



# IPID Pump Exchange Feasibility Study – Project Update



Presented by: Anchor QEA, Icicle and Peshastin  
Irrigation Districts (IPID), and Chelan County

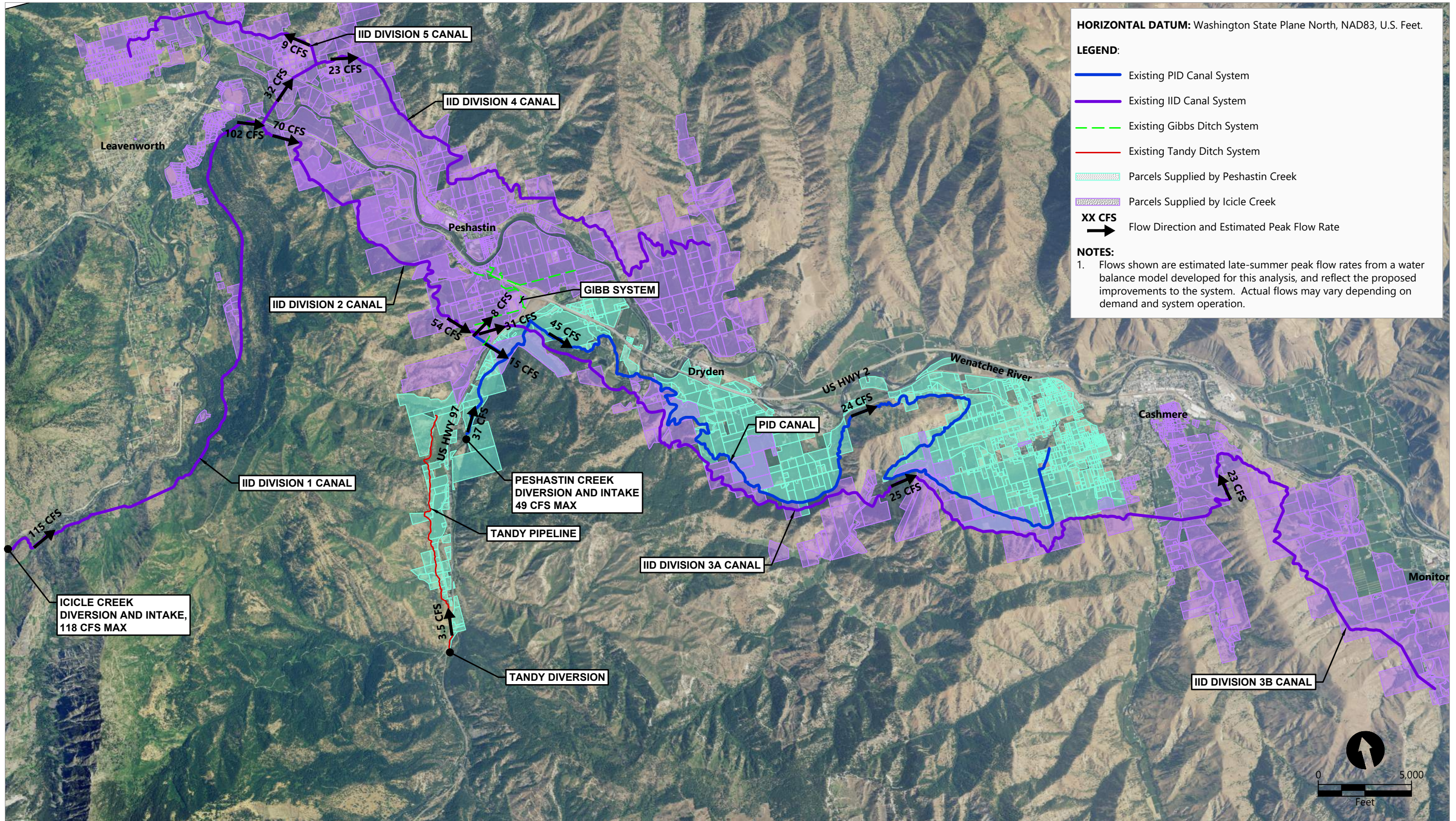
Presented to: The Icicle Work Group

April 8, 2021

# Project History and Background

# Project Background

- Alternate supply of water for IPID from pump stations on the Wenatchee River
- Reduce diversions from and increase flows in Icicle Creek and Peshastin Creek
- Several variations have been evaluated
- Would meet multiple prongs of IWG Guiding Principles
  - Augment streamflow in Icicle Creek
  - Benefit fish passage and habitat
  - Benefit Treaty and Non-Treaty Harvest



