

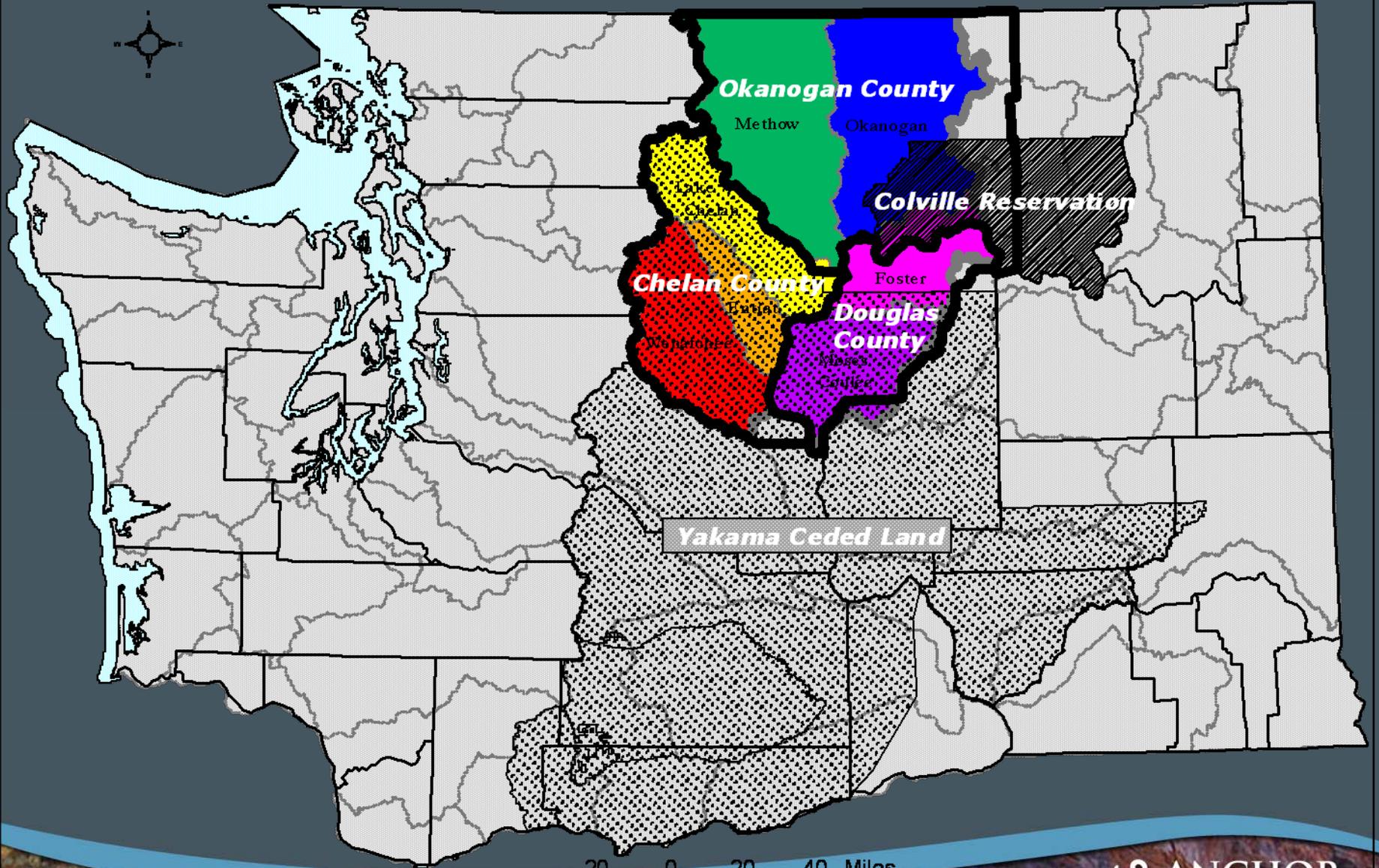
# Columbia River Policy Advisory Group

Wenatchee Watershed:

Water Resource Management  
in the  
Watershed Context

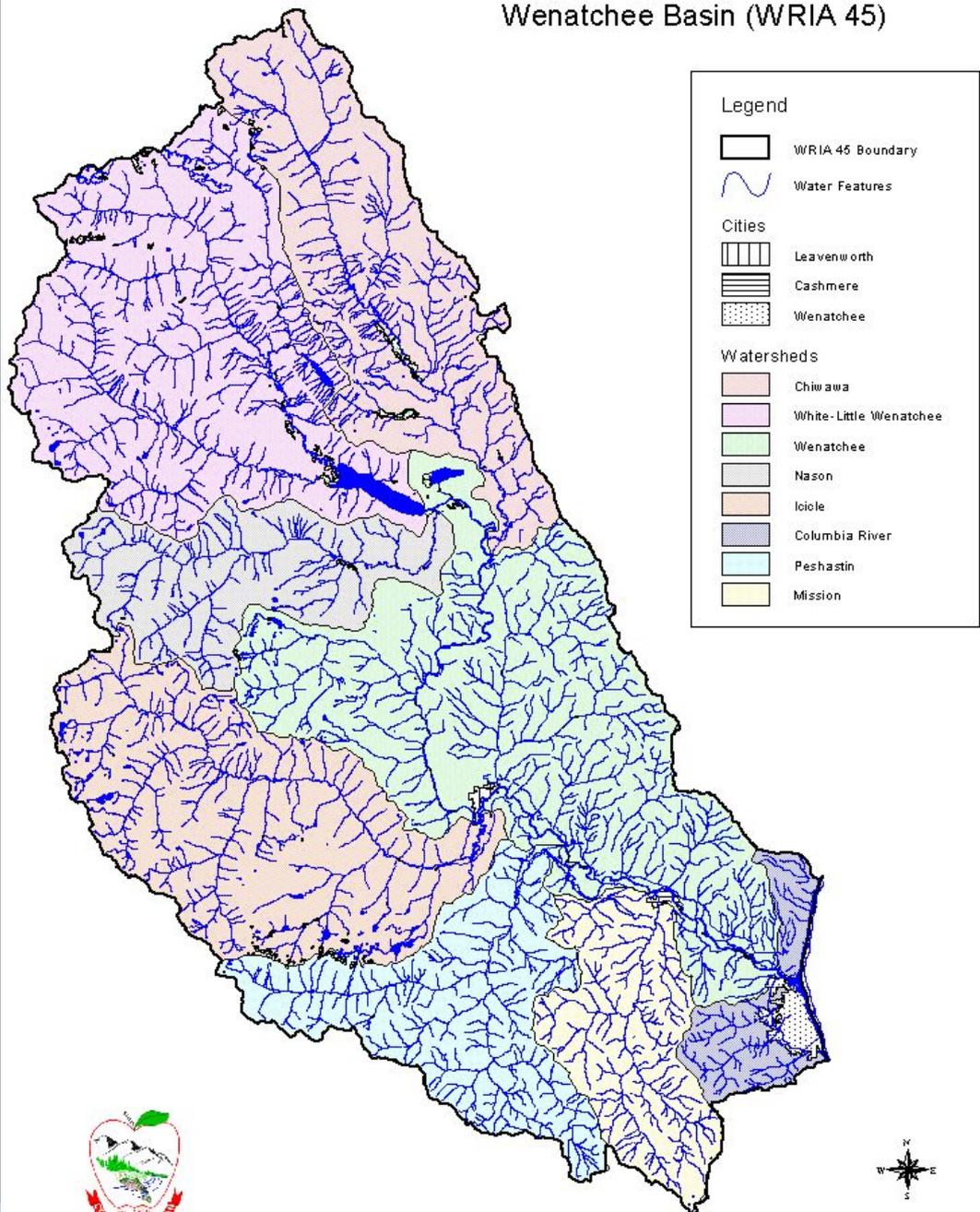
February 17, 2009

# Upper Columbia Salmon Recovery Board





# Wenatchee Basin (WRIA 45)



**Legend**

- WRIA 45 Boundary
- Water Features
- Cities**
  - Leavenworth
  - Cashmere
  - Wenatchee
- Watersheds**
  - Chiwawa
  - White-Little Wenatchee
  - Wenatchee
  - Nason
  - Icicle
  - Columbia River
  - Peshastin
  - Mission



Okanagan County Office of Watershed Planning  
Cartography by Sarah Merkel  
07/2007



# Significant Milestones and Trends

- History of irrigation and on-farm modernization
- Irrigation district improvements
- Wenatchee watershed plan and revised instream flow rule
- Habitat restoration projects

