



Town of Erie North Water Reclamation Facility Expansion

Board Meeting

September 22nd, 2020





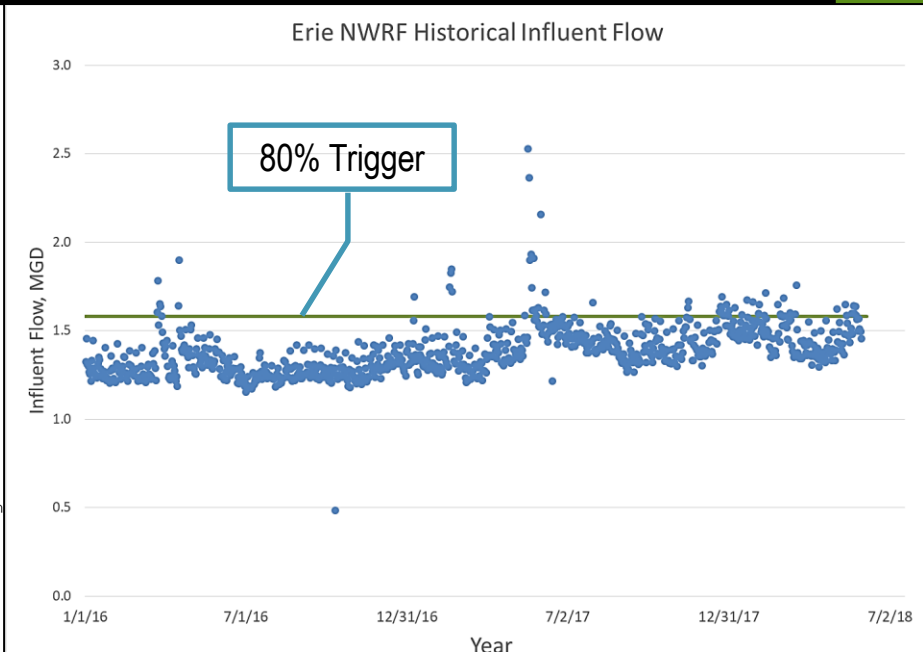
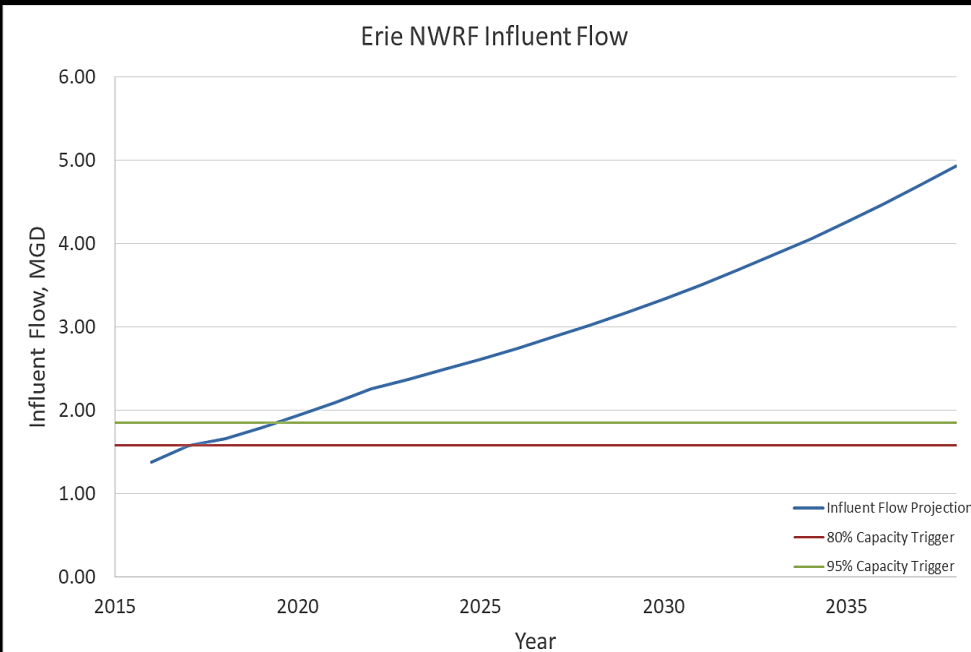
Presentation Agenda

AGENDA

1. Project Drivers Overview
2. Liquids Stream Improvements
3. Solids Stream Improvements
4. Net Present Value Analysis
5. Sustainability Analysis
6. Archer Western GMP
7. Major Subcontractors
8. HDR's Construction Services
9. Construction Services Fee
10. Construction Schedule
11. Summary

