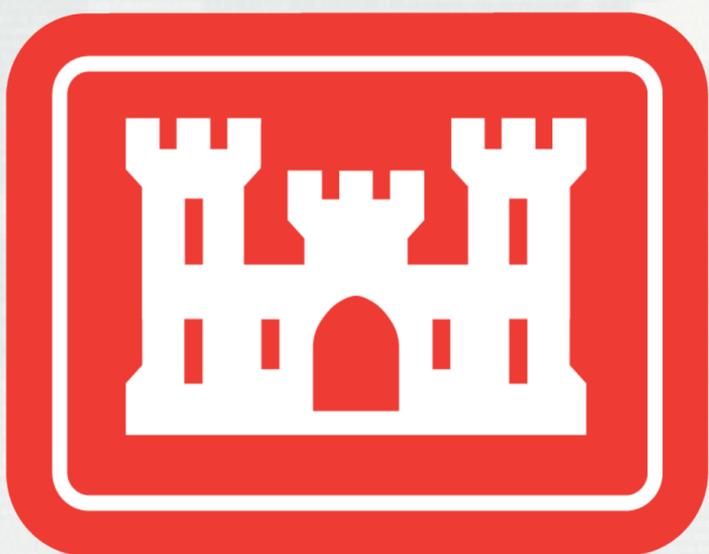




SWF-2010-00191
Cedar Ridge Reservoir
Environmental Impact Statement

WELCOME

Public Scoping Open House



**US Army Corps
of Engineers**

Participant Location Map



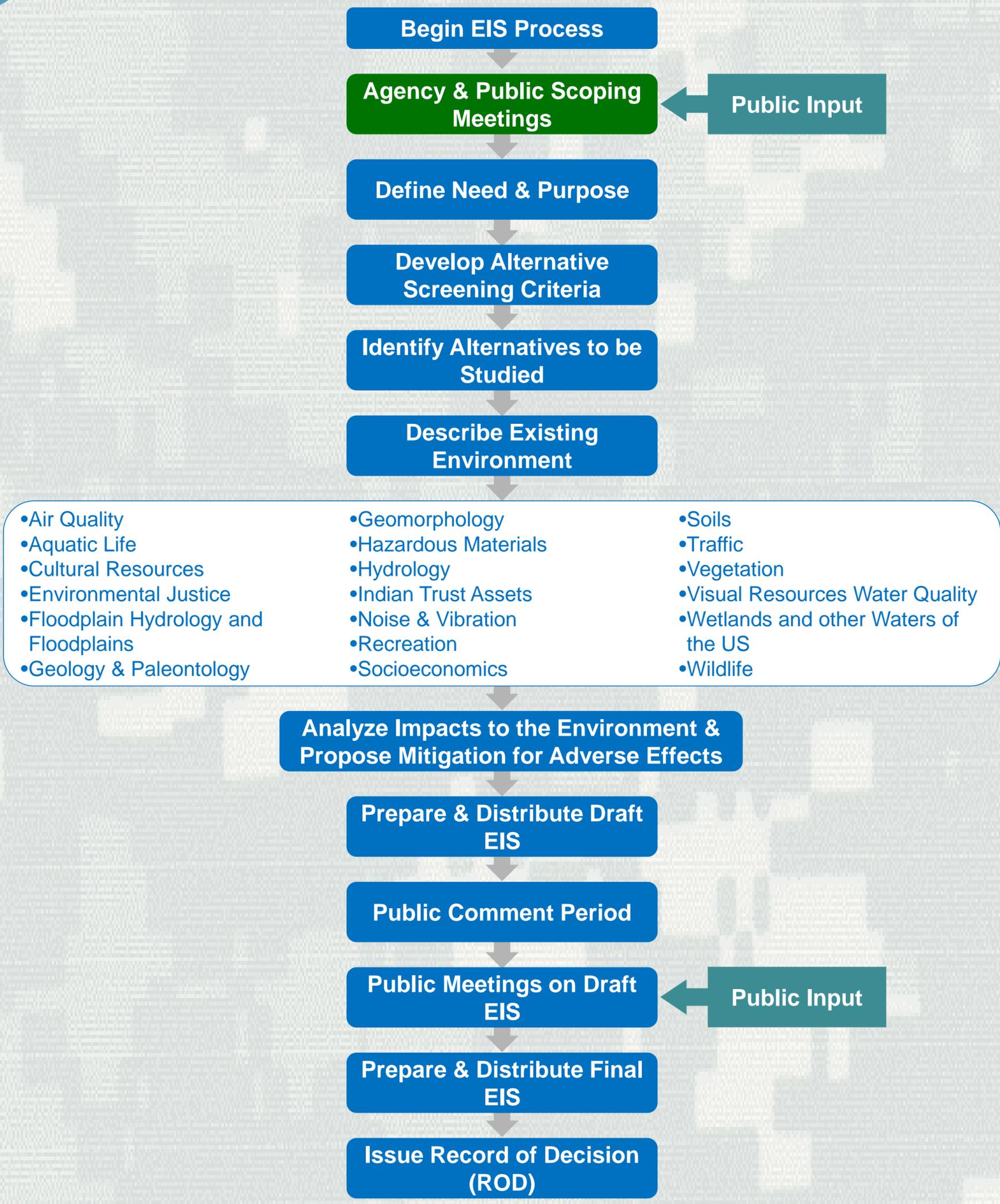
Please let us know where you are from by placing a pin on or near your town, city, or county. This information helps us gauge how effective outreach efforts have been.

Thank You!