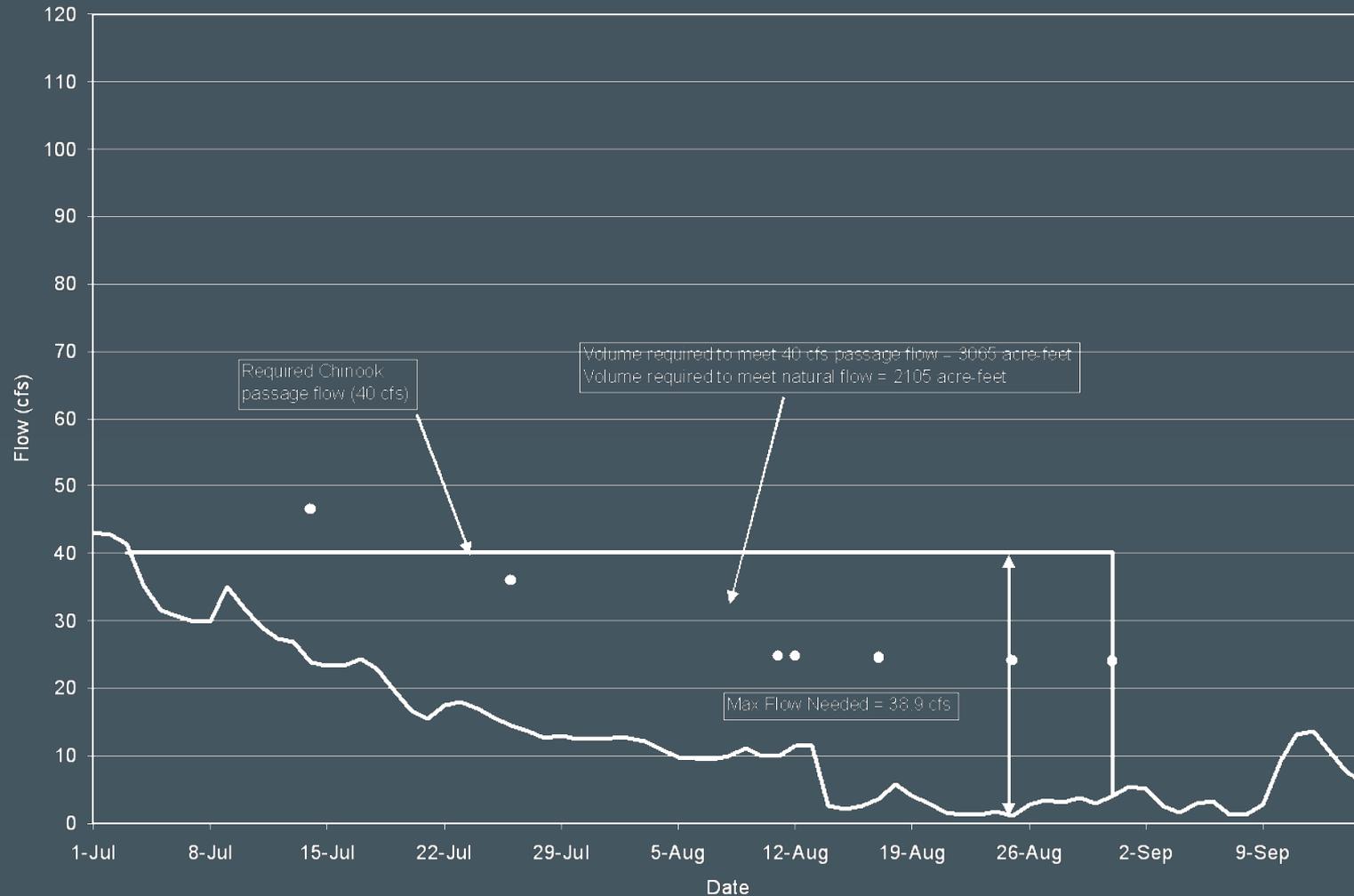
# Current Pertinent Projects

- Campbell Creek Reservoir Feasibility Study
- Wenatchee Subbasin Storage Study
- **Peshastin Piping Project**
- Pioneer Water Users Association pumpback
- Chiwawa Irrigation District upgrades
- Icicle Irrigation District

