ASHLAND WATER ADVISORY COMMITTEE
June 27th, 2017

CALL TO ORDER
Scott Fleury called the meeting to order at 4:05 PM
Committee Members Present: Darrell Boldt, Joe Graf, Rich Miller, Donna Rhee, Pat Acklin, Alex Amarotico, Kate Jackson,
Committee Members Absent: Don Morris, John Williams (chair), Michael Morris (council liaison),
Staff present: Emily Matlock, Scott Fleury, Steve Walker, Michael Morrison, Greg Hunter, Kevin Caldwell
Staff absent: Mike Faught, Julie Smitherman
Consultants: Jeff Ballard (RH2), and from Keller Associates: James Bledsoe (Project Manager), Bryan Black (Water Treatment Lead), and Pierre Kwan (HDR water treatment team)

ANNOUNCEMENTS
None

Public forum
None

New 2.5 MGD Water Treatment Plant/Crowson II Reservoir Project Update

Due to the loss of the Vice Chair, the committee elected Joe Graf as the new vice chair. Minutes from April 25th 2017 minutes were approved. Fleury introduced the Keller Associates team and what they would be discussing. James Bledsoe and Bryan Black went over the slideshow they prepared for the group (see attached). The different Water Treatment Plant and Reservoir Siting areas were discussed. The attached slideshow details the potential sites. There are five sites that are being evaluated, the Concrete High, Concrete Low, Granite High, Granite Low, and the Asphalt Pit.

Each site was evaluated and the pros and cons for each of them were listed out. The Concrete, High Plant has challenging topographical constraints, poorer access and expandability. This site does provide possible gravity flow. The option of the Concrete Site, Low Plant has better site access but higher developmental costs. There are also previous environmental concerns that were investigated and appear to be okay. This site is too low to accommodate gravity flow conditions.

At the Granite, High Plant, the plant would sit on top of a shaved down knoll which would make gravity flow possible. At this site, there is less expandability potential and higher developmental costs. It would also be recommended to replace the Ashland Creek Culvert to resist flood events.

At the Granite, Low Plant gravity flow is possible. This site is more accommodating for alternative treatment technologies, expansion, access, and support structures. A culvert

replacement for Ashland Creek is also recommended to resist flood events and there are lower development costs.

The Asphalt Pit site has the best access, but the site is tight requiring significant retaining walls, and poor expansion capability. With this site the nearby Crowson II tank site is not available and gravity flow is not a viable option. The Asphalt Pit has the highest developmental and O&M costs as well.

The Granite, Low Plant and the Concrete, High Plant have the lowest life-cycle costs and offer smaller carbon footprint potential. The Granite, Low Plant offers better access, expandability and flexibility.

Treatment goals, treatment train options and primary treatment processes were considered. All of these are discussed in the slideshow that is attached. The next steps are to move forward with pilot tests this summer and fall and to finish the treatment and site selection reports. This will be presented to council and then we'll move on to equipment procurement, design, construction and finally start up.

Meeting adjourned at 5:42pm
Respectfully submitted,
Emily Matlock
Public Works Administrative Assistant

AWAC MEETING

PROJECT UPDATE

CITY OF
ASHLAND

ASHLAND WATER TREATMENT PLANT & RESERVOIR

PROJECT NO. 217002

06 | 27 | 17

Get there!
KELLER associates

Meet **Our Team**

James Bledsoe, PE
Project Manager

Bryan Black, PE
Treatment Lead

Pierre Kwan, PE
Water Quality

CITY OF ASHLAND

Rod Linja, PE
Principal-in-Charge

JAMES BLEDSOE, PE
Project Manager

DESIGN MANAGER
LARRY RUPP, PE

TREATMENT
BRYAN BLACK, PE
Treatment Lead
PIERRE KWAN, PE (HDR)
Water Quality

STORAGE
BRANDON KELLER, PE, SE
Structural Lead

PUMPING/PIPELINES
JASON KING, PE
Pumping/Pipelines Lead

SUPPORT STAFF

GLENN HUNTER (PA)
Ozone Specialist

DAVID KINZER, PE
Structural Support

ADAM NEIWERT, PE
Electrical

NATHAN CLEAVER, PE
Site Civil

JEREMY WILSON, PE
Siting

MELINDA FRIEDMAN, PE (CE)
Distribution WQ

DONN HOGAN, AIA (HDR)
Architectural

KARL SUTTON, PE (HDR)
HVAC/Fire/Plumbing

ERIC ROUNDY, PE
Chemical Feed

DON BEST, PE (HDR)
Instrumentation/Controls

JOSH DOWNS (PEI)
SCADA

DAN BLACKWELL (HDR)
Cost Estimating

PETER OLSEN, PE
Permitting/Funding

ROBIN WARREN, PE, GE, RG (AG)
Geotechnical

RICHARD ALSPACH, PLS (TS)
Survey

RANDY BRIXEY
Inspection

CE = Confluence Engineering PEI = Portland Engineering PA = Process Applications AG = Applied Geotechnical TS = Terrasurvey

Key Planning Objectives

New Water Treatment Plant

- Ultimately replace existing water treatment plant
- 2.5 MGD, expandable to 10+ MGD
- Treat Reeder and TID source waters
- Meet treatment goals (presented later)

Crowson II Reservoir

- Provide additional system storage
- Similar grade to Crowson I Reservoir
- Provide clearwell volume
- Sizing TBD with ongoing master planning

Terrace Estate Pump Station

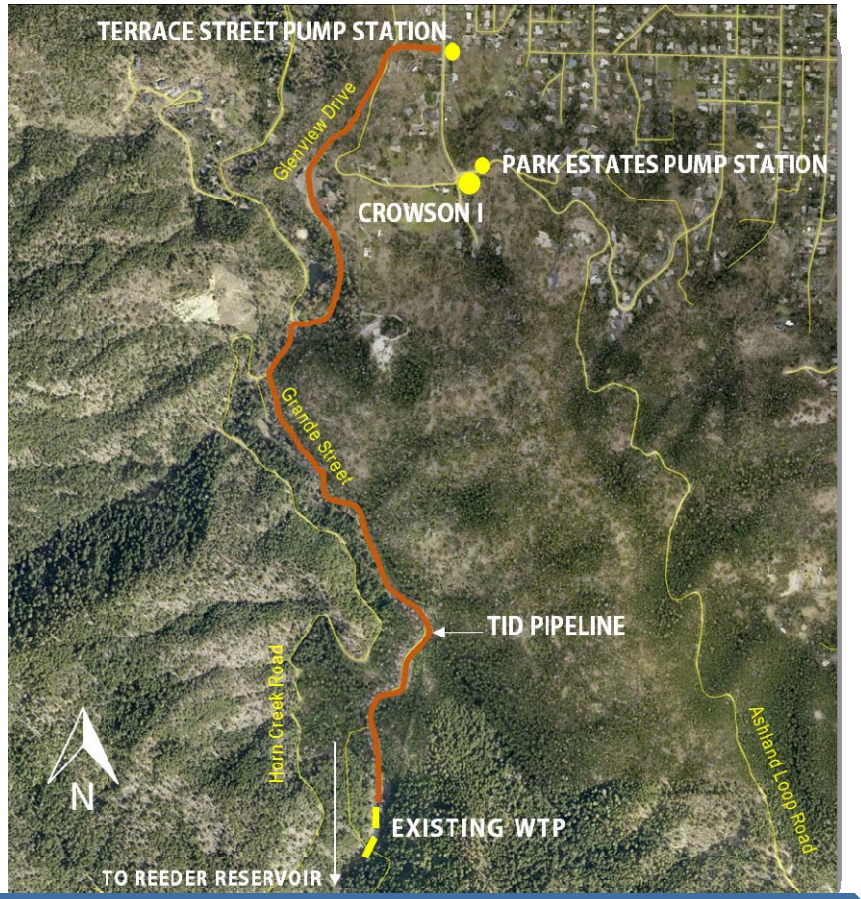
- Provide reliable backup TID supply to new plant
- 3.5 MGD firm capacity; improved efficiency
- Flexibility to accommodate pumping to new plant and interim supply to existing plant