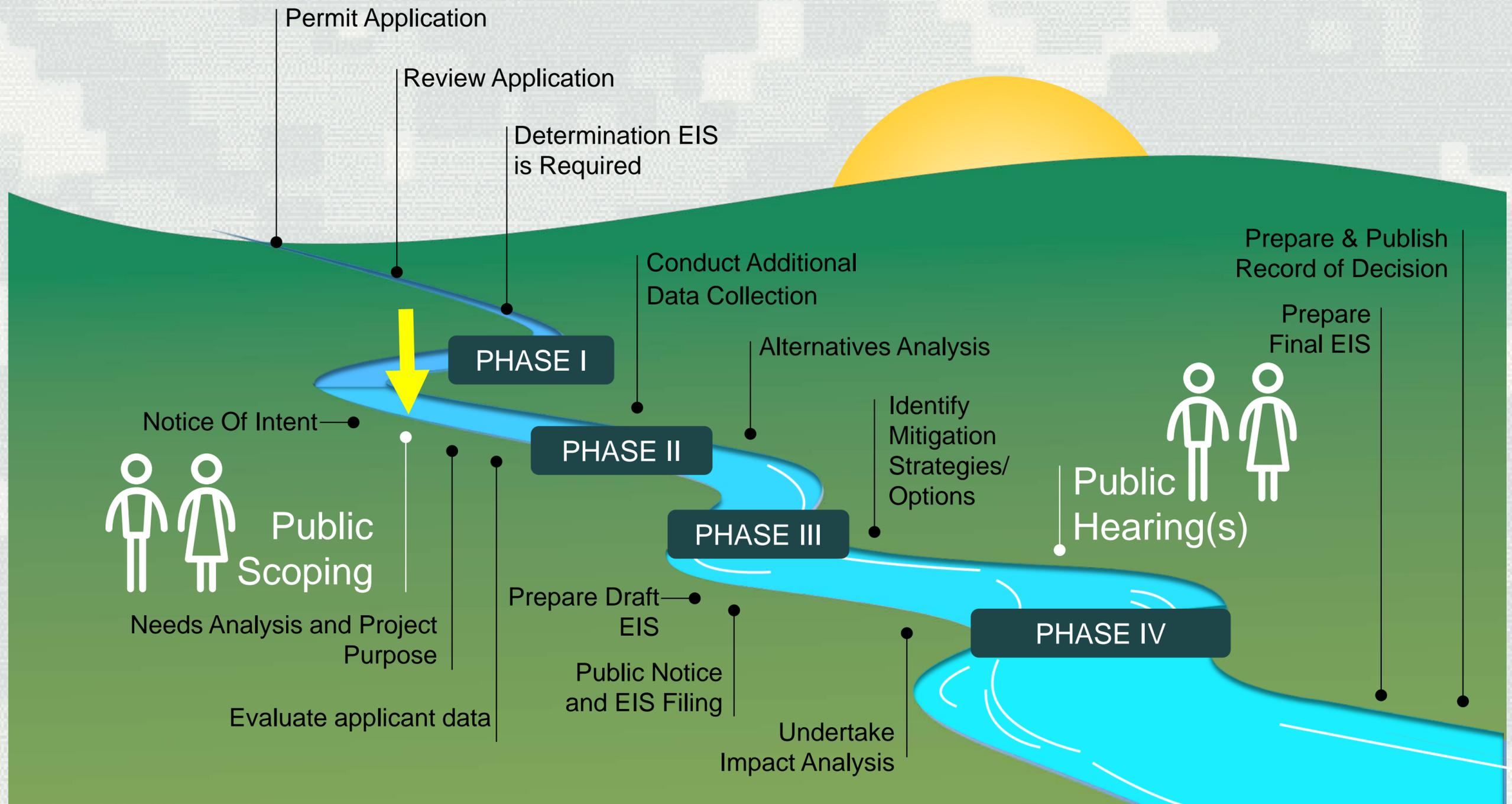




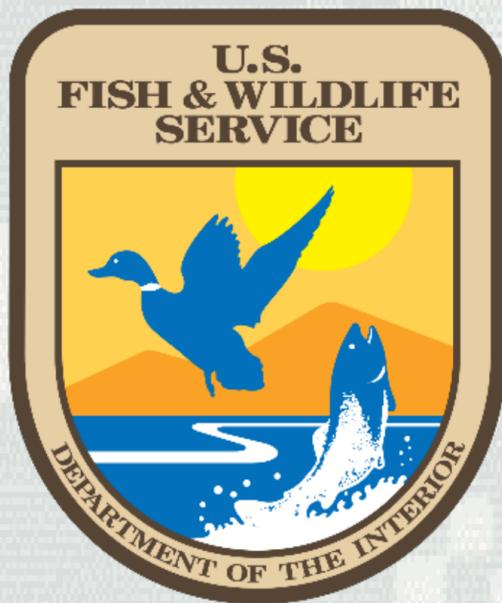
National Environmental Policy Act Process for Preparing an Environmental Impact Statement



404 Permit and the NEPA Process



Cooperating Agencies



NEPA regulations provide for the participation of resource agencies in the development of the EIS.

Why You are Here / Public Role

- Learn about the proposed project
- Identify the biological, chemical, physical, and socioeconomic issues the USACE should evaluate in the draft EIS
- Provide comments to EIS team (tonight or within 30 days)

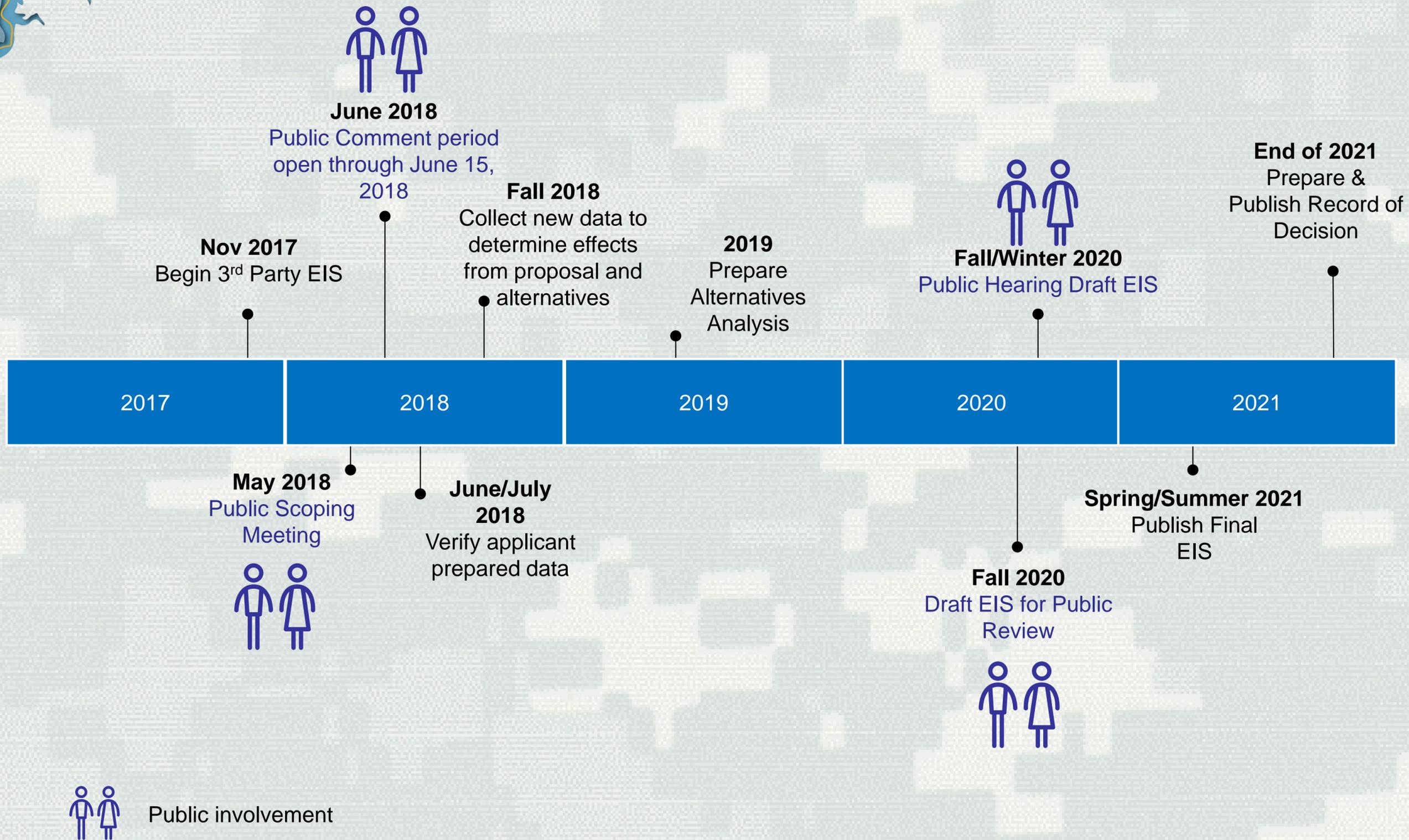
Key Questions to Consider

- *Is a new water supply needed?*
- *What are the key environmental, social, physical, chemical, and economic issues raised by the proposed project?*
- *Are there other ways a reliable water supply can be secured?*