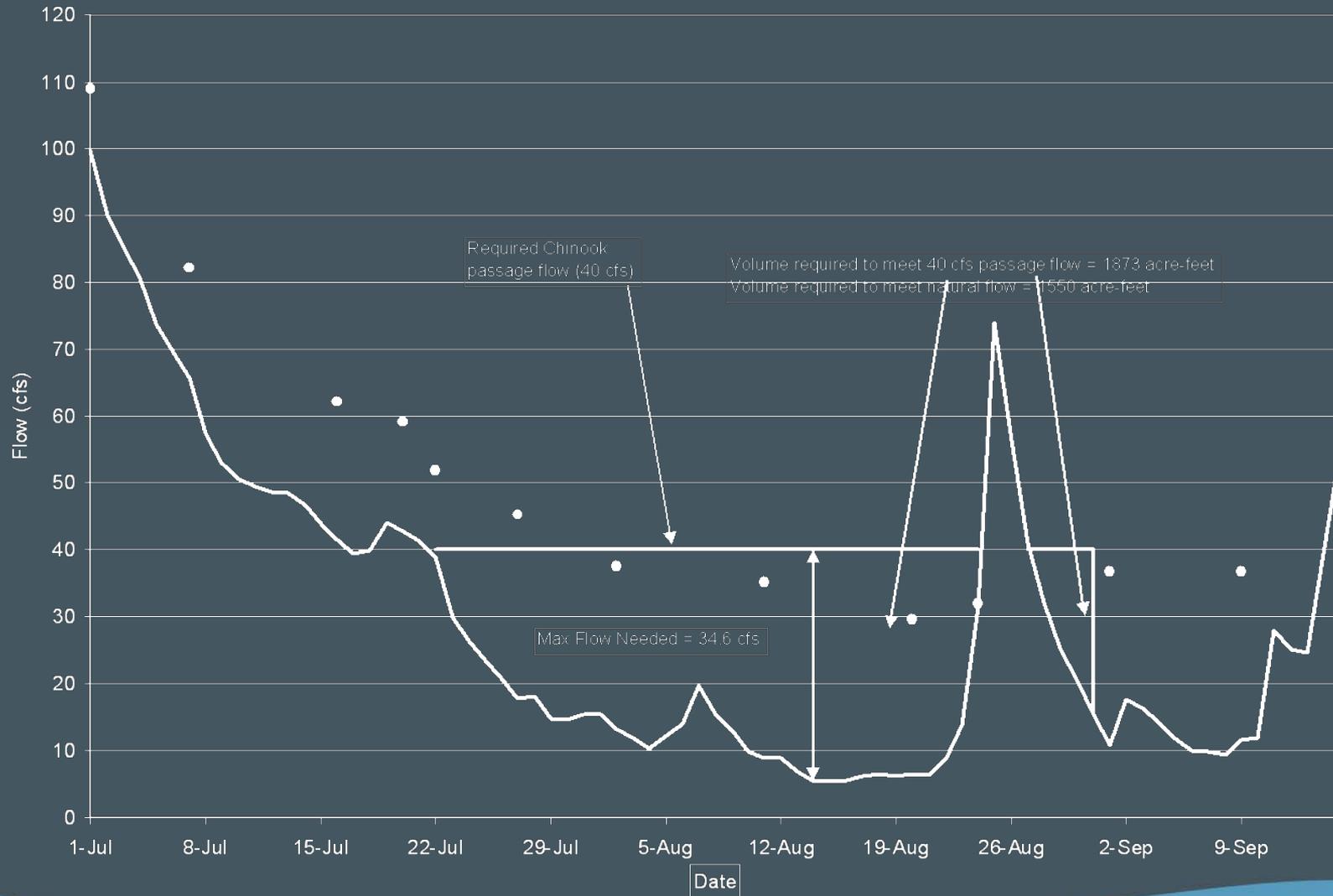
# Peshastin Piping Project

- 9,900 feet of open canal to pipe
- \$325,000 Office of Columbia River request (can be revised downward)
- ~\$950,000 project cost
- 1.2 cfs conserved and added to 3.5 cfs in fish ladder (total 4.7 cfs)
- 2010 construction project, Schedules A and B

# Peshastin Creek Streamflow



# Peshastin Creek Streamflow



# Campbell Creek Work Plan

- Land ownership and rights-of-way investigations
- Geotechnical and hydrological investigations
- Wetlands delineation, environmental resources review, analysis of permitting issues
- Detailed engineering feasibility studies
- Cost estimating
- Analysis of benefits to instream resources
- *Comparison to other alternatives to improve streamflow in Peshastin Creek*