Park Estates Pump Station

- Better utilize existing Crowson I Reservoir storage
- Pump redundancy for domestic flows (<200 gpm) and fire flows (2,000 gpm); improved efficiency

Pump Stations

Schedule Constraints:
Construction during non-irrigation / low-demand period
Funding constraints



TERRACE Estate RAW WATER PUMP STATION

- Small footprint
- Convert wetwell dry pit to two compartment wetwell
- High-efficiency vertical turbine pumps

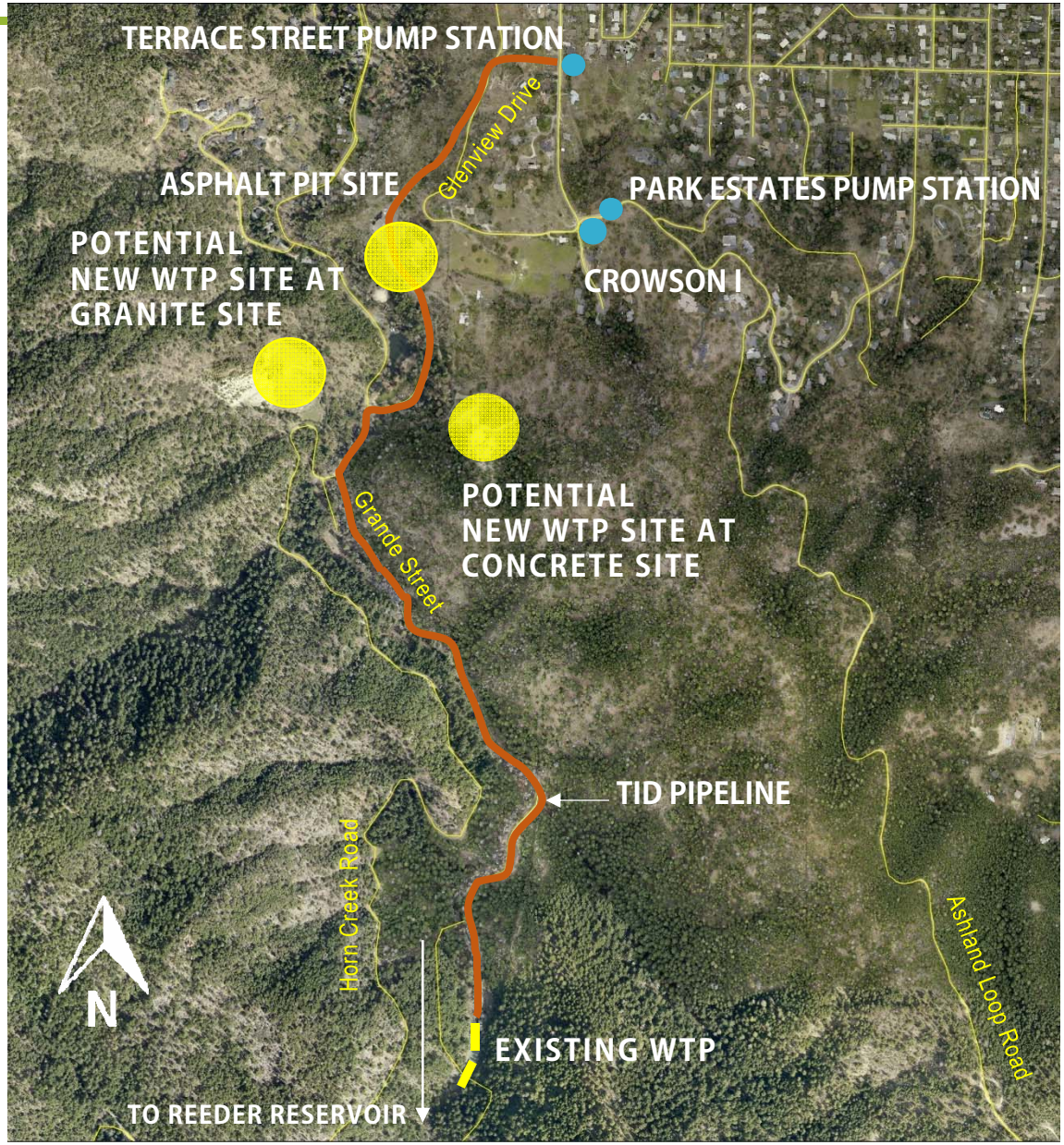
PARK ESTATES PUMP STATION

- Site near Crowson Tank
