Colorado Springs Utilities
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**Utilities Policy Advisory Committee (UPAC)**
**Wednesday, January 12, 2022, 8:00 a.m. – 10:30 a.m.**

Blue River Board Room, 121 S. Tejon Plaza of the Rockies or Microsoft Teams
**Join on your computer or mobile app**
Click here to join the meeting

**Or call in (audio only)**
+1 719-733-3651,,693320747#
**Agenda**

| | | |
|---|---|---|
| **8:00 a.m.** | **1. Call to Order** | |
| **8:05 a.m.** | **2. Approval of December 1, 2021 UPAC Meeting Minutes** | Decision |
| **8:10 a.m.** | **3. Water Acquisition Funding Assignment**<br>• Assignment Scope<br>• Water Resource Planning Overview | Discussion |
| **10:00 a.m.** | **4. Citizen Comment**<br>Citizens can provide comment in person, by joining the meeting from computer or by phone using the link above. If you would like to speak during the Citizen Comment period, please sign up to speak through BoardSubmissions@csu.org prior to the meeting. | |
| **10:15 a.m.** | **5. Committee Member General Discussion** | Discussion |
| **10:30 a.m.** | **6. Adjournment** | |

Next meeting: February 2, 2022

Note: UPAC Bylaws, Rule 6: Customer and Public Comment: (b) At the discretion of the Chair, or the majority of the Committee Members present, customers and members of the public will be allowed to comment or ask questions concerning items discussed at regular meetings or concerning matters discussed at special meetings. Comments or questions by individuals will be limited to five minutes each, and all customer or public comments will not exceed twenty minutes on any agenda item unless time is extended by the Chair or majority of the Committee Members present.

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**Minutes**
**Utilities Policy Advisory Committee (UPAC)**
**Wednesday, December 1, 2021**
**Blue River Boardroom, 5th floor, 121 S. Tejon St., Colorado Springs, CO**
**and Microsoft Teams Virtual Meeting**

**Committee members present in the boardroom or via Microsoft Teams:** Chair Gary Burghart, Vice Chair Larry Barrett, Rex Adams, Hilary Dussing, Chris Francis, and Alternate Member Scott Callihan

**Committee members excused:** Michael Borden, Katherine Danner, Alternate Member Ruth Ann Schonbachler

**Staff members present in the boardroom or via Microsoft Teams:** Dave Grossman, Kerry Baugh, Al Wells, Cindy Newsome, Earl Wilkinson III, Pat Wells, Gabe Caunt, Scott Shirola, Natalie Eckhart, Tristan Gearhart, Joe Marcotte, Bethany Schoemer, Leslie McKiernan and Andie Buhl

**City of Colorado Springs staff present in the boardroom or via Microsoft Teams:** David Beckett

1. **Call to Order**
   Chair Gary Burghart called the meeting to order at 7:59 a.m.

2. **Approval of November 3, 2021 UPAC Meeting Minutes**
   The November 3, 2021 UPAC meeting minutes were unanimously approved.

3. **Enterprise Strategic Plan and Draft 2022 Scorecard Review Assignment Recap**
   Chair Burghart reviewed UPAC's input and recommendations for the Enterprise Strategic Plan and draft 2022 Balanced Scorecard review assignment which he presented to at the November Strategic Planning Committee meeting. Ms. Cindy Newsome, Public Affairs General Manager, provided a summary of the draft 2022 Balanced Scorecard including proposed changes. Chair Burghart and Ms. Newsome concluded with a summary of feedback from the Strategic Planning Committee.

4. **Water Acquisition Funding Assignment Draft Scope**
   Mr. Earl Wilkinson III, Chief Water, Compliance & Innovation Officer, introduced the next assignment for UPAC, Water Acquisition Funding. Mr. Wilkinson said the draft scope is to evaluate options for funding the acquisition of additional water resources in a timely and opportunistic manner to meet water system reliability and level of service goals.

   Mr. Pat Wells, Water Resources and Demand Management General Manager, explained

the desired deliverable from UPAC for this assignment, as well as its need and purpose. He also discussed water system risks and gave an overview of the Integrated Water Resource Plan (IWRP) balanced portfolio.

Mr. Wilkinson concluded with a preliminary timeline for the Water Acquisition Funding assignment.

5. **Selection of 2022 UPAC Officers**
   Mr. David Beckett, City of Colorado Springs Attorney, presented the bylaws for UPAC officer eligibility and selection. UPAC unanimously voted for Mr. Gary Burghart to remain Chair and Mr. Larry Barrett to remain Vice Chair of UPAC.

6. **Citizen Comment**
   There were no citizen comments.

7. **Committee Member General Discussion**
   There was no further business.

8. **Adjournment**
   Chair Burghart adjourned the meeting at 9:34 a.m.

**Next meeting:** Wednesday, January 12, 2022 at 8:00 a.m.

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# Utilities Policy Advisory Committee (UPAC) Water Resource Planning Overview

M. Patrick Wells P.E.
General Manager
Water Resources and Demand Management

January 12, 2022

# Agenda

Water Acquisition Funding Assignment

- Assignment Scope
- Water Resource Planning Overview
  1. Water in Colorado
  2. Water System Overview
  3. Water Planning Fundamentals
  4. Integrated Water Resource Plan (IWRP)
  5. Discussion and Next Steps

# Water Acquisition Funding Assignment Scope

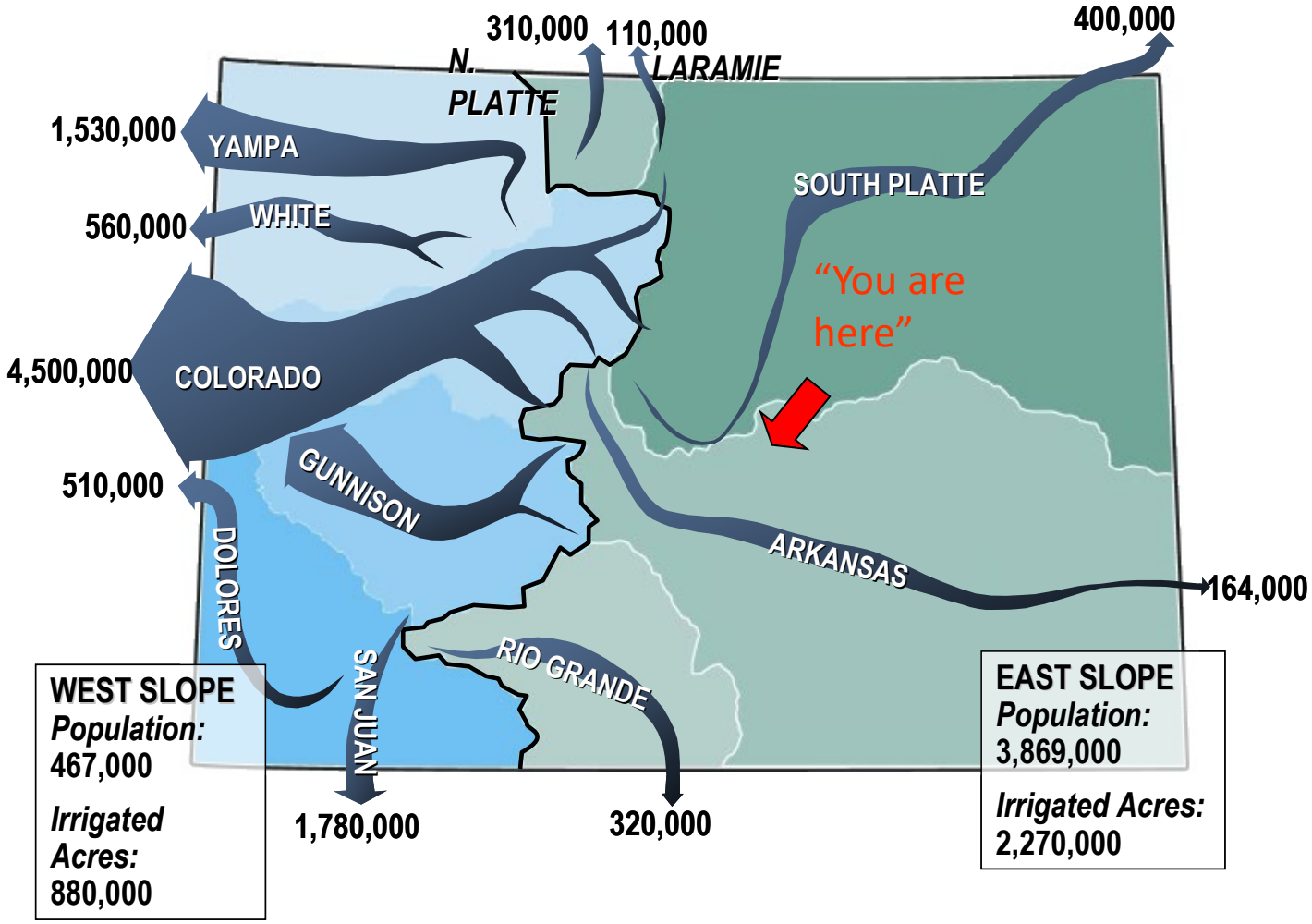
- Evaluate options for funding the acquisition of additional water resources in a timely and opportunistic manner to meet water system reliability and level of service goals.

- **Deliverable:** Provide recommendation on financial strategies for funding water resource acquisitions.

