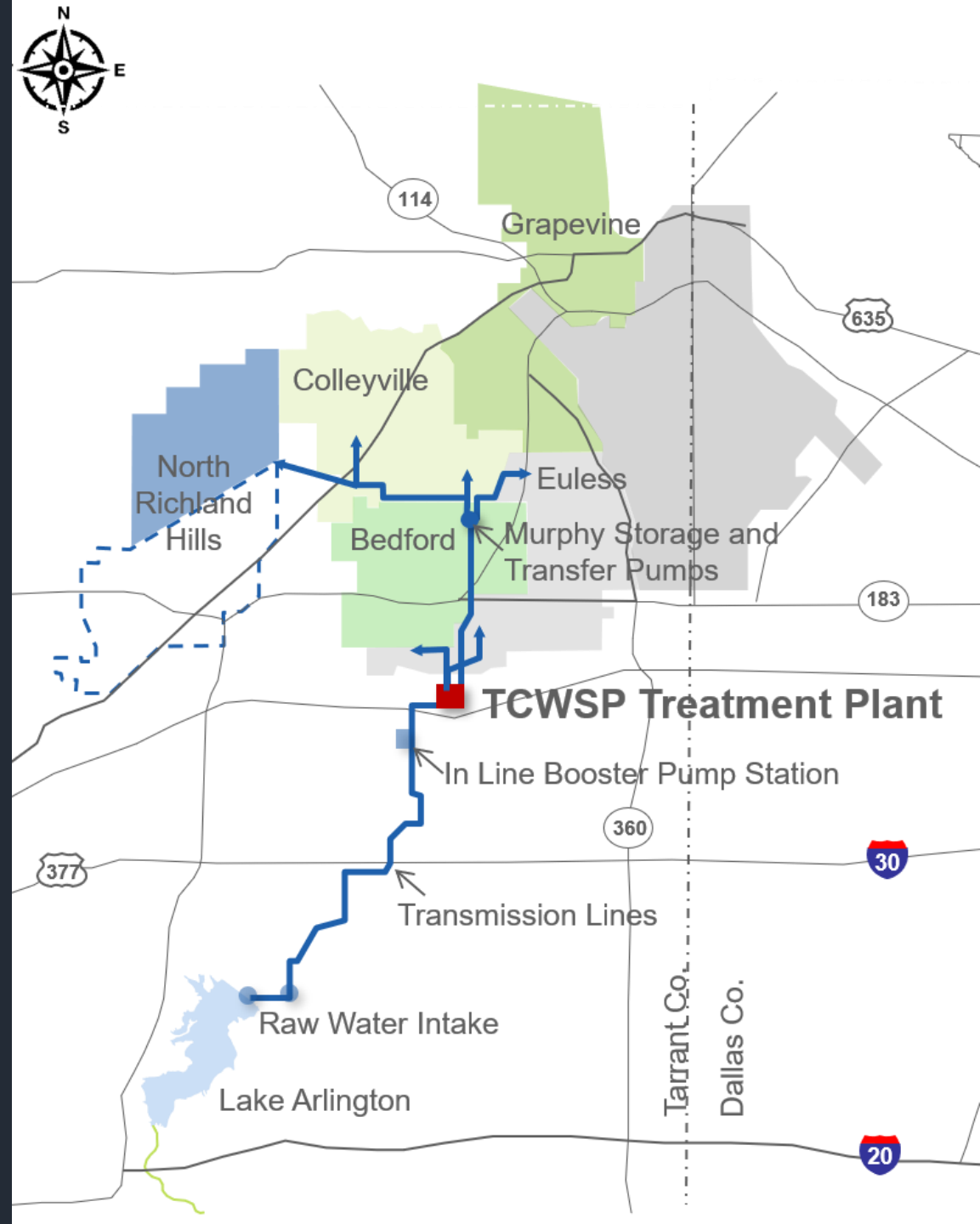
River Authority

Service Area – North Region

Raw Water and Treated Facilities

- TCWSP RWPS (1957)
 - Single Level Intake
- TCWSP WTP

Board of Directors



Existing TCWSP RWPS



The existing PS was constructed in 1957.