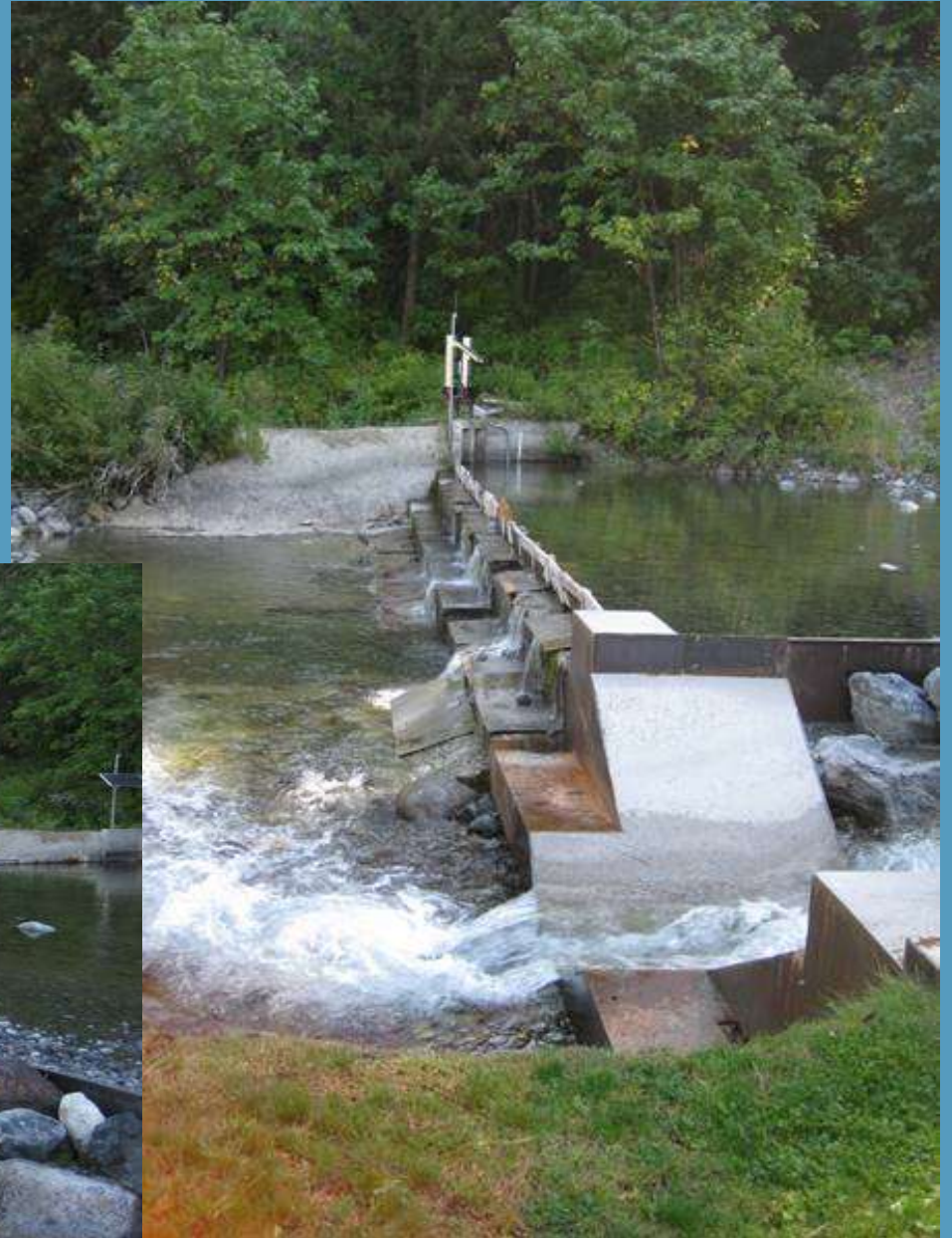
Publish Date: 2021/04/07 6:44 AM | User: drice  
 Filepath: K:\Projects\0382-Chelan County\PID Pump Exchange\Alternatives Analysis\Figures\0382-RP-001-Pump Exchange-Ex System.dwg Figure 1 - For IWG



