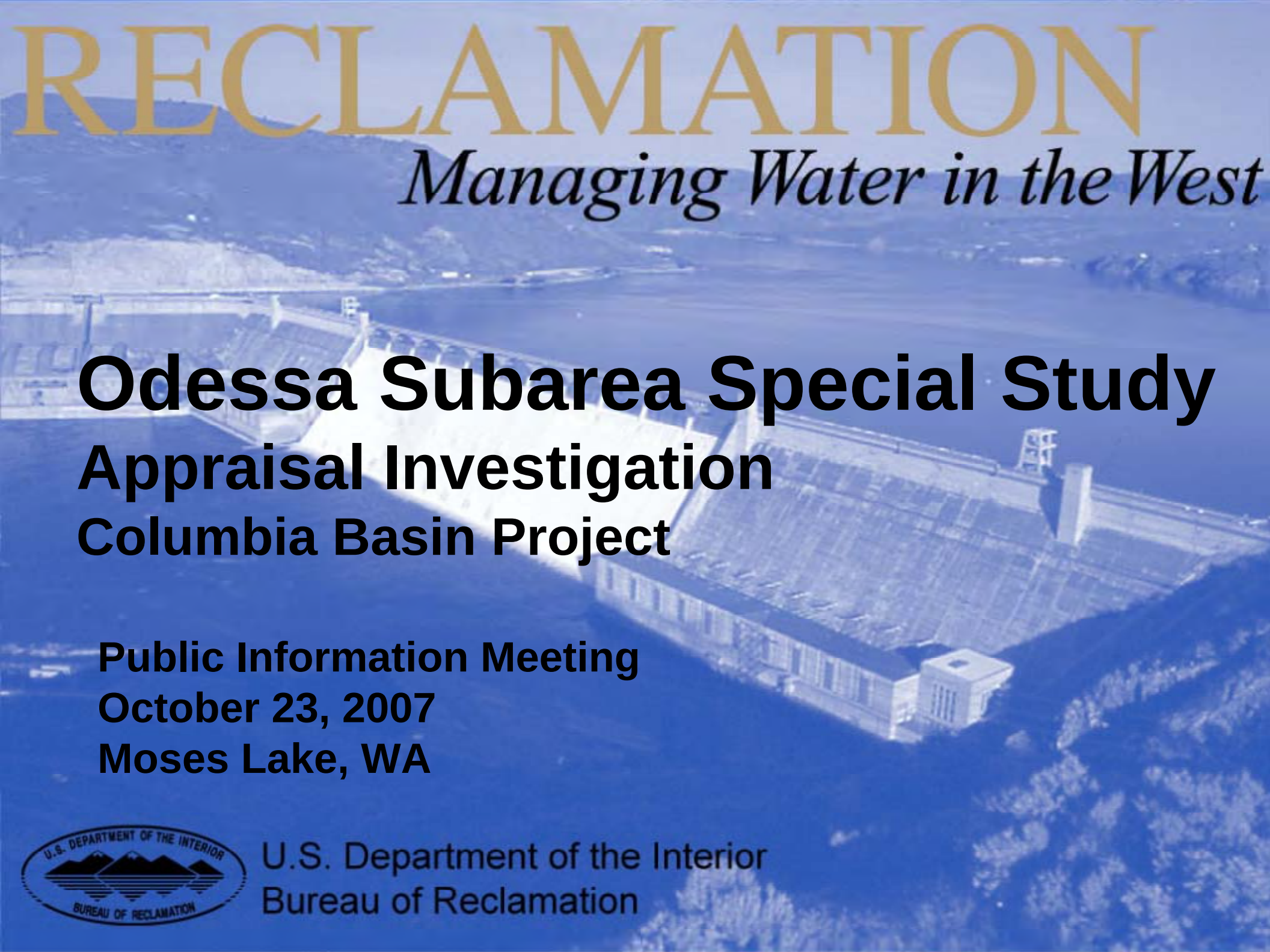


Odessa Subarea Special Study
Appraisal Investigation
Columbia Basin Project

Public Information Meeting
October 23, 2007
Moses Lake, WA

U.S. Department of the Interior
Bureau of Reclamation

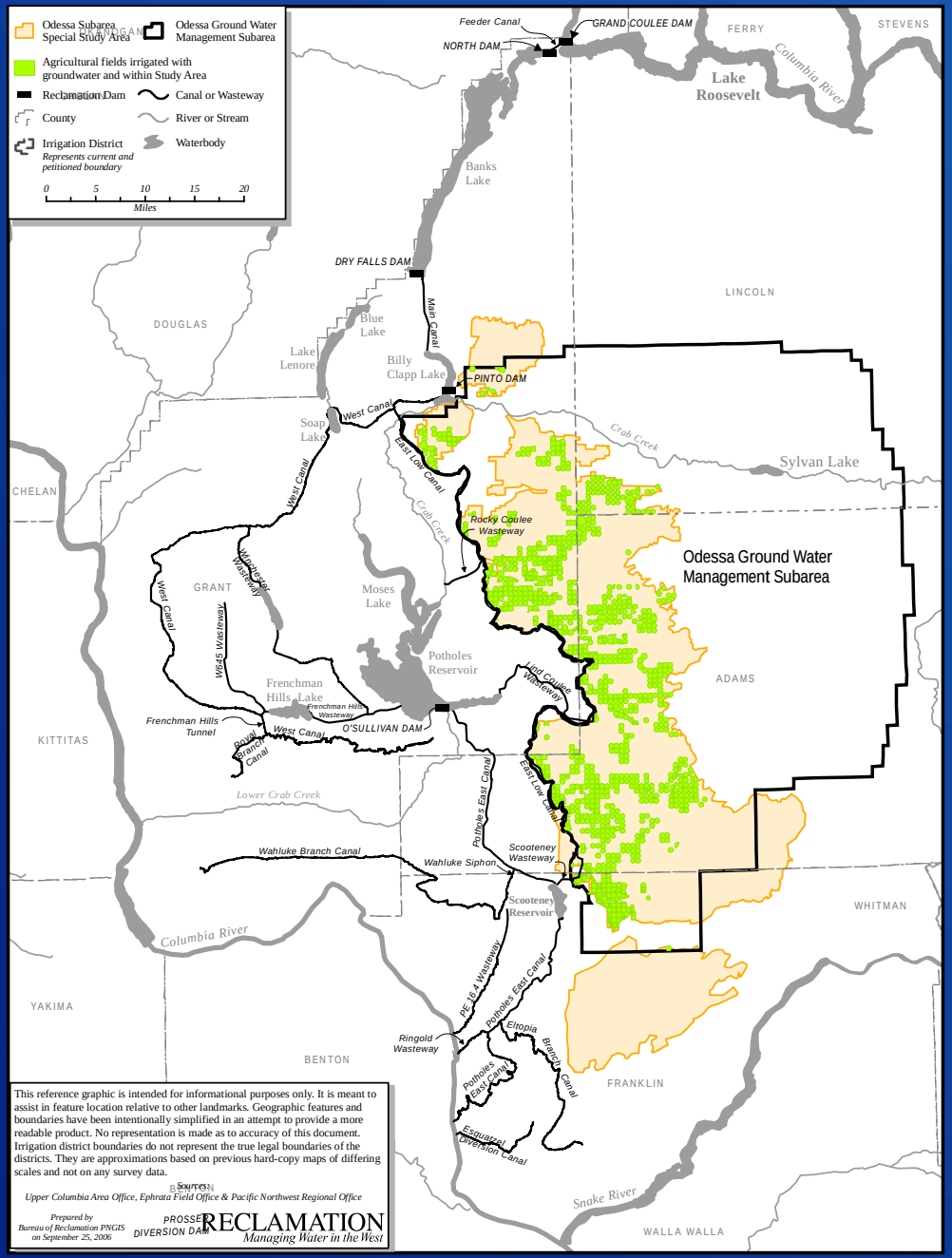
Meeting Objectives

- Provide update on appraisal investigation analyses
- Provide overview of study process and schedule
- Obtain feedback on appraisal investigation results

Study Purpose

- **Continue phased development of the Columbia Basin Project as authorized**

- **Replace groundwater pumping in the Study area with a surface water supply from the Columbia Basin Project**



Study Area

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Study Process Overview

- Organize and Develop Plan of Study
- Pre-appraisal Investigation
- Appraisal Investigation (Pre-plan formulation)
- Feasibility Investigation (Plan formulation)
- Environmental Regulatory Requirements
- Alternative Selected
- Repayment Contract Discussions Begin
- Construction Authority w/Federal Appropriations
- Final Engineering Design and Specifications
- Award Construction Contract

PASS Recommendations

- **Four Water Delivery Alternatives**

  Infrastructure to convey surface water to groundwater irrigated lands in Study area

- **Water Supply Options**

  Replacement surface water supply for current groundwater irrigation in Study area