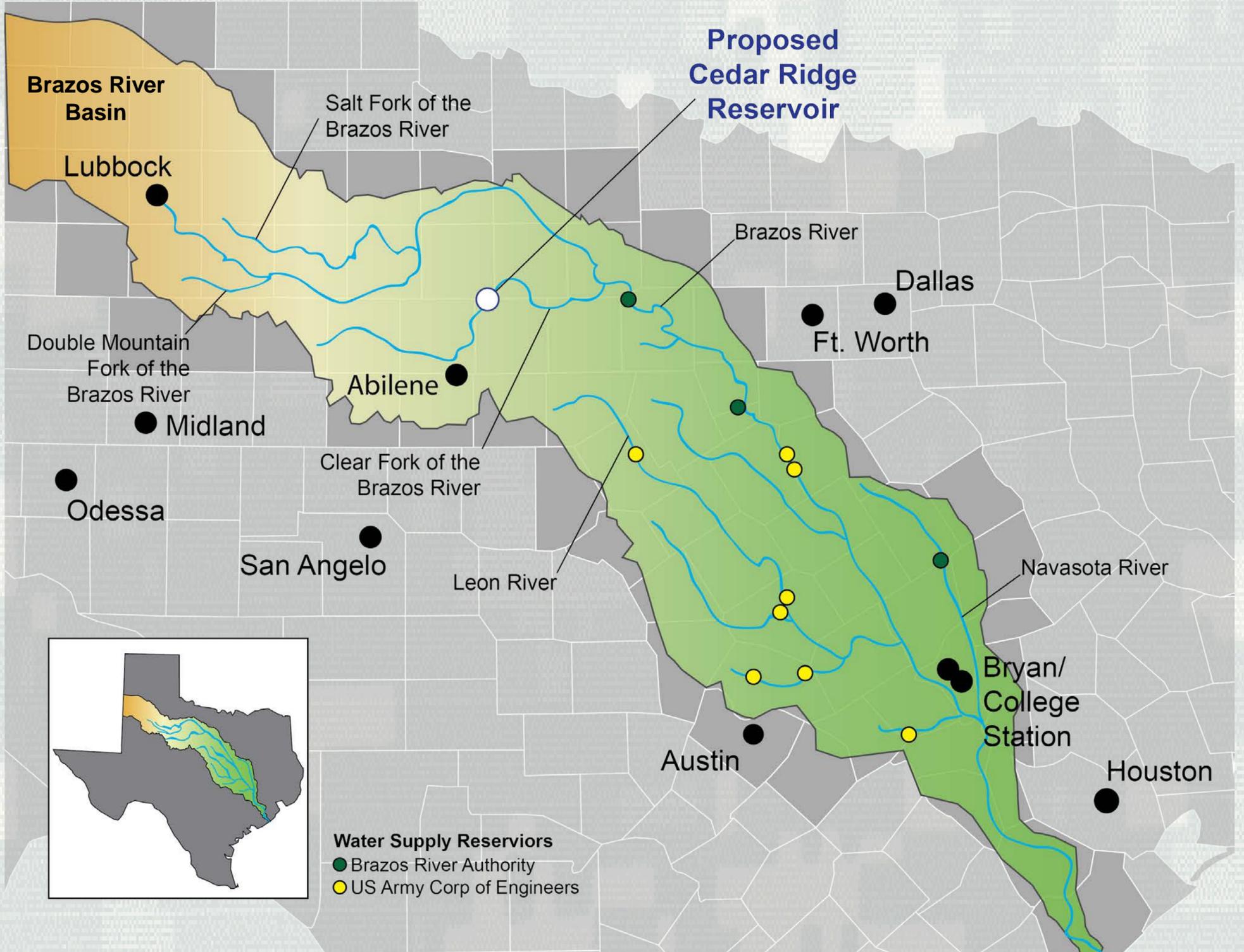




Planned Schedule

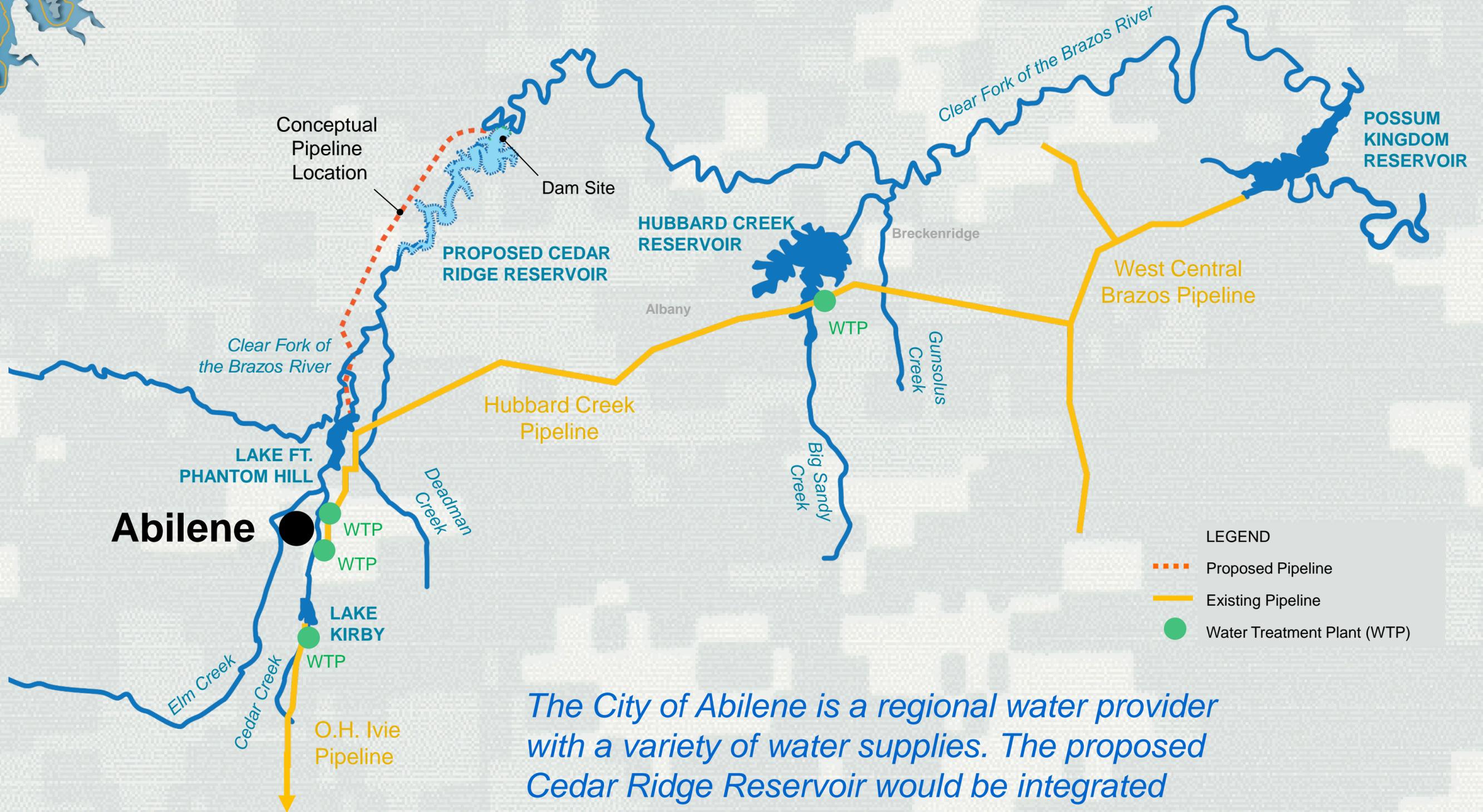


Brazos River Basin Setting



The proposed Cedar Ridge Reservoir is located on the Clear Fork of the Brazos River in the upper portion of the Brazos River Basin, which is the second largest river basin in Texas.

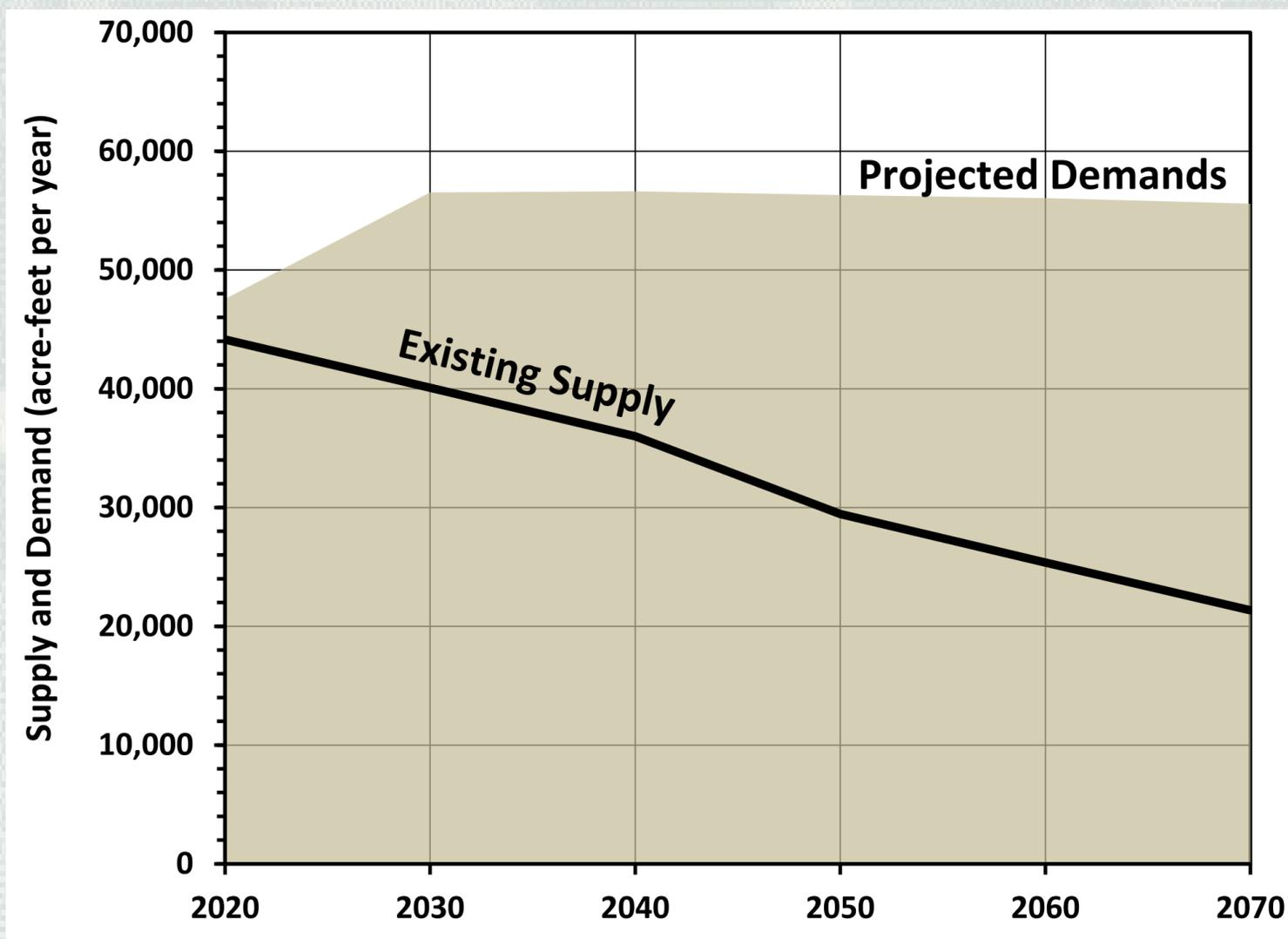
Regional Water System and Project Vicinity



The City of Abilene is a regional water provider with a variety of water supplies. The proposed Cedar Ridge Reservoir would be integrated into the regional water system.