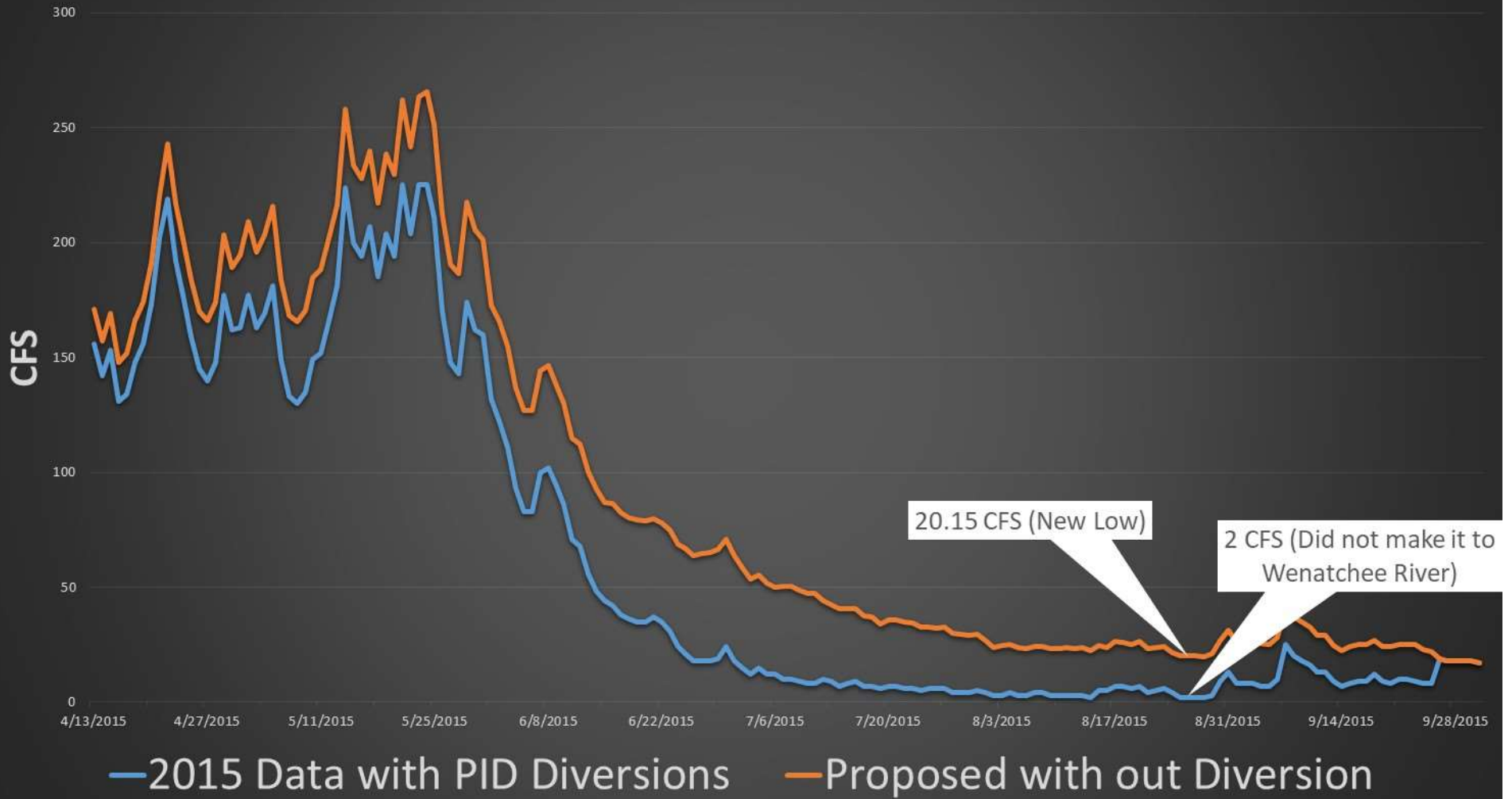
**Figure 1**  
**IPID - Existing System and Peak Flows**