Project History

A Recipe for Partnership

Drivers

- LARWPS capacity exceeded AWU needs
- Extend service life for another additional 25 years
- Improve O&M costs and protocols
- Increase redundancy

Location

Both existing pump stations are about 600 LF apart

Required Maintenance

Several upgrades over four and six decades, respectively

Upgrades Needed

Both existing pump stations require upgrades to their pumps, electrical gear, and support systems

Cost Estimate

Renovation for shared usage is approximately \$20 M

Interlocal Agreement

AWU and TRA will jointly use, operate and maintain the PS

01

02

06

03

05

04

Partnership – Proposed Improvements

★ Pump Improvements

- Three dedicated pumps for each Owner
 - AWU: Firm Fixed Capacity= 80 MGD
 - TRA: Firm Fixed Capacity=97 MGD
- Shared Discharge Header Isolated by BFV

★ Electrical Improvements

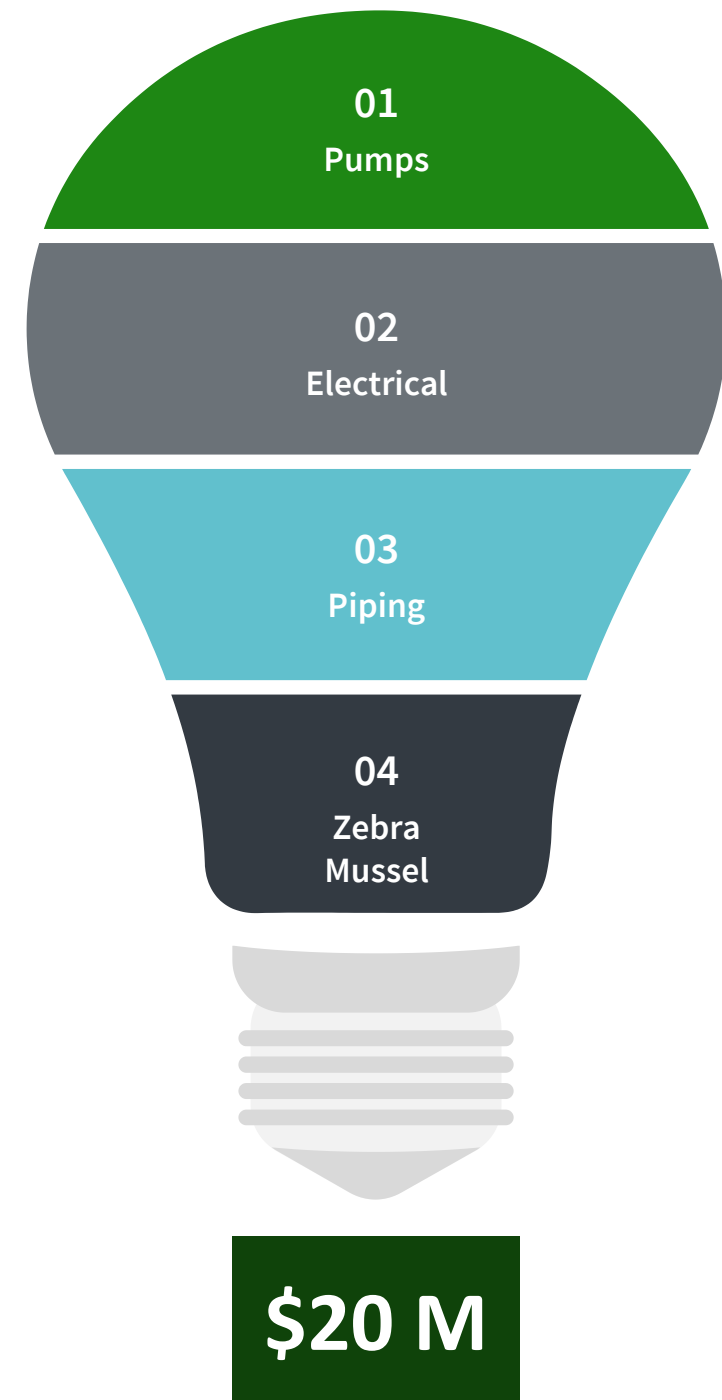
- VFDs, SWGR, Primary Service on Transformers, Redundancy, Main-Tie-Main
- Electrical Building Extension
- Common instruments, separate SCADA feeds

★ Piping Improvements

- New yard pipe with connections along dam

★ Zebra Mussel

- Planning for zebra mussel mitigation



Game-Changing Tool

Improving conceptual design with better understanding and recording of existing condition through Matterport.