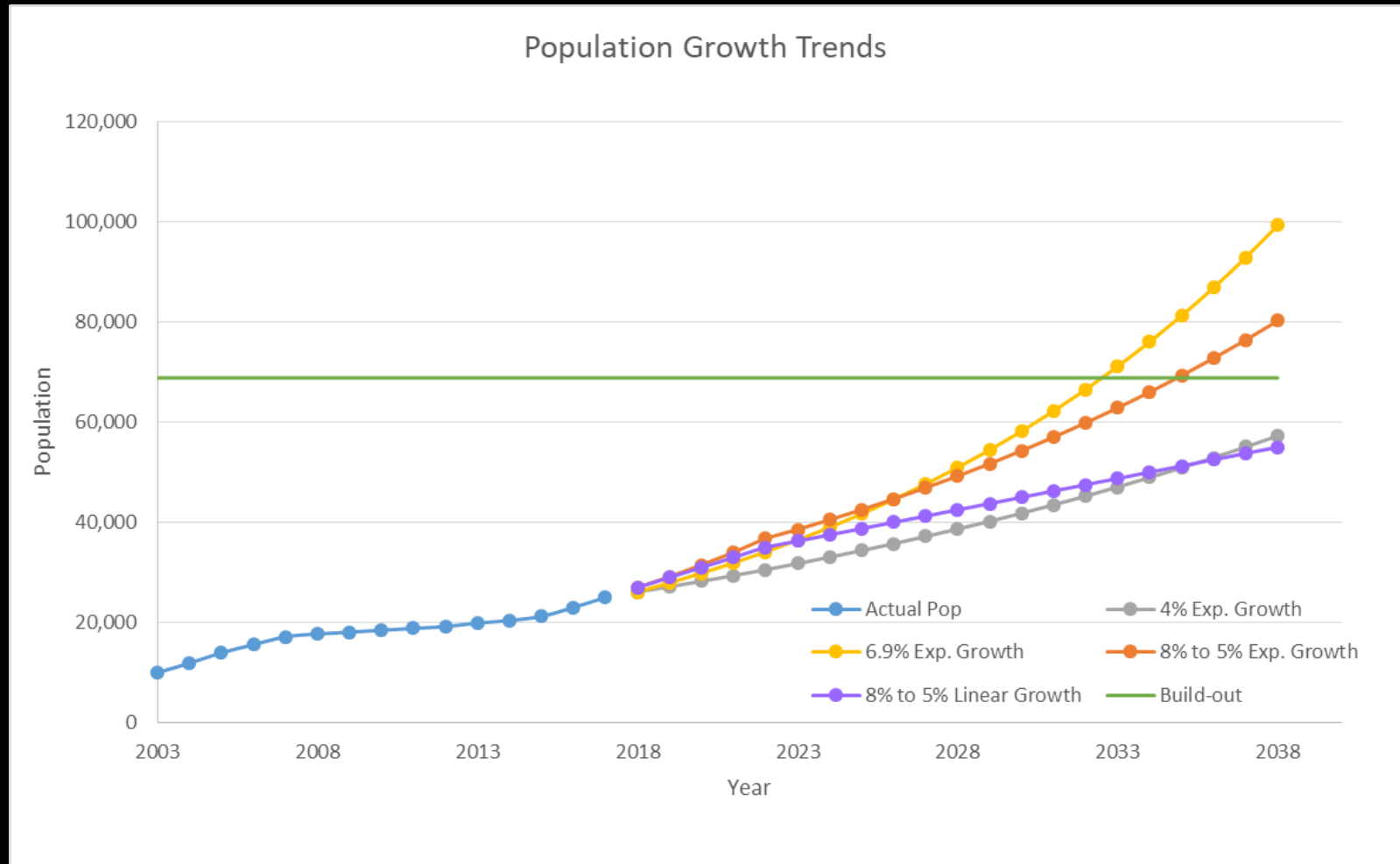
Project Drivers: CDPHE Requirements [Reg No. 61.8(7)]

- Requirement to:
 - Initiate planning when influent flow reaches 80% of capacity.
 - Begin construction when influent flow reaches 95% capacity.
- Current capacity: 1.95 MGD flow
 - 2019 maximum month flow: 1.72 MGD (88%)
 - 8% growth in 2020 results in maximum month flow of 1.86 MGD (95.2%)



Project Drivers: Population Growth

- Revised population projections account for faster than expected growth in Erie
- Using 8% exponential growth through 2023, and 5% after that (Orange Line)



Project Drivers: Plant Capacity

- NWRf hydraulic capacity will be exceeded by 2021, according to population projections.
- Solids handling capacity has already been exceeded (dewatering process runs 24/7.)