IPID Pump Exchange Project  
 Alternatives Evaluation

# Peshastin Diversion Dam and Fishway



# Peshastin Creek During 2015 Drought Conditions



# Pump Exchange Concept

- One or more intake/pump station facilities on the right bank of the Wenatchee River
- Targeted benefits
  - Elimination of the diversion from Peshastin Creek to the PID
  - Reduction of diversions from Icicle Creek to the IID
- Potential for coupling with a small hydropower project on IPID property at Snow Creek or another project to offset pumping power costs
- Potential for future expansion to “full piping concept”

# Value Planning Study



# Value Planning Study

- Value Planning Site Visit and Workshop, Dec 9-13, 2019
- Participants – Reclamation, IPID, Chelan County, Ecology, WDFW, Anchor QEA, Aspect Consulting
- Goal: Evaluate alternatives considered to date, consider new options, and develop phased approach moving forward



# IPID Pump Exchange – Feasibility Study

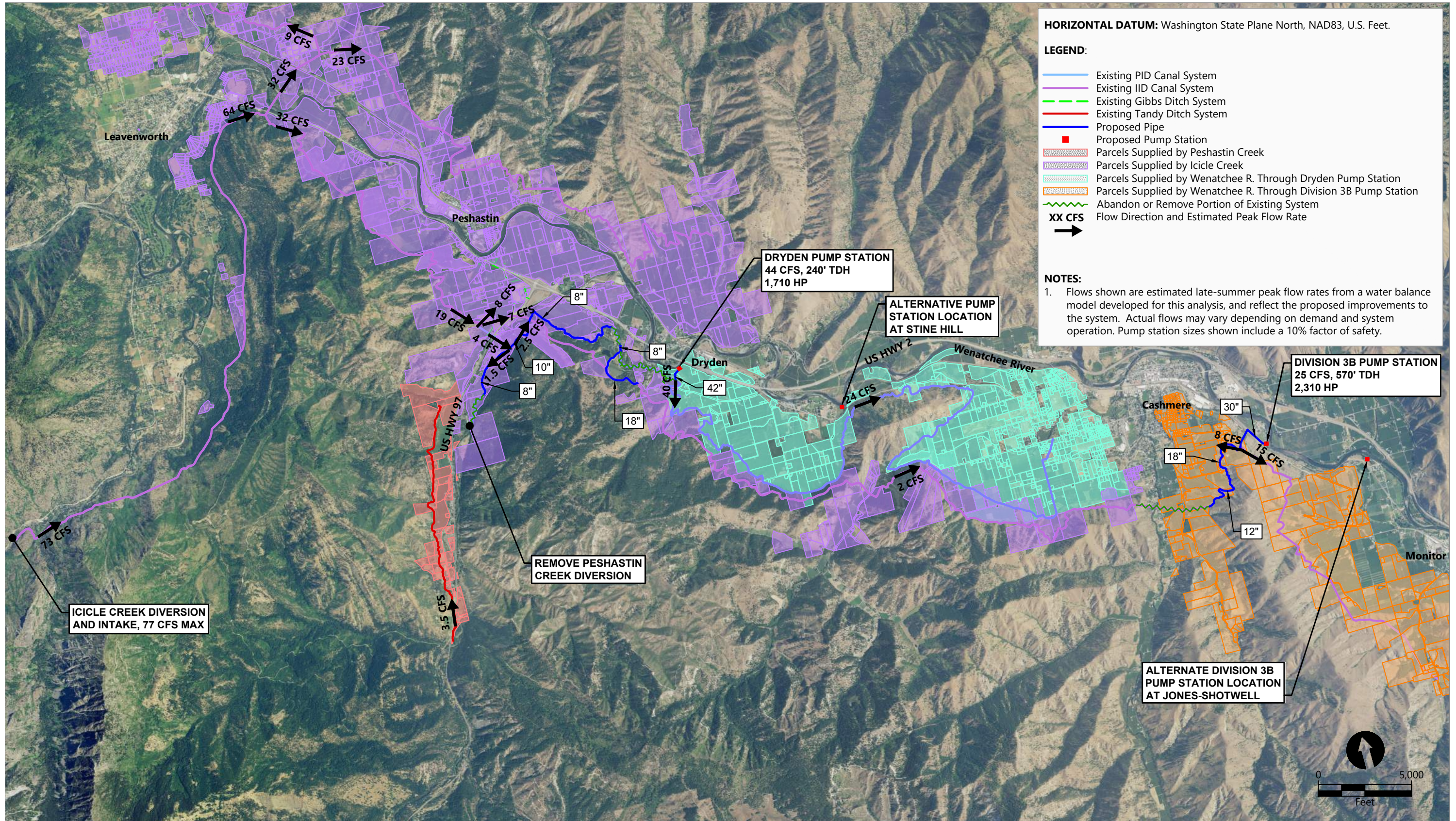
# Current and Upcoming Work

- Alternatives Evaluation – Draft Completed
- Reconnaissance-level Site Investigations - Underway
- Engineering and Cost Analyses - Underway
- Communication of Streamflow Benefits – Underway
- Conceptual Design Drawings – Fall of 2021
  - Pumping to PID Canal at Dryden – Completed
  - Pumping to PID Canal at Stine Hill – Spring, Summer 2021
  - Pumping IID Division 3B Canal – Spring, Summer 2021,  
Pending selection of a preferred location and configuration
- Power Supply Options Evaluation - Underway
- Draft Feasibility Study Report – Fall 2021

# Pump Exchange Benefits and Challenges

- Benefits
  - Decommission Peshastin Creek diversion, restore flows, remove barrier, improve downstream habitat
  - Reduced diversions from Icicle Creek
  - Water conserved through limited piping improvements and reduced conveyance
  - Mainstem Wenatchee River instream flow benefit
- Challenges
  - Implementation and operating costs
  - Would take years to fund and implement
  - Would not replace need for storage