Water Delivery Alternatives

Alternative	Groundwater Acreage Supplied		Estimated Water Supply Needed
	acres	*percent of total*	*acre-feet*
Alternative A: Construct East High Canal	140,000	100	515,300
Alternative B: North portion of EHC. Enlarge & extend ELC.	127,300	91	453,200
Alternative C: Enlarge East Low Canal	70,100	50	216,800
Alternative D: Use existing East Low Canal	40,700	29	125,900

Water Storage Options

- Lake Roosevelt Re-Operation
- Banks Lake Drawdown
- Banks Lake Raise
- Potholes Reservoir Re-operation
- Dry Coulee Reservoir
- Rocky Coulee Reservoir
- Lind Coulee Reservoir
- Lower Crab Creek Reservoir
- Black Rock Coulee Reservoir
- Canal System Efficiency Improvement

Estimated Groundwater Acreage By Water Supply Option

Water Supply Option		Groundwater Acreage Served	
		acres	*percent*
Banks Lake	Draw down to 1563’	Up to 19,000	14
	Draw down below 1563’	Up to 140,000	100
	Operational raise of 2’	Up to 19,000	14
Potholes Reservoir Reoperation		Up to 19,000	14
Dry Coulee Reservoir		Up to 140,000	100
Rocky Coulee Reservoir		Up to 46,900	34
Lower Crab Creek Reservoir		Up to 140,000	100

Groundwater Conditions

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Engineering Studies

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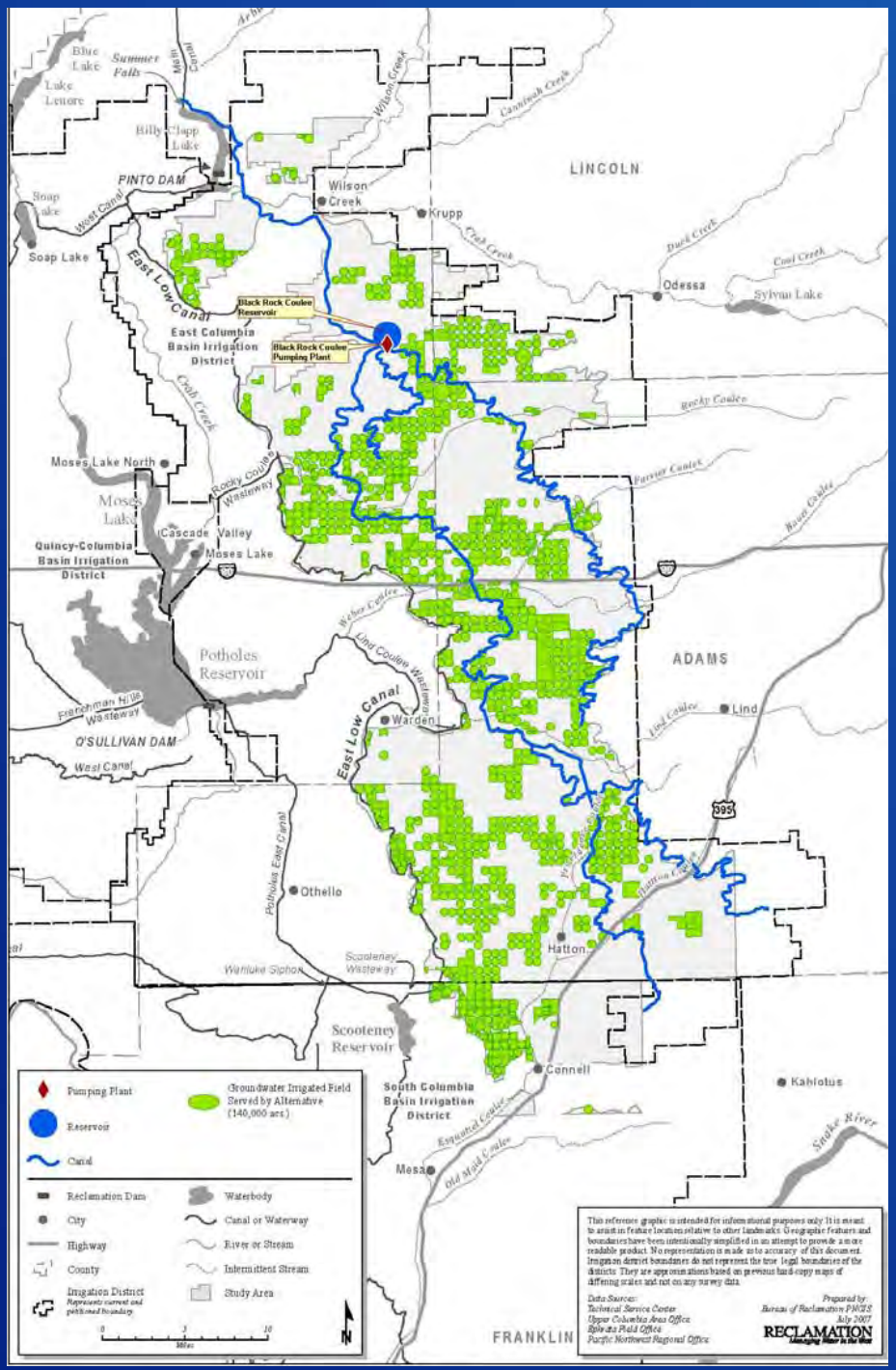
Engineering Scope and Limitations

- Investigated four water delivery alternatives and six water storage options
- Designs and cost estimates based on previous studies and limited design data
- Maximum 140,000 groundwater irrigated acres
- Columbia River water availability limited
  - ESA Fish flow objectives must be met
  - Water only available for diversion in September, October, December, and January in driest years
- Delivery of 3.0 acre-feet per acre annually

Water Delivery Alternatives

Four water delivery alternatives investigated involving one or both of the following components

- **Construction of new East High Canal system (previous feasibility investigation between 1960s and 1980s)**
- **Using existing East Low Canal system.**



Alternative A –

Construct new East High Canal system.

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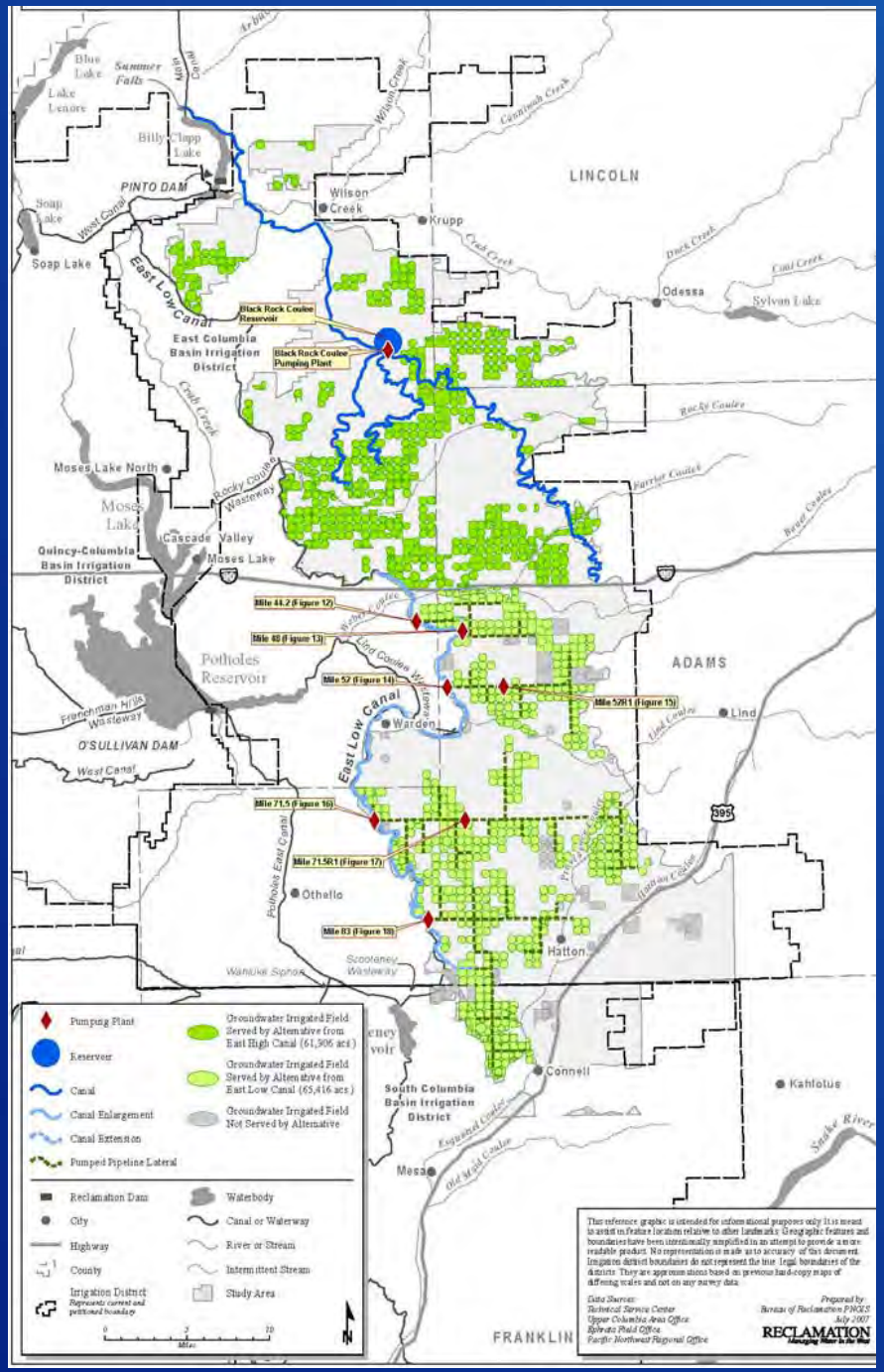

Alternative B –

Construct north portion of new East High Canal system.