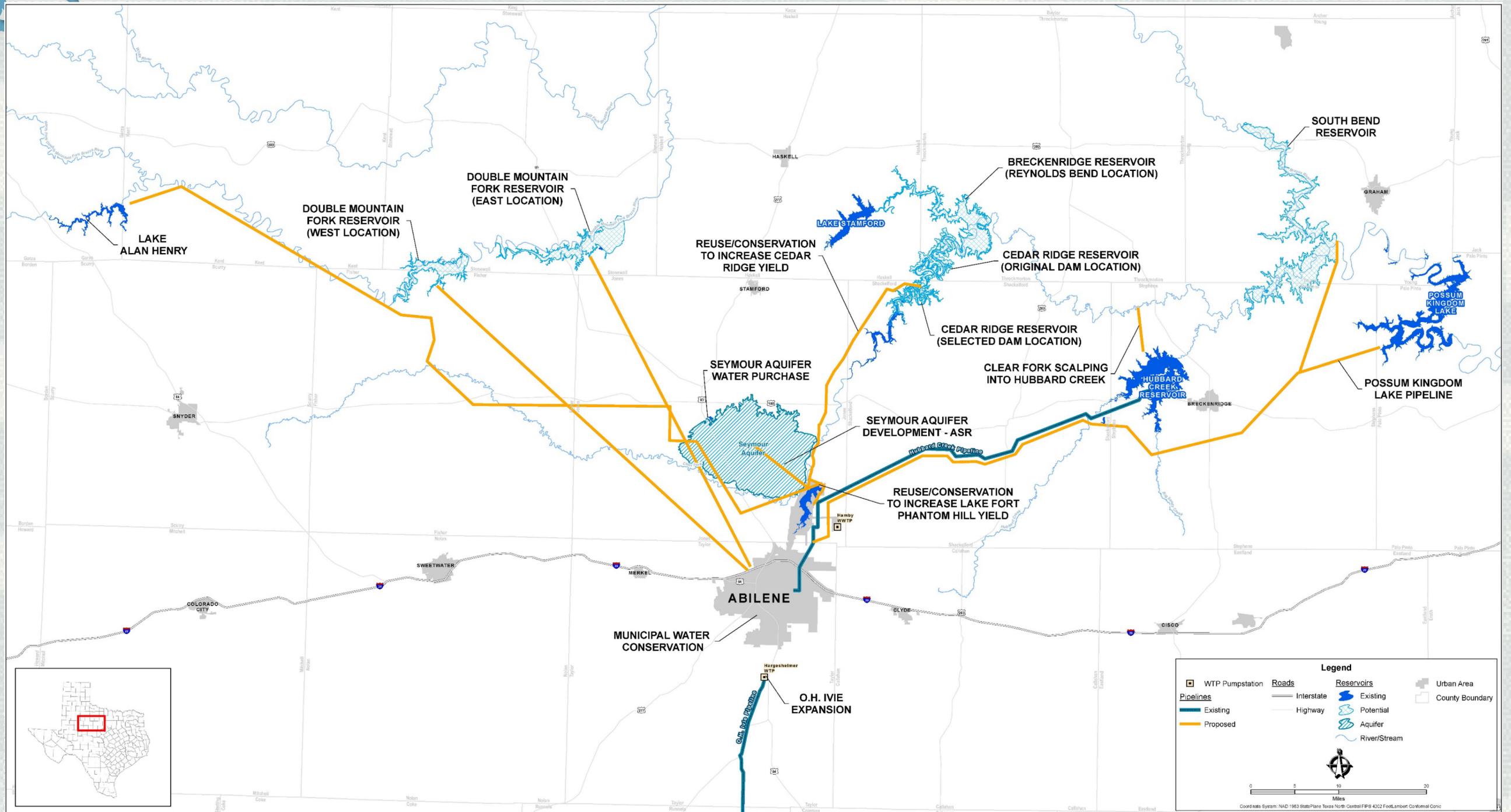
Applicant's Stated Need and Purpose

“To provide up to 34,400 acre feet of additional, reliable water supplies annually through a regional project to meet existing and projected future water demands through 2070 for Abilene’s regional service area, including during severe drought and other reduced availability conditions.”



Droughts are becoming more severe and affecting the reliability of Abilene’s existing water supplies.

Applicant's Proposed Project Alternatives



The City of Abilene has evaluated a number of alternatives to constructing Cedar Ridge Reservoir.



Alternative Analysis – LEDPA and 404(b)(1)

Alternative Analysis

Once the basic and overall project purpose is defined, USACE is required to analyze alternatives that could achieve the purpose and need according to requirements of both NEPA and Clean Water Act (CWA) 404(b)(1).

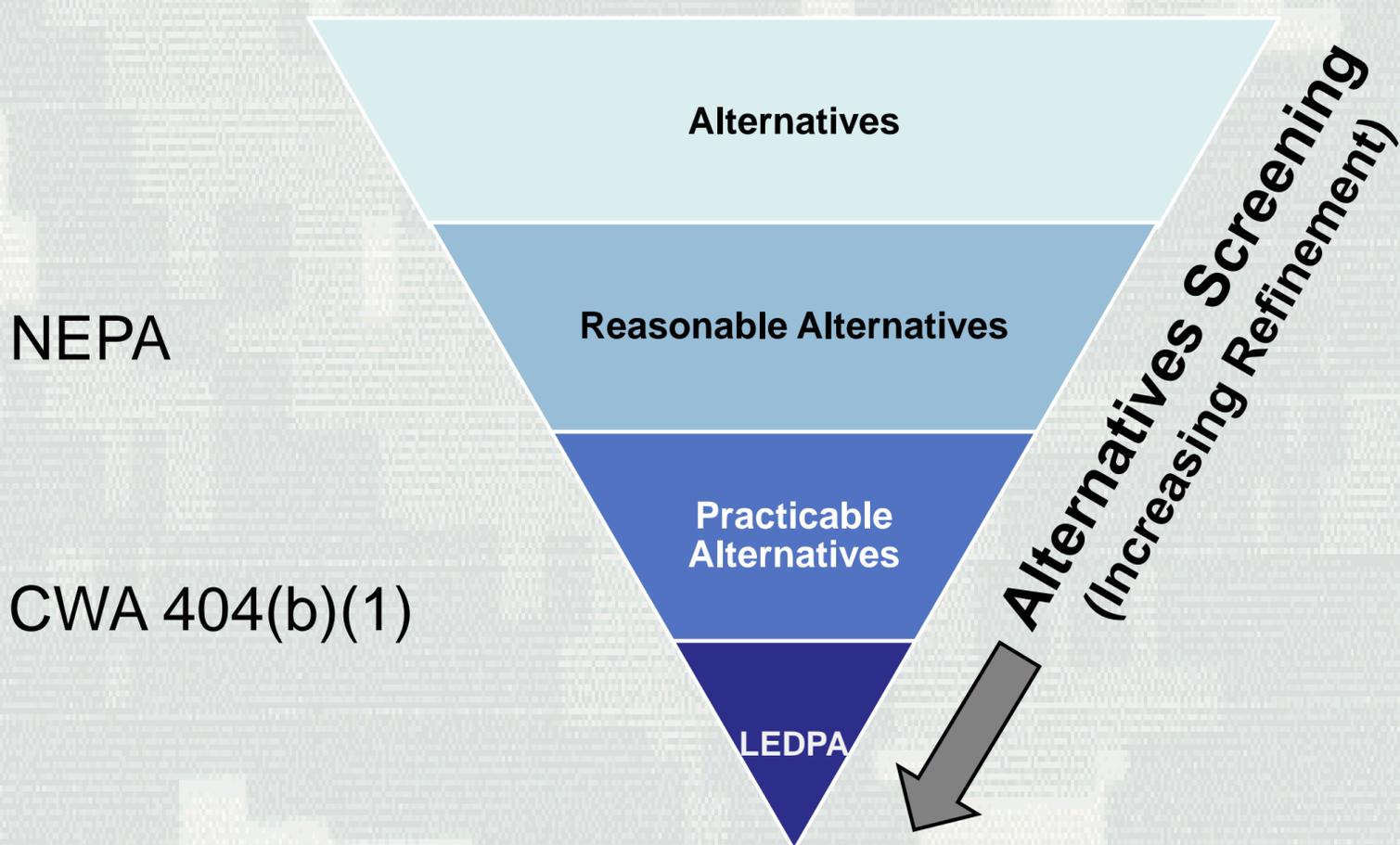
Alternatives are screened for being **reasonable** (NEPA) and **practicable** (CWA 404 (b)(1)).