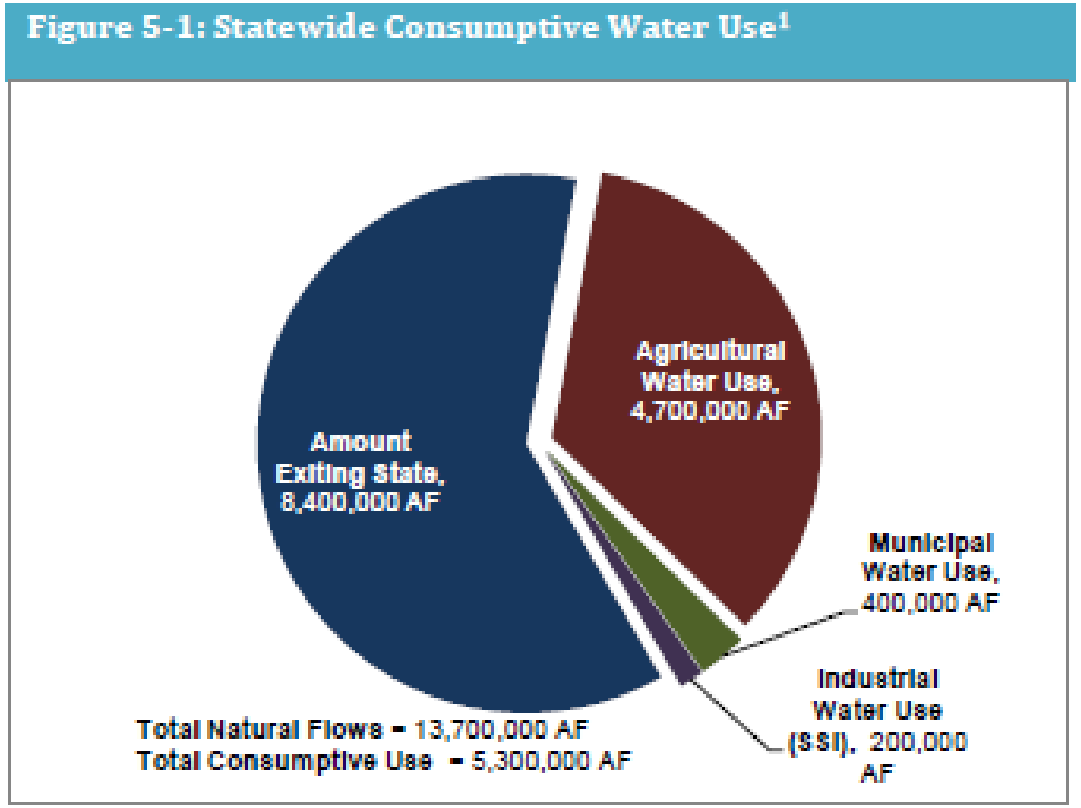
# Water in Colorado

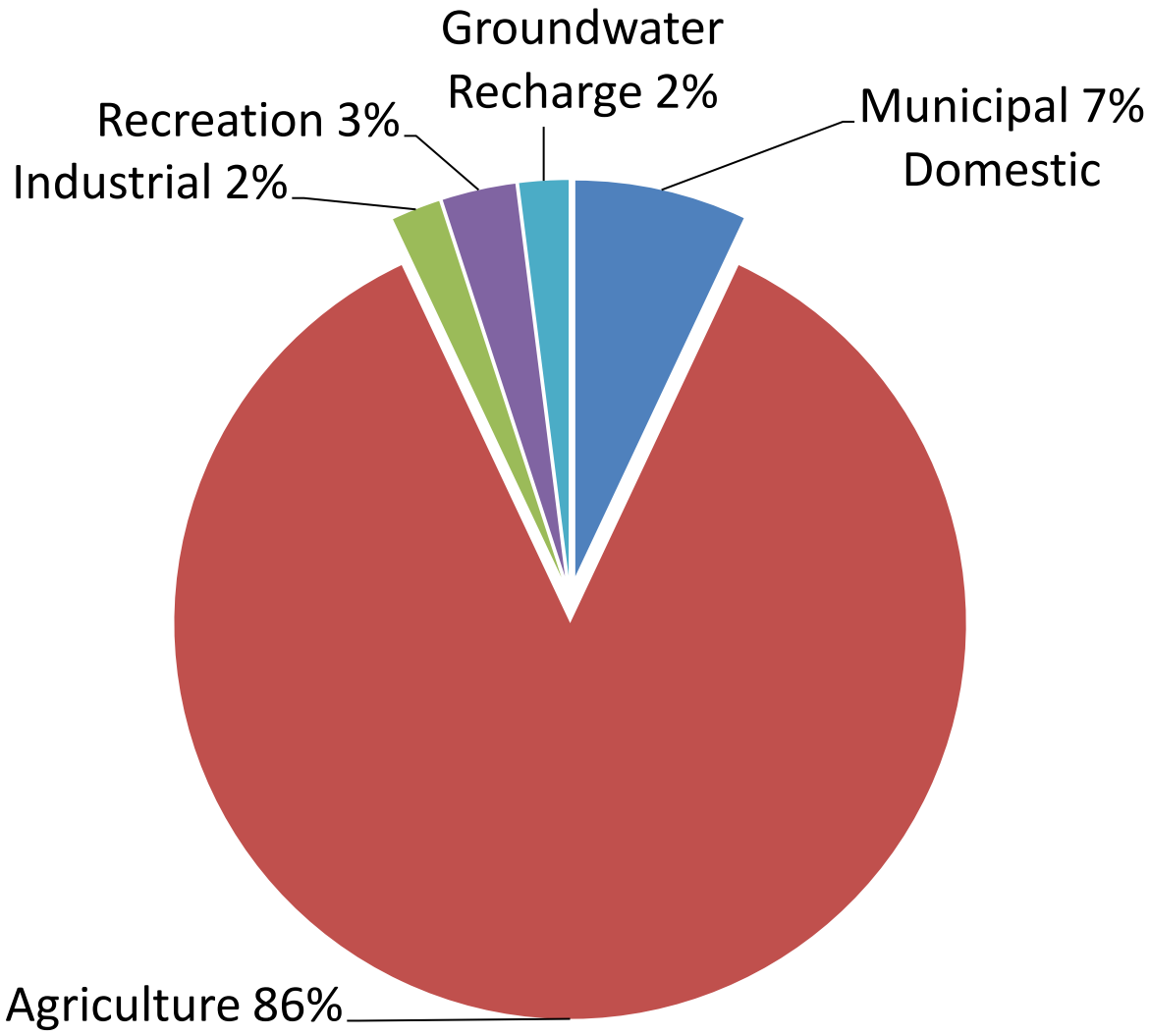
# Colorado Historic Average Annual Streamflows

- Colorado is a headwaters state
- 19 states rely on water originating in Colorado
- Geographic disparity between supplies and demands
- Colorado's climate results in hydrologic variability and periods of shortage



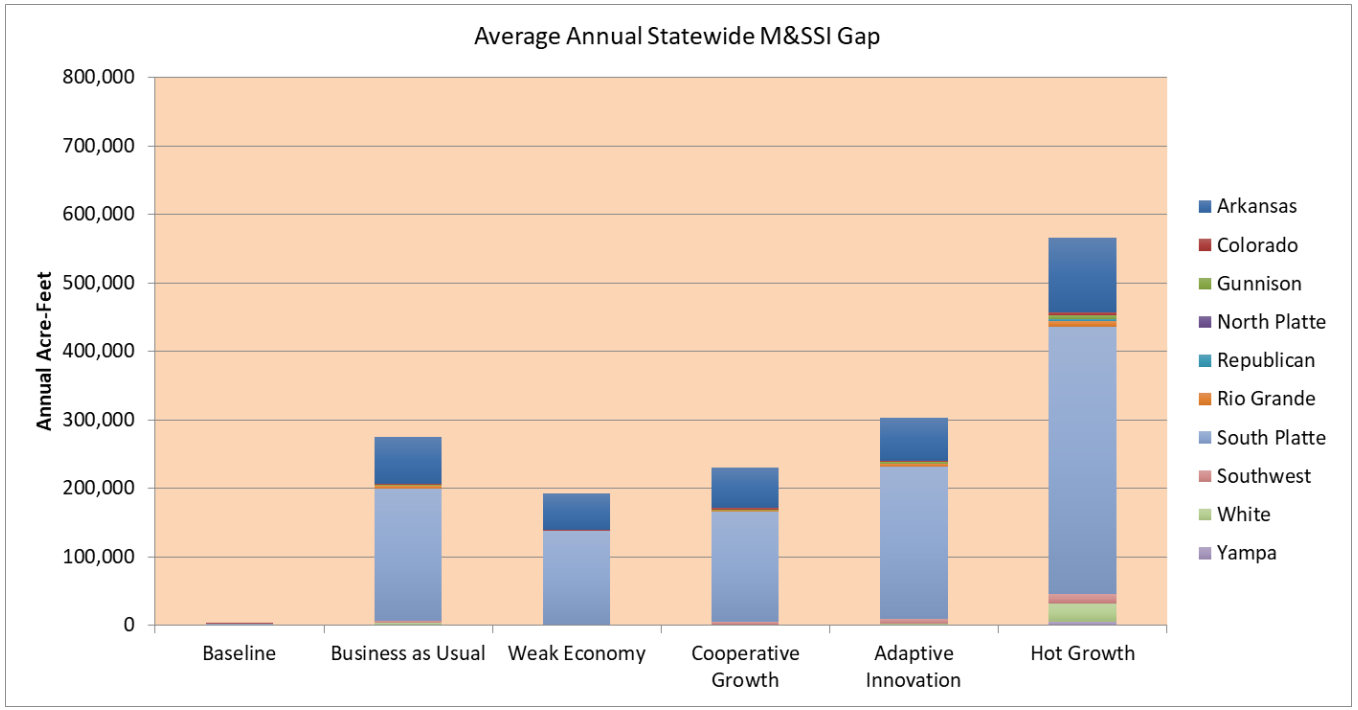
# Water Use in Colorado



# The Statewide Water Supply "Gap"

- A water supply "gap" is developing and will grow over time
- Gaps exist across water use sectors
- Arkansas and South Platte Basins projected to have the largest gaps
- Gaps are larger in critical years (e.g., drought)




Source: Colorado Water Plan Technical Update (Colorado Water Conservation Board, 2019)

**The average annual M&I gap projected to be between 200,000 and 600,000 AF/yr by 2050 in Colorado.**

# Colorado Water Law – Prior Appropriations Doctrine

## 1860s Prior Appropriations Doctrine

- All surface and groundwater is a public resource
- A water right is a right to use a portion of the public's water resources
- "First in time, first in right"
- Must be appropriated
  - Time, place, use, amount
- Water must be applied to a beneficial use
- Water rights function like property rights
  - Are not tied to the land
  - Can be sold, leased, traded, or abandoned

# Takeaways

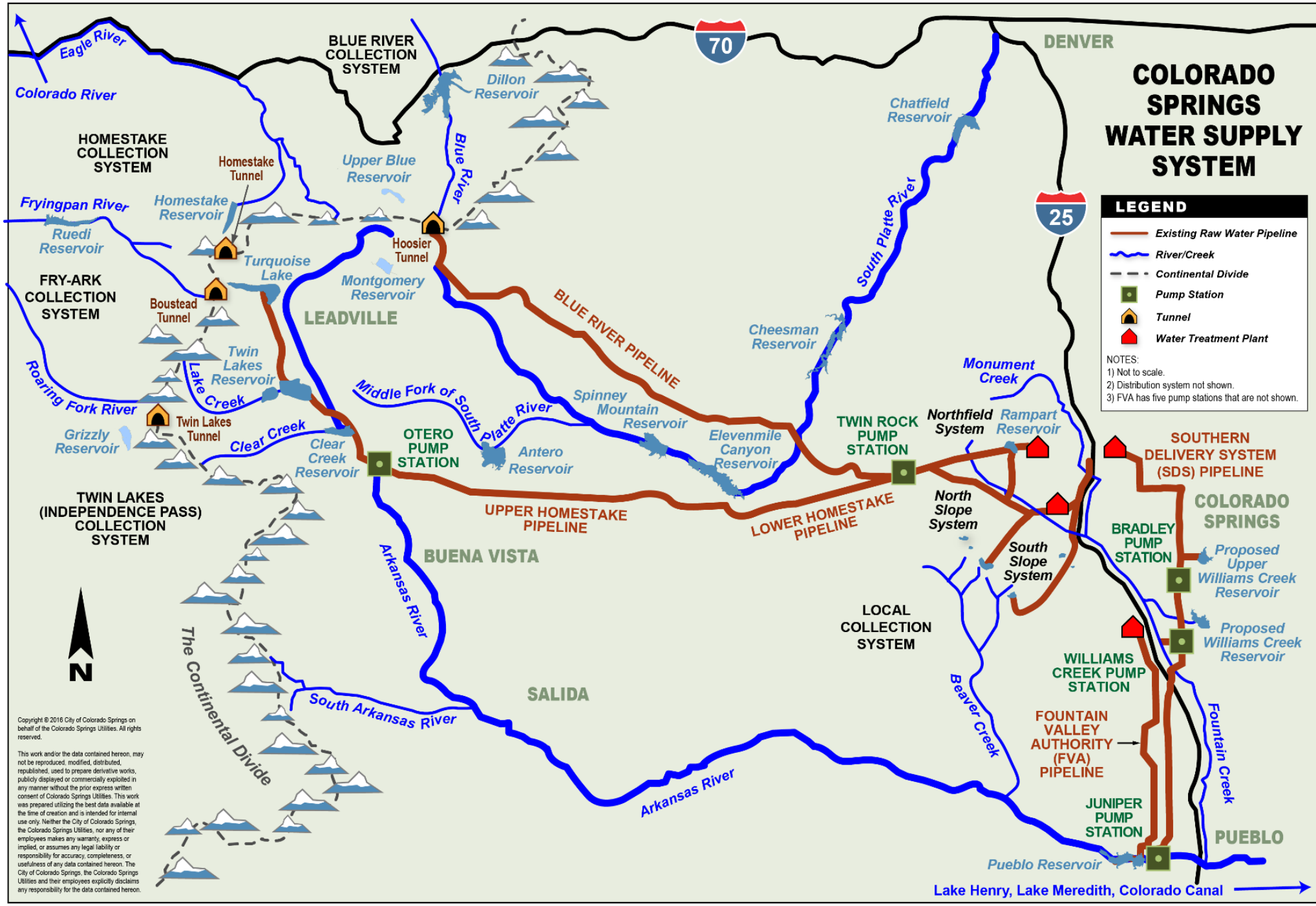
- There are unique geographic and water supply location challenges to consider in planning and developing water supplies
- The institutional (social, political, legal) challenges are important to consider in planning and developing water supplies
- Colorado's prior appropriation system is effective for allocating scarce water supplies
- Springs Utilities is one of many users of Colorado water