Expand (south of I-90) and extend (near Connell) existing East Low Canal.

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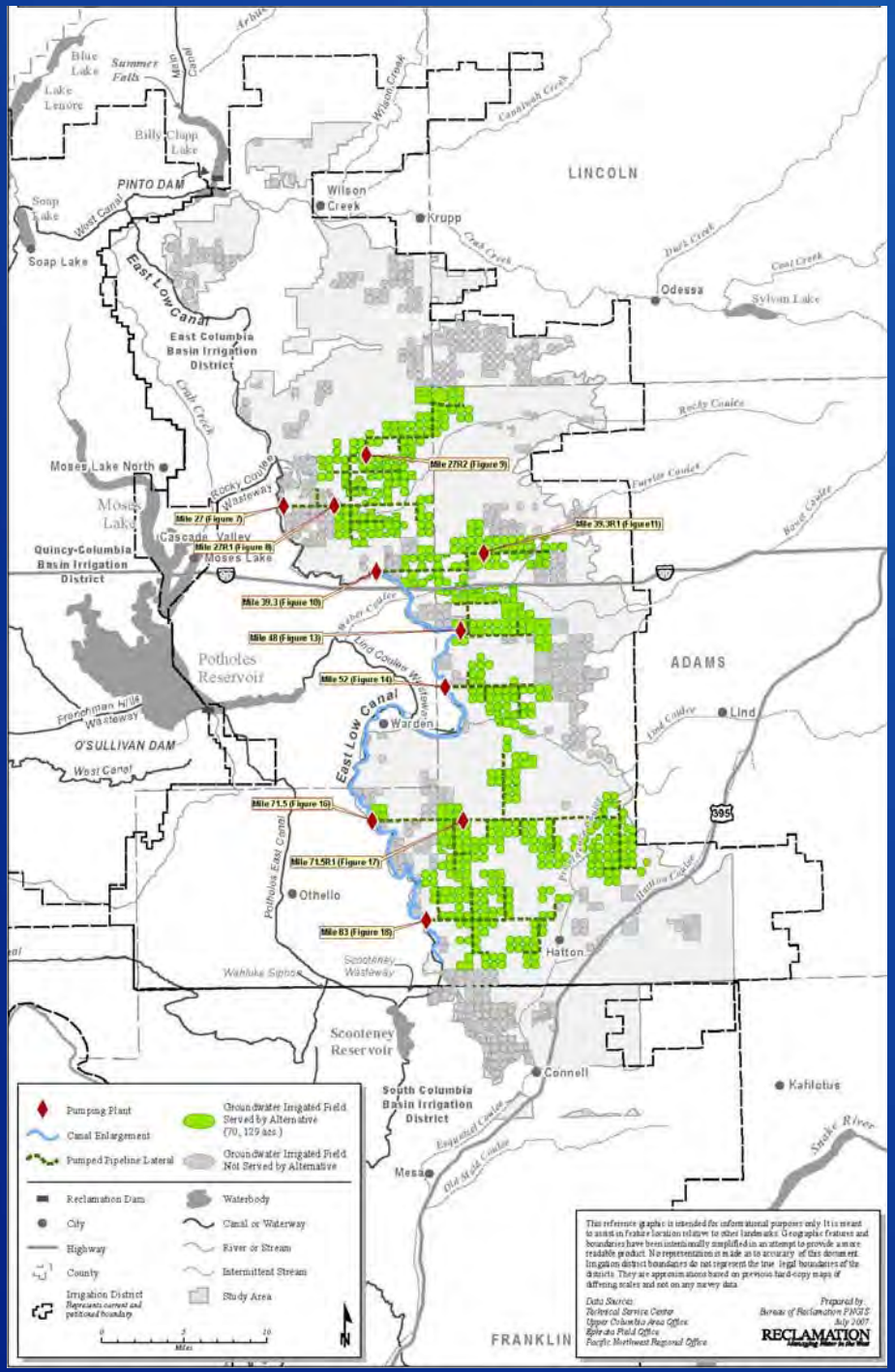

Alternative C –

Expand existing East Low Canal south of Interstate 90.

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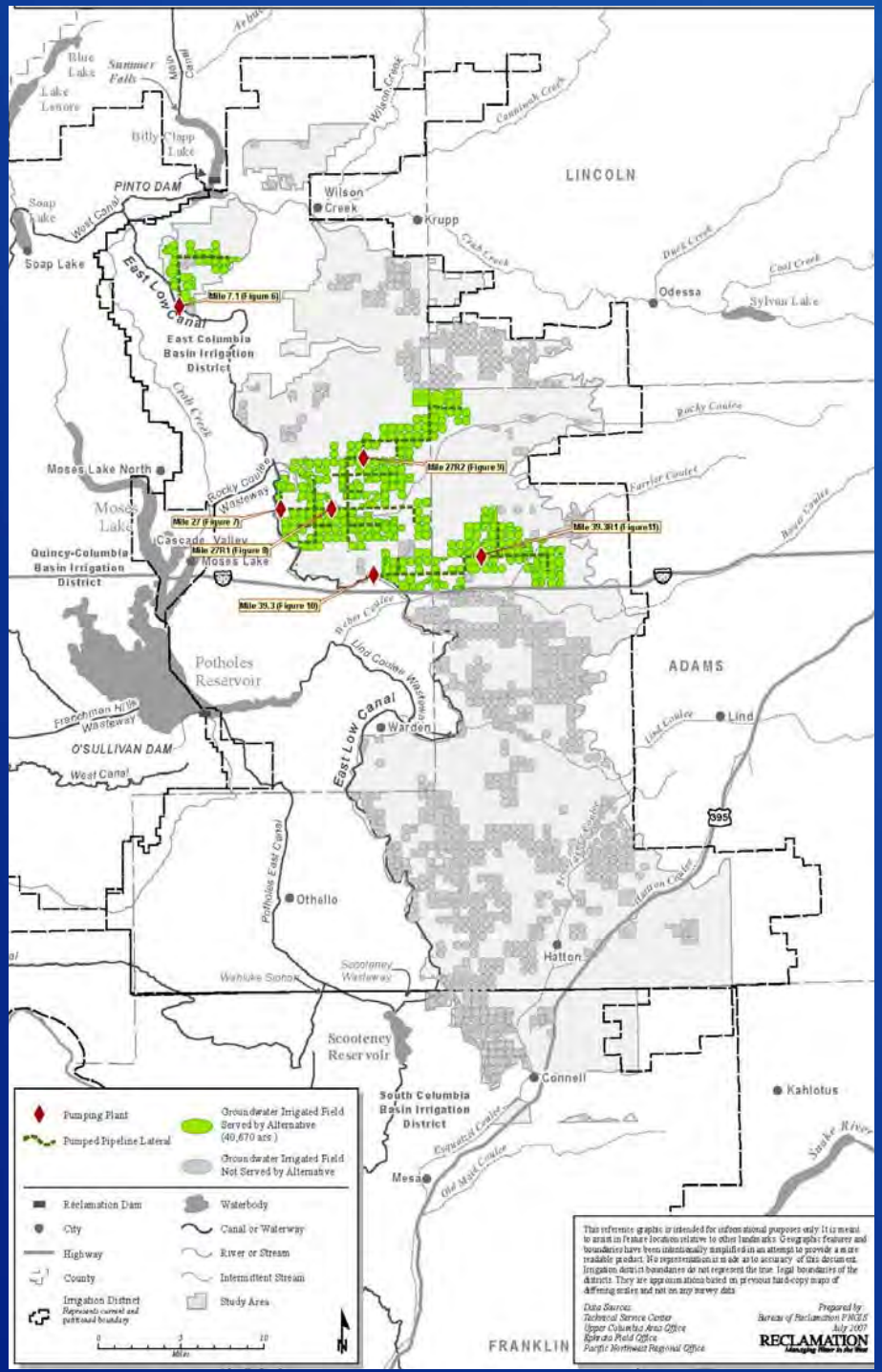

Alternative D –

Use existing East Low Canal capacity north of Interstate 90.