Reasonable – Alternative must be capable of achieving the basic project goal. Feasible from a technical and economic standpoint and using common sense.

Practicable – Alternative must be available, capable of being done taking into consideration cost, existing technology, and logistics in light of the overall project purpose.

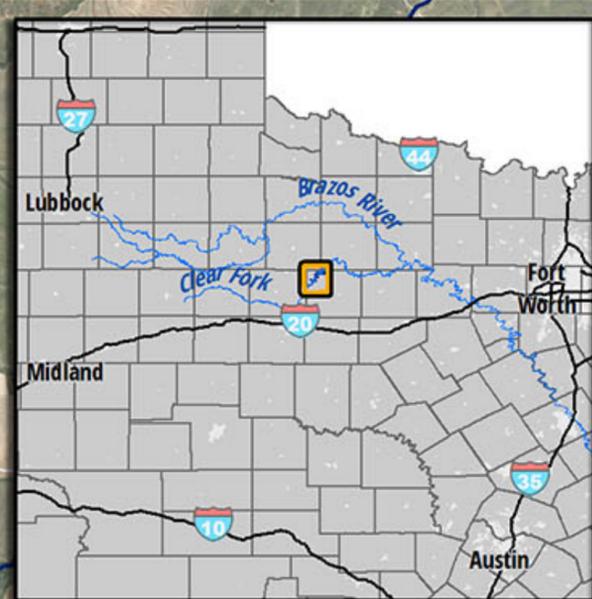
Alternative Analysis – LEDPA and 404(b)(1)

LEDPA – Least Environmentally Damaging Practicable Alternative

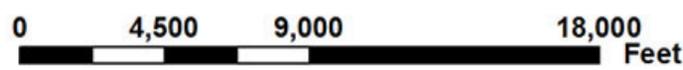


- The LEDPA is identified through the Alternatives Analysis screening process and impact evaluation.
- Impacts to aquatic resources drive the USACE decision of identifying the LEDPA.
- The USACE cannot issue a permit for anything other than the LEDPA.
- A permit cannot be issued if a practicable alternative exists that would have less adverse impact on the aquatic ecosystem, provided that alternative does not have other significant adverse environmental impacts.

Project Area Existing Conditions



Clear Fork Brazos River Area



Projection: TX SP NC 83
Bckgrnd: NAIP (2016)
Prepared: May, 2018



Project Area with Reservoir Pool

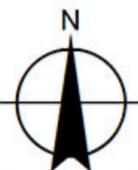
Proposed Dam
Crest Length: 5,200 feet
Dam Height: 155 feet

Proposed Reservoir
Conservation Pool Elevation: 1,489.0 ft
Volume: 227,127 acre-feet
Area: 6,635 acres
Floodplain Elevation: 1,500.6 ft

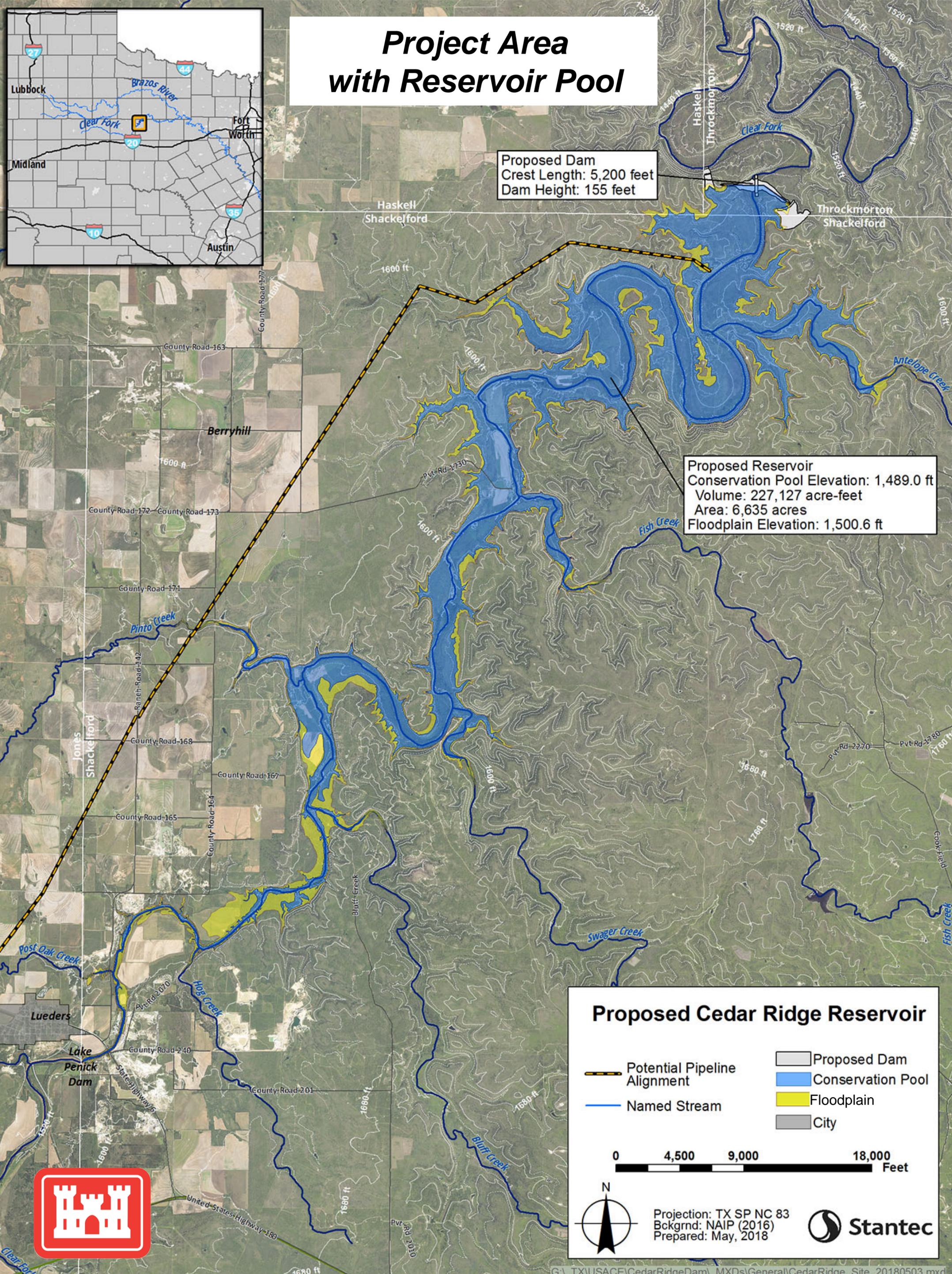
Proposed Cedar Ridge Reservoir

-  Potential Pipeline Alignment
-  Named Stream
-  Proposed Dam
-  Conservation Pool
-  Floodplain
-  City