Erie NWRf 2028 and 2038 Average Annual and Maximum Month Flows		
Parameter	Average Annual	Max. Month
2019	1.56	1.72
2021	1.93	2.09
2028	2.80	3.03*
2038	4.56	4.93**

- *New Design 10-year Hydraulic Capacity
- **Future 20-year Hydraulic Capacity

Project Drivers: Regulatory Changes

- Impending Regulations 85 and 31 will impose stricter phosphorus and nitrogen effluent limits
- Nitrogen loads into facility are higher than original design, and triggers the need for secondary treatment capability improvements
- Erie NWRF is currently following WPCC Policy 17-1
 - Report data from 2018 through 2027
 - Can gain an additional 10 years for meeting Reg 31

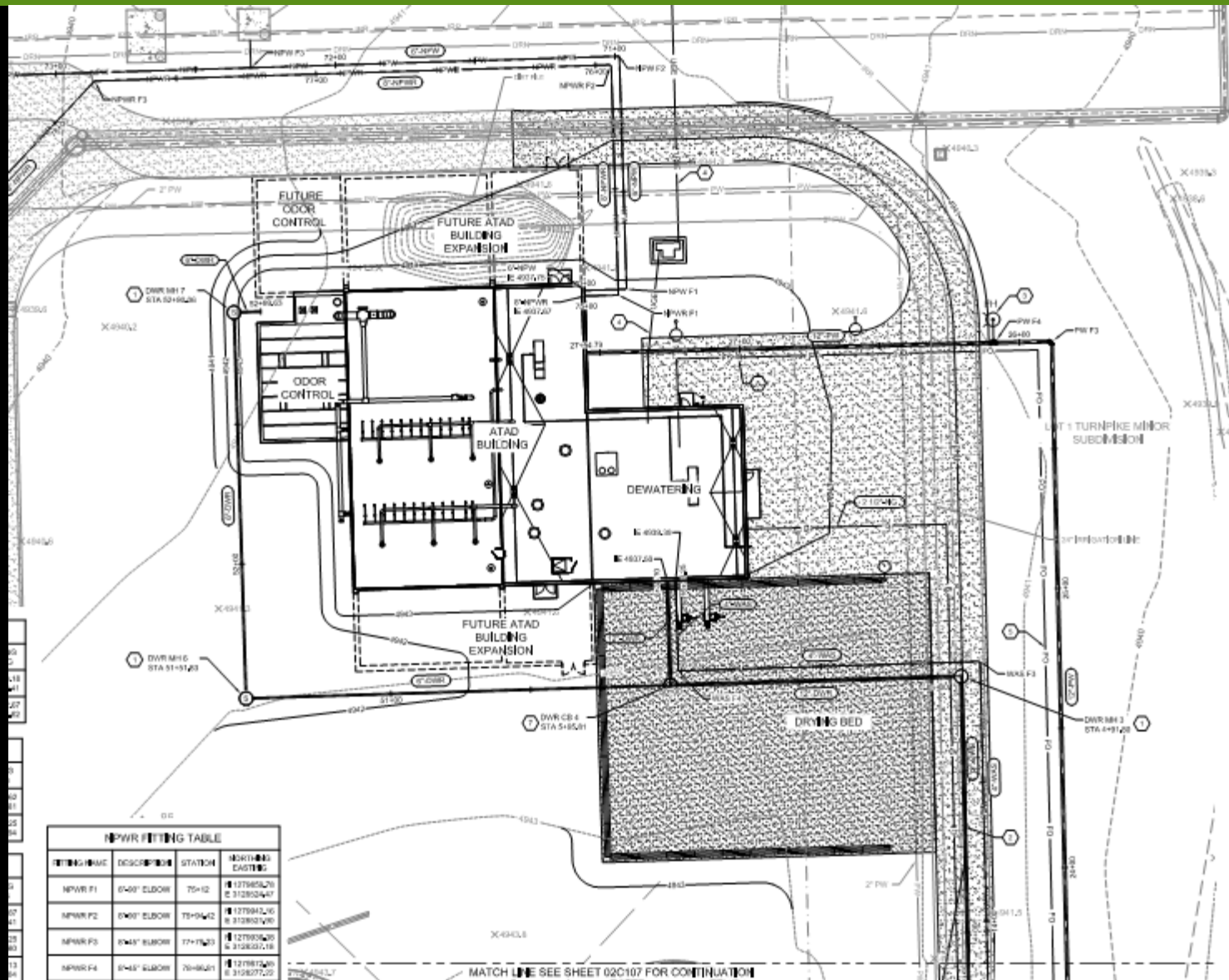
	Reg. 85	Incentive Target
Total Phosphorus Annual Median	≥ 1.0 mg/L	≤ 0.5 mg/L
Months Earned	0	12
Total Inorganic Nitrogen Annual Median	≥ 15 mg/L	≤ 7 mg/L
Months Earned	0	12