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Water Delivery Alternatives

Estimated Water Supply Needs

Alternative	Groundwater Acreage Supplied		Estimated Water Supply Needed
	acres	*percent of total*	*acre-feet*
Alternative A: Construct East High Canal	140,000	100	515,300
Alternative B: North portion of EHC. Enlarge & extend ELC.	127,300	91	453,200
Alternative C: Enlarge East Low Canal	70,100	50	216,800
Alternative D: Use existing East Low Canal	40,700	29	125,900

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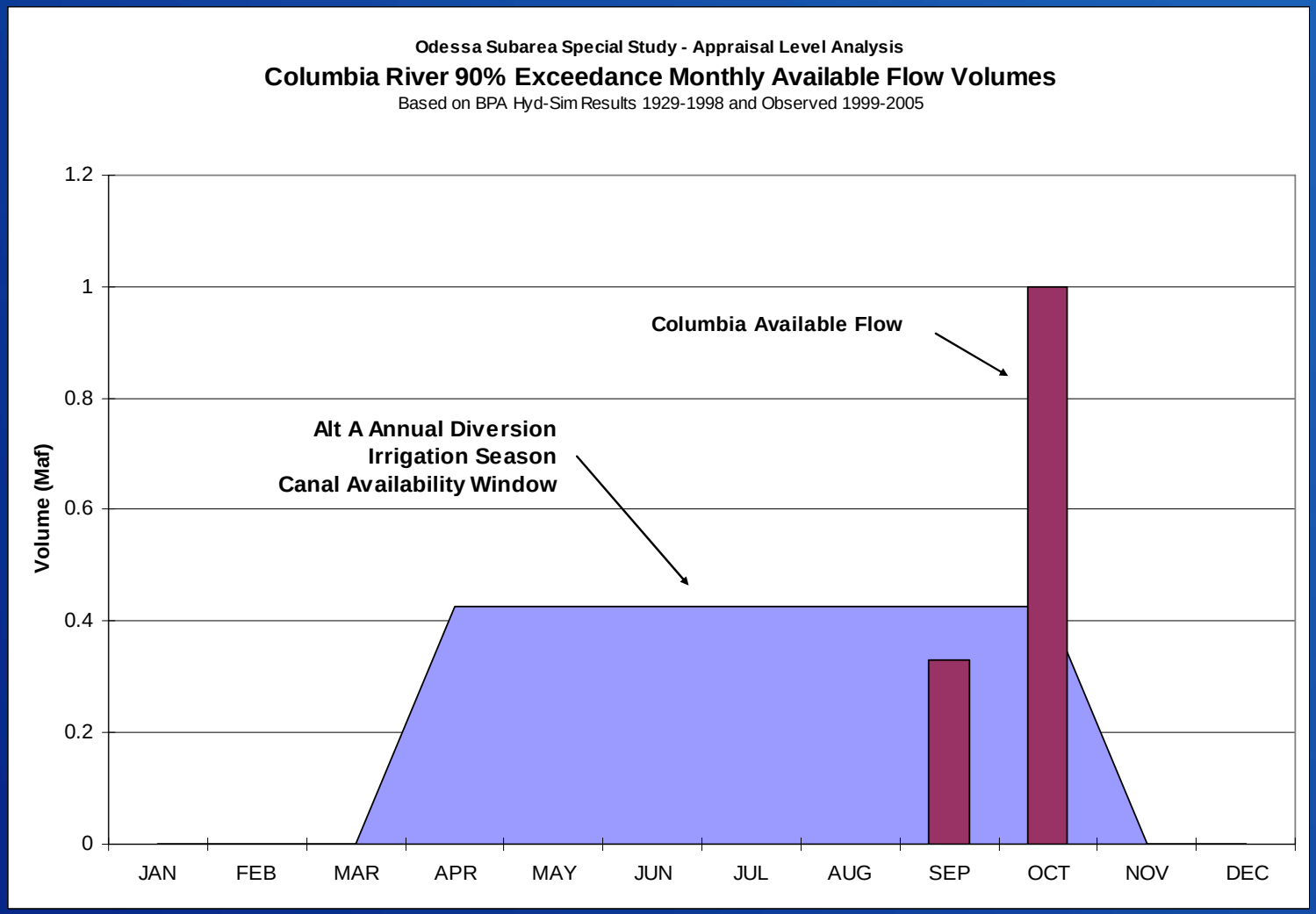
Water Supply Options

Options investigated included:

- **Operational modifications to existing storage facilities**
  - **Banks Lake (Dry Falls and North Dams)**
  - **Potholes Reservoir (O'Sullivan Dam)**
- **New reservoirs**
  - **Dry Coulee Dam and Reservoir**
  - **Rocky Coulee Dam and Reservoir**
  - **Lower Crab Creek Dam and Reservoir (two size options)**

Columbia River: Available Supply



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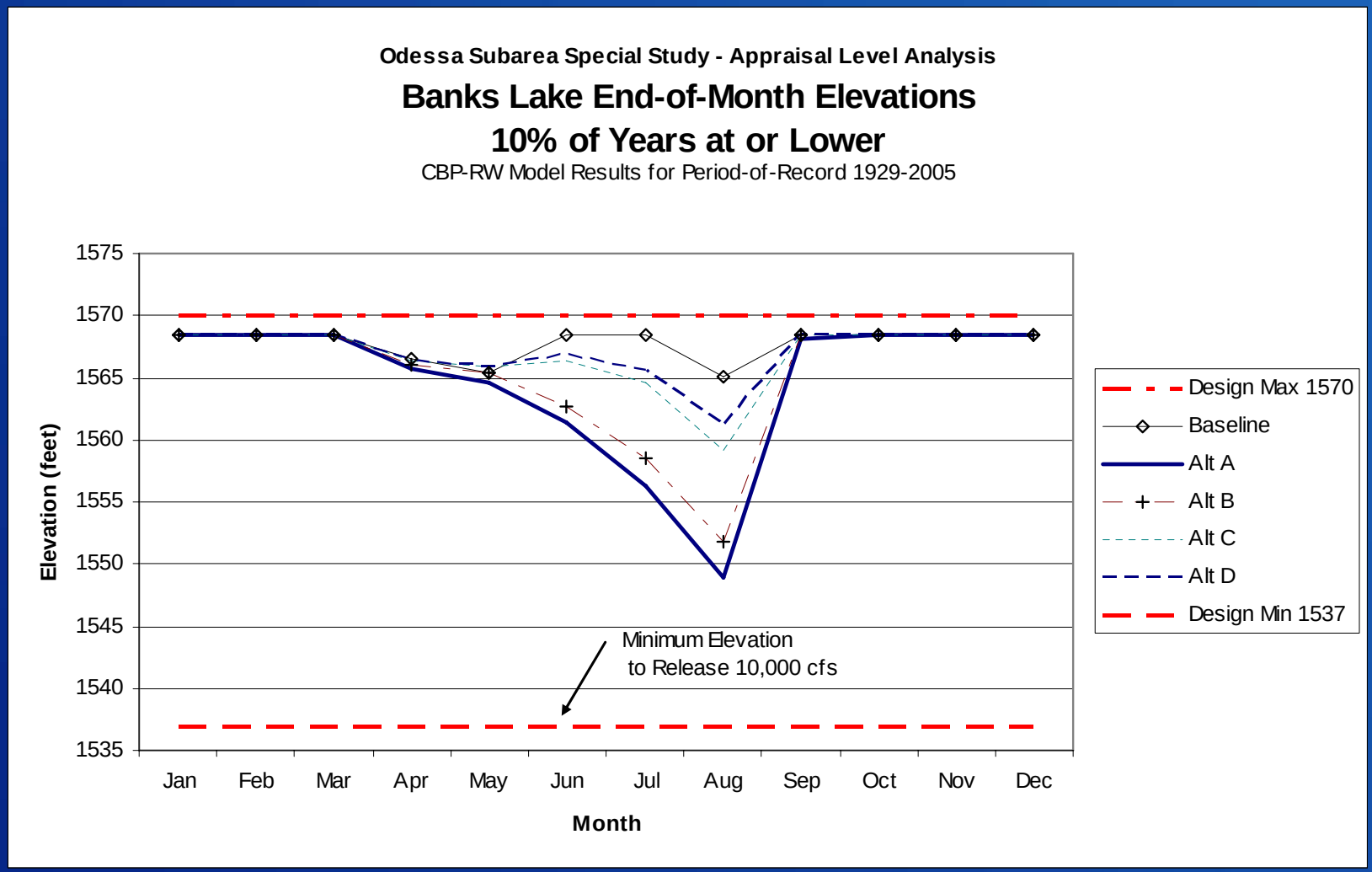
Operational Modifications