Improving Design with Quality Photos



From Matterport to Revit Visualizing Design

MATTERPORT | EXISTING PUMPS LINE UP



REVIT | PROPOSED PUMPS LINE UP



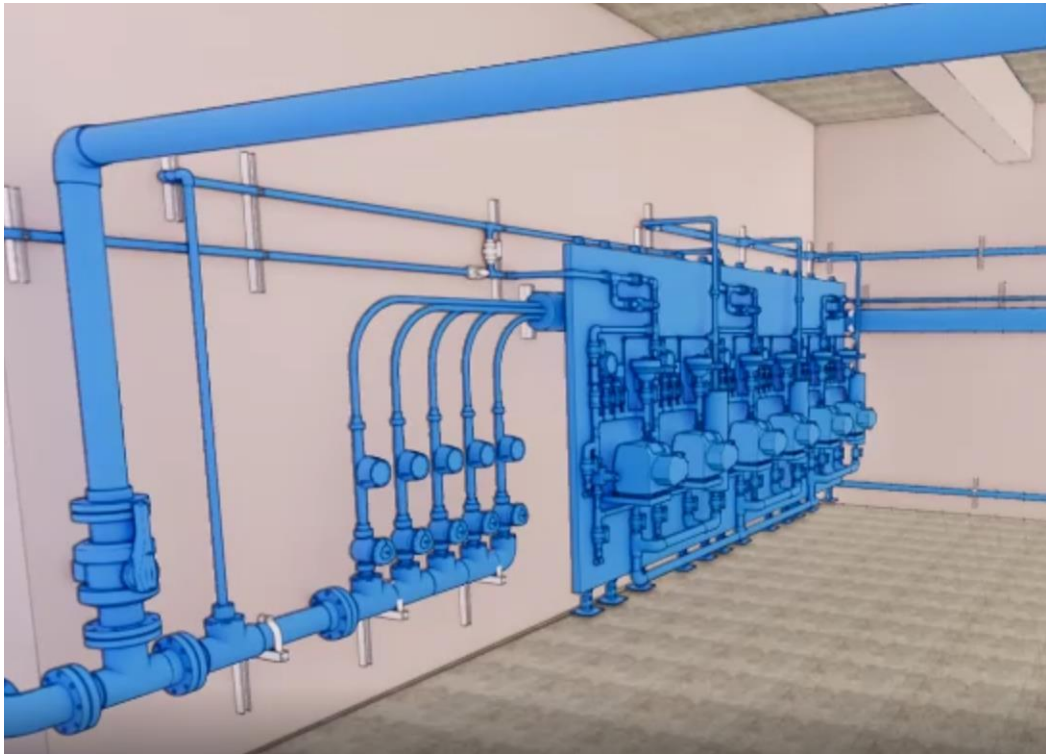


TRA PUMPS AND WATER QUALITY PANELS





Copper Based Molluscicide



Utilized in pipe for