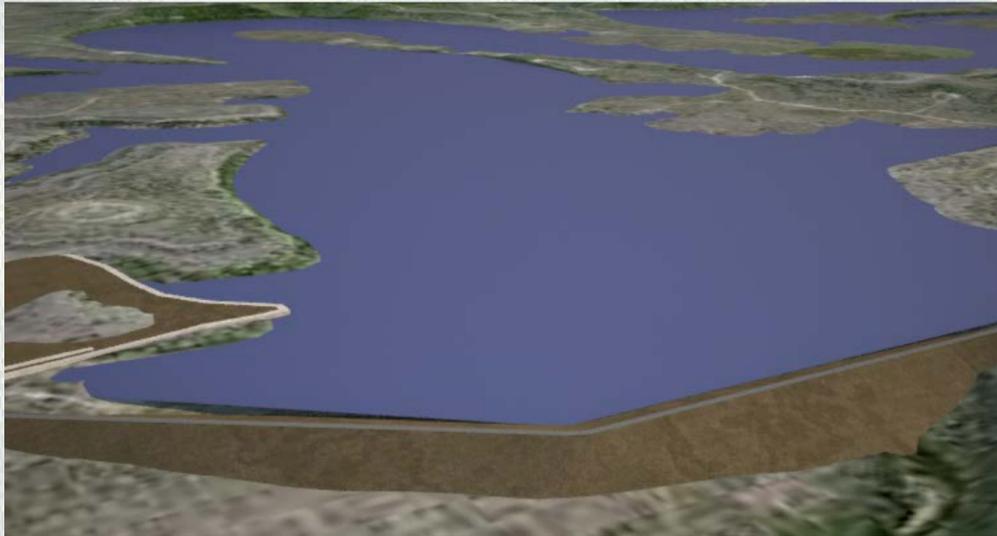
0 4,500 9,000 18,000 Feet



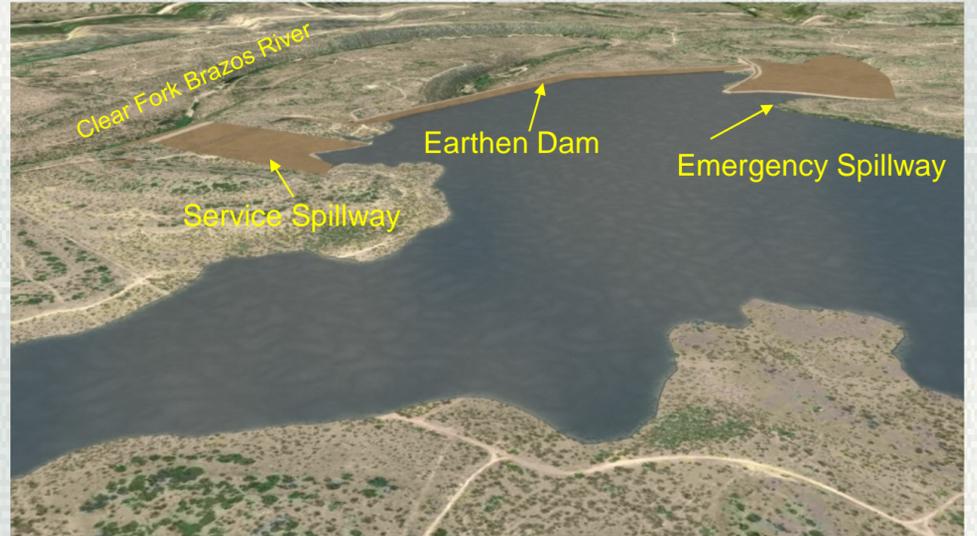
Projection: TX SP NC 83
Bckgrnd: NAIP (2016)
Prepared: May, 2018



Reservoir Concept and Cross Section of Proposed Dam

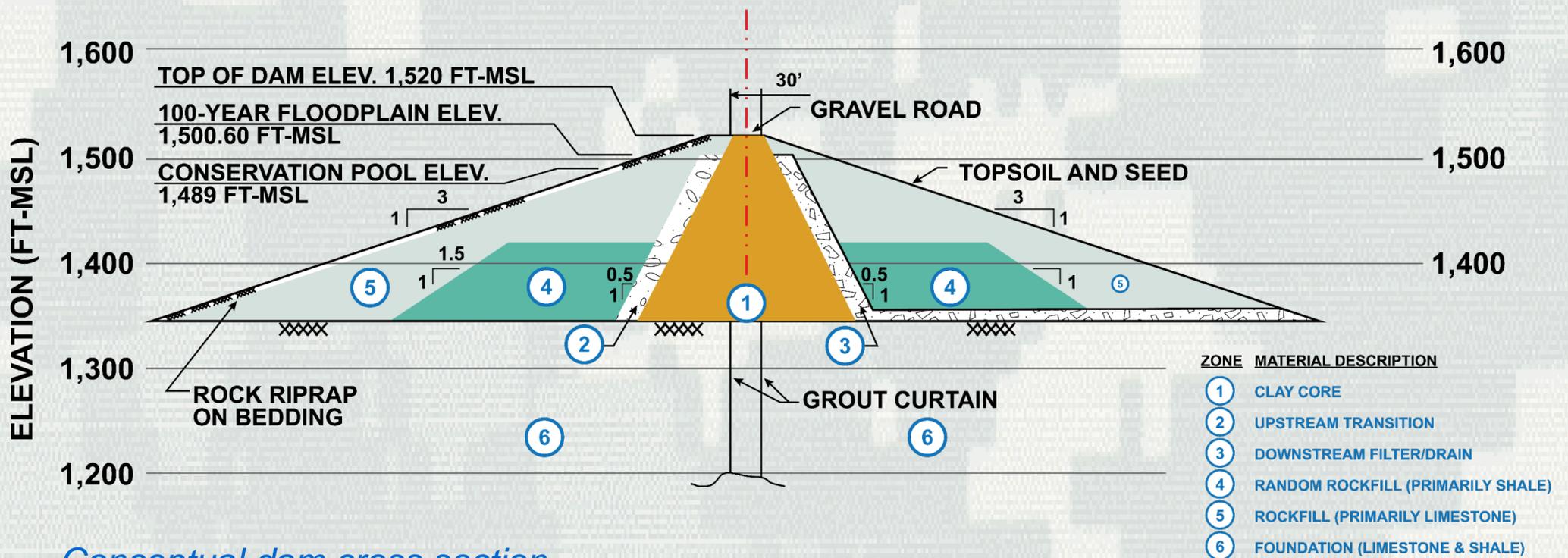


View of Cedar Ridge Reservoir and Dam looking south



View of Cedar Ridge Reservoir and Dam looking north

The Project would include construction of an approximately 5,200 foot long earthen dam with a maximum height of 155 feet.



Conceptual dam cross section

How Could the Project Affect the Environment?

Water-Based Issues



Surface Water Hydrology

- Changes in Streamflow, Reservoir Contents
- Effects of Climate Change
- Changes in Water Use (Agricultural at Municipal)



Water Quality

- Changes in Water Quality (Streamflow and Reservoir)
- Changes in Drinking Water Quality



Aquatic Species Habitat (including Threatened & Endangered Species)



Groundwater/ Aquifer Levels



Floodplain, wetlands and riparian communities

- Spread of Invasive Species



Water-Based Recreation



How Could the Project Affect the Environment?

Land-Based Issues



Terrestrial Plants, Animals and Habitat (including Threatened & Endangered Species)



Cultural Resources



Socioeconomics

- Customer Rates
- Environmental Justice
- Effects of Improved Domestic Water Supply



Construction Activities



Private Property



NEPA Related Issues

- Reasonably Foreseeable Actions/ Cumulative Effects
- Compliance with Executive Orders, Federal, State, and Local Statutes



Public Interest Factors

- Potential Direct Effects to Waters of the U.S. including Wetlands
- Threatened and Endangered Species
- Aquatic Species Effects
- Invasive Species
- Water Quality
- Erosion and Accretion
- Cumulative Impacts
- Air Quality associated with the proposed project
- Navigation
- Cultural Resources
- Socioeconomic Resources including Environmental Justice
- Human Environmental Effects
- Recreation and Recreational Resources
- Hazardous Waste and Materials
- Aesthetics
- Public Health and Safety
- Water Supply and Conservation