- 5 pumps, standby power

WTP and Reservoir Siting

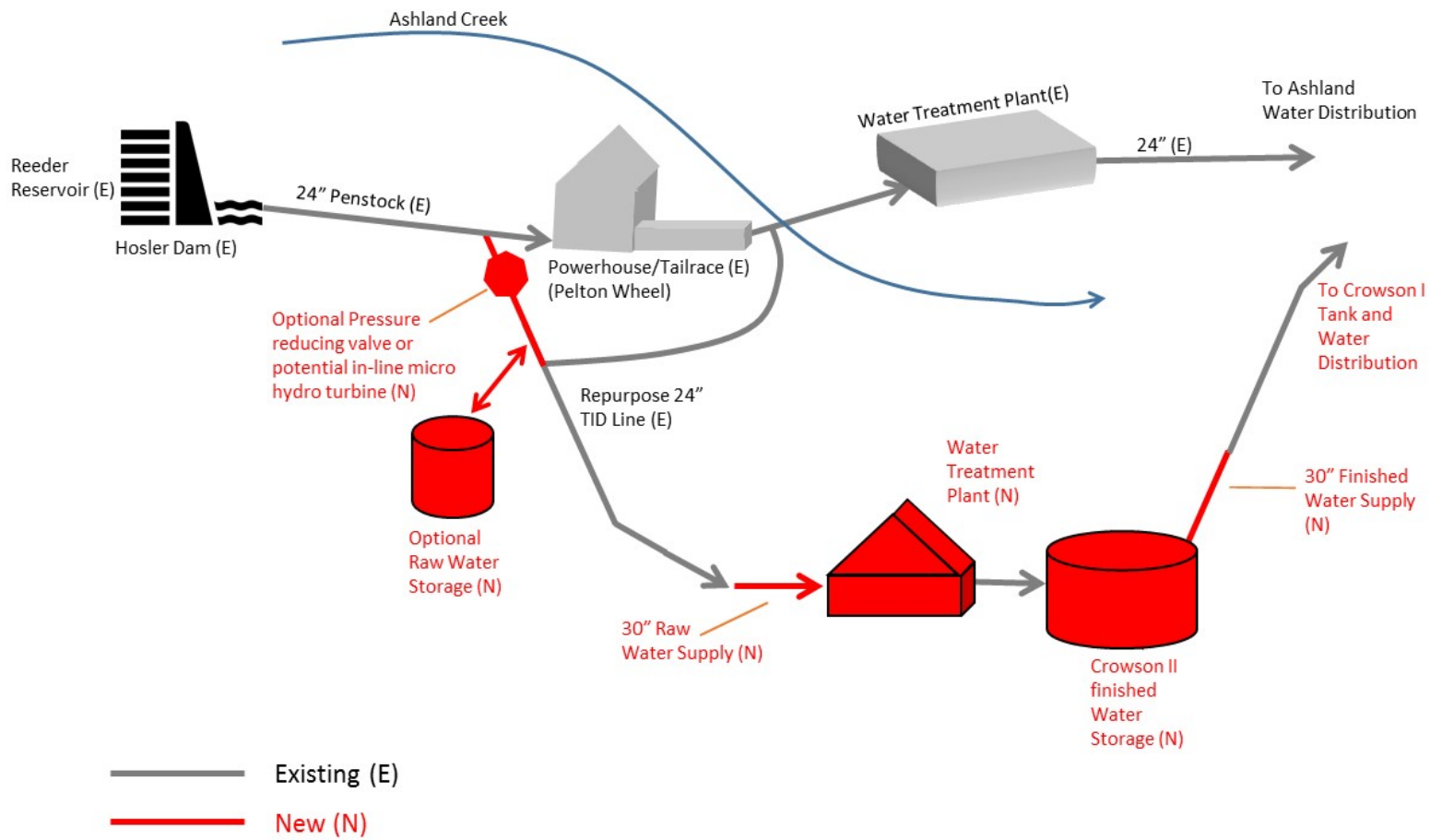
Evaluate Five Sites

- Concrete High
- Concrete Low
- Granite High
- Granite Low
- Asphalt Pit

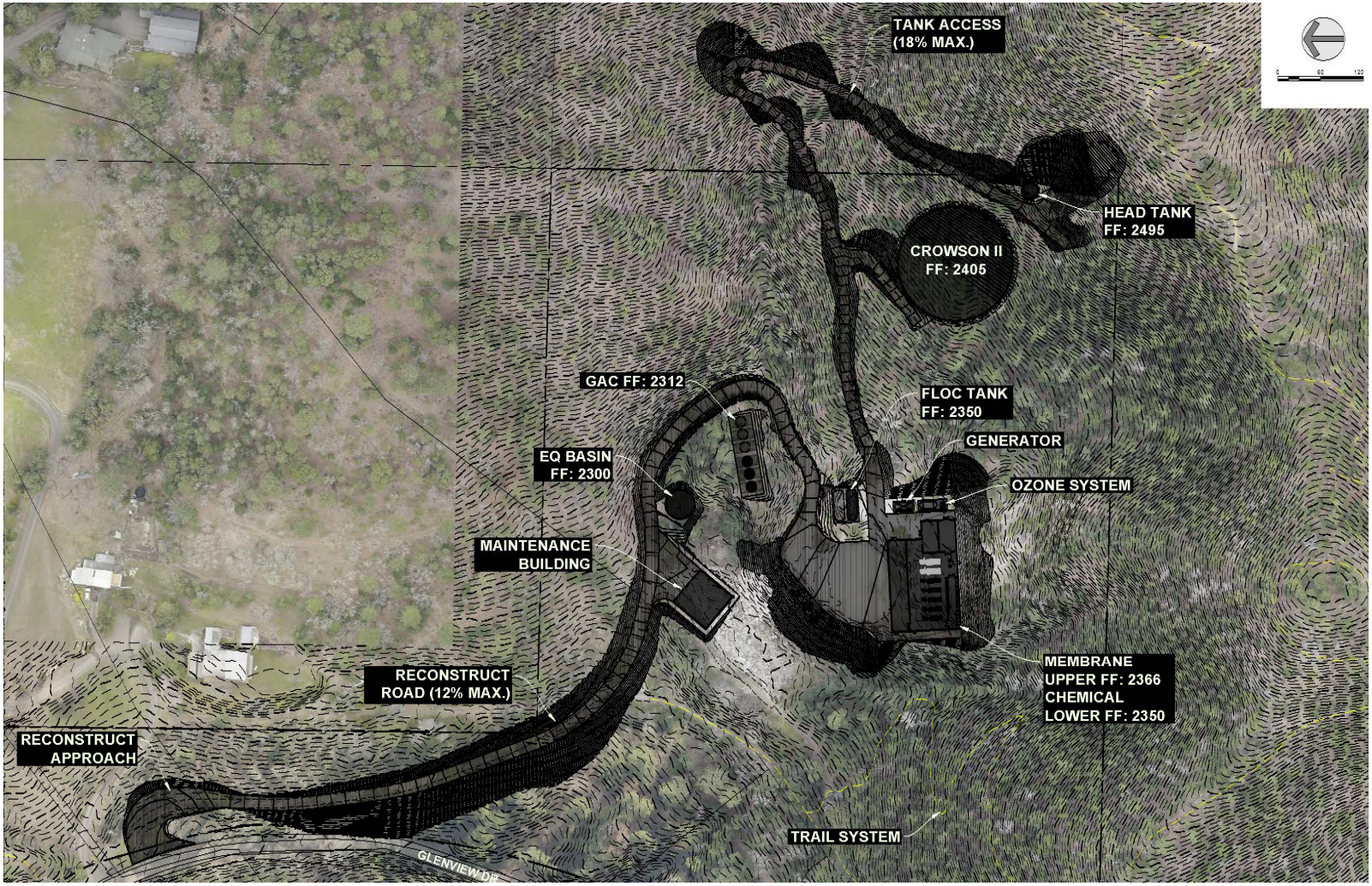


Gravity Flow Alternatives

- Penstock connection and high plant
  - 100% gravity flow
  - Power lost from hydropower is greater than power saved
- Tail race connection
  - 50% gravity flow possible for some sites
  - Simpler, less risky operations
  - Overall energy savings compared to Penstock