- **Reclamation policy - Any proposed operational modification cannot result in appreciable increased risk of dam failure**
- **Risk analyses conducted to ensure modifications are "risk neutral"**
- **Detailed risk analyses conducted during next Study phase (feasibility analyses)**

Banks Lake Reservoir
Proposed Operational Modifications

- Draft reservoir below current drawdown elevations
  - Does not increase dam safety threshold risks
- Raise water surface elevation by 2 feet
  - Raise in normal high water operating level may increase dam safety threshold risks

Model Results: Banks Low Elevation



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Banks Lake 2’ Raise

Proposed Structural Modifications

- Structural modifications required to both Dry Falls and North Dams and Grand Coulee Feeder Canal
- Dam crest raise of 2 feet
- Install vertical “crackstopper” filter
- Raise Grand Coulee Feeder Canal lining by 2 feet

Potholes Reservoir
Proposed Operational Modifications

- Shift portion of spring feed to fall season; store more water in fall / winter season (earlier than current operation)
- Raise winter operating level about 3 feet; require downstream evacuation route
- No change to normal high pool level
- Overall higher pool throughout year and higher annual “average” reservoir elevation may not meet Reclamation dam safety risk thresholds

Potholes Reservoir (O'Sullivan Dam)

Proposed Structural Modifications

- Modifications limited to section of dam on Lower Crab Creek side
- Raise dam crest by 5 feet
- Install vertical "crackstopper" filter

New Storage Reservoirs

- **Dry Coulee**
  (481,000 ac-ft)
- **Rocky Coulee**
  (126,000 ac-ft)
- **Lower Crab Creek**
  (200,000 ac-ft)
  (472,000 ac-ft)

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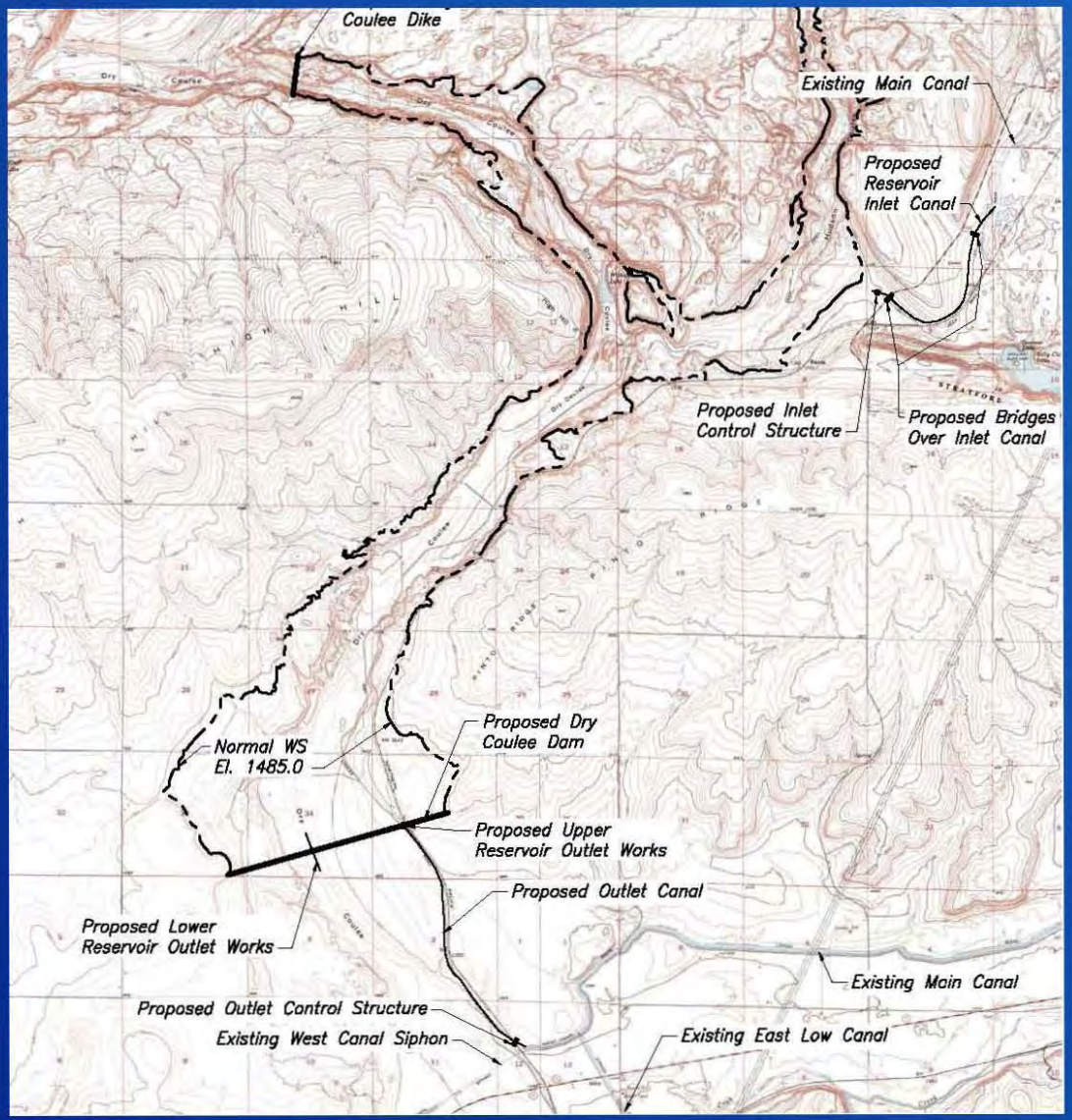
Dry Coulee Dam / Reservoir Site Plan



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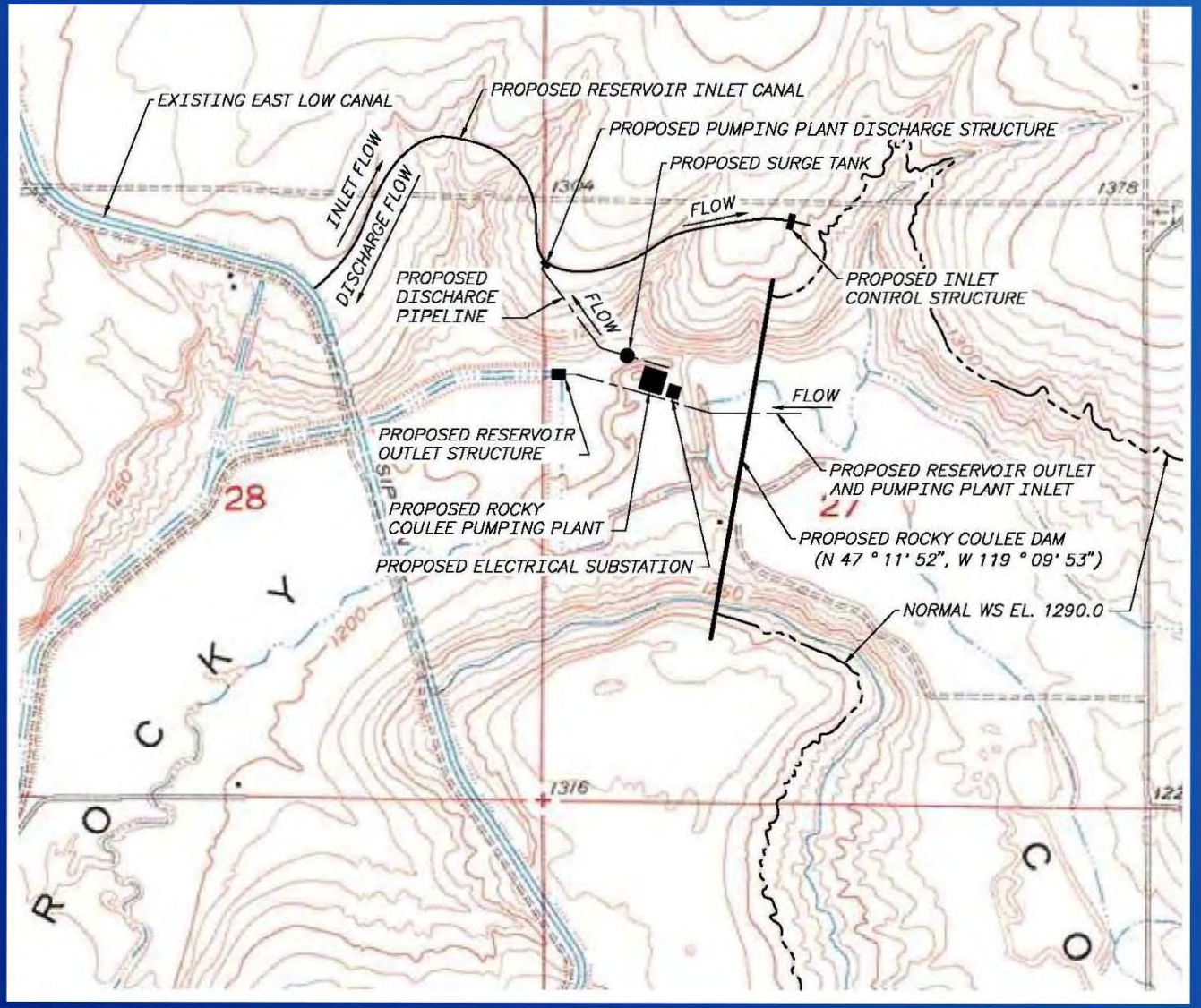
Rocky Coulee Dam / Reservoir Site Plan