Waters of the United States

Proposed Cedar Ridge Reservoir



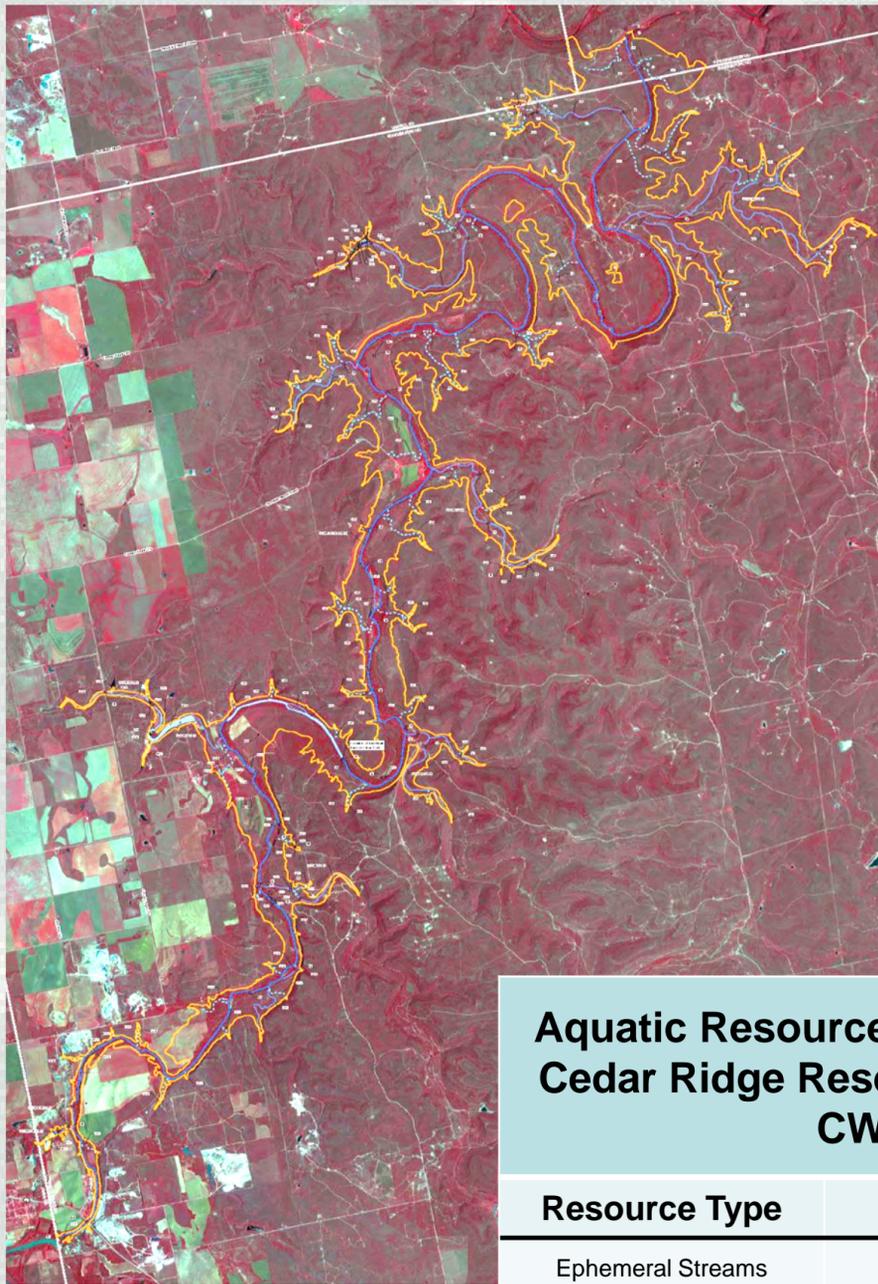
CLEAR FORK BRAZOS RIVER – PERENNIAL STREAM



INTERMITTENT STREAM



EPHEMERAL STREAM



ON-CHANNEL IMPOUNDMENT



NON-FORESTED WETLANDS

Source: May 2012 Delineation and Proposed Jurisdictional Determination of Waters of the U.S. Report – Cedar Ridge Reservoir by HDR Engineering, Inc. on behalf of the City of Abilene

Aquatic Resources Identified in the Proposed Cedar Ridge Reservoir Study Area Subject to CWA Section 404

Resource Type	Linear Feet	Acreage
Ephemeral Streams	146,731	17.75
Intermittent Streams	119,269	51.08
Perennial Stream (Clear Fork Brazos River)	145,416	200.30
Total Streams	411,416	269.13
Non-Forested Wetlands	N/A	8.36
On-channel Impoundments	N/A	59.92
Total Aquatic Resources in Study Area	411,416	337.41

*Does not include acreage of upland ponds and isolated wetlands identified within the study area.





Endangered Species Act of 1973

(Public Law 93-205: 16 U.S.C. 1531-1544, as amended)

Endangered Species Act Requirements

- Determine whether the proposed project is or is not likely to jeopardize the continued existence of endangered or threatened species, or those proposed for listing, or result in the destruction or adverse modification of critical habitat of such species
- Also consider “candidate” species in evaluations
- Could require Section 7 consultation with U.S. Fish and Wildlife Service

FEDERAL STATUS OF THREATENED, ENDANGERED, AND CANDIDATE SPECIES IN COUNTIES IN VICINITY OF THE PROJECT AREA

SPECIES	COUNTIES					
	TAYLOR	JONES	SHACKLEFORD	CALLAHAN	THROCKMORTON	HASKELL
Whooping Crane <i>Grus americana</i> (Bird Species)	--	FE	FE	FE	FE	FE
Sharpnose Shiner <i>Notropis oxyrinchus</i> (Fish Species)	FE	FE	FE	FE	FE	FE
Smalleye Shiner <i>Notropis buccula</i> (Fish Species)	FE	FE	FE	FE	FE	FE
Texas Fatmucket <i>Lampsilis bracteata</i> (Freshwater Mussel)	FC	--	--	FC	--	--
Texas Fawnsfoot <i>Truncilla macrodon</i> (Freshwater Mussel)	FC	--	FC	FC	FC	--

FE – Federally listed as Endangered, and FC – Federal Candidate Species for Listing as Threatened or Endangered





National Historic Preservation Act of 1966

(Public Law 89-665: 54 U.S.C. 100101, as amended)

