

Data Management & Accounting in the Central Utah Project

Leveraging RiverWare as a Computational & Reporting Hub

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RIVERWARE USER GROUP MEETING • AUGUST 26, 2026



**CENTRAL UTAH WATER
CONSERVANCY DISTRICT**



Welcome!

With 62% of our growing state living in Central Utah Water's boundaries we are dedicated to planning the future by developing, delivering and efficiently using our limited water resources. Thank you for your trust.

– GENE SHAWCROFT, GENERAL MANAGER



Managing
**\$3.5
billion** in
infrastructure



Treating more
than **100
million**
gallons per day



serving **2
million**
people
every day



Maintaining
180+ miles
of canals
tunnels and
pipelines



Delivering
more than
**400,000
acre feet**
annually



Storing
565 billion
gallons
in reservoirs

**DELIVERING
WATER TO LIFE**



Central Utah Water Operates and Maintains

- 8 dams and reservoirs – 1.6 million A-F of storage
- 3 major and 6 minor diversion dams
- 3 water treatment plants
- 2 hydroelectric power plants: 13 MW and 11.7 MW
- 11 wells
- Constructing largest polishing plant in the world



Reservoir Operations



Flood
Control



Water
Supply



Environment





Jordanelle 314 KAF
+49.5 KAF Flood
Space

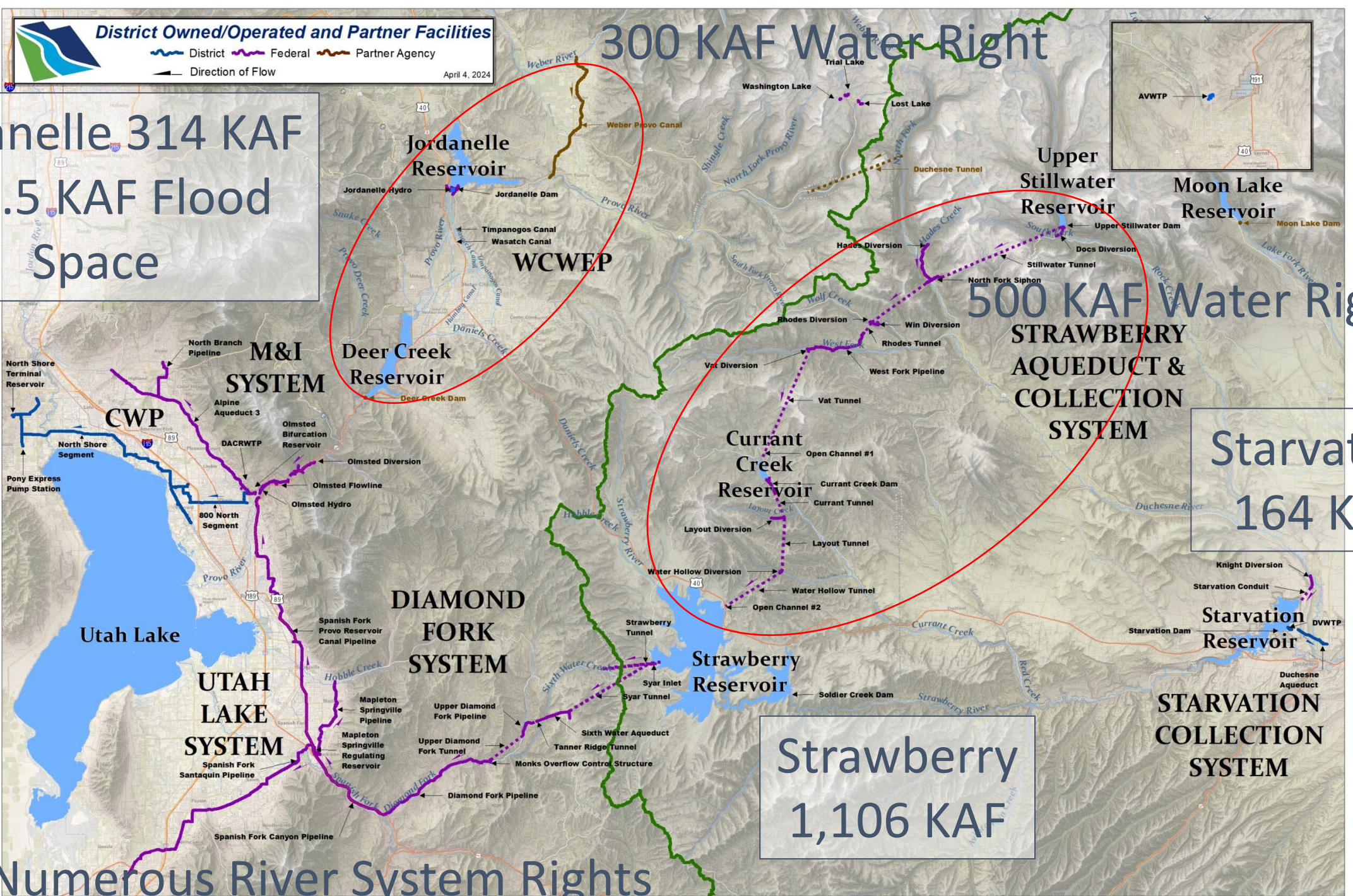
300 KAF Water Right

500 KAF Water Right

Starvation
164 KAF

Strawberry
1,106 KAF

Numerous River System Rights





Water Distribution Accounting

What:

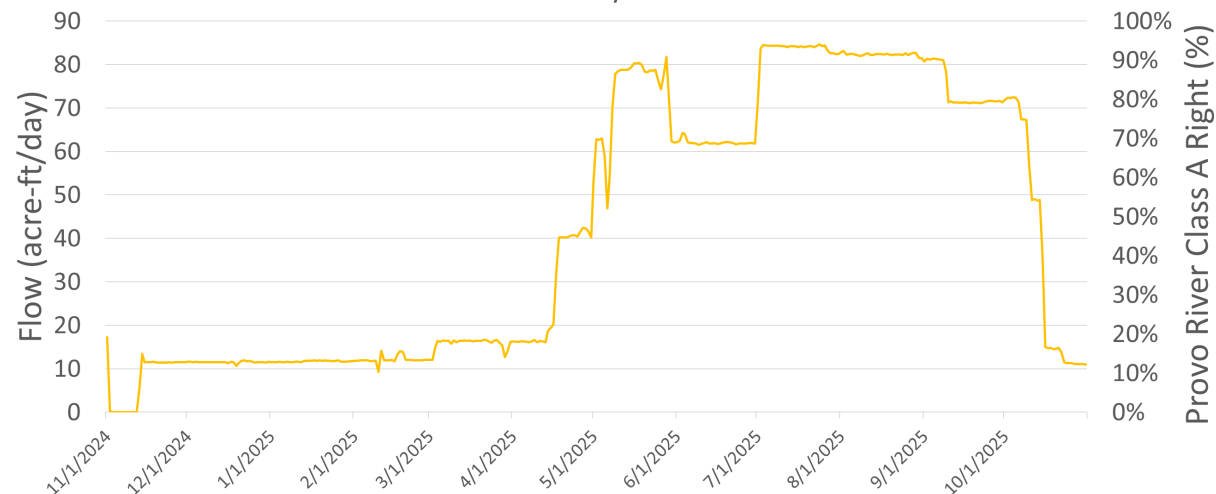
- Water Measurement & Data Collection
- Water Allocation (who's water, is it?)
 - Water Rights, Shares, Agreements, Rules of the River, Law, etc.
- Data Reporting and Distribution

Why:

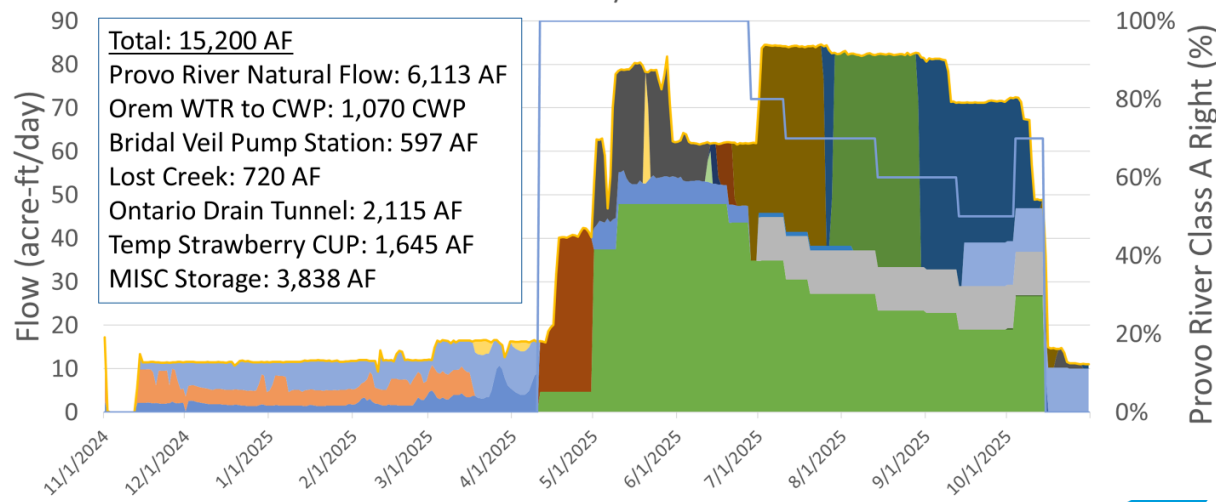
- Decision Making & Operations
- Short/Long term Planning & Supply Optimization
- Demonstrate Compliance
- Customer Relationships & Invoicing
- Paper Water $\neq$ Actual Water
- We deliver water for life



CWP Surface Water Use by Source WY 2025