# Water System Overview

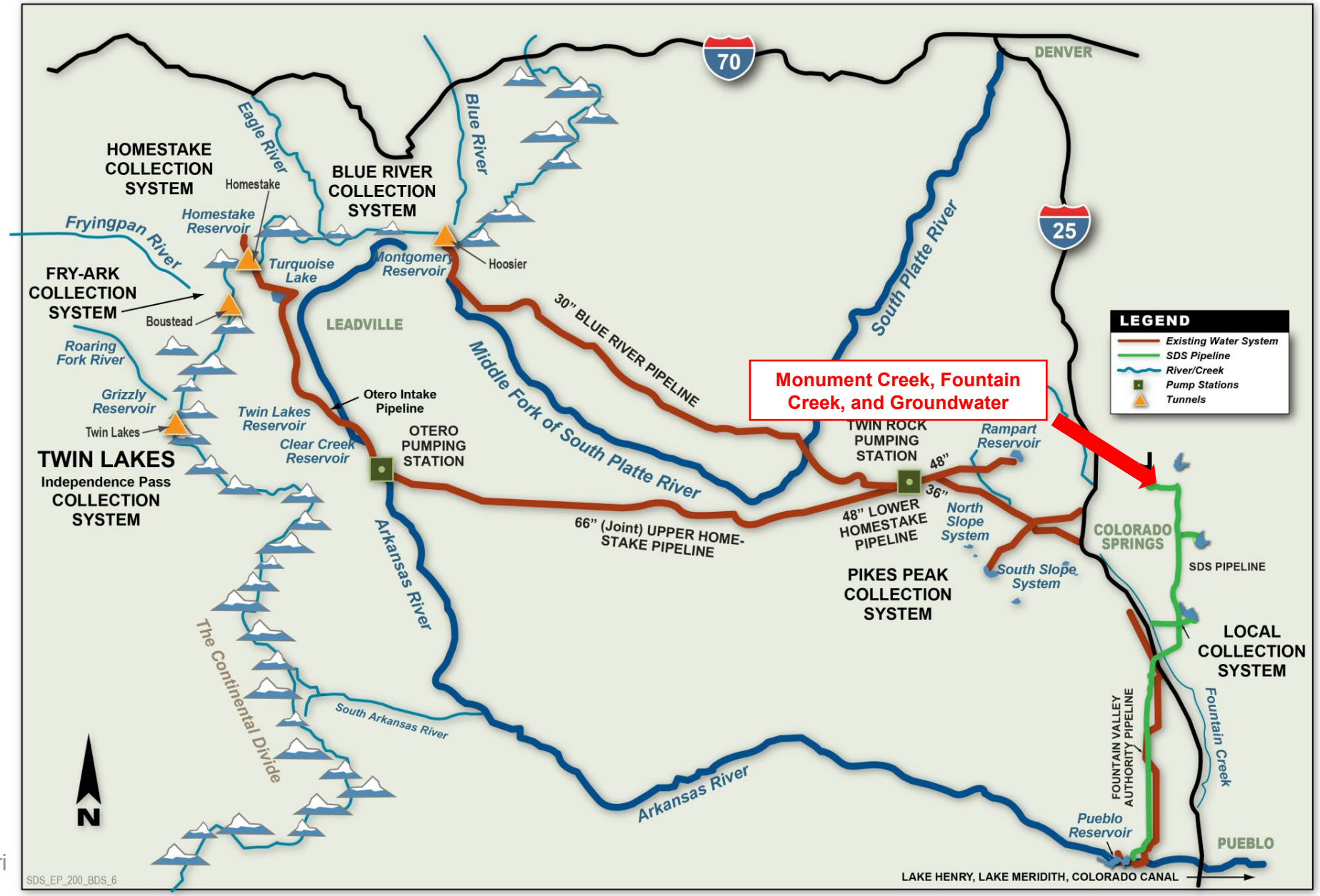
# Water System Facts

- Second largest municipal water provider in Colorado
- Population over 500,000 served
- Primarily “first use” snow-melt water
- Collected from 3 river basins
  - Colorado, Arkansas, S. Platte
- Transported up to 100 miles
- Top quality – exceeds regulatory standards
- 25 reservoirs – stores up to 3 years of customer demand

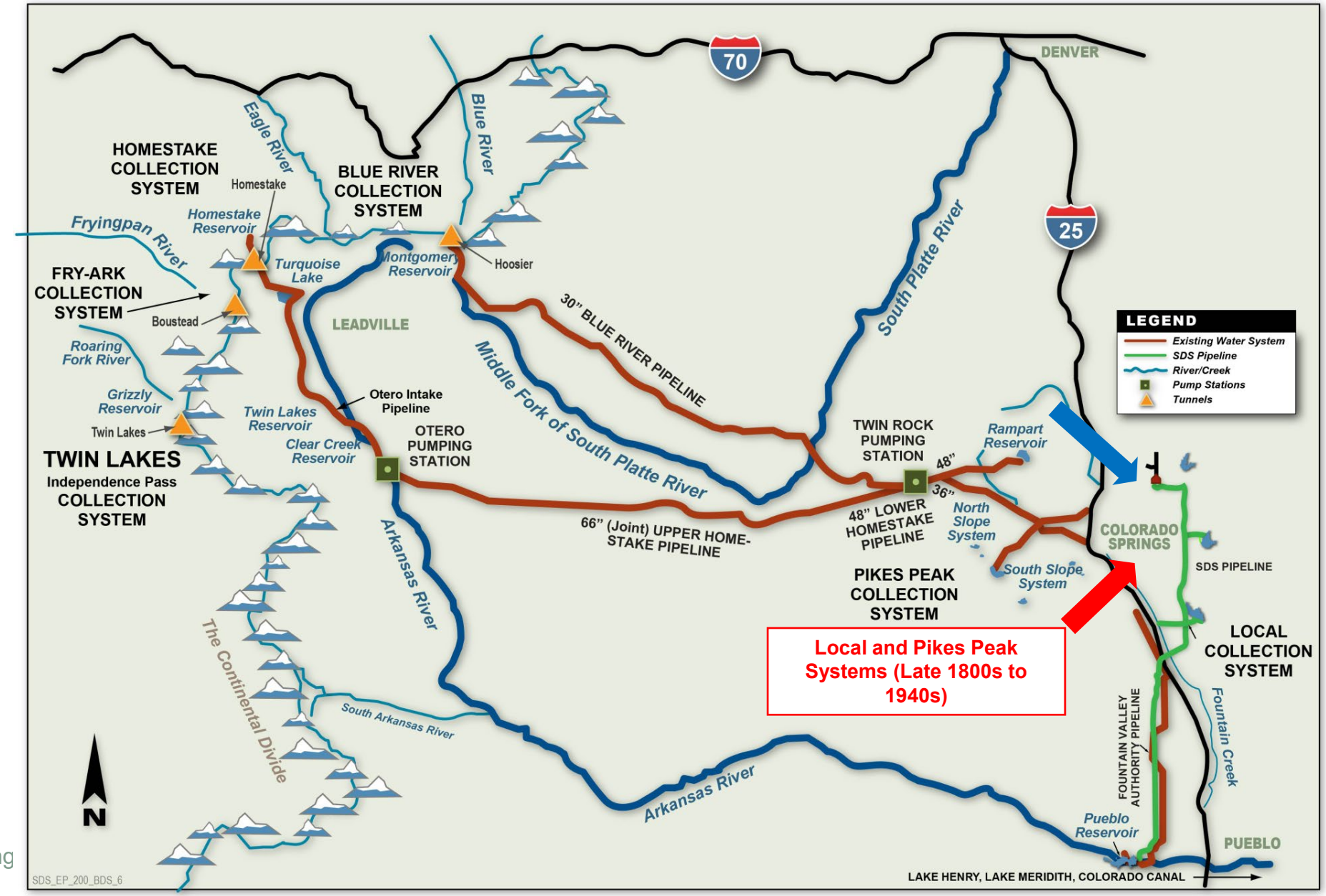
# Where does our water come from?