# Progress on Campbell Creek Reservoir Study: Alternative 2

- Wenatchee River Pump Station Costs
  - Range from \$1.5M to \$2.5M for 10 cfs
  - Range from \$2.3M to \$3.6M for 20 cfs
  - Range from \$3.4M to \$5.1M for 40 cfs
- Pump Station O&M Costs
  - Varies depending on length of operation per year
    - \$27k-39k for 10 cfs (8-Week Pumping Duration)
    - \$46k-60k for 20 cfs (8-Week Pumping Duration)
    - \$79k-96k for 40 cfs (8-Week Pumping Duration)

# Preliminary Opinion of Costs

## Wenatchee River Pump Station – 40 CFS

Item	Alignment 1	Alignment 2	Alignment 3	Alignment 4	Alignment 5
Misc. Site Work	\$63,353	\$72,341	\$63,389	\$77,951	\$76,588
Earthwork	\$63,101	\$102,071	\$70,981	\$117,697	\$176,093
Pump Station	\$1,608,400	\$1,608,400	\$1,608,400	\$1,608,400	\$1,608,400
Pipeline	\$159,965	\$719,805	\$190,210	\$774,890	\$980,740
Outlet Structure	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
<b>CONSTRUCTION SUBTOTAL</b>	<b>\$1,905,000</b>	<b>\$2,513,000</b>	<b>\$1,943,000</b>	<b>\$2,589,000</b>	<b>\$2,852,000</b>
Mobilization/Demobilization (10%)	\$190,500	\$251,300	\$194,300	\$258,900	\$285,200
Contingency (30%)	\$628,650	\$829,290	\$641,190	\$854,370	\$941,160
Engineering and Admin. (20%)	\$419,100	\$552,860	\$427,460	\$569,580	\$627,440
Tax (8.0%)	\$251,460	\$331,716	\$256,476	\$341,748	\$376,464
Land Acquisition	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
<b>TOTAL PROJECT COSTS</b>	<b>\$3,445,000</b>	<b>\$4,528,000</b>	<b>\$3,512,000</b>	<b>\$4,664,000</b>	<b>\$5,132,000</b>

# Preliminary Opinion of Operational Costs Wenatchee River Pump Station – 40 CFS

Item	Alignment 1
Annual O&M Costs:	\$41,900
Pumping Power Costs:	
2-Week Annual Pumping Duration	\$10,880
4-Week Annual Pumping Duration	\$19,039
6-Week Annual Pumping Duration	\$29,788
8-Week Annual Pumping Duration	\$37,947
Total Annual Operating Costs:	
2-Week Annual Pumping Duration	\$52,800
4-Week Annual Pumping Duration	\$60,900
6-Week Annual Pumping Duration	\$71,700
8-Week Annual Pumping Duration	\$79,800

# Progress – Wenatchee Sub-basin Water Storage Study

- Funded through Watershed Planning
- Scope of Work has following tasks:
  - Snow Lakes Storage Analysis
  - Comparison of Water Storage Strategies to Water Right Acquisition Strategies
  - Analysis of Water Quality Benefits from increased flow during low flow periods
  - Fisheries Analyses
  - Water Planning Support

# Progress on Wenatchee Sub-basin Water Storage Study – Snow Lakes Storage



# Progress on Wenatchee Sub-basin Water Storage Study – Analysis of Benefits of Instream Flow Improvement

- Goal of analysis is to review the effect of increasing flow in the Wenatchee River on water quality (temperature, D.O and nutrients) using QUAL2K Model
- Reviewing a range of increased flow from 10-100 cfs in the mainstem Wenatchee River and 10-50 cfs in Icicle Creek
- The increased flow could derive from water storage strategies

# Progress on Wenatchee Sub-basin Water Storage Study – Analysis of Benefits of Instream Flow Improvement

- First modeling runs completed and presented to Water Quality Subcommittee for review and comment
- Second set of modeling runs now complete and will be submitted shortly to the Water Quality Subcommittee - examples of modeling runs shown on next slides

# “Precedent-setting” Projects

- Nason Creek Oxbow Reconnection
- Peshastin Piping Project
- Okanogan Screening
- Peshastin Fish Ladder
- Wenatchee Instream Flow Rule
- Pioneer Water Users Association project
- Others

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# Questions & Answers

