



Surface Storage Columbia River Pump / Yakima Storage Feasibility Study Approach

- Yakima River Basin Study Task 4.15

History of Relevant Work

- **1978**

- Roza Irrigation District Evaluation of potential for diversion from Columbia River.

- **1980's**

- Columbia River Diversion evaluated, but rejected due to costs

- **2004**

- Preliminary Appraisal Assessment of Columbia River Water Availability for a Potential Black Rock Project, TS-YSS-1
- Appraisal Assessment of the Black Rock Alternative Facilities and Field Cost Estimates, TS-YSS-2

History of Relevant Work

- 2004 (cont.)
 - Preliminary Assessment of Black Rock Delivery System for Roza, Terrace Heights, Selah-Moxee, and Union Gap Irrigation Districts, TS-YSS-3
 - Preliminary Assessment of Black Rock Delivery System for Sunnyside Division, Technical Series No. TS-YSS-4
 - Summary Report – Appraisal Assessment of Black Rock Project, Technical Series No. TS-YSS-7

History of Relevant Work

- **2006**

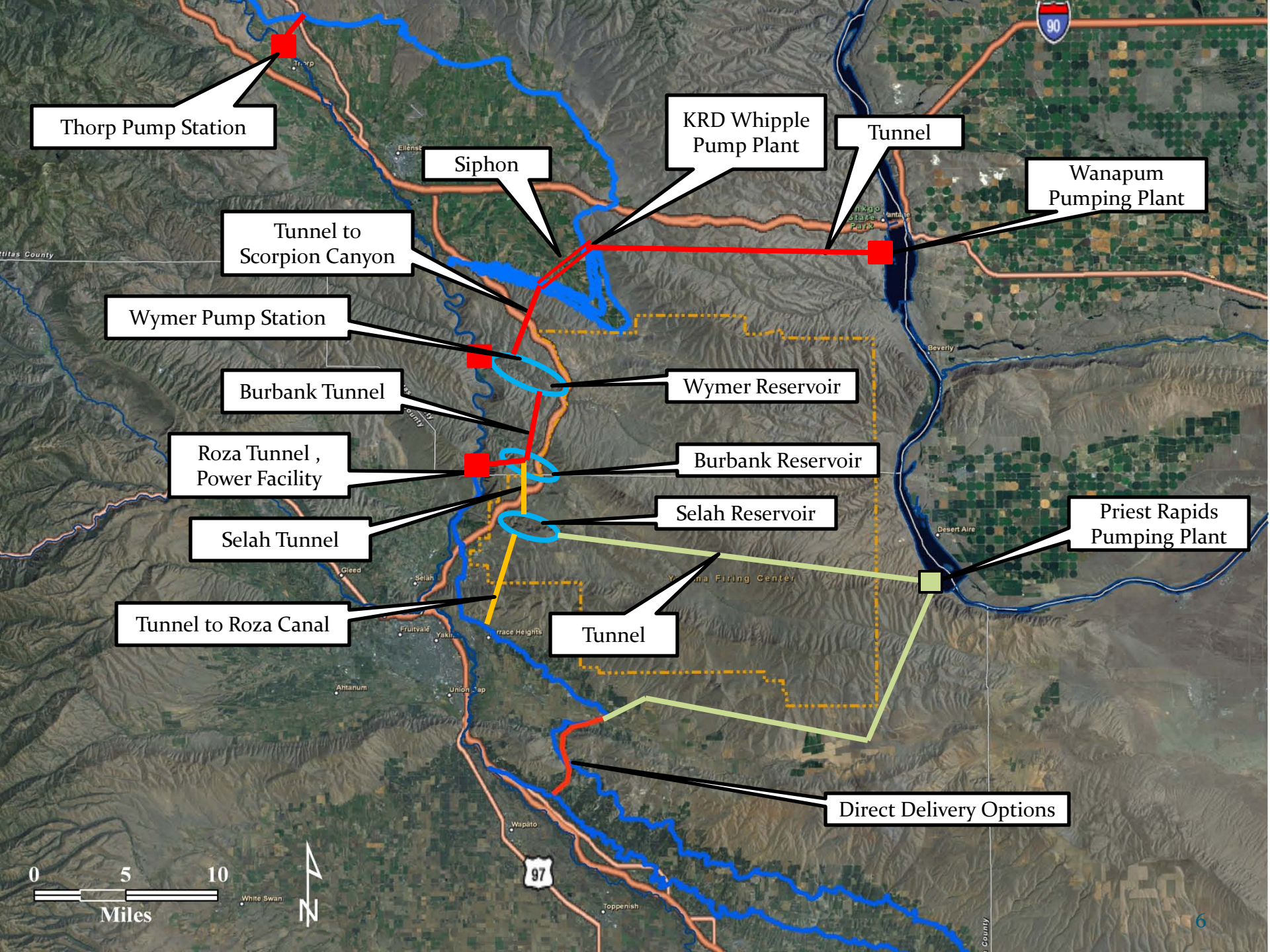
- Yakima River Basin Storage Alternatives Appraisal Assessment, TS-YSS-8
- Columbia River Water Exchange Direct Delivery Appraisal Study, TS-YSS-9