taste and odor

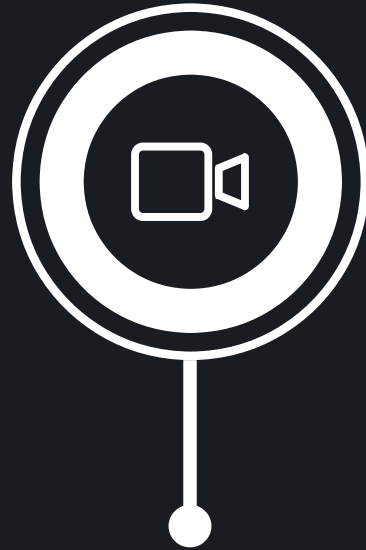


Ability to protect
pump station



Operational
flexibility

PUMP STATION WALKTHROUGH

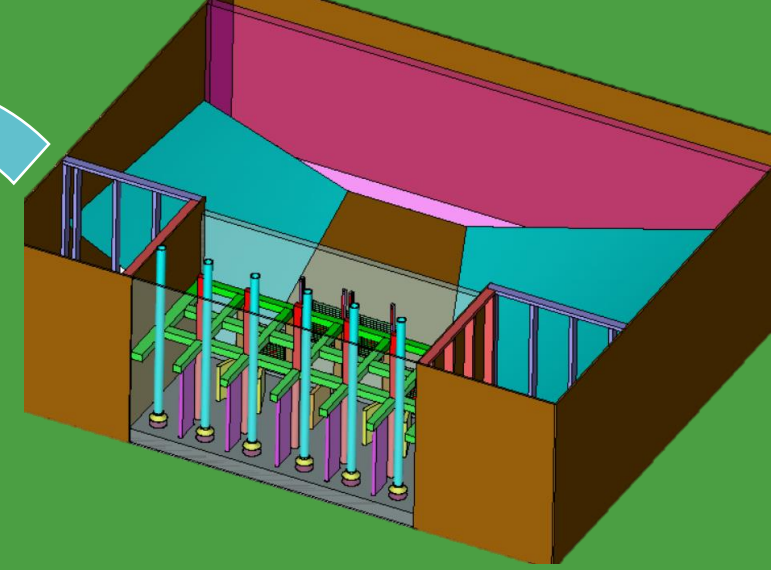


AWU PUMPS AND IRRIGATION





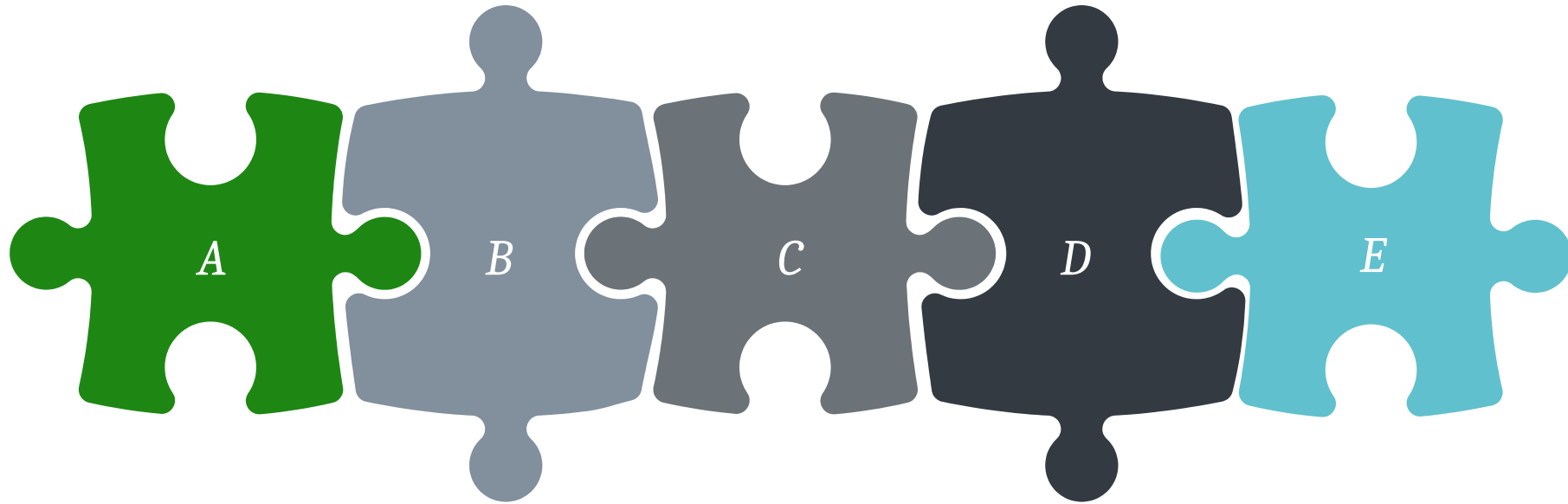
Hydraulic Modeling Wet Well Considerations