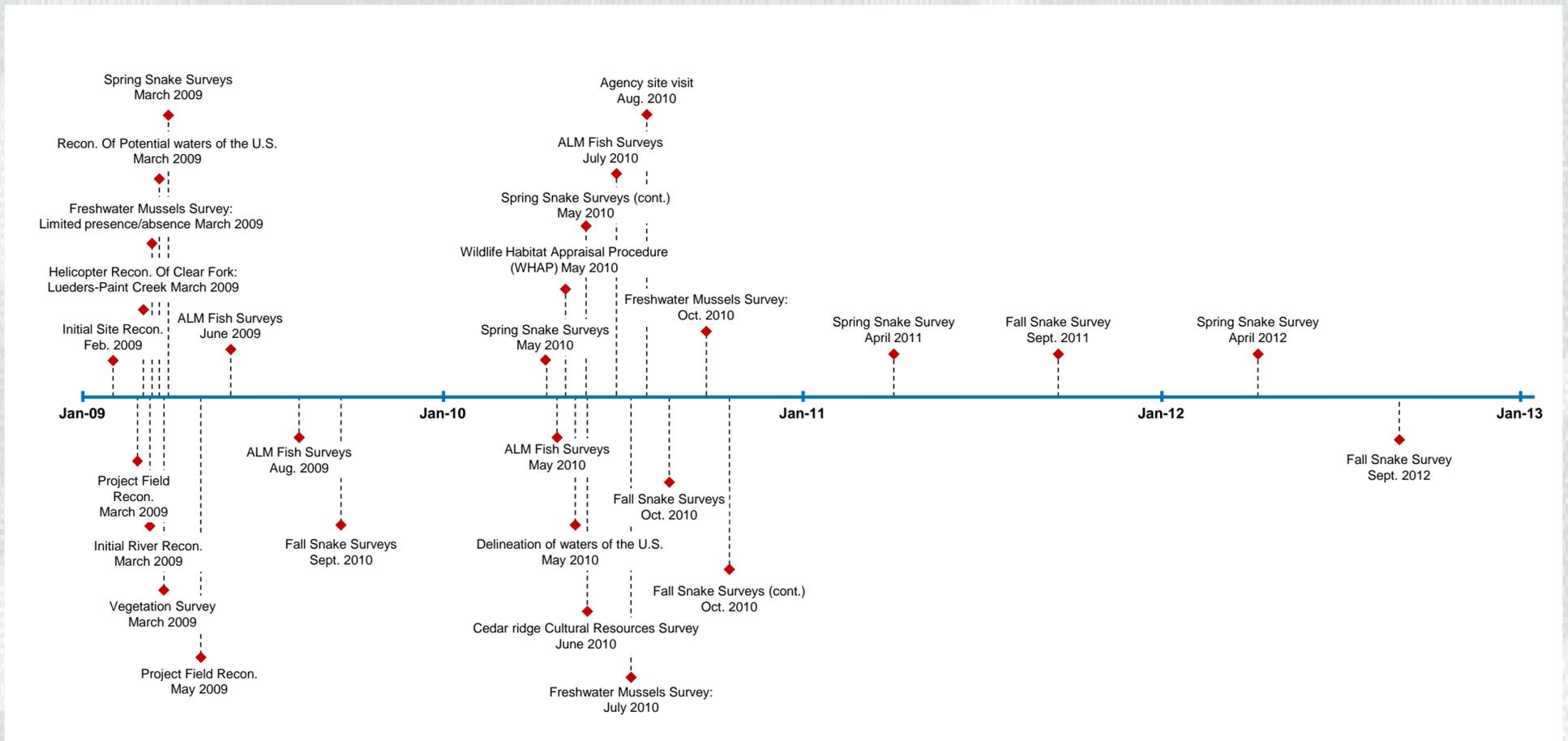


Section 106

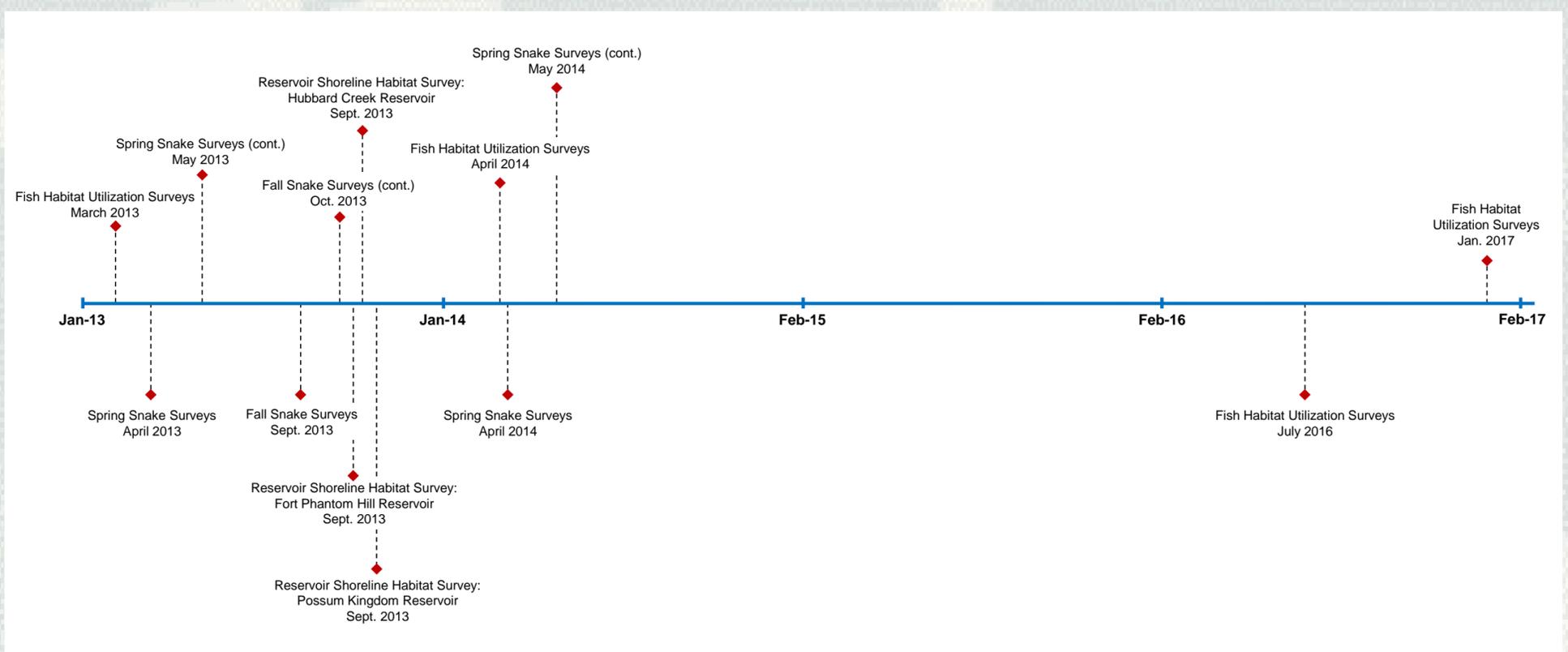
Regulations place major emphasis on consultation with Indian tribes, respecting tribal sovereignty and a government to government relationship between Indian tribes and the Federal government. Other stakeholders are also involved.

Applicant Surveys To-Date

2009 - 2013



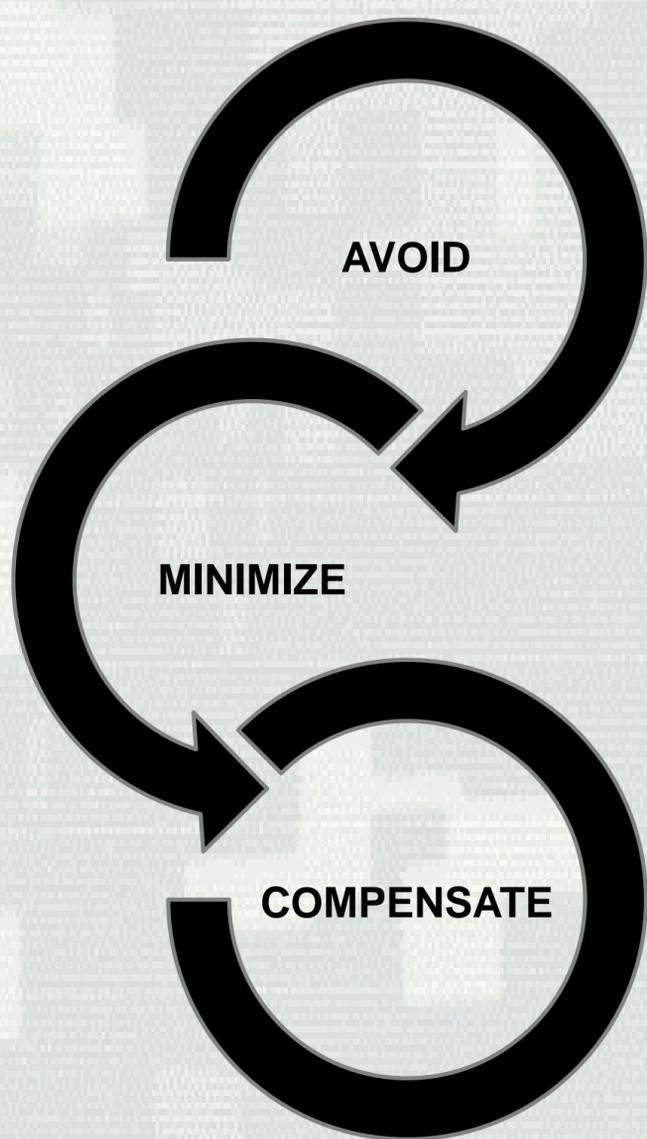
2013 - 2017





Compensatory Mitigation

1. THE MITIGATION SEQUENCE



Adverse impacts to aquatic resources are to be avoided and no discharge shall be permitted if there is a practicable alternative with less adverse impact.

If impacts cannot be avoided, appropriate and practicable steps to minimize adverse impacts must be taken.

Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts which remain. The amount and quality of compensatory mitigation may not substitute for avoiding and minimizing impacts.

Purpose for compensatory mitigation:

To offset unavoidable adverse impacts to aquatic resources subject to Section 404 of the Clean Water Act. The compensatory mitigation proposed is described in a "Mitigation Plan" prepared by the applicant.



Compensatory Mitigation

2. 2008 MITIGATION RULE (Order of Preference)

- 1 MITIGATION BANK*
- 2 IN-LIEU FEE*
- 3 PERMITTEE-RESPONSIBLE

*No mitigation banks or in-lieu fee programs exist in the project vicinity to compensate for impacts associated with dam construction and filling of the proposed Cedar Ridge Reservoir.

Therefore, Permittee-Responsible mitigation would be required for compensatory mitigation.



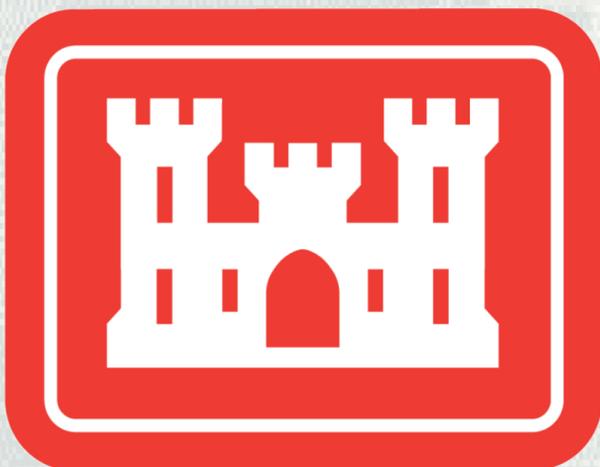
Compensatory Mitigation

3. PERMITTEE-RESPONSIBLE MITIGATION

- Based on watershed approach and functional assessment of aquatic resources impacted
- On-site and in-kind mitigation of Aquatic Resources (Preferred Method of Compensatory Mitigation)
- Off-site and/or in-kind or out-of-kind mitigation of Aquatic Resources (Alternative Method for Compensatory Mitigation)
- Compensatory mitigation components typically include aquatic resource restoration, establishment, enhancement, and/or preservation.

How to Provide Comments

- **Tonight**
 - Comment cards
 - Court reporter
 - Laptop electronic submission
- **After tonight**
 - Project website:
<http://www.swf.usace.army.mil/Missions/Regulatory/Permitting/Cedar-Ridge-Reservoir-EIS-SWF-2010-00191/>
 - Submit comments via mail to:
**Frederick Land, Regulatory Project Manager
USACE, Fort Worth District
P.O. Box 17300
Fort Worth, Texas, 76102**
 - **Public comment deadline: Friday, June 15, 2018**



**US Army Corps
of Engineers**