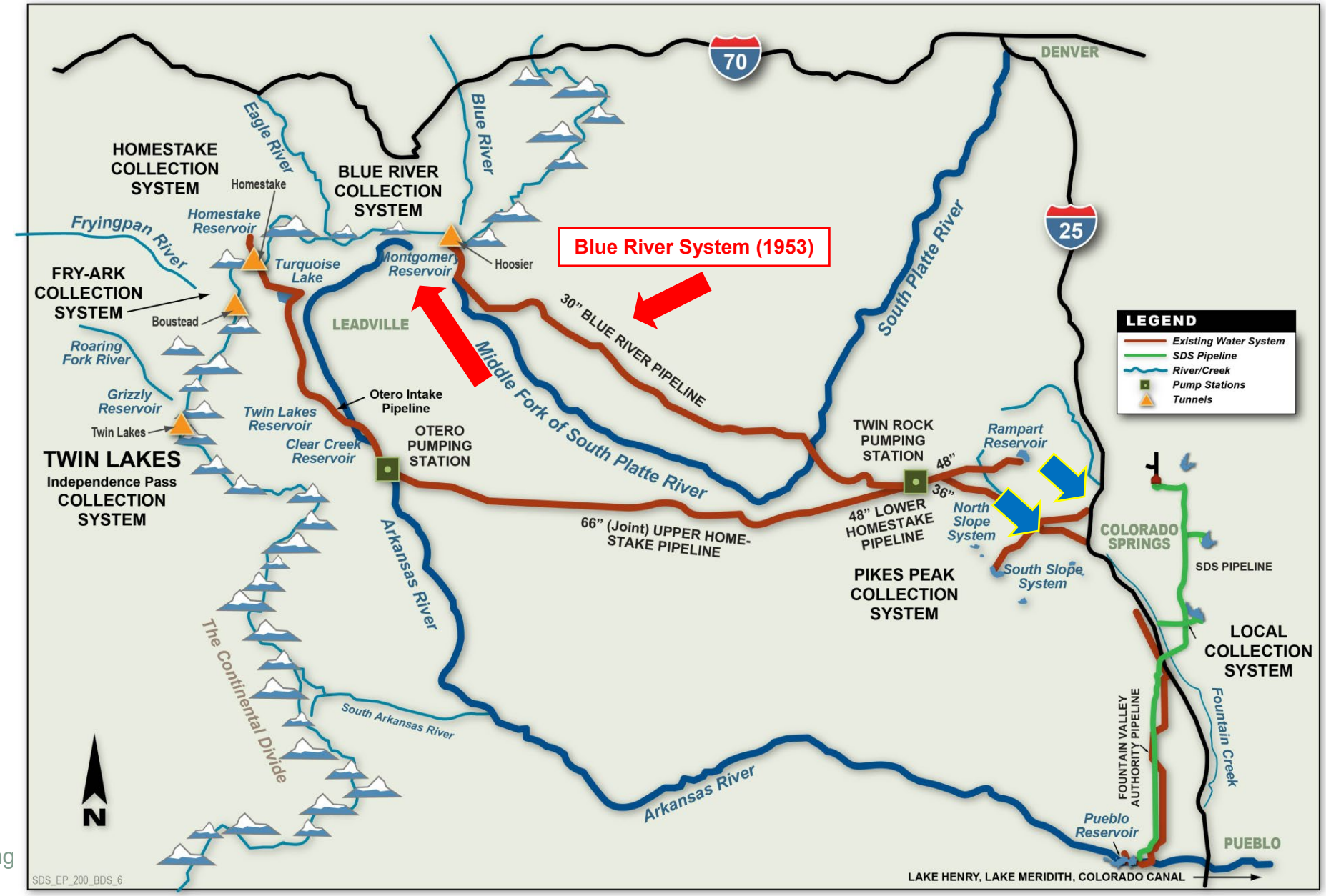
# 1872 Population = 1,300



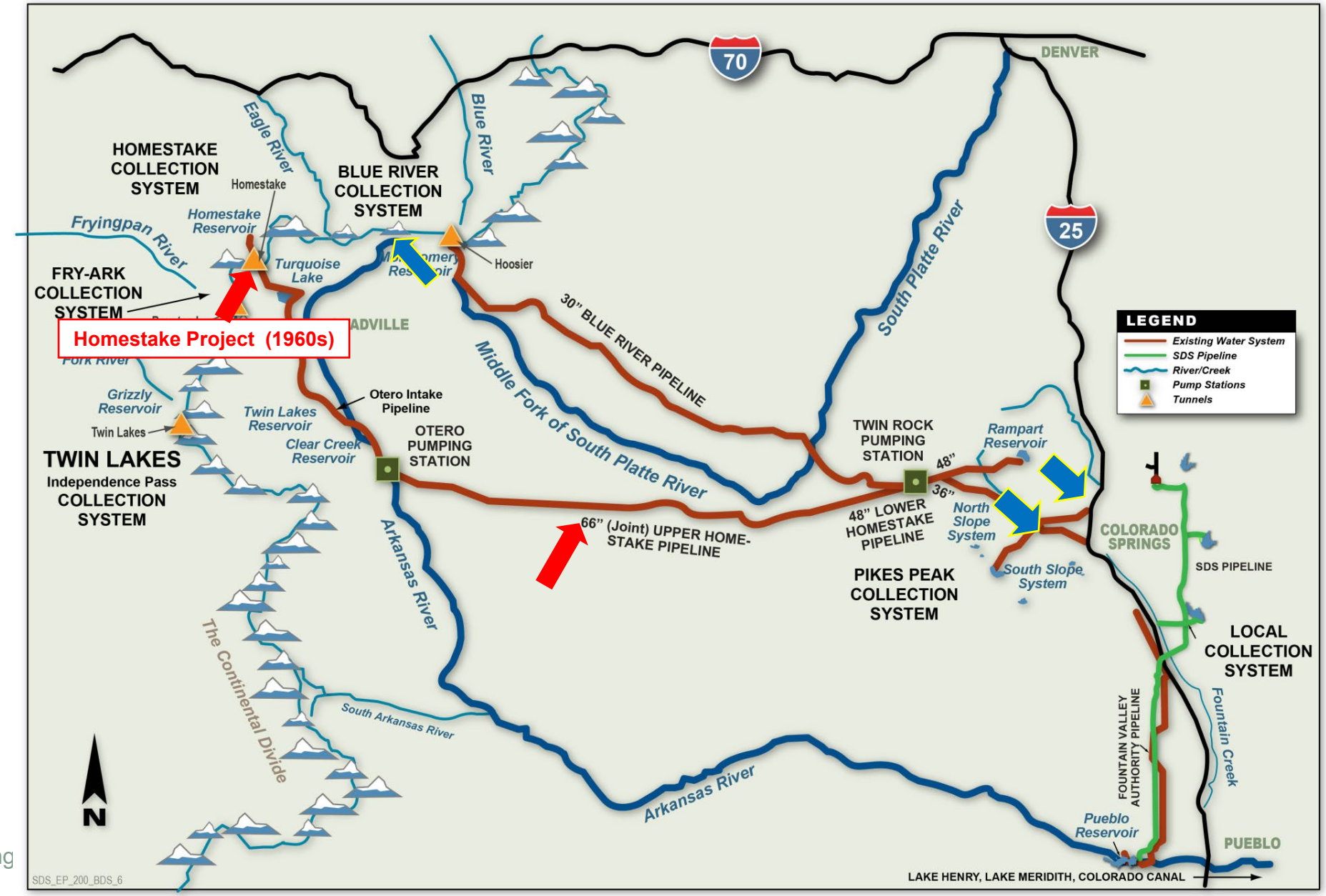
| 1872 = | 1891 = | 1920 = | 1940 = |
|---|---|---|---|
| 1,300 | 12,000 | 30,105 | 36,789 |