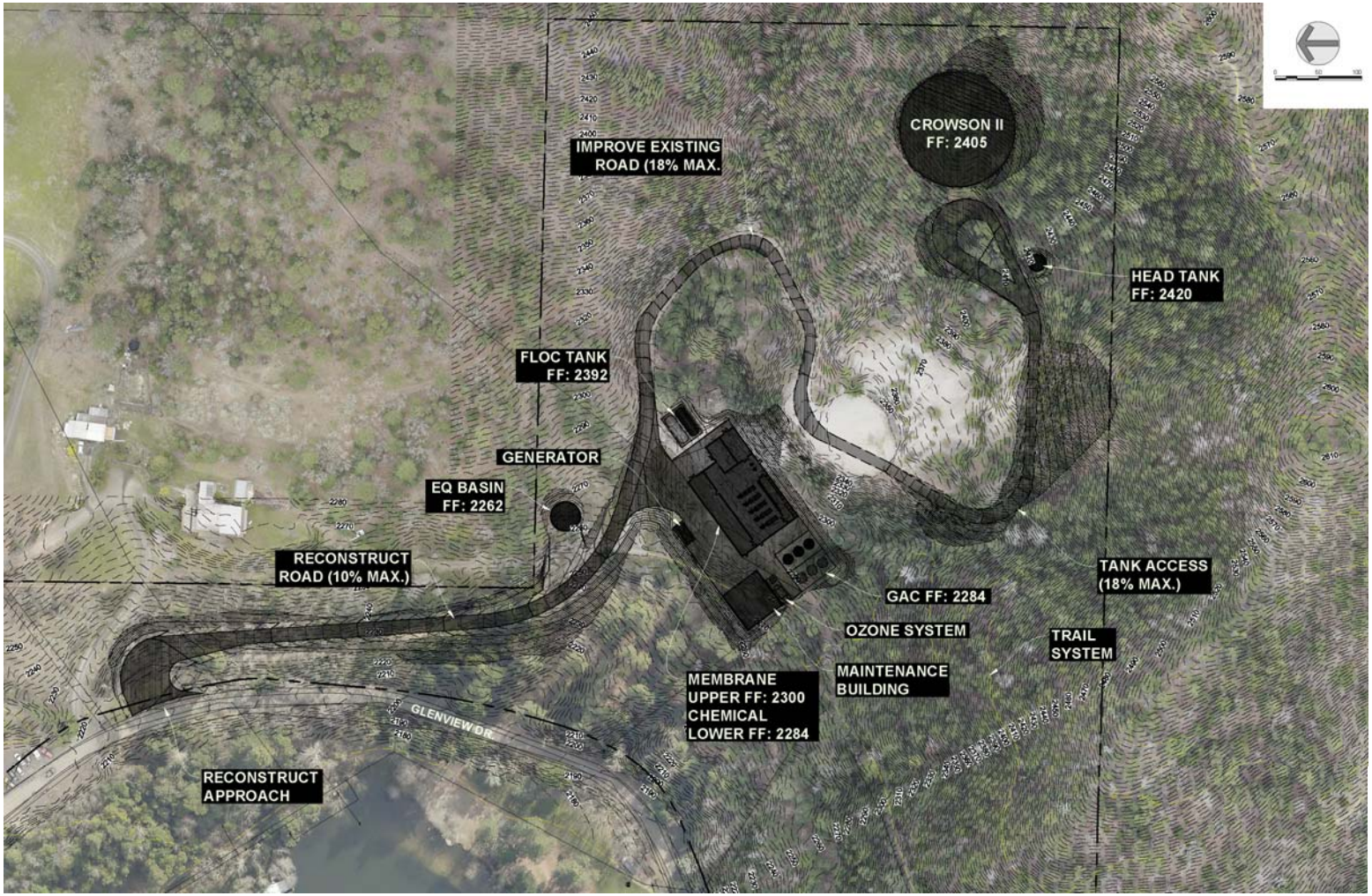


SITING CONCEPT 1: **Concrete Site, High Plant**



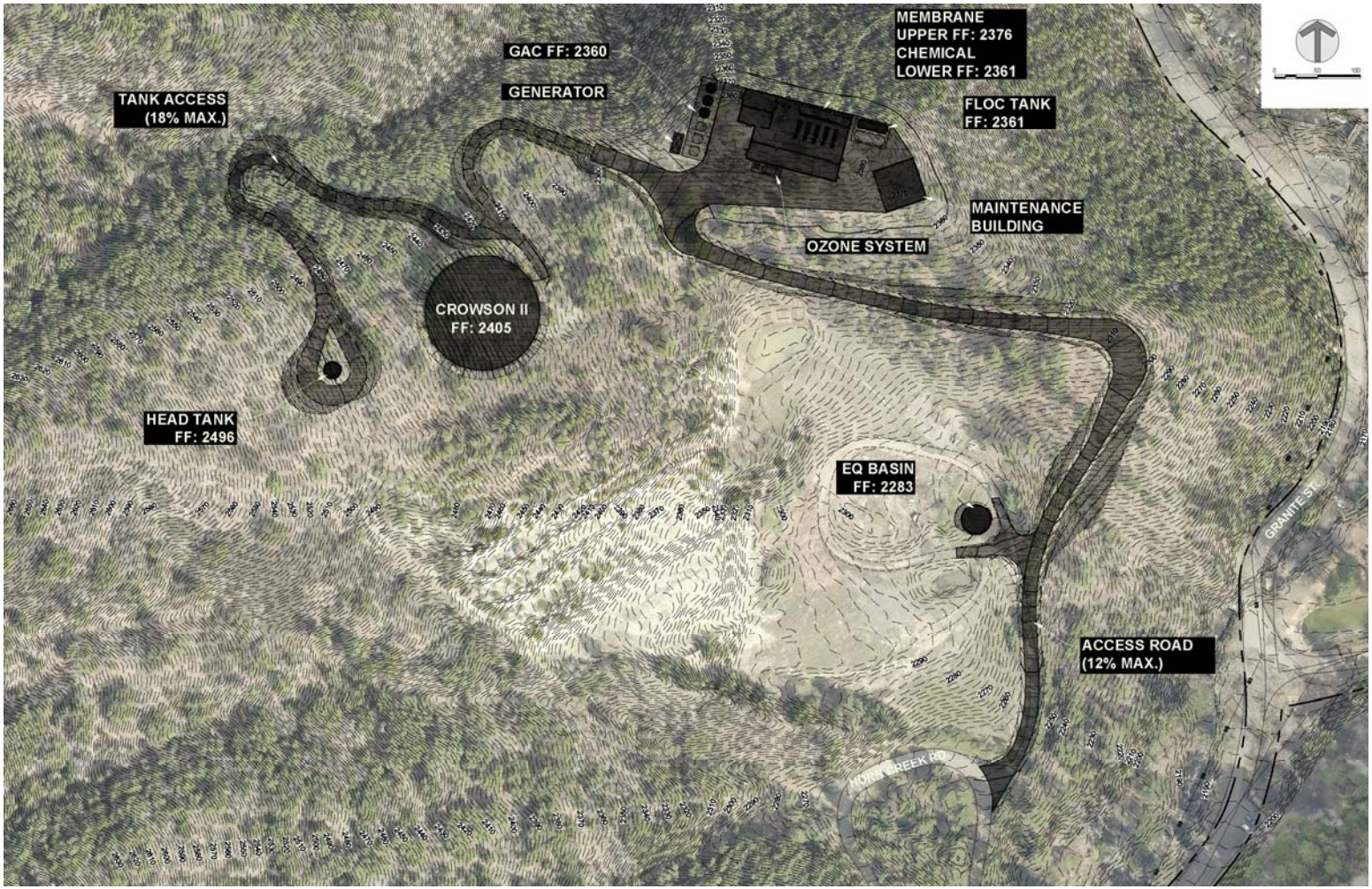
- Challenging topographical constraints
- Poorer access, expandability
- Gravity flow possible

SITING CONCEPT 2: **Concrete Site, Low Plant**



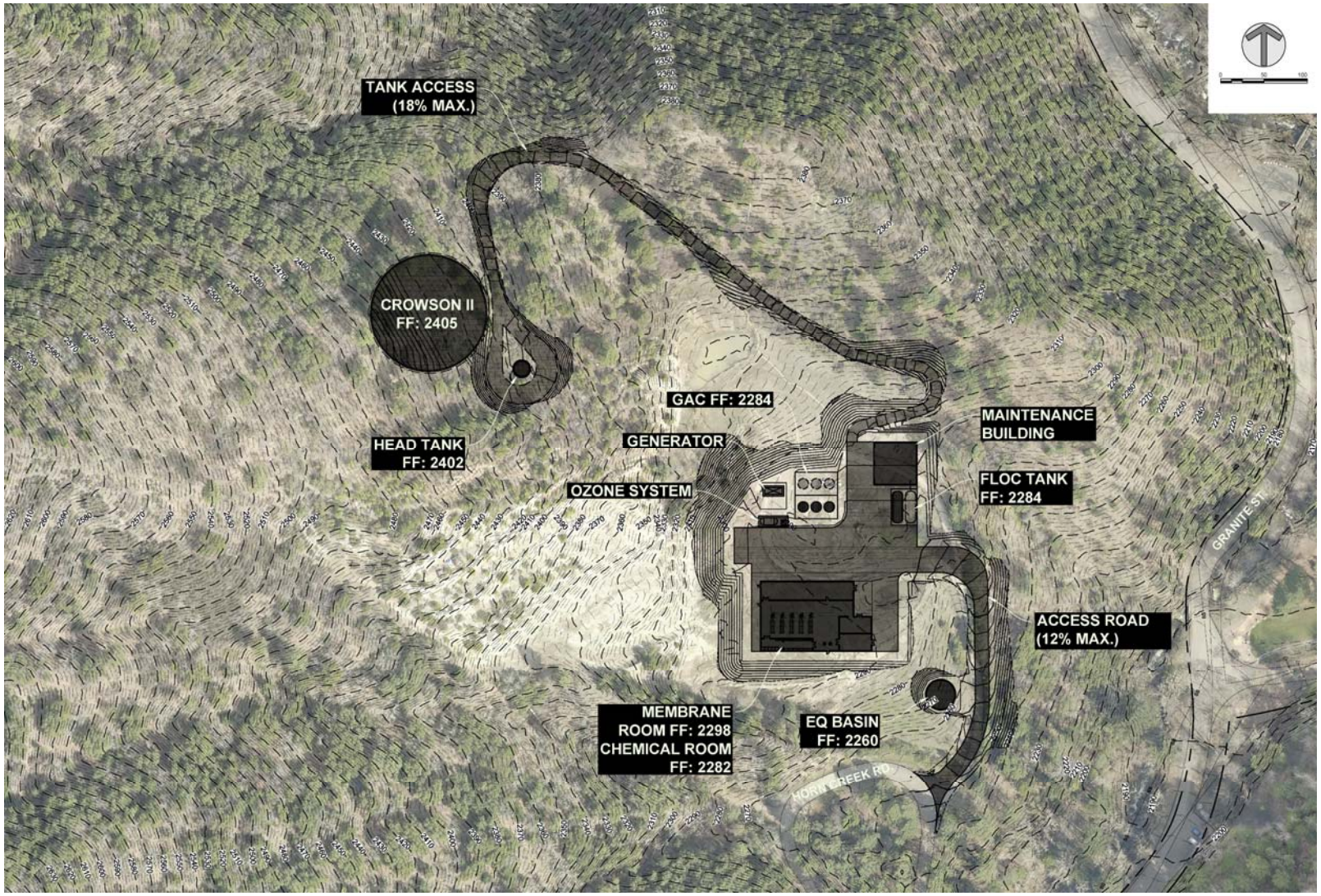
- Previous environmental concerns investigated and appear okay
- Better site access
- Site too low to accommodate gravity flow conditions
- Higher development cost