Project Drivers: Solids Handling Issues

- Existing solids system is at capacity
- Sulfuric and Lime chemicals pose health and operating risks
- System does not achieve original Class A design intent
- Biosolids with lime pose a high trucking cost



Solids Stream Expansion and Improvements



Net Present Value Analysis

- New ATAD Solids Process keeps rates consistent over the next 20 years
- Keeping existing system results in annual average \$1 million more cost to Town, i.e. Rate Payers

NPV Analysis for Keep Existing and ATAD Alternatives	
Alternative	2028 Total Anticipated Project Cost (TAPC)
ATAD	\$15,202,000*
Keep Existing	\$7,814,000
Alternative	20 Year NPV
ATAD	\$45,334,000*
Keep Existing	\$65,191,000
* Costs shown reflect Master Planning cost estimates.	

Sustainability Analysis

Liquids Stream Expansion:

- Provides required capacity to support population growth
- Provides redundancy and operational safety
- Increases treatment performance
- Increases regulatory compliance
- Defers significant capital expenditure for Reg 31 compliance



COLORADO
Department of Public
Health & Environment

Sustainability Analysis

Solids Stream: Waste or Resource? → Resource

- Eliminates chemical use
- Produces reliable Class A product. Future of Class B product is questionable
- Increases re-usability of end product
- Eliminates hauling costs
- Potential to convert drying beds to composting facility



Archer Western Guaranteed Maximum Price (GMP)

Item	Cost
Cost of Work	\$25,432,139
Contingency (5%)	\$1,056,214
GMP	\$26,488,353

- Final GMP value is lower than anticipated.
- GCs, Subs, and Major MFRs held costs steady from project planning to design completion.

Major Subcontractors and Equip. Suppliers

No.	Bid Package	Bidder
1	Equipment Procurement	Next slide
2	Electrical and I&C	Weifield
3	Geopiles	Geopier / Peterson
4	Structural Concrete	AW
5	Process Piping	AW
6	Installation and Start-up of Equipment	AW
7	Building Finishes	AW
8	Site Work/Final Grading	AW
9	Plumbing and HVAC	Horizon/Strait
10	Masonry	Barnes
11	Roofing	MB Roofing
12	Yard Piping	AW
13	Fire Alarm	TBD
14	Coatings	Coblaco
15	Asphalt Paving	TBD
16	Concrete Paving	AW
17	Landscaping	TBD

HDR's Construction Services

Scope of Services:

- Shop drawing review
- Onsite representation
- Construction progress meetings
- RFIs
- Start-up and commissioning
- Record drawings
- Project closeout/certification
- Programming



HDR's Construction Services Fee

Item	Cost
Construction Services	\$2,294,880
Sub-consultant Budget	\$198,860
Total Construction Services Fee	\$2,493,740
TOTAL (GMP & Construction Services Fee)	\$28,982,093

Construction Schedule

Major Milestones:

- ATAD construction to start-up: Oct 2020 - Dec 2022
- IFAS blower improvements: Sept 2020 - April 2021
- IFAS treatment train 3 construction: Dec 2020 - Nov 2021
- IFAS treatment train 2 construction: Jan 2021 - Nov 2021
- IFAS treatment train 1 construction: Jan 2021 - Feb 2022
- Install biofilter: Feb 2022 – March 2022
- Install thickening/dewatering equipment: June 2020 to Sep 2022
- Construction finished by March 2023

Summary

- NWRF Liquid Stream is at Capacity
- Existing NWRF Solids Process Not Sustainable for Future
- NWRF Expansion Provides Treatment Capacity for Future Growth and Sustainable Return on Investment