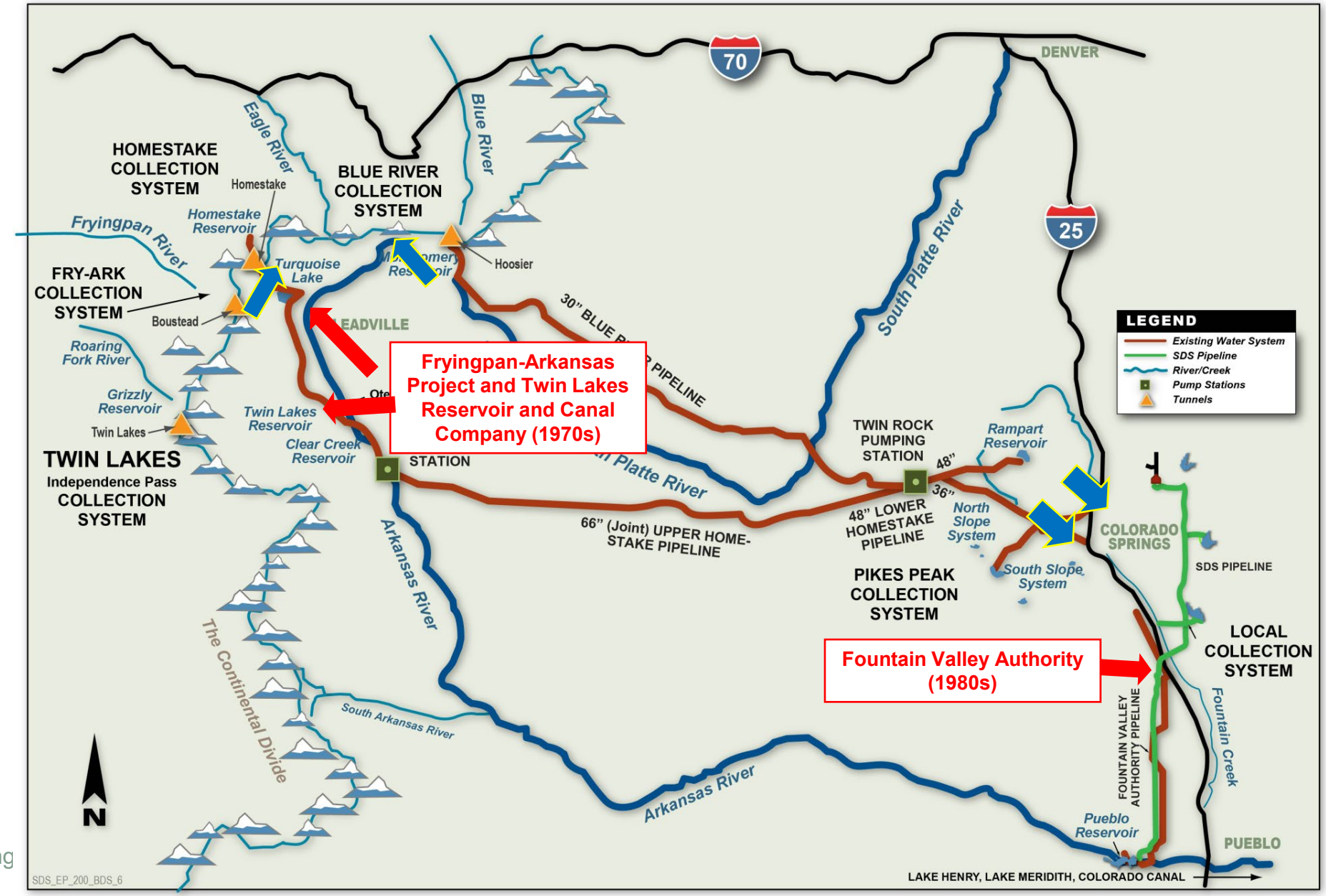
# 1953 Population = 51,000



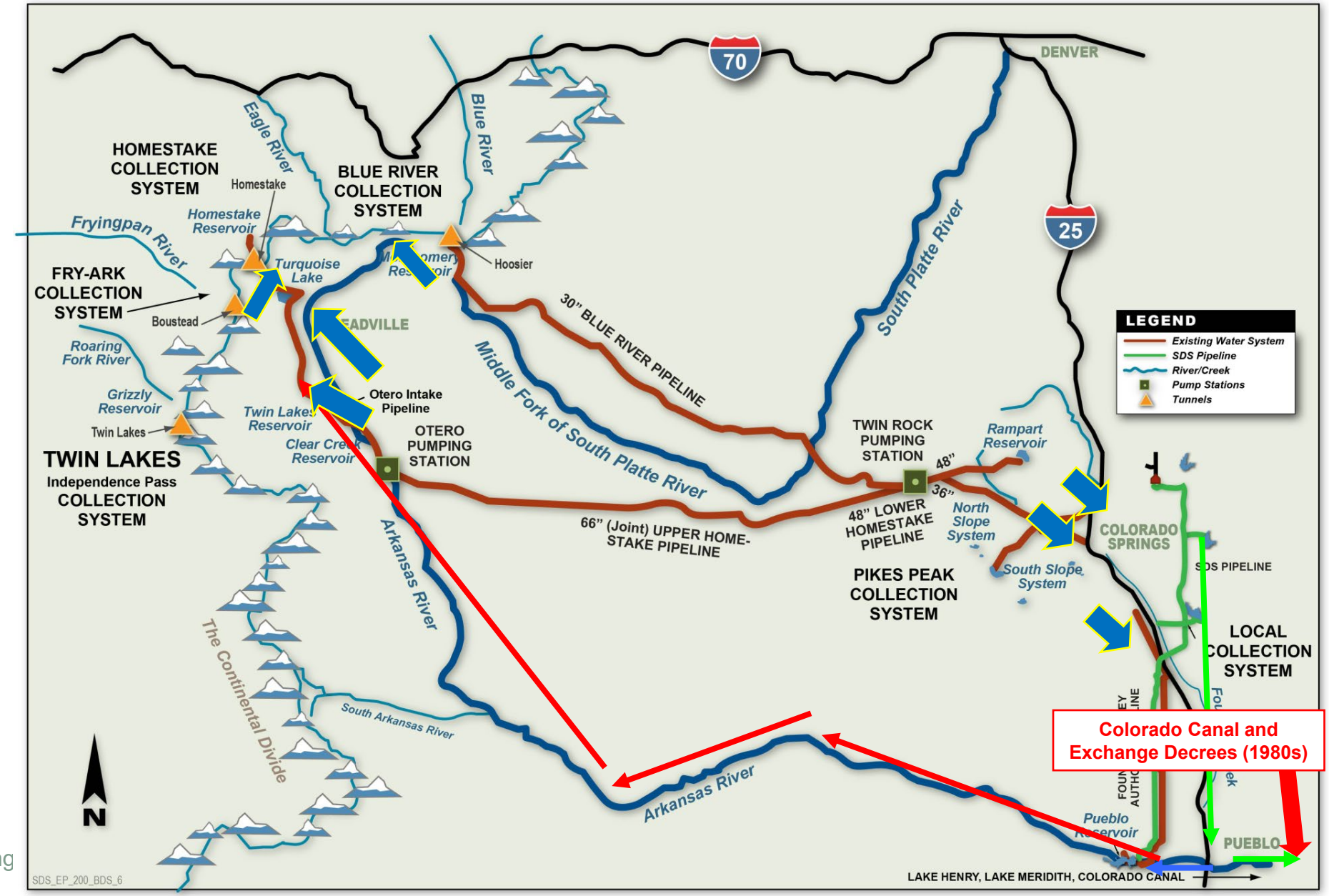
# 1964 Population = 92,500



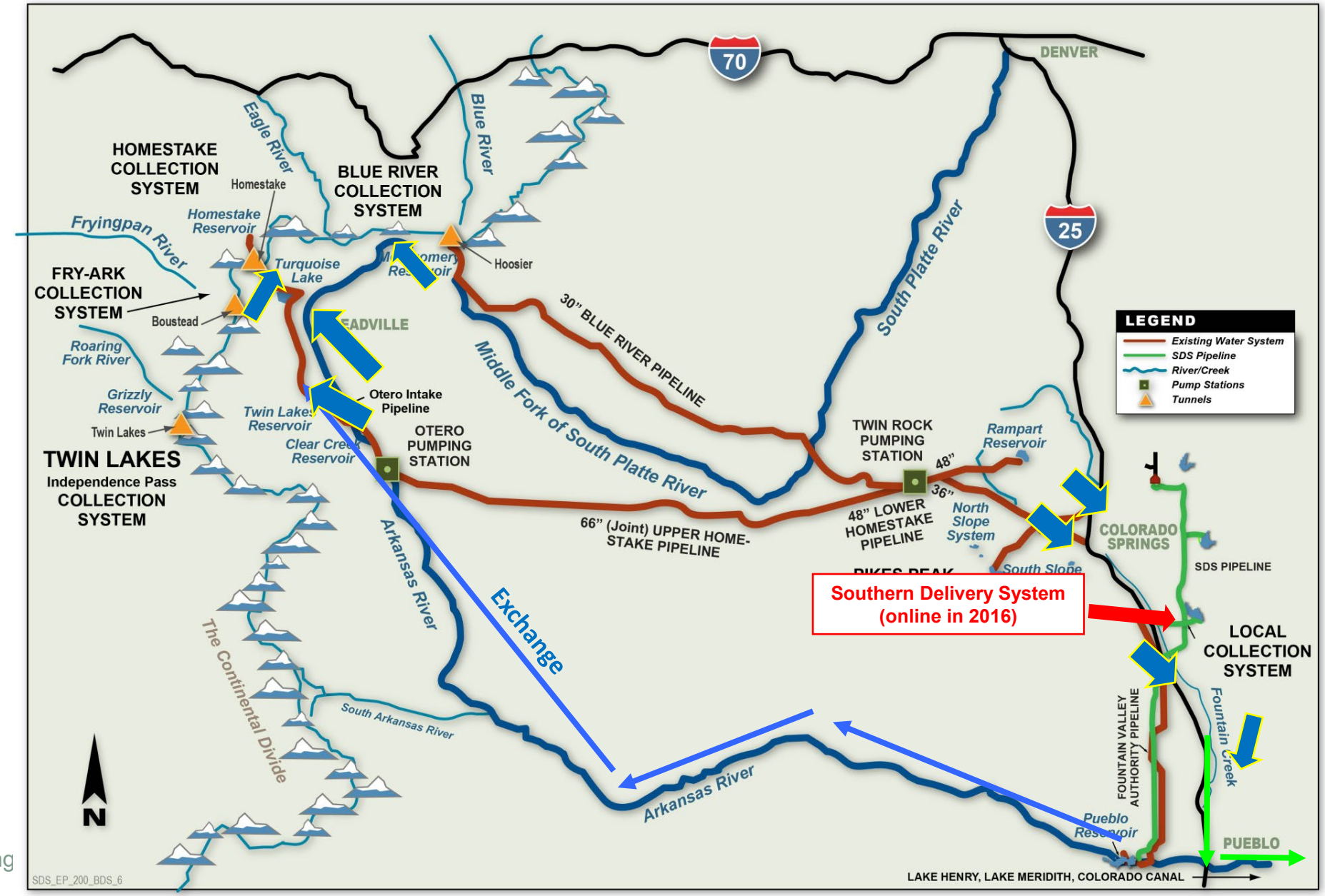
**1970 = 135,000** **1975 = 172,000** **1979 = 200,000**



# 1980 Population = 214,821



# 2022 Population > 500,000

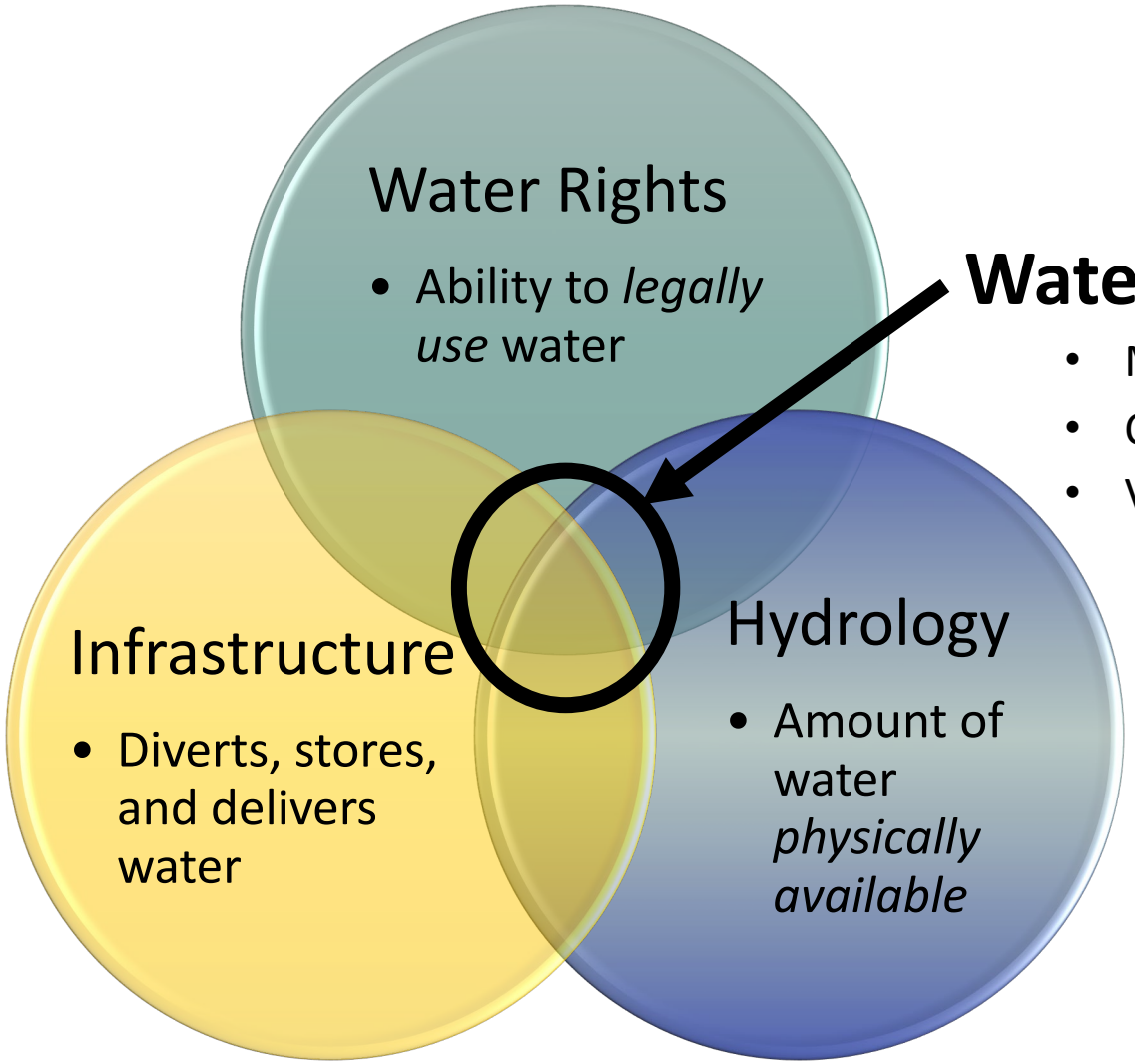


# Takeaways

- Colorado Springs' geography and climate create unique challenges for planning and developing water resources
- Springs Utilities' water system development has been driven by water scarcity and growth for over 100 years
- Substantial effort is required to collect, convey and deliver water resources to Colorado Springs

# Water Planning Fundamentals

# Water Planning Fundamentals




**Water System Yield**

- Meets customer demands
- Can be stored to manage risks
- Varies year to year

# Water Resources Goal: Optimize Water System Yield

**Factors affecting the ability to develop yield**

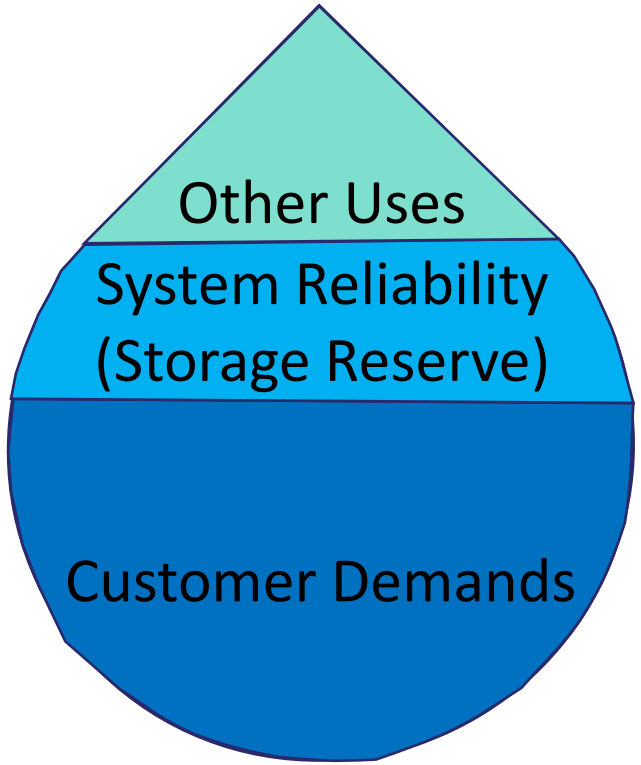
- Cost
- Regulations and permitting
- Political landscape
- Availability of water rights
- Others