SITING CONCEPT 3: **Granite Site, High Plant**



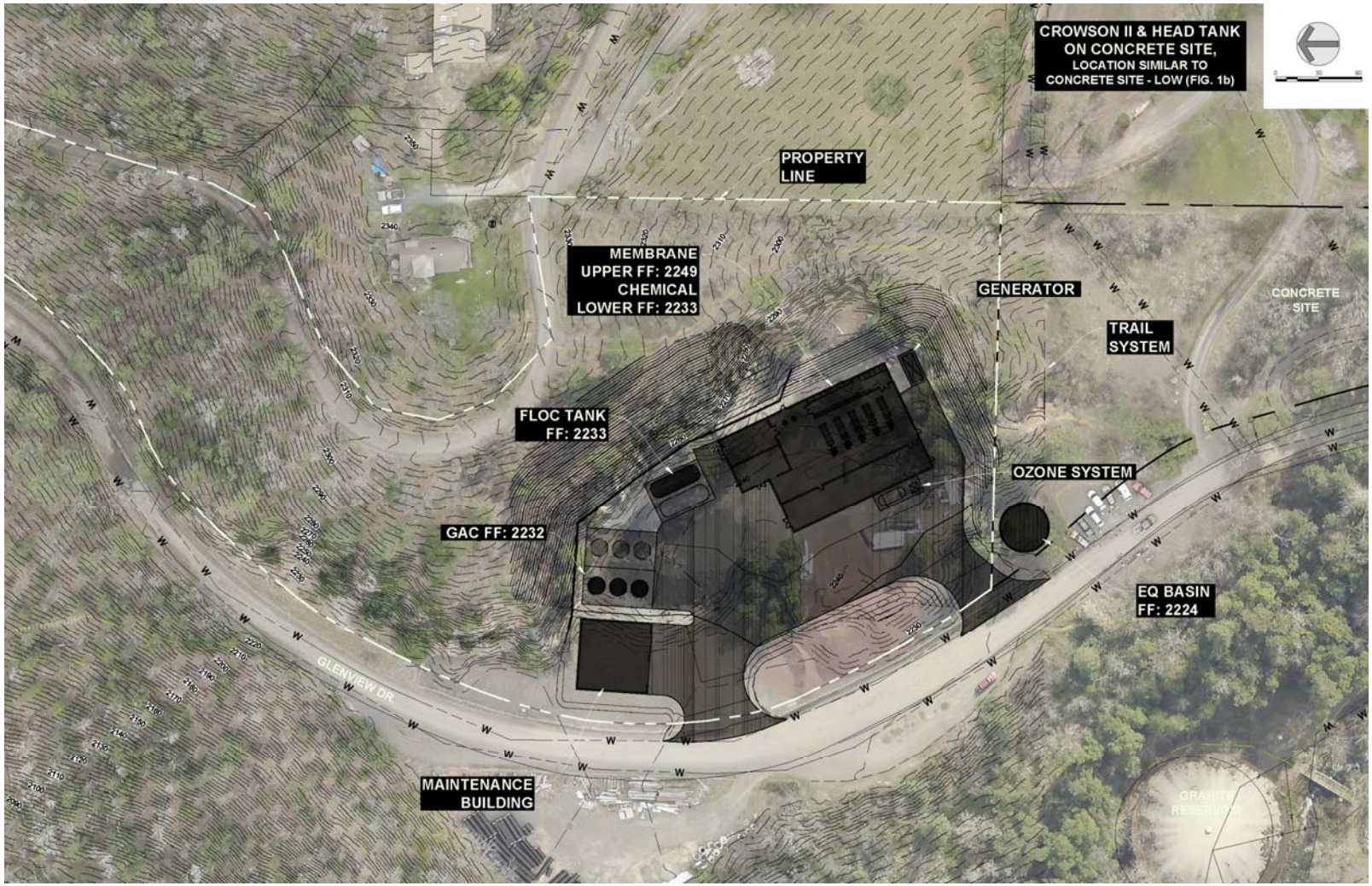
- Plant sited on top of knoll (shaved down)
- Gravity flow possible
- Less expandability potential
- Ashland Creek culvert replacement recommended to resist flood events
- Higher development cost

SITING CONCEPT 4: **Granite Site, Low Plant**



- Site more accommodating for alternative treatment technologies, expansion, access, and support structures
- Gravity flow possible
- Ashland Creek culvert replacement recommended to resist flood event
- Lower development cost