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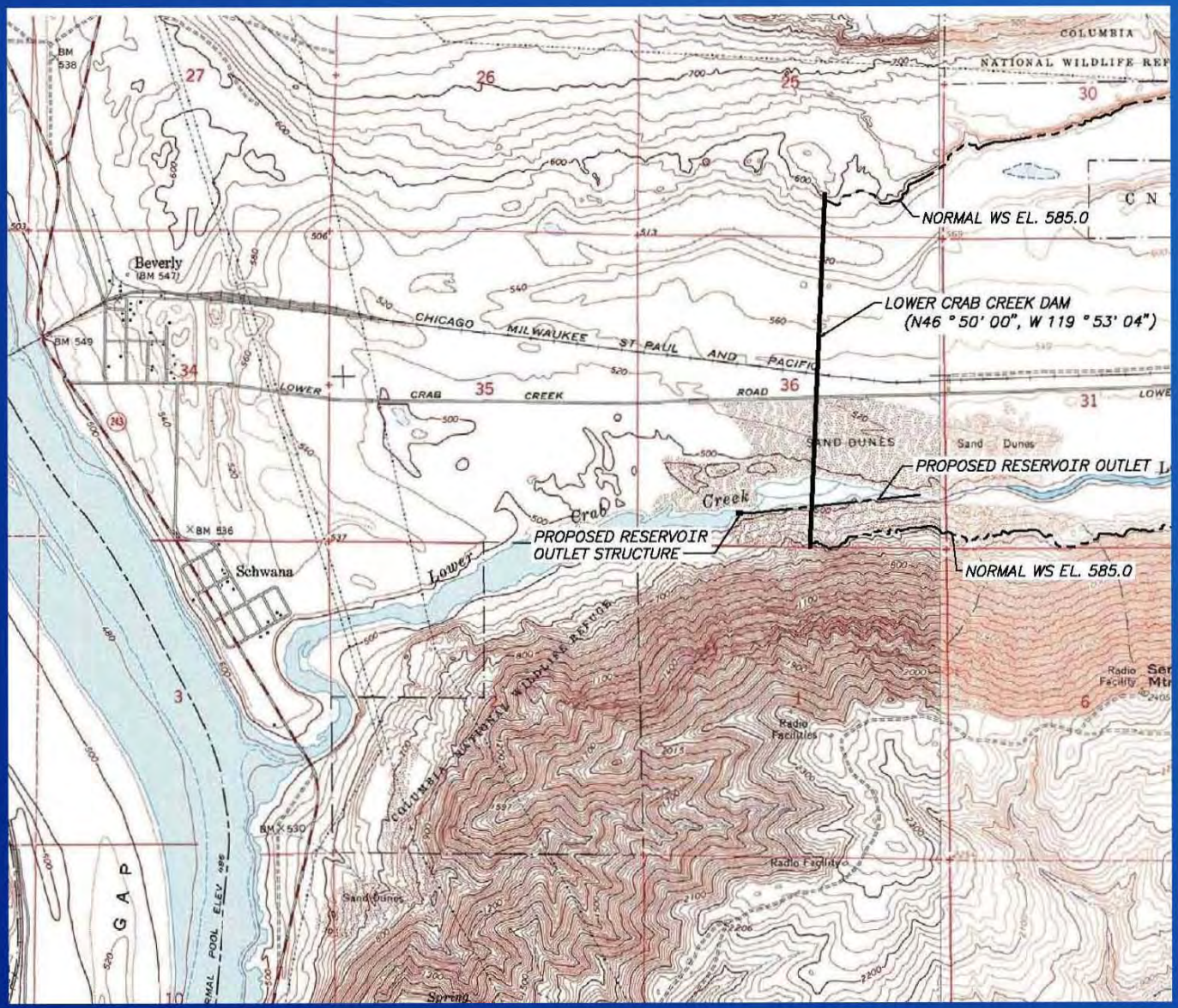
Lower Crab Crk Dam/Reservoir Site Plan



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Appraisal Cost Estimates
Assumptions

- Based on preliminary engineering designs & analysis
- Relied heavily on previous investigations (from 1960s to 1980s)
- Supplemented with limited additional data
  - Geology and hydrology data
  - Preliminary hydrologic models
- Preliminary and not appropriate for determining actual construction costs or seeking construction authority or appropriations from Congress

Appraisal Cost Estimates

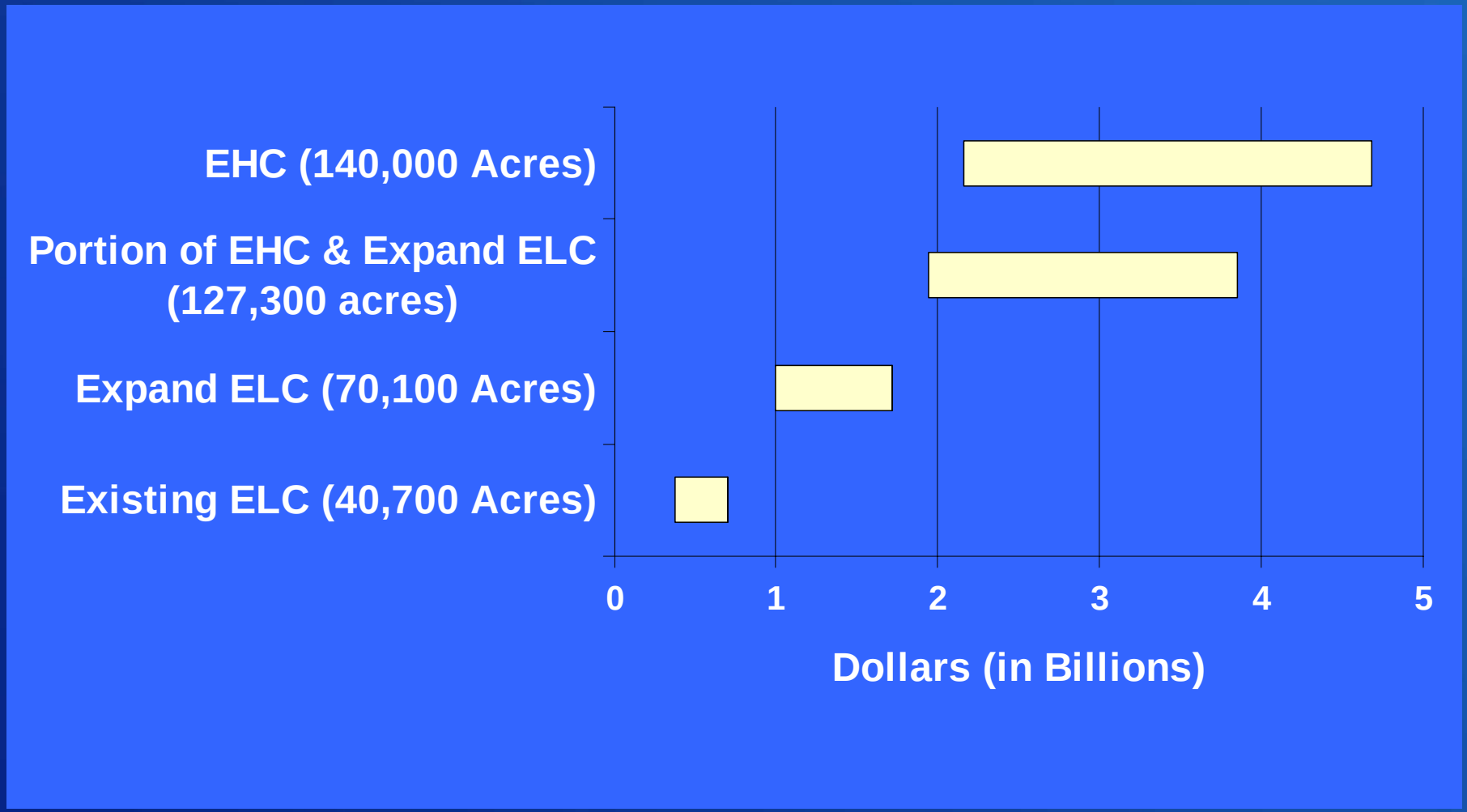
- Field costs – construction costs only

- Non-contract costs - Costs associated with work or services provided in support of project
    - Investigations
    - Design and specifications development
    - Construction management
    - Environmental compliance
    - Archaeological considerations