**Ways to utilize water system yield**

- Meet customer demands
- Increase system reliability
- Water sharing arrangements
- Surplus sales
- Cooperative measures

**Water conservation is foundational**

- Defers the need for additional capital expenditures (infrastructure & water rights)
- Maintains system reliability



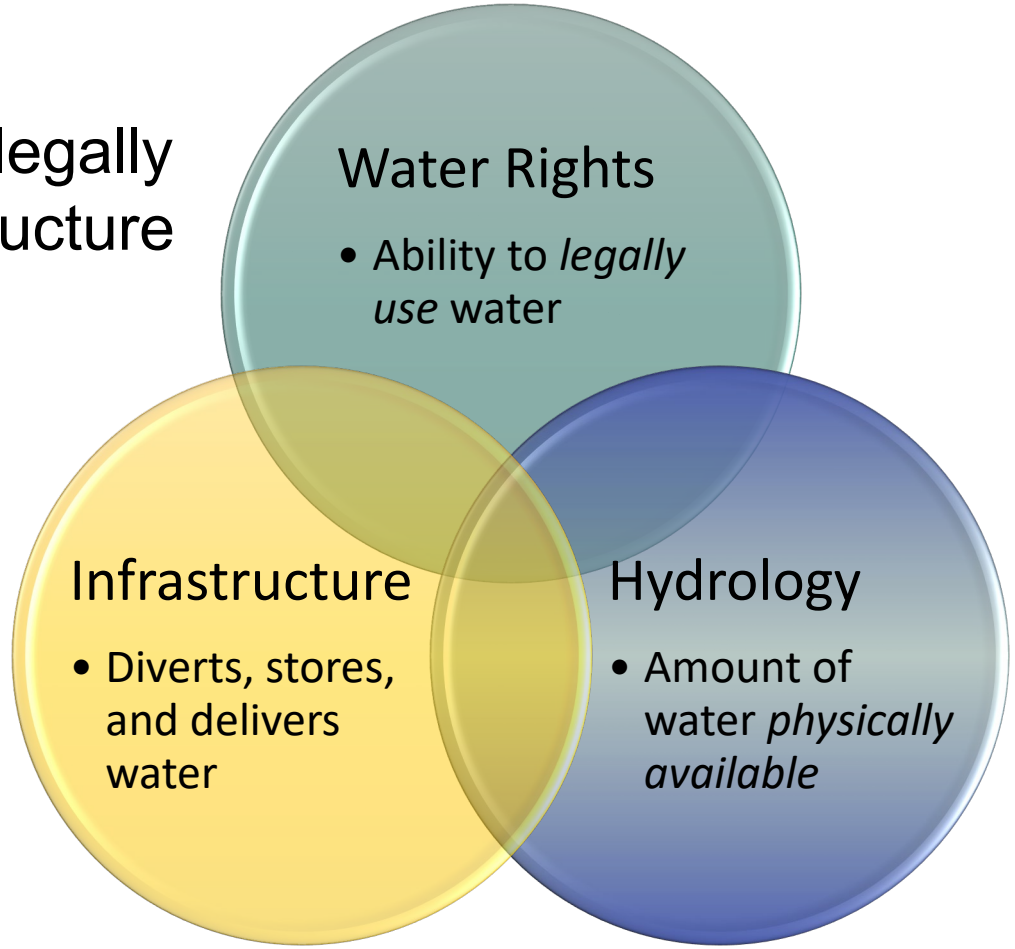
# Water Planning Scenario

**Changing Hydrology:**
Lower streamflows decrease the water that is legally and physically available for our current infrastructure to collect, store, and use.

This decreases our water system yield.

To maintain our water system yield, we must:

- Develop conditional water rights
- Acquire senior water rights
- Build additional infrastructure



# Integrated Water Resource Plan (IWRP)

# Integrated Water Resource Plan (IWRP)

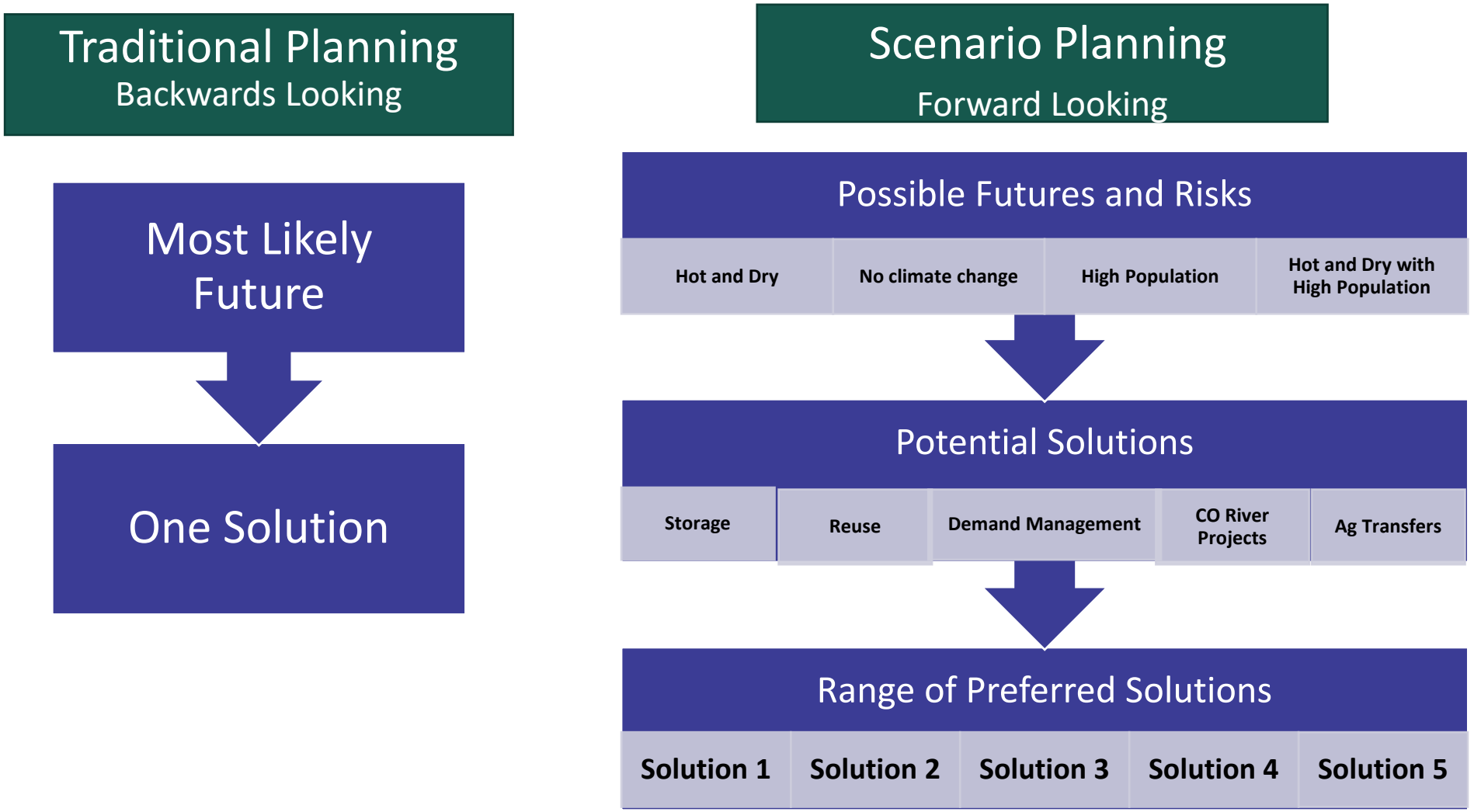
*A comprehensive approach to water resource planning that incorporates water supply and demands, water quality, infrastructure reliability, environmental protection, water reuse, financial planning, energy use, regulatory and legal concerns, and public participation.*

*Integrated Water Resource Plan*

*p. ES-1*


- Utilities' plan for meeting future water needs and managing risks for our community
- Examines supply, demand, quality, infrastructure, energy, regulatory, legal issues, and public opinion
- Identifies a portfolio of projects, policies and programs to maintain levels of service through buildout
- Colorado Springs Utilities is now implementing post-IWRP projects and strategies

# Scenario Planning



# Balancing Risk and Water Resource Goals

**Risks We Can Plan Against**

- Climate Variability
- Uncertain Demand
- Aging Infrastructure
- Population Growth
- Water Quality Threats
- Regulatory Changes
- Wildfire

Desired Level of Service

**Projects We Can Do to Minimize Risks**

CO River Projects

Ag Transfers

Demand Management

Reuse

Storage

# Key Risks for Buildout Portfolio Selection

**Hydrology:** 180 years of simulation with droughts more severe than the historical record

**Climate:** $3^0$ F warmer climate, no change in precipitation

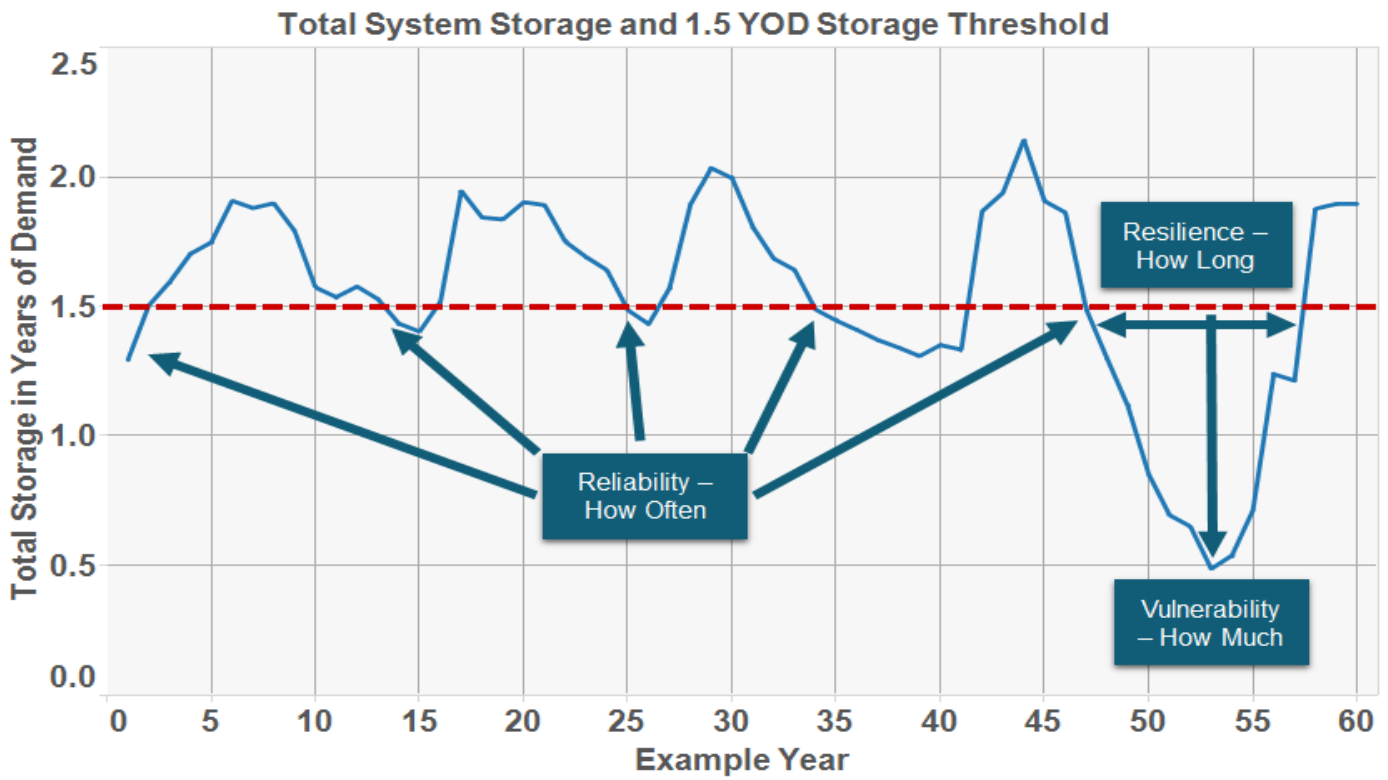
**Infrastructure Risks:** One year Otero Pump Station/Pipeline outage