# Overview of Alternatives Considered by Feasibility Study

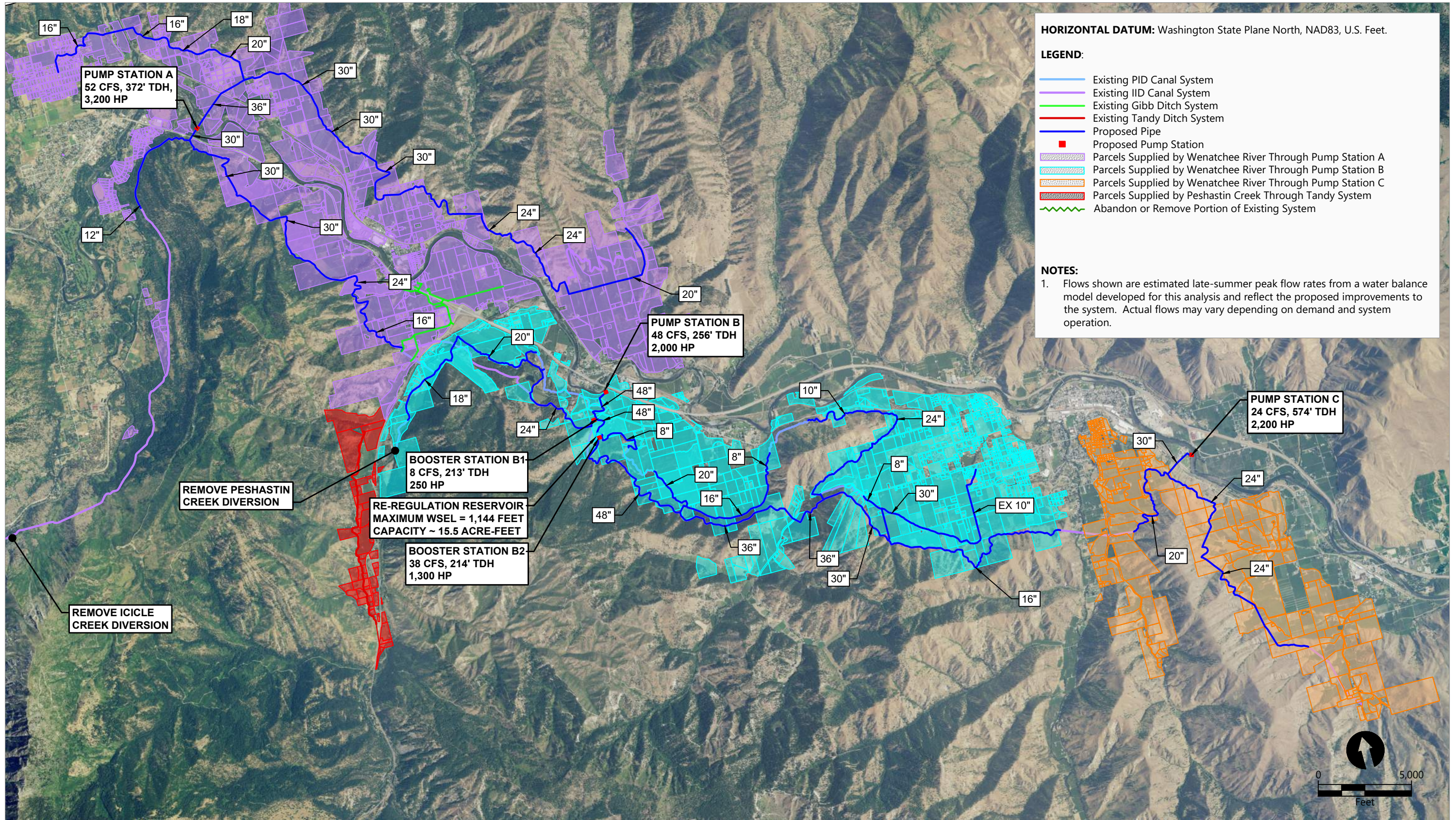


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 Filepath: K:\Projects\0382-Chelan County\PID Pump Exchange\Alternatives Analysis\0382-RP-001-Alternative 1D.dwg Alternative 1D- FOR IWG



**Figure 2-1**  
**IPID Pump Exchange - Alternatives**

IPID Pump Exchange Project  
 Alternatives Evaluation



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 Filepath: K:\Projects\0382-Chelan County\PID Pump Exchange\Full Gravity Pipe Concept\0382-RP-003-Pump to Pipes Option.dwg Figure 3- FOR IWG

# Comparison of Peak Flows, Maximum Benefits

Flow Characteristic	Existing	Alternatives Currently Being Studied	Future Phases – Expansion to “Full Piping Option”
Pumped from Wenatchee River	N/A	52 to 76 cfs	124 cfs
Icicle Diversion	118 cfs	72 to 92 cfs	0 cfs
Icicle – Flow Benefit	N/A	26 to 46 cfs	118 cfs
Peshastin Diversion	49 cfs	0 cfs	0 cfs
Peshastin – Flow Benefit	N/A	49 cfs	49 cfs
Total Conveyance Loss	32 cfs	14 to 18 cfs	0 cfs
Conservation Benefit	N/A	14 to 18 cfs	32 cfs