- Costs not included, but to be developed during feasibility design
    - Land Acquisition
    - Utilities Relocation
    - Mitigation

Appraisal Cost Estimate Range

Water Delivery Alternatives



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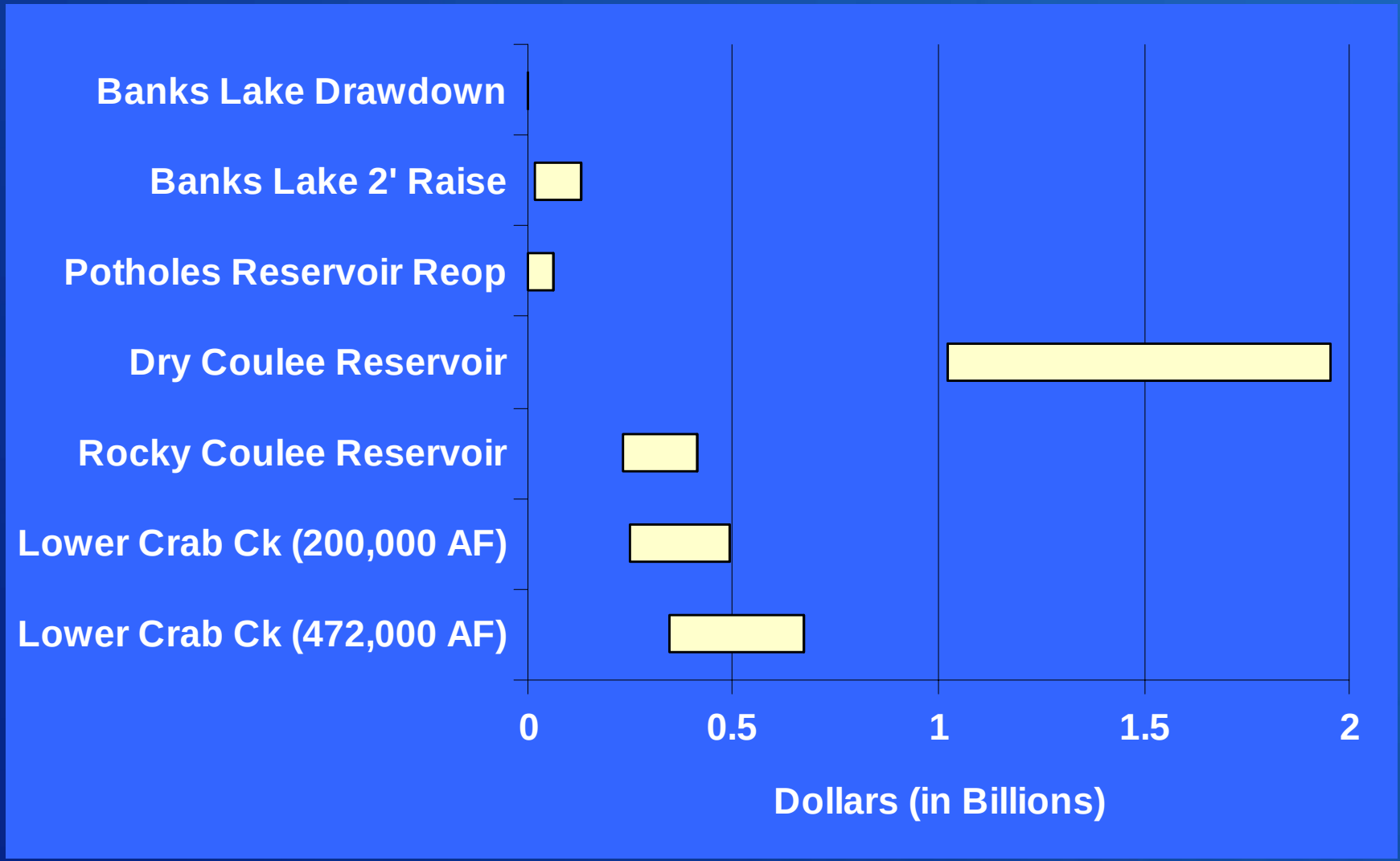
Appraisal Cost Estimate Range
Water Supply Options



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Total Appraisal Cost Estimate Range
Water Delivery and Supply Options Combined

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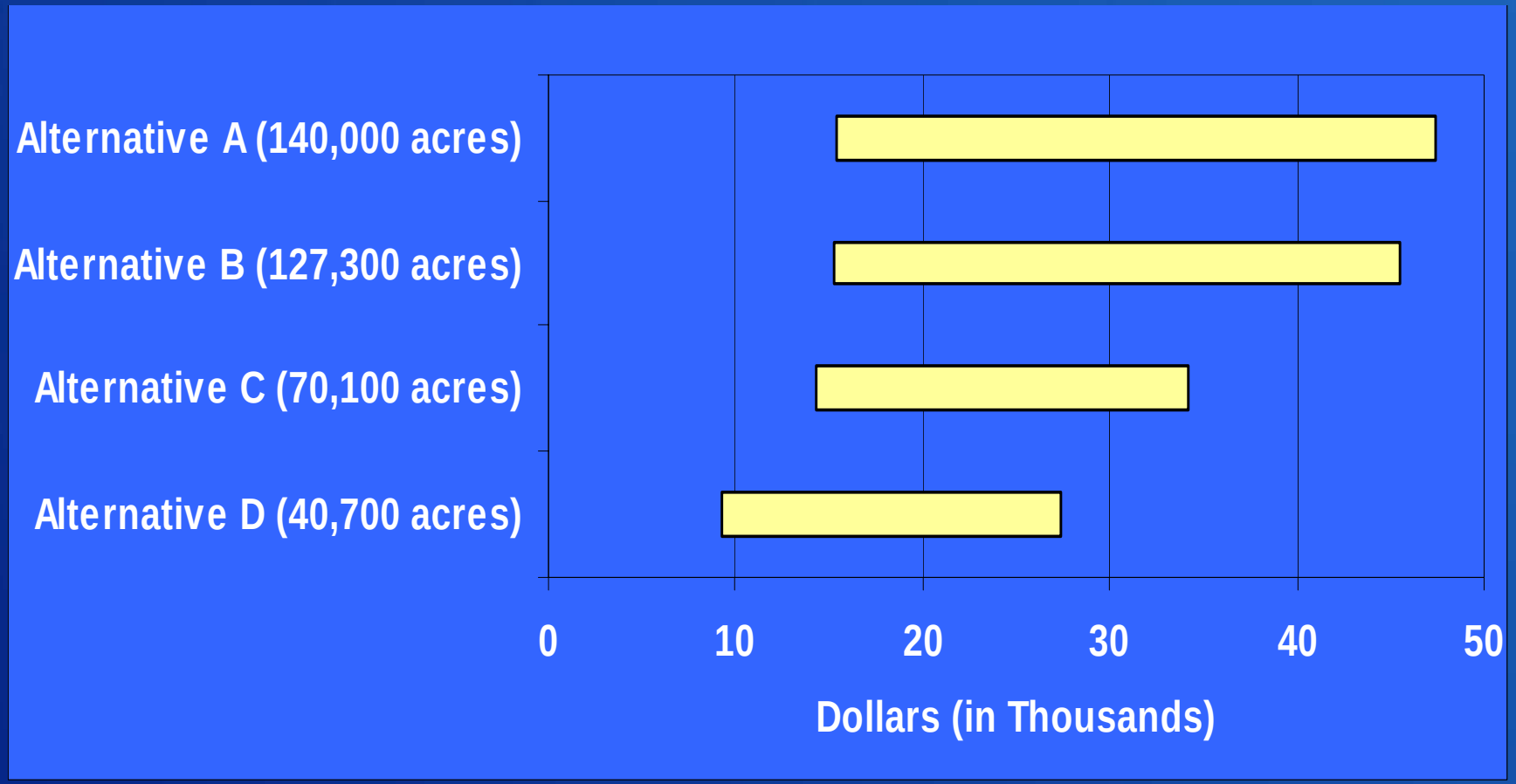
Total Appraisal Cost Estimate Range

Water Delivery and Supply Options Combined

Cost per Groundwater Acre Served



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Appraisal Engineering Investigation Findings