**Colorado River Basin Shortages:**

- 20% reduction in West Slope yields for 10-year period
- 25% reduction in exchange potential during same period

# Approved Level of Service

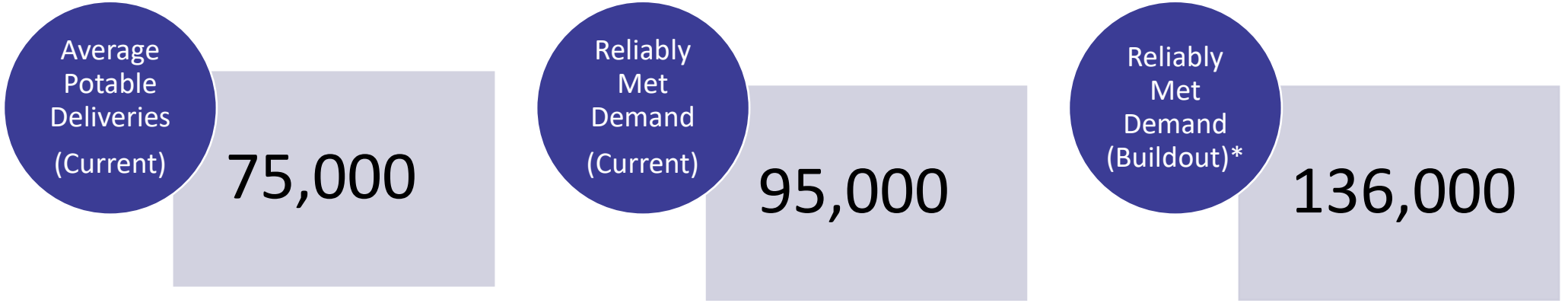
- Maintain indoor uses 100% of the time
- Maintain at least 1 YOD storage 100% of the time
- 90% system reliability (watering restrictions ~ 1-in-10 years)
- Trigger drought response analysis at 1.5 YOD storage




Water System Performance Metrics

# Reliably Met Demand

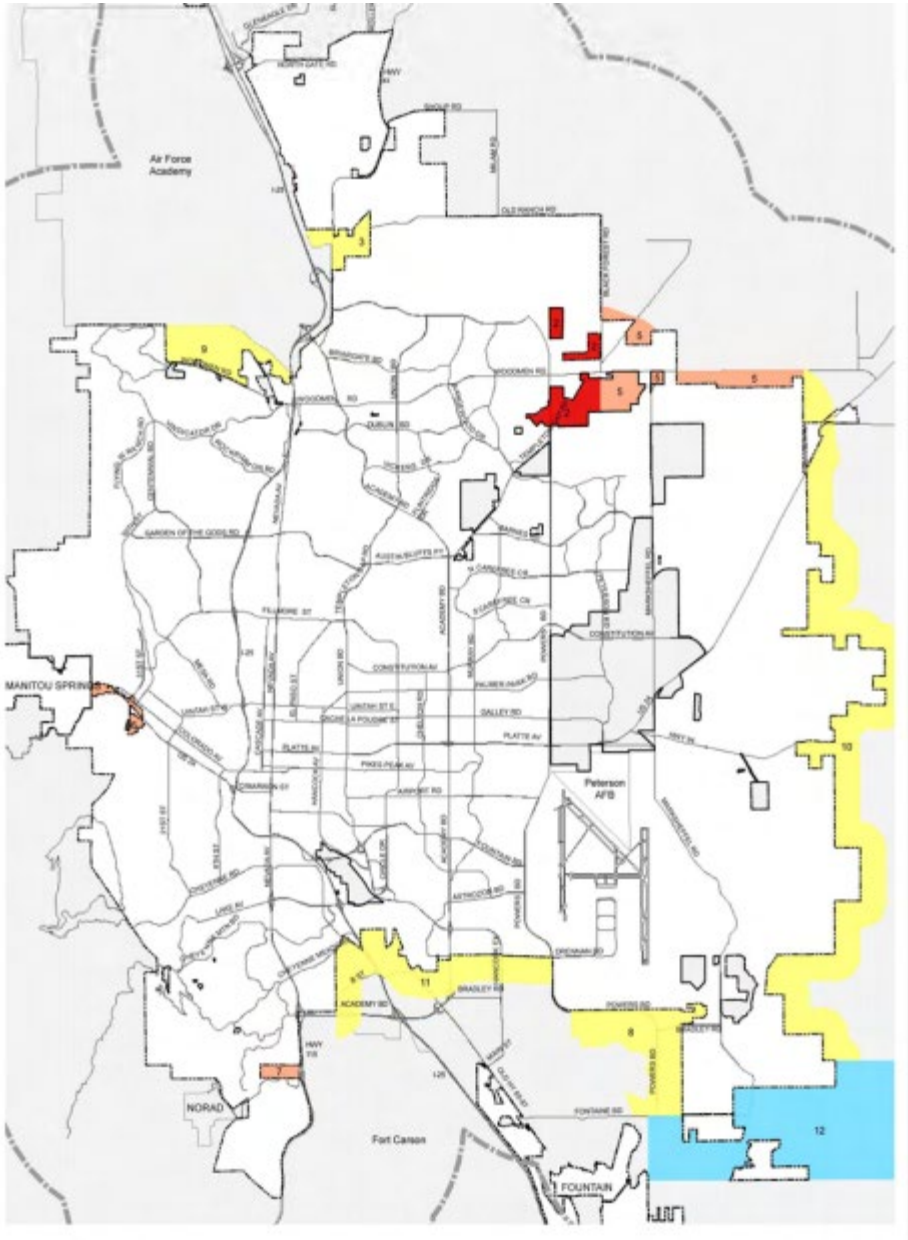
## Acre-Feet Per Year



# Buildout and Demand Forecasting

- **Buildout** is the current service territory, per the 2006 City Annexation Plan, completely built out in a mix of commercial, residential and industrial uses

- **Demand Forecasts** use three scenarios – low, moderate and high demand levels to estimate the range of future demand




2006 City of Colorado Springs Potential Annexation Area Map

# IWRP Balanced Portfolio


| Colorado River Projects | Agricultural Transfers | Demand Management | Storage | Reuse |
|---|---|---|---|---|
| 10,000 – 15,000 acre-feet of new supply | 15,000 – 25,000 acre-feet of new supply | 11,000 – 13,000 acre-feet of demand savings | 90,000 – 120,000 acre-ft of new or enlarged Arkansas Basin storage | 50 to 75 MGD of IPR and 1,200 – 2,500 acre-feet of new nonpotable demand |

**Additional supplies are needed to meet future growth and manage risks**

**All components of the IWRP Balanced Portfolio are necessary, difficult and expensive**

**Completing fewer projects in one category means doing more projects in another**

# Key Takeaways

- Scenario planning helps us prepare and adapt to a wide range of possible futures
- Additional projects are needed to accommodate future growth and mitigate risks
- The IWRP Balanced Portfolio and Level of Service criteria balances costs and risks, according to our community values

# Wrap-Up

- Colorado's climate drives water scarcity, hydrologic variability and periods of shortage
- In coming decades, Colorado Springs is projected to become the largest city in Colorado
- Our community's economic vitality and quality of life depend on responsible risk mitigation
- The future vitality of Colorado Springs depends on proactive water resource development

Colorado Springs, 1908

*Ultimately, the settlers of the short grass plains learned that water was more important to them than land.*

--Wallace Stegner

# Discussion and Next Steps

# Water Acquisition Funding Assignment Timeline

**Work Session 1**
- Background
- Water System
- Risk based Planning

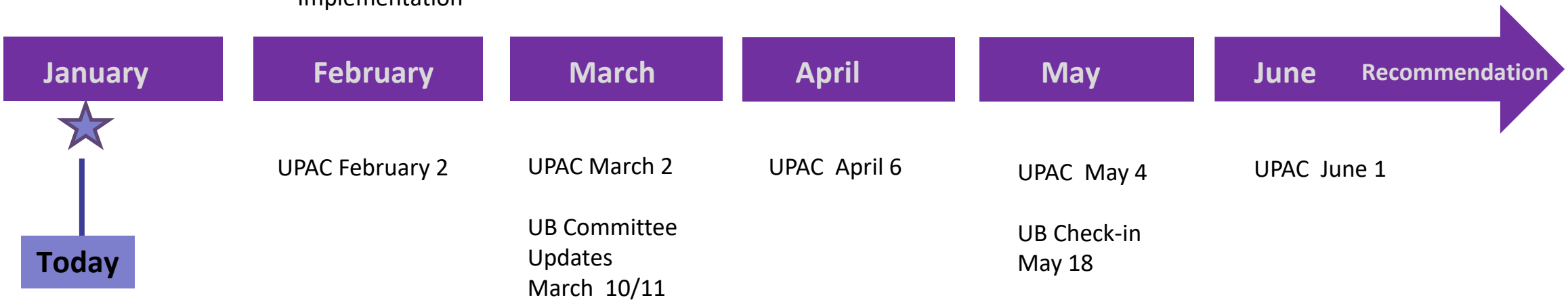
**Work Session 2**
- Situation Assessment
- Drivers
- IWRP Implementation

**Work Session 3**
- Current Funding Mechanisms
- Peer Utilities
- Funding Concepts

**Work Session 4**
- Funding Concepts, cont.
- Tradeoffs

**Work Session 5**
- Funding Implementation Strategies
- Tradeoffs cont.

**Work Session 6:**
- Formulate Recommendation

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# Water Resource Planning - Key Terms

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**DEFINITIONS**

**Acre-foot** The volume of water that can cover one acre of ground one foot deep. (See figure below)

**ATM** Alternative Transfer Mechanisms, also called water sharing, are methods to share water between municipalities and agriculture to avoid large scale permanent dry-up of irrigated agriculture.