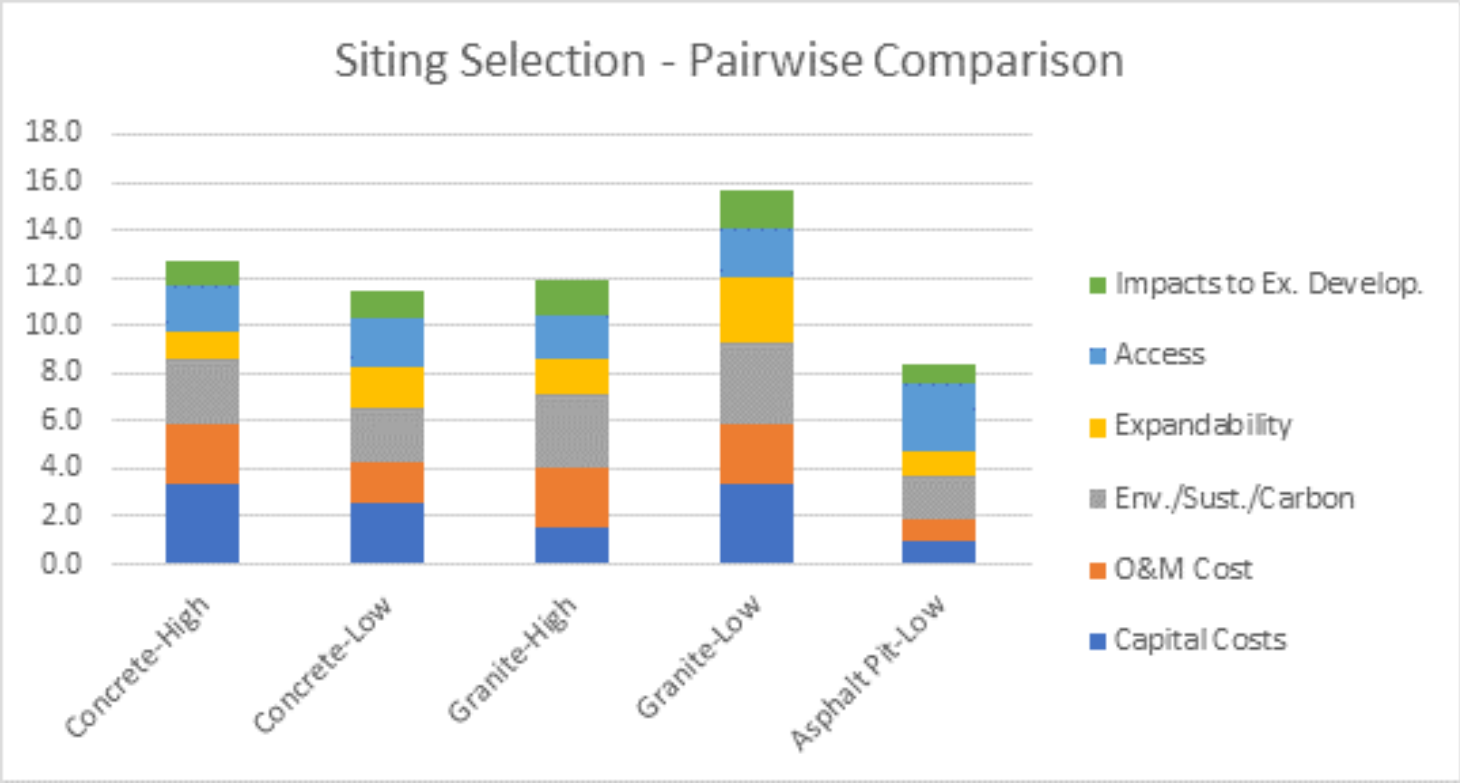
SITING CONCEPT 5: **Asphalt Pit**



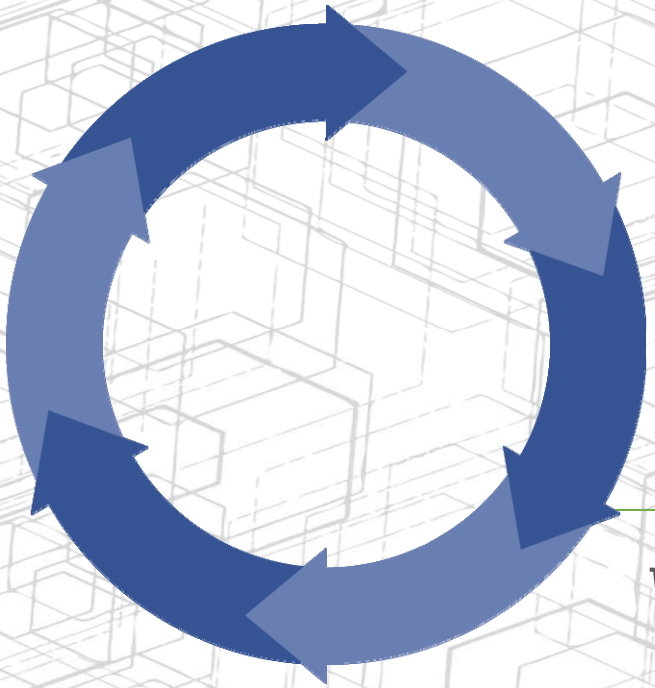
- Best access
- Site is tight, requiring significant retaining walls, poor expansion capability
- Nearby Crowson II tank site not available
- Gravity option not viable
- Highest development and O&M costs

WTP Site Selection Criteria and Results

SITING CONCEPT: **Site Selection**



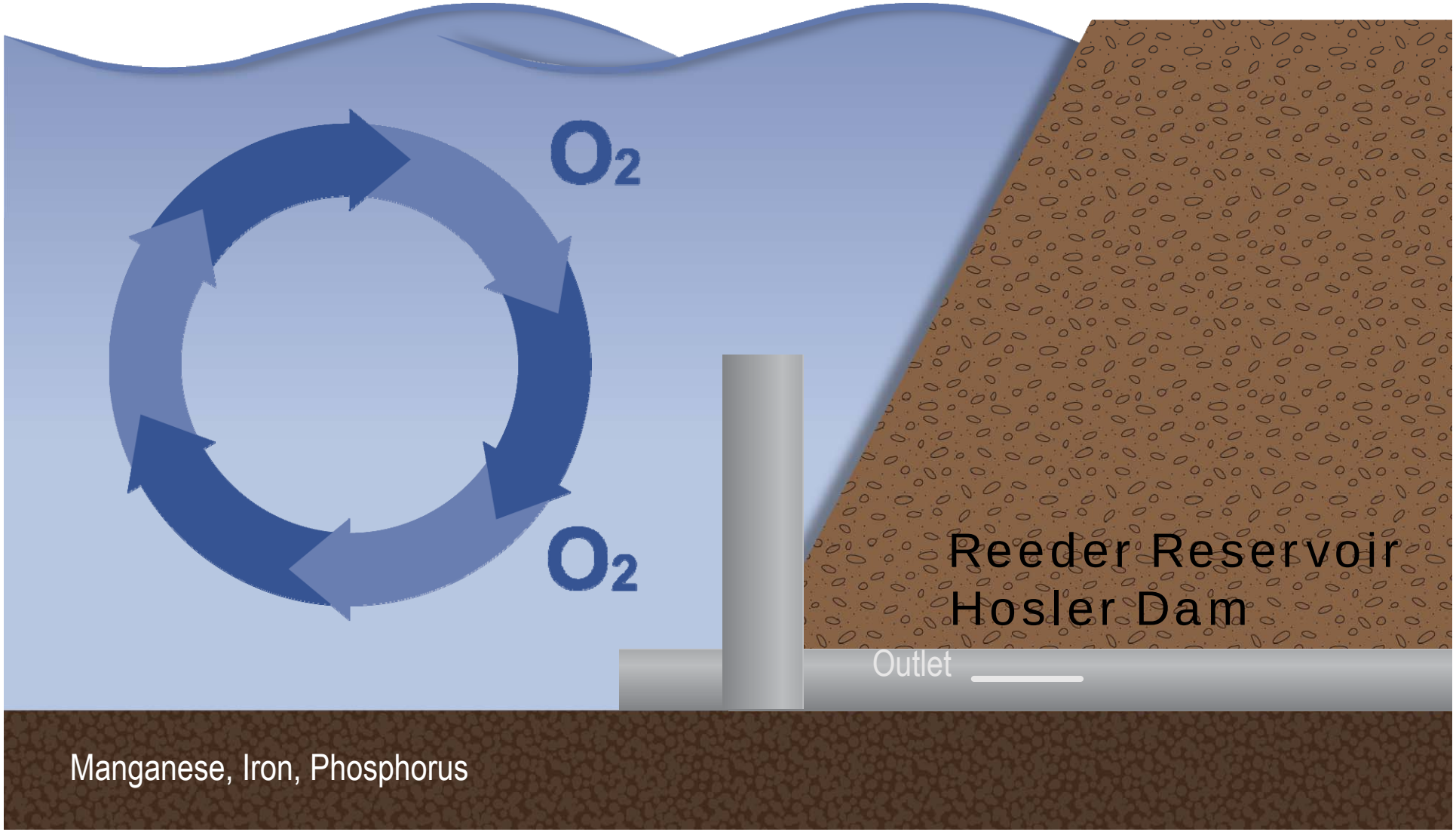
- Granite Low and Concrete High clearly have the lowest life-cycle costs and offer smaller carbon footprint potential
- Granite Low offers better access, expandability, and flexibility