Physical Model at Alden Labs

- 6 Pumps
 - 3 x 48 MGD
 - 3 x 40 MGD

Additional Owner Coordination Items



Physical Security
and Permanent
Site Access



Communications
and SCADA



Pipeline Along
Dam

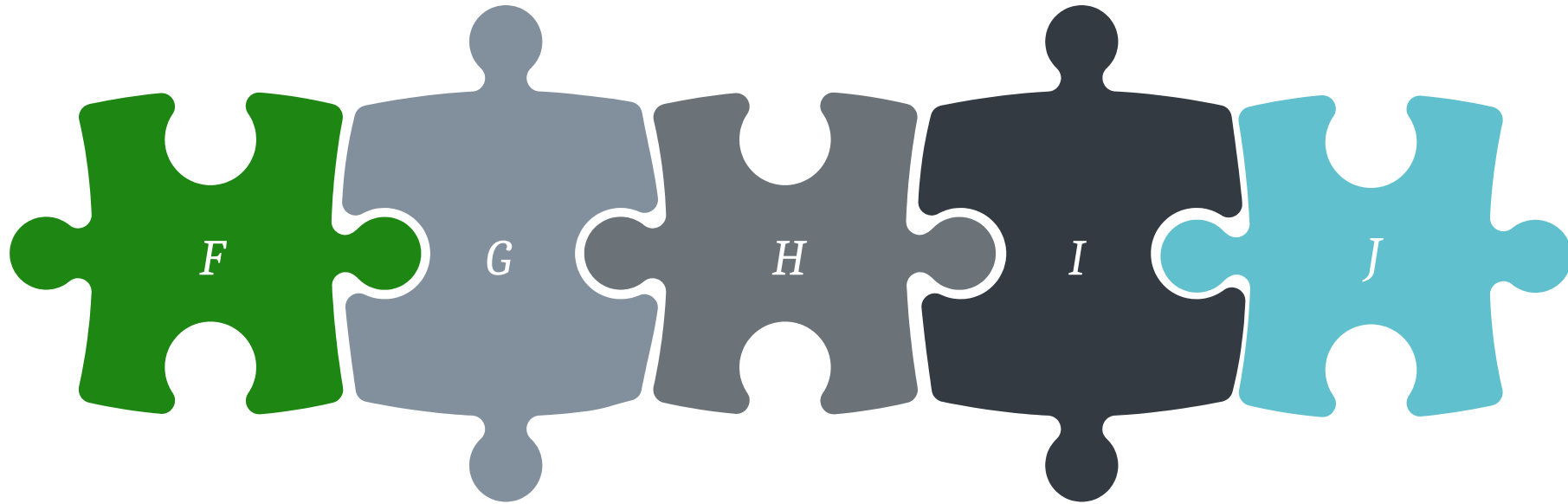


Raw Water Pipe System
Interconnection and
Operation During
Construction



Chemical Usage

Additional Owner Coordination Items



Documenting
Ownership



Primary Electrical
Service from
Utility



Redundant
Transformers

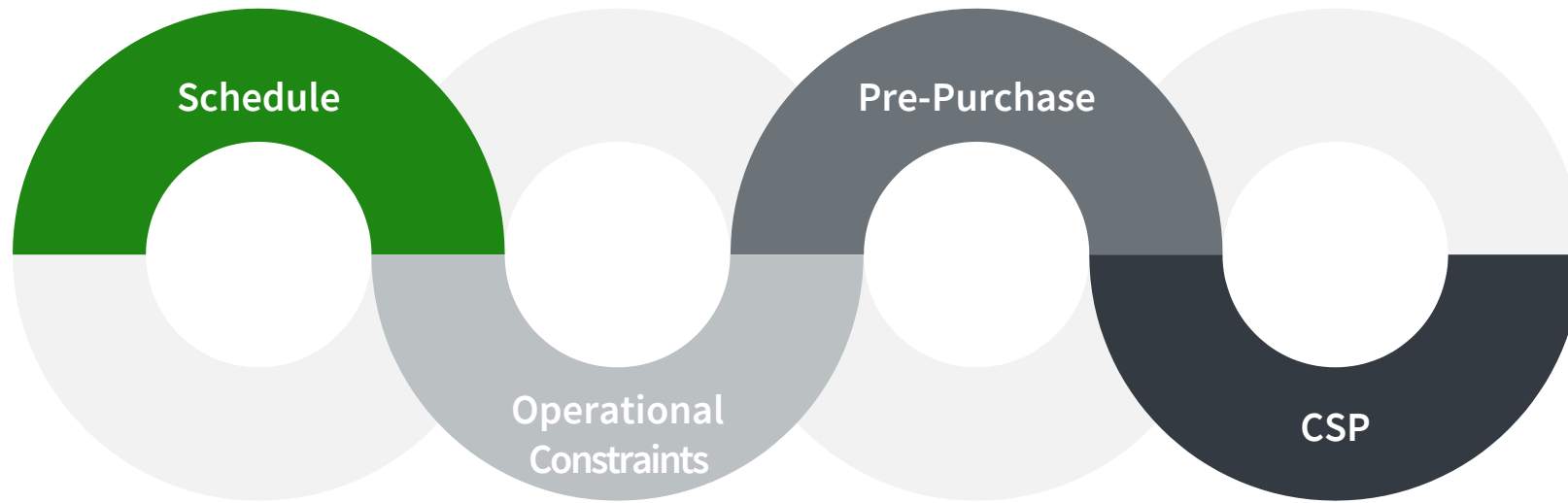


Surge Modeling



Relocating Backup
Power Generation

Procurement Strategy



Schedule
Schedule is
time-sensitive



Operational Constraints
Work required to be
done during low-
demand periods



Pre-Purchase
AWU pumps were
pre-purchased to
expedite schedule



CSP
Allows selected offeror
to negotiate scope or
time modifications

Q&A