**Augmentation** Replacement of water from out of priority diversions or groundwater pumping.

**Balanced Portfolio** Identified programs, policies and projects representing an appropriate mix of supply, infrastructure and demand management strategies that, if fully implemented, could meet level of service goals through Buildout.

**Buildout** Future condition when Utilities' existing service area is fully built out with an assumed mix of residential, commercial, and industrial uses and densities.

**Conservation or Demand Management** Practices to reduce customer water demand and promote responsible, wise, efficient use of water resources.

**Exchange** River exchanges involve storing water upstream and in "exchange", or trade, releasing the same amount at a downstream location. Reservoir trades involve two bodies of stored water and can occur any time there is enough water in both storage locations to be exchanged via reservoir accounting.

**Integrated Water Resource Plan (IWRP)** Utilities' long-range sustainable water plan.

**Levels of Service** Metrics used to measure performance of the water supply system.

**Native Water** Originates in the local basin, can only be used once and cannot be reused.

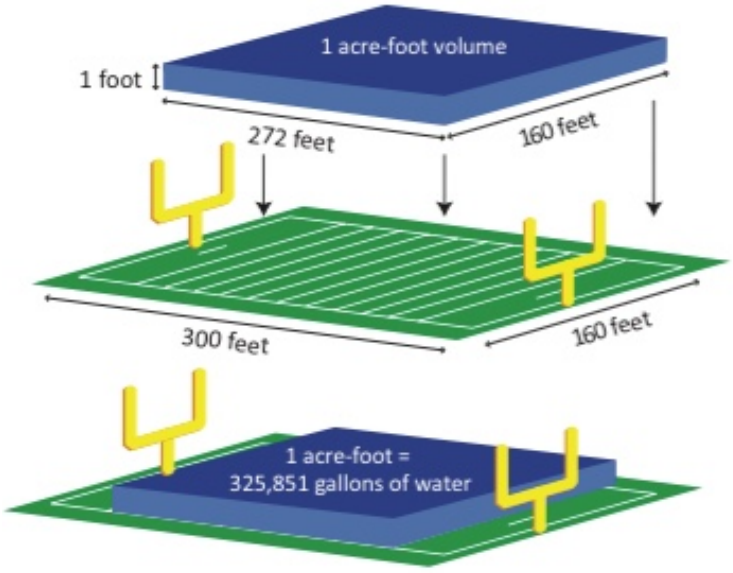
**Raw Water** Diverted out of a stream or reservoir prior to any form of advanced treatment.

**Reliably Met Demand (RMD)** Maximum annual demand that can be met by the water supply system while maintaining Levels of Service under an assumed system configuration and set of risks.

**Reuse** (includes both potable and non-potable end uses) Reclaims water from a variety of sources then treats and reuses it for beneficial purposes such as agriculture and irrigation, potable water supplies, augmentation, industrial processes, and environmental uses.

**Transmountain Water** Is brought across the continental divide from the Colorado River or South Platte River basins. This water is fully consumable and can be reused.

**YOD** Years of demand in storage. Method to characterize total reservoir system storage in acre-feet that is translated into a set number of years of annual demand.




## Key Facts

**Developing the IWRP** - The process adopted a forward looking, risk-based planning approach to capture system performance within key metrics to evaluate performance under a variety of futures and range of risks to stress test the system and understand tradeoffs and level of risk tolerance.

**Implementing the Balanced Portfolio –** The design of the IWRP allows implementation to be adaptive and provide flexibility in the face of future uncertainty.

**Water Acquisition Fund –** A key strategy to adaptive management is establishing a Water Acquisition Fund to ensure a dedicated budget, streamlined direction and timely means to pursue projects or portions of larger projects on an opportunistic basis.

**Signposts –** These are conditions, risks and other factors being monitored annually and assessed for effects on the system's performance and used to develop recommendations on water resource strategy.

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# Colorado Water Facts

### Where are Colorado's water sources?

Colorado is considered a headwaters state with 9 distinct water basins and 4 major river basins that supply water to not only Colorado but 17 other states. The geographic distribution between water supply and demand has created challenges. Nearly 80% of Colorado's precipitation falls on the Western Slope of the state but 80% of Colorado's population and 70% of Colorado agriculture resides on the eastern slope of the Continental Divide.

### Who are Colorado water users?

Of the approximately 5.5 million acre-feet of water used in Colorado, agriculture uses 86%, municipal 7%, industrial 2%, recreation 3% and other uses are 2% of the total.

## Nearly 70% of Utilities sources come from the Colorado River

### What is the future need for the State?

Starting in 2019, the technical updates to the Colorado Water Plan assessed future demands and climate-adjusted hydrology to estimate water supply needs, streamflow changes and agricultural, industrial, and municipal gaps that may occur under different planning scenarios. Specifics on methodology will be released by the Colorado Water Conservation Board with the plan update.

Arkansas Basin Facts

- Water availability is restricted by interstate agreements and compacts.
- It is an "over-appropriated" basin.
- The average annual demand in total for all uses is over 2 million acre-feet.

### What does the future look like for water supply in Colorado?

Preliminary information from the Technical Update to the Colorado Water Plan shows that water users are facing an emerging water supply "gap" that will grow over time. This gap is caused by the difference between available supplies and demands and is caused by growth, need for additional infrastructure, changing climate and hydrology and other factors. Water users must work on solutions to meet future basin needs.

For example, Colorado's population is increasing across the state and projected to nearly double in population to nearly 10 million people by 2050. Population growth coupled with Colorado's semi-arid climate marked by frequent periods of drought will have impacts across water use sectors if water users are not able to address the water supply "gap."

Trends to watch

- Rates of population growth
- Competing values and uses for increasingly scarce water supplies.
- Frequency and persistence of drought
- Success rate of new projects

# Colorado Springs Water System

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### Quick Facts

Service area = 195 square miles

Customers served = 510,000

Average water deliveries = 73,000 acre-feet

Number of water supply reservoirs = 25

Miles of raw water pipeline = 260

Oldest diversion and delivery system = 1871-78

Newest delivery system = 2016

Number of water treatment plants = 6

30-inch, Montgomery to Pikes Peak

## Our first transmountain water project developed from 1948 -1962

### What are our current water deliveries?

Potable water deliveries have averaged about 73,000 acre-feet per year over the past 10 years. The current system can serve 95,000 acre-feet.

Observed demands have recently been relatively flat in comparison to population growth, however 2021 population projections are tracking at about 1.56% growth per year.

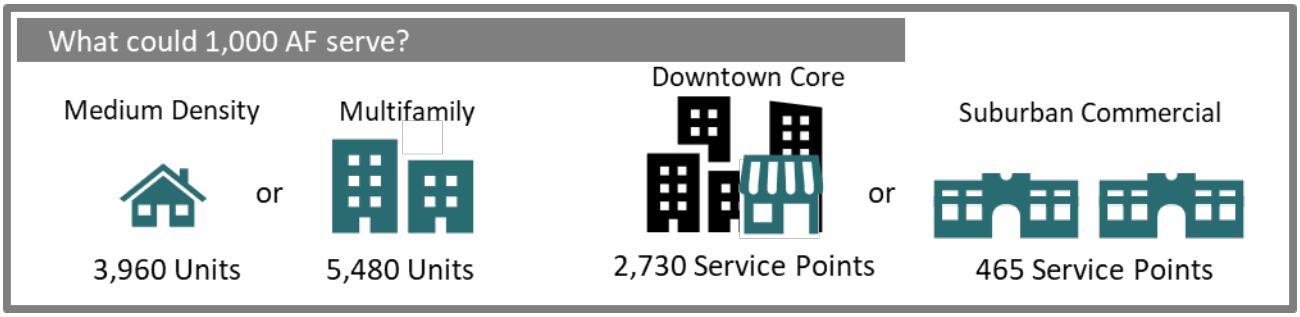
Per capita water use is 82 gallons per capita per day (GPDC) for single family residential and 133 for systemwide GPCD.

### What are the biggest risks to the water system?

Vulnerabilities can be generally categorized into conveyance, storage and yield risks. Conveyance risks include reductions in exchange potential, pipeline capacity or duration that water supply can be moved (e.g., outages). Storage risks impact active storage and may be related to drought, outages or administrative reductions, as the majority of storage Utilities relies on is either co-owned and/or use is dictated by shares and contracts. Yield risks are associated with anything that reduces quality or quantity of inflow (e.g. fire, climate change, curtailment).

Trends to watch

- Potential Compact Administration
- Aging infrastructure
- Local, State and Federal regulations and permitting environment



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# Integrated Water Resource Plan

### Why does the IWRP use Scenario Planning methodology?

Scenario planning is a planning methodology that seeks to capture complexity, variability, and risk. The IWRP identified numerous risk-based scenarios that may impact water system performance. Levers consist of projects, programs and policies evaluated to mitigate known and unknown risks for various planning scenarios. Unlike traditional planning methods which rely on historical data to predict the future, scenario planning uses a forward-looking approach that is adaptable to reflect the range of possible futures, uncertainties, and test effectiveness of proposed levers.

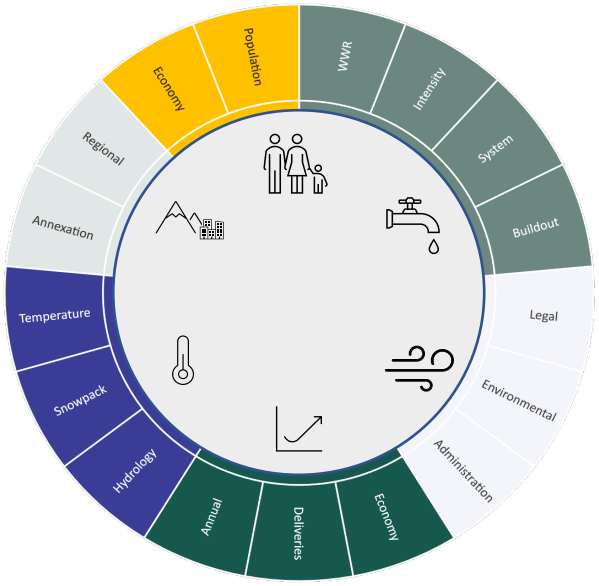
## The IWRP approaches risk as a management and mitigation problem

### What are the key risks the IWRP plans for?

Over 60 risks and uncertainties in six main categories were originally identified. However, risks associated with hydrology, climate and reduction of West Slope sources are found to have the most potential impact on water system reliability.

### Why is it called a "Balanced Portfolio"?

It relies on a mix of supply, infrastructure and program options that balances costs, environmental considerations, and system reliability.




### How do we adapt to new information and changed conditions?

The IWRP is developed around adaptive management principles. The information today informs future planning, but the overall implementation strategy needs to be adaptive to uncertainties. Because the IWRP is not static, each year different signposts, conditions and factors are monitored to see if action is needed or a change in strategy is warranted.

<u>Trends to watch</u>

- Updates to Colorado Springs Annexation Plan
- Colorado River Compact Administration
- Rate of growth and development
- Snowpack and local precipitation


10,000-15,000 acre-ft/year of new supply

15,000-25,000 acre-ft/year of new supply

11,000-13,000 acre-ft/year demand savings

90,000-120,000 acre-ft of new or enlarged Arkansas Basin storage

50 to 75 MGD of IPR and 1,200-2,500 acre-ft/year of new Nonpotable demand