- **2008**

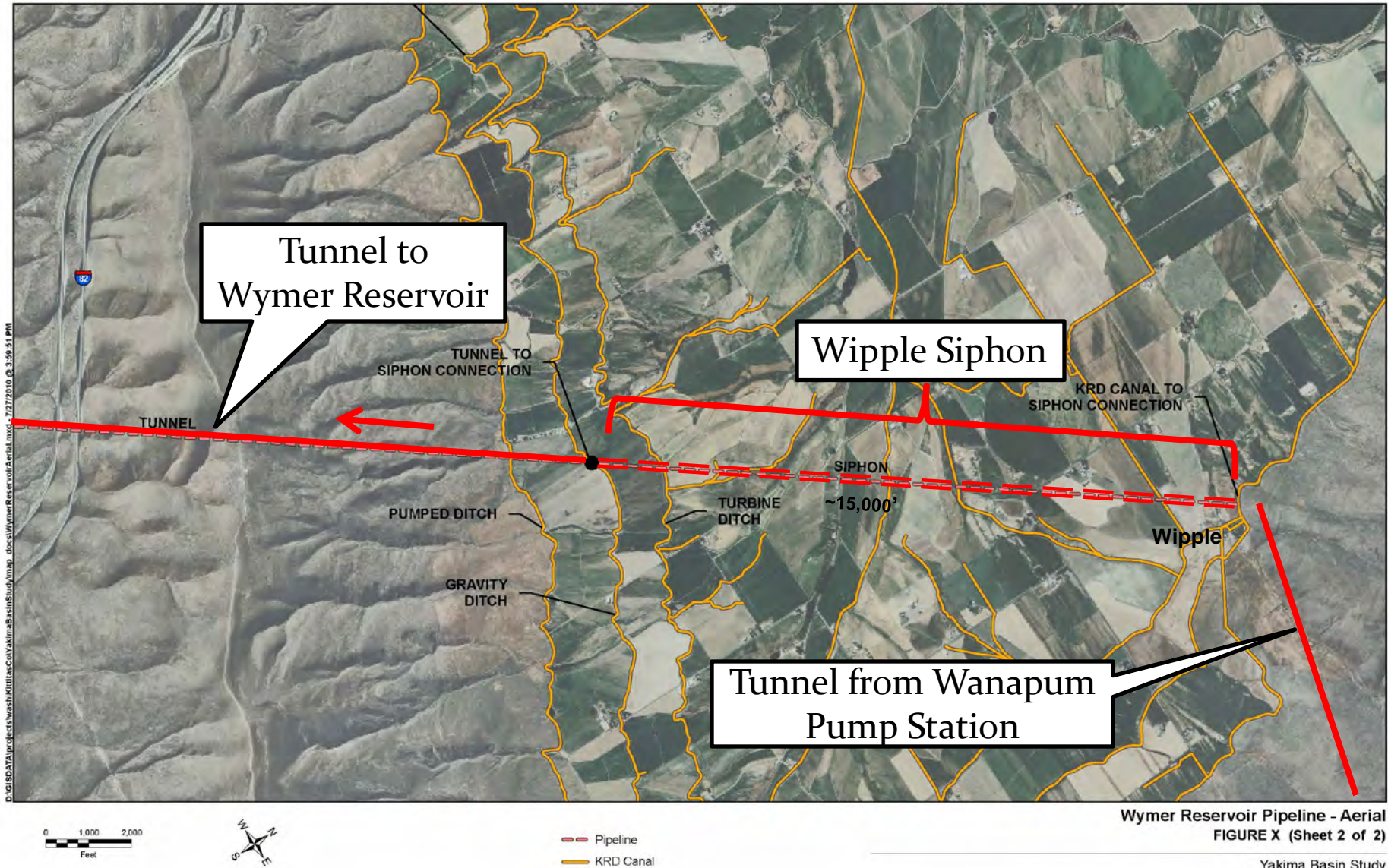
- System Operations Technical Document for the Yakima River Basin, TS-YSS-21
- Cost-Risk Analysis for the Black Rock and Wymer Dam and Reservoir Alternatives, TS-YSS-26

Summary of Previous Alternatives

- Priest Rapids Pumping Plant to Black Rock: 3,500 cfs, 1,200 ft lift, conveyance to Roza and Sunnyside Canals (two alternatives).
- Priest Rapids Pumping Plant to Roza Canal: 2,500 cfs, 857 ft lift, 20-mile tunnel under firing center
- Priest Rapids Pumping Plant to Roza Canal: 2,500 cfs, 1,400 ft lift, 6-mile tunnel to canal
- Wanapum Pumping Plant to Wymer: 1,000 cfs, 1,800 ft lift, 14-mile tunnel to KRD canal, 6-mile tunnel to Wymer.
- Columbia Park Pump Station at the mouth of the Yakima River and Pipeline to Roza and Sunnyside Canals: 1,200 cfs, 530 ft lift
- Burbank and Selah Reservoir options



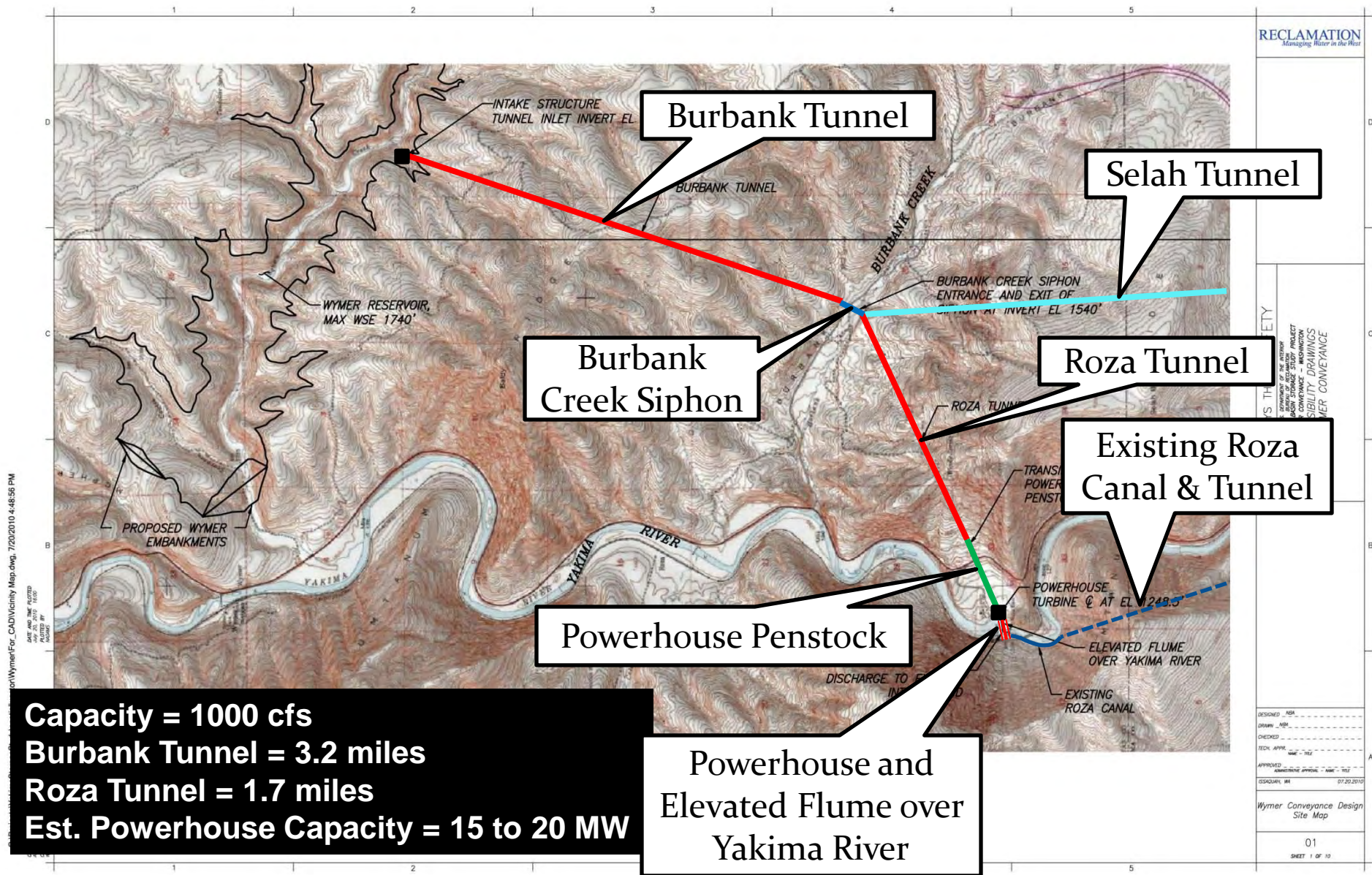
Connecting to Wymer Reservoir



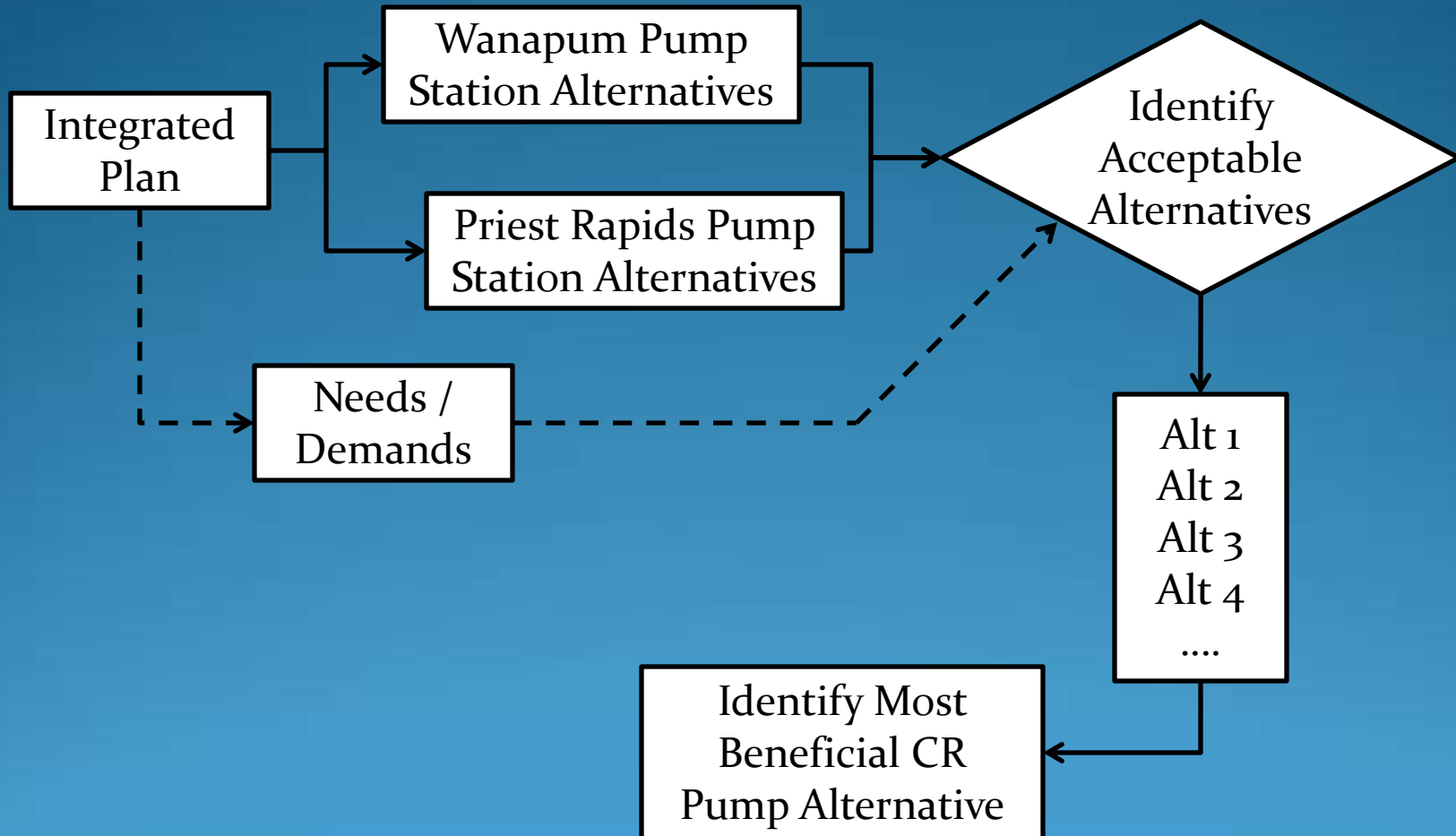
Connecting to Wymer Reservoir



Conveyance Site Map



Study Process



Project Goals

- Integrate information from previous studies with current information.
- Refine alternatives for delivery of water from Columbia River
- Adjust project element sizes to match needs identified by basin water model.
- Develop appraisal level designs for alternatives
- Develop cost estimates and construction schedule
- Identify alternatives that most efficiently meet project goals.

Optional Study Elements

- Energy Recovery
 - Identify and Evaluate Locations for Powerplants
- Pump Storage
 - Identify Storage Reservoir above the Columbia River
 - Evaluate Potential Power Production
 - Evaluate Value of Energy Produced and Need
 - Evaluate Water Delivery to Yakima Basin (tunnel?)
- Geotechnical Investigations

Feasibility Study Alternatives

- Direct Pump
- Wymer Only
- Wymer with Burbank and Selah Reservoirs
- Direct Pump/Selah Creek Storage
- Others?

Notes:

Alternatives are at concept stage and detailed investigation will determine alternative(s) which might be most feasible.

Pump storage will be considered as a potential component in one or more alternatives.

Draft Work Scope

- Purpose and Need
- Data Gathering and Review of Previous Studies
- Perform Water Transfer Study
- Evaluate Storage Options
- Evaluate Pumping and Water Conveyance Options
 - Pump Structure Studies
 - Water Conveyance Studies
 - Energy Recovery Station Studies
 - Pump Storage Development (Optional)
- Capital Cost Estimates & Construction Schedules

Summary

- Purpose and Need
 - Using information from previous studies and the integrated plan identify the most beneficial alternative for delivery of water from the Columbia River to the Yakima Basin that meets the identified needs of the Yakima Basin.
- Study Costs
 - Large range of possibilities depending on scope - \$2+ million
- Study Schedule
 - Two to Five years from authorization to start