Water Treatment Process Evaluation

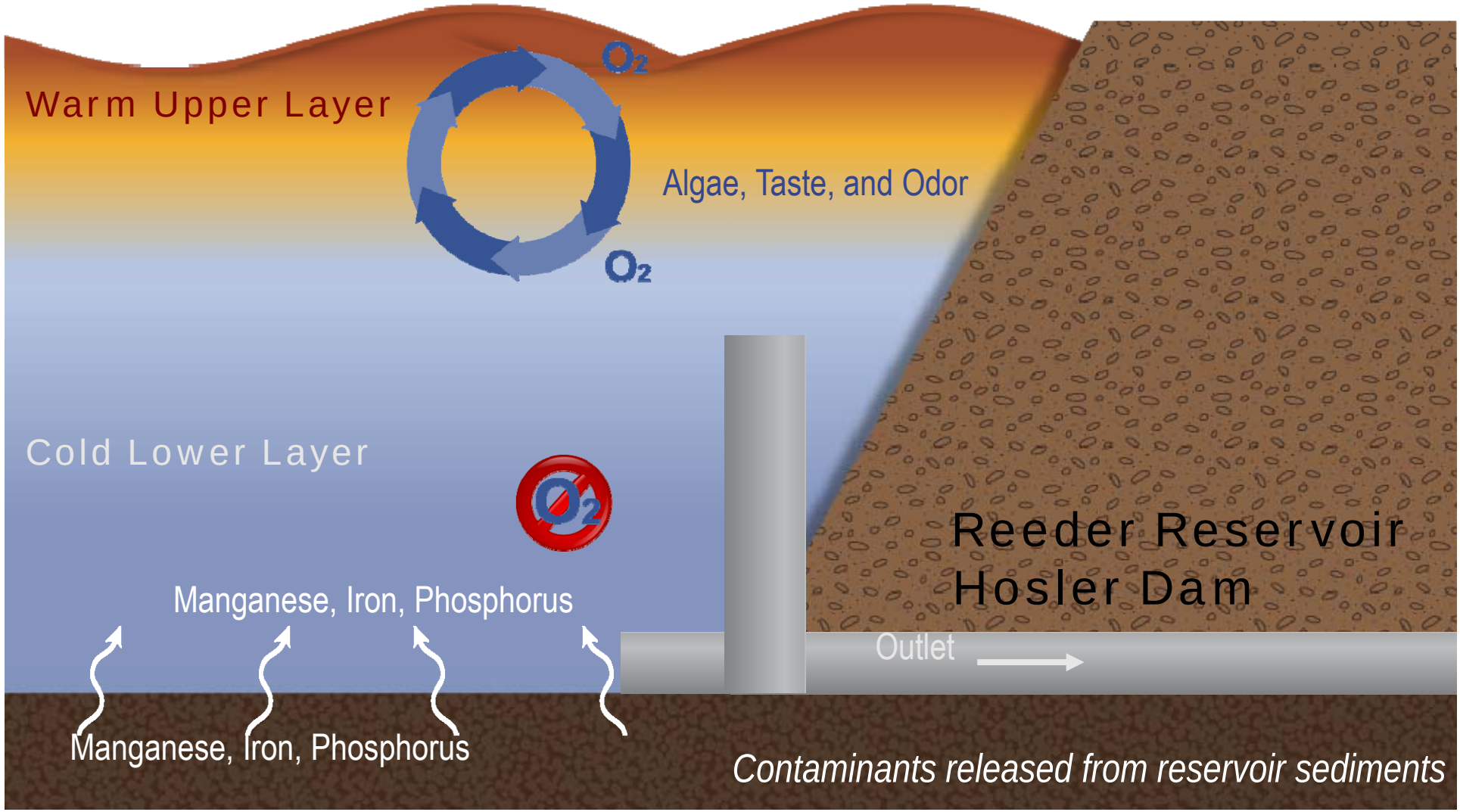
TREATMENT TECHNOLOGIES: **Winter**

Full lake mixing keeps contaminates in sediment



TREATMENT TECHNOLOGIES: **Summer**

Temperature layering releases contaminants

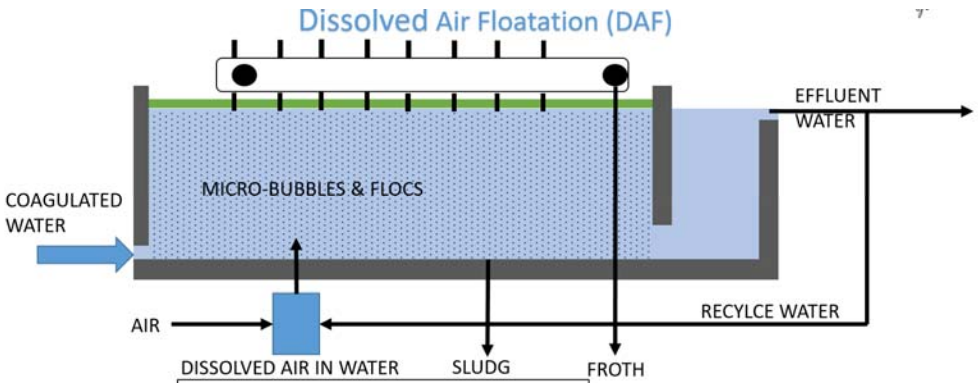


Treatment Goals

- Manganese and iron
- Organics and color
  - Disinfection byproduct control
- Algae / algal toxins
- Taste and odor (Geosmin)
- Disinfection
- Corrosion
- Achieve
  - Customer satisfaction
  - Regulatory compliance