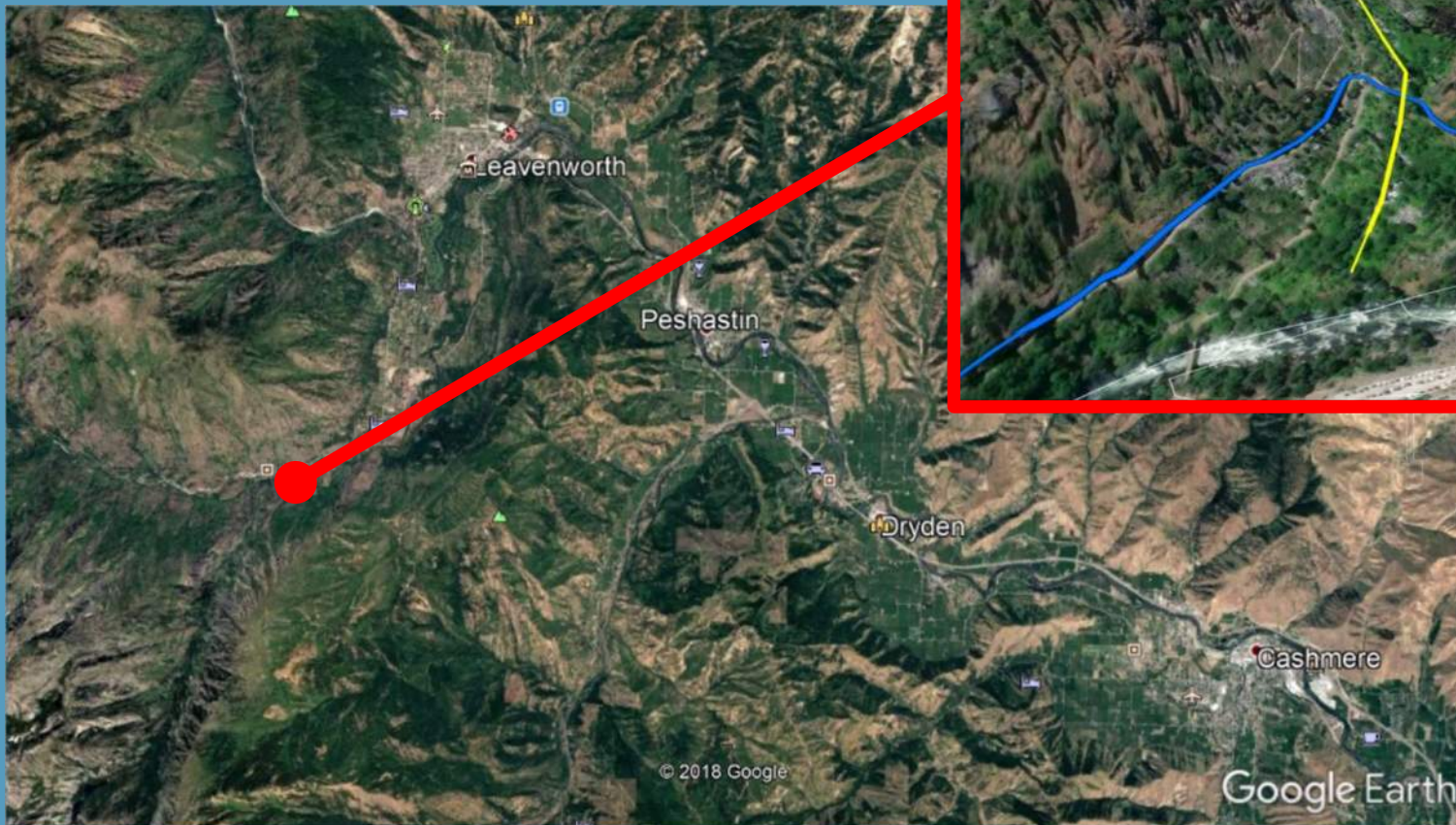
# Estimated Implementation Costs

Cost Item	Alternatives Currently Being Studied	Total for "Full Piping Option"
Total Construction Cost - Low	\$13.3 to \$23.1 million	\$73.4 million
Total Construction Cost - High	\$15.1 to \$26.1 million	\$83.0 million
Subtotal - Non-construction Costs - Low	\$1.5 to \$2.5 million	\$7.8 million
Subtotal - Non-construction Costs - High	\$2.5 to \$4.1 million	\$10.9 million
Total Project Implementation Cost - Low	\$14.9 to \$25.6 million	\$81.3 million
Total Project Implementation Cost - High	\$17.5 to \$30.2 million	\$93.9 million

# Estimated Long-Term Operating Costs

Cost Item	Alternatives Currently Being Studied	Total for "Full Piping Option"
Annual O&M Costs – Low	\$92,000 to \$120,400	\$322,000
Annual O&M Costs – High	\$108,500 to \$142,200	\$372,000
Annual Pumping Power Costs	\$171,000 to \$186,000	\$505,000
Total Annual Operating Costs – Low	\$263,00 to \$306,000	\$827,000
Total Annual Operating Costs – High	\$280,00 to \$328,000	\$877,000
Annual O&M (Existing Facilities to Remain)	\$700,000 to \$750,000	\$0
Total Annual Operating Costs (Post Project)	\$963,000 to \$1,078,000	\$827,000 to \$877,000
Current Annual Operating Costs	\$800,000 to \$850,000	\$800,000 to \$850,000
Change in Annual Operating Costs (Post Project)	\$163,000 to \$228,000	\$27,000

# Snow Creek Hydropower Concept



# Snow Creek Hydropower

- Draft memorandum, conceptual designs complete
- 1,300 kW hydropower facility
- 6,120,000 kWh annual generation
- Implementation Costs: \$9.2 million
- Other power supply, funding options to be considered and reviewed as part of feasibility study

# Summary and Next Steps

- Alternatives considered appear to offer a big first step toward reducing the impact of irrigation diversions on Peshastin and Icicle Creeks
- Alternatives could be designed to allow for future phased expansion toward a fully piped delivery system supplied entirely from the Wenatchee River
- Work will continue toward completing additional field work, engineering analyses, conceptual designs, and the feasibility study report - fall 2021
- We appreciate interest from the IWG and look forward to your feedback and comments

# Questions/Discussion