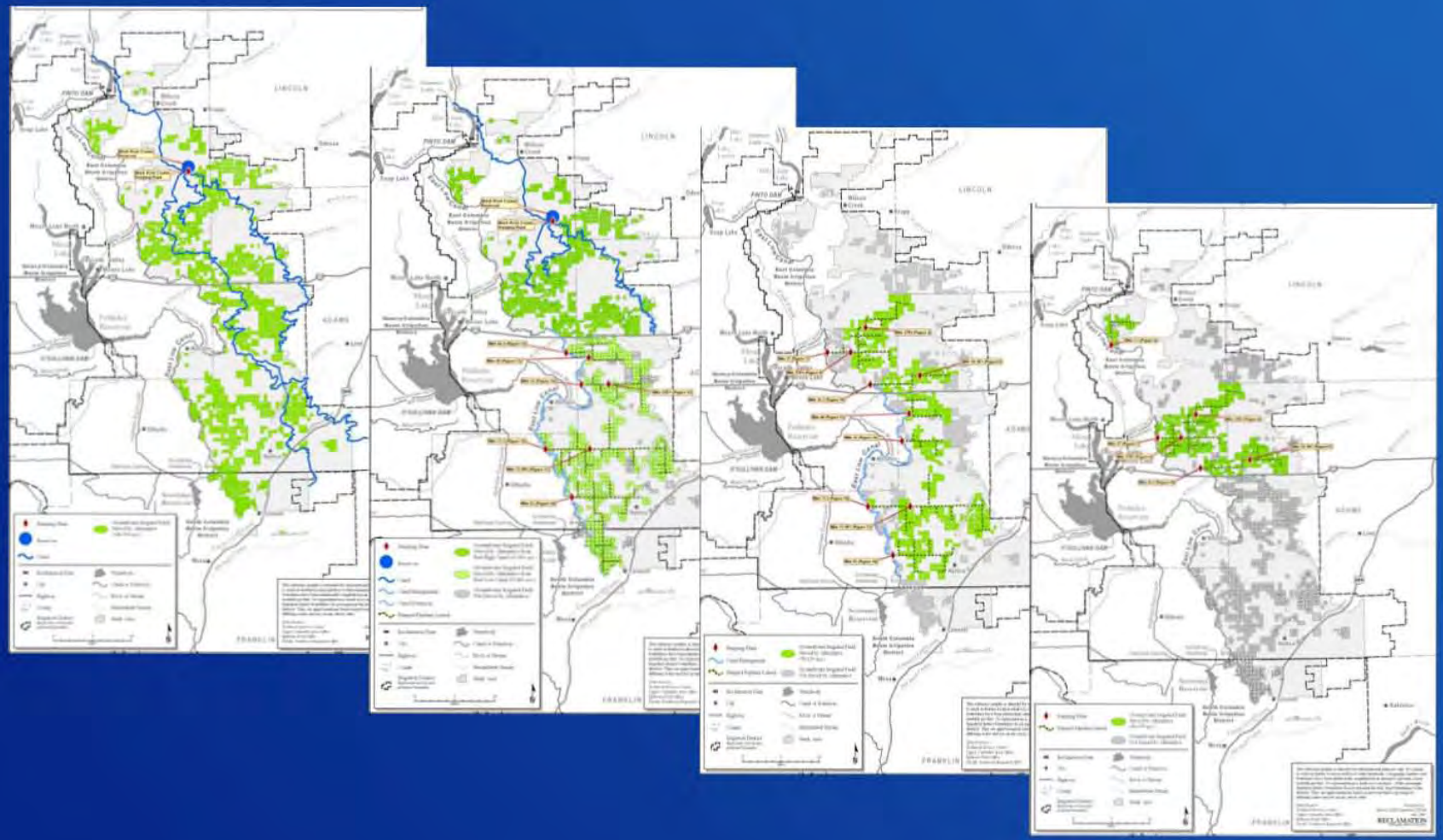
- All alternatives and options technically viable from engineering and operational perspective
- Cost estimates reflect appraisal-level methods, appropriate for relative comparison between alternatives and options
- Additional data collection and analyses required for feasibility-level cost estimates before seeking construction funding

Study Objectives

- Replace all or portion of groundwater use with Project surface water.
- Maximize use of existing infrastructure.
- Retain the possibility of full Project development.
- Address Endangered Species Act (ESA) issues.
- Provide environmental and recreational enhancements.
- Minimize potential delay in the study schedule.
- Be developed in phases.

Water Delivery Alternatives

Issues and Concerns



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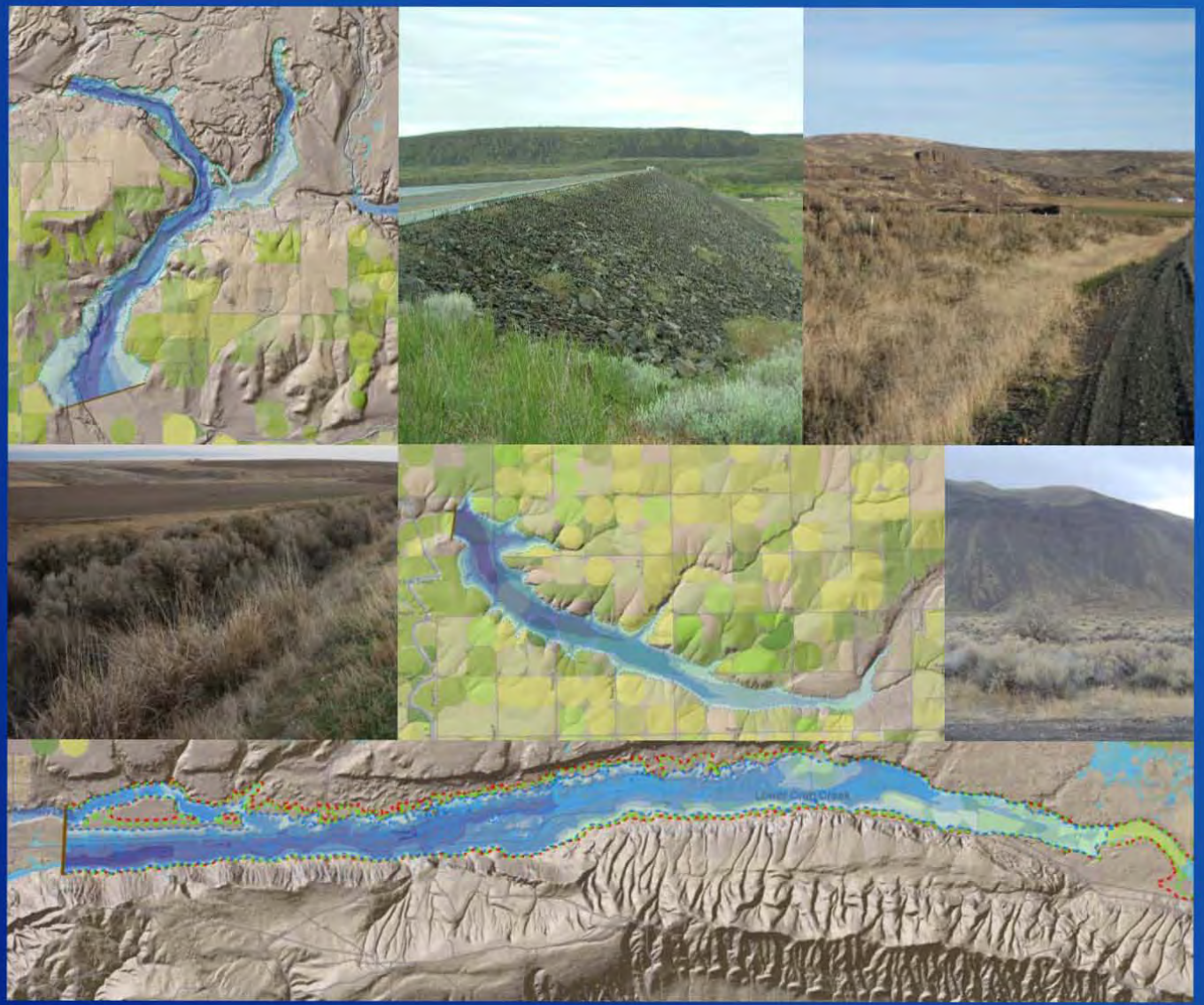
Water Supply Options

Issues and Concerns



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Next Steps

Current to 2011

- Public Comment on Appraisal Investigation through Nov. 30
- Select Alternative / Options for Feasibility Investigation
- Conduct Feasibility Investigation
- Conduct Environmental and Regulatory Compliance
- Select Preferred Alternative
- Begin Repayment Contract Negotiations

After 2011

- Obtain Construction Authority and Federal Appropriations
- Prepare Final Construction Design & Specifications
- Award Contract for Construction

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Feasibility Criteria

The agency preferred alternative must . . .

- **Be technically viable**
- **Protect Indian Trust Assets**
- **Comply with the National Environmental Policy Act, the Endangered Species Act, and other environmental regulations**
- **Be socially and environmentally acceptable**
- **Be economically justified and financially feasible**

Contact Information

Comments by November 30, 2007

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Boise, ID 83706

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Fax: 208-378-5102

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Questions?

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