Primary Treatment Processes Considered

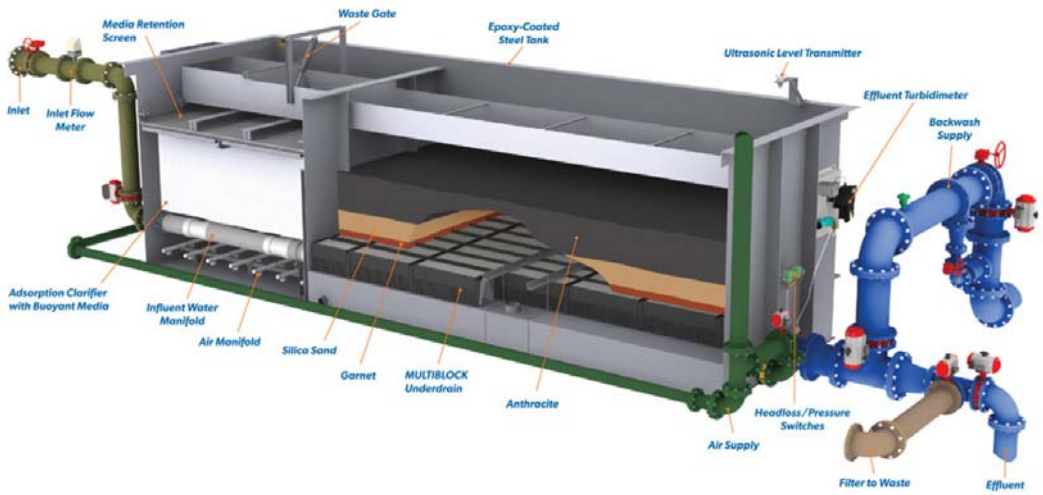
- Clarification, CL



- Ozonation, OZ

Primary Treatment Processes Considered

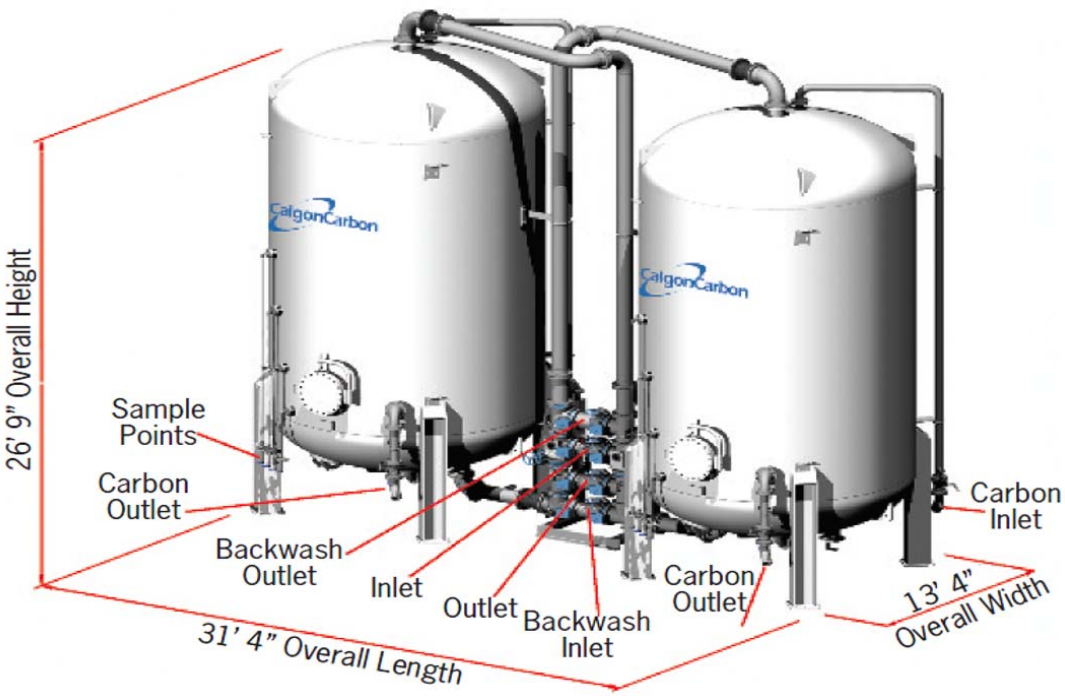
- Biofiltration, BF



- Membrane Filtration, MF

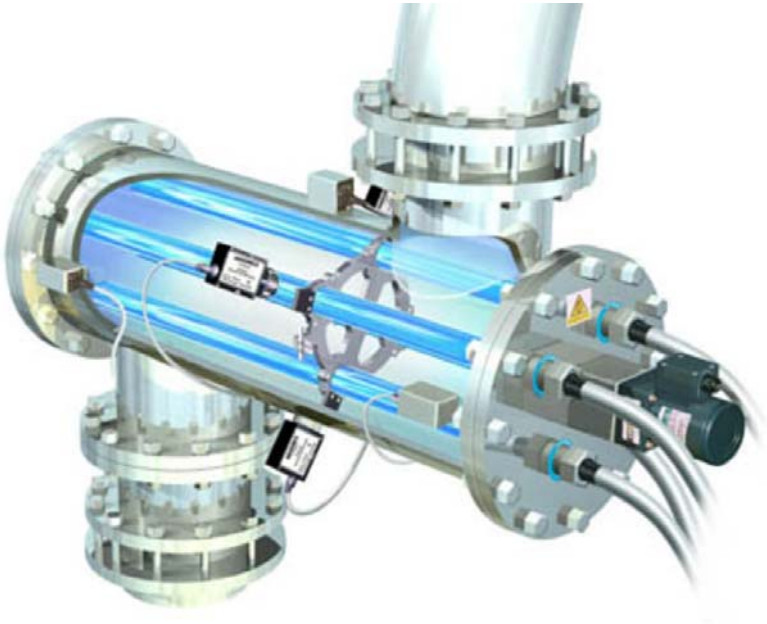
Primary Treatment Processes Considered

- Granular Activated Carbon, GAC
- Chlorine Disinfection, CL2



Primary Treatment Processes Considered

- Ultraviolet Light Disinfection, UV



Treatment Train Options

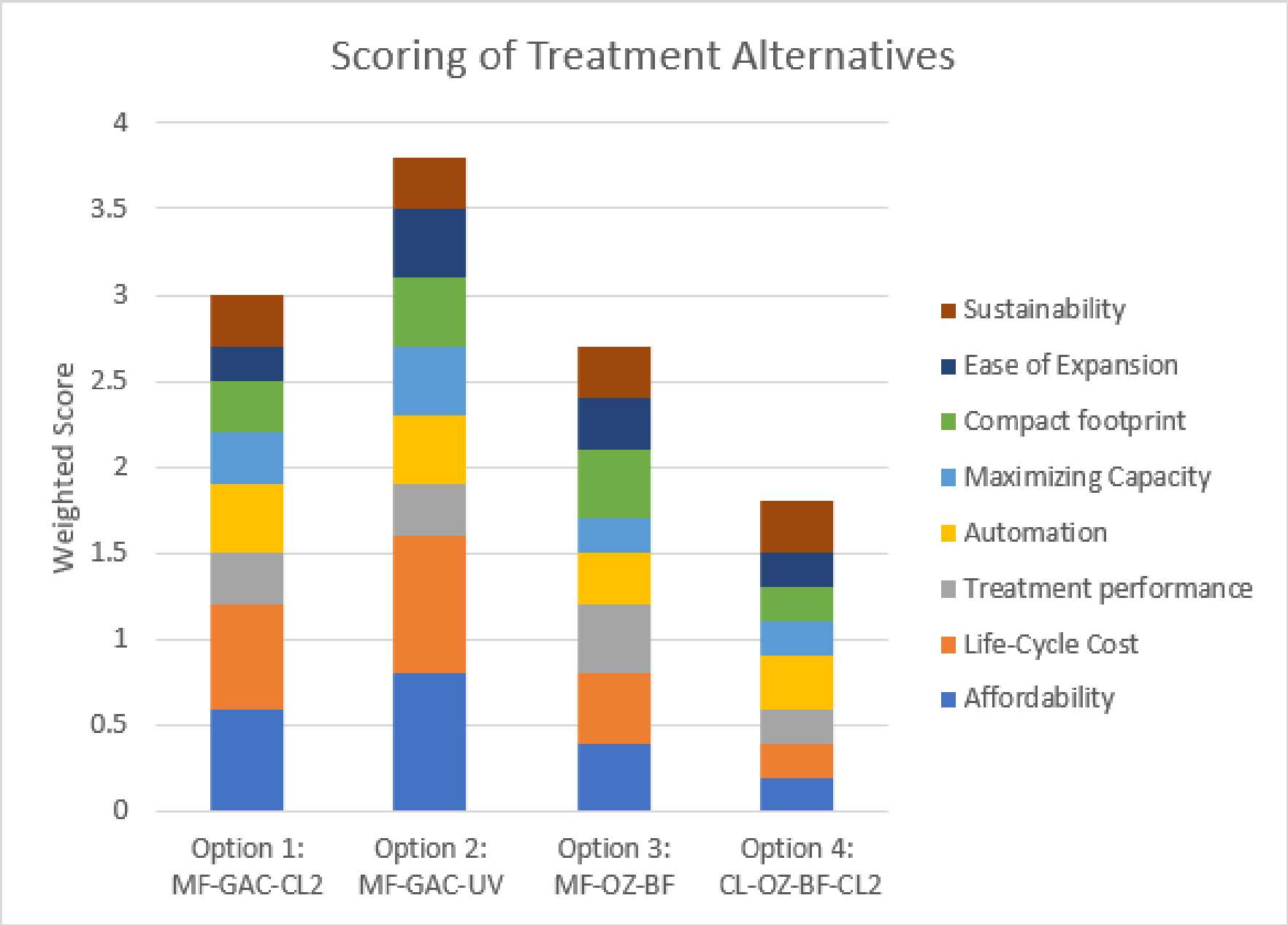
1. Membrane Filter + GAC + Chlorine Disinfection
   a. Gravity flow most of the time

2. Membrane Filter + GAC + UV Disinfection
   a. Gravity flow most of the time
   b. Chlorine still added

3. Membrane Filter + Ozone + Biofilter
   a. Gravity flow most of the time
   b. Pressurized biofilter
   c. Chlorine still added

4. Clarification + Ozone + Biofilter + Chlorine Disinfection
   a. Never gravity flow, always pump
   b. Conventional filters = Biofilters

Option 2: MF-GAC-UV Ranks Highest



Next Steps

- Move forward with pilot test this summer / fall
- Finish treatment / site selection reports
- Present to council
- Equipment procurement
- Design
- Construction
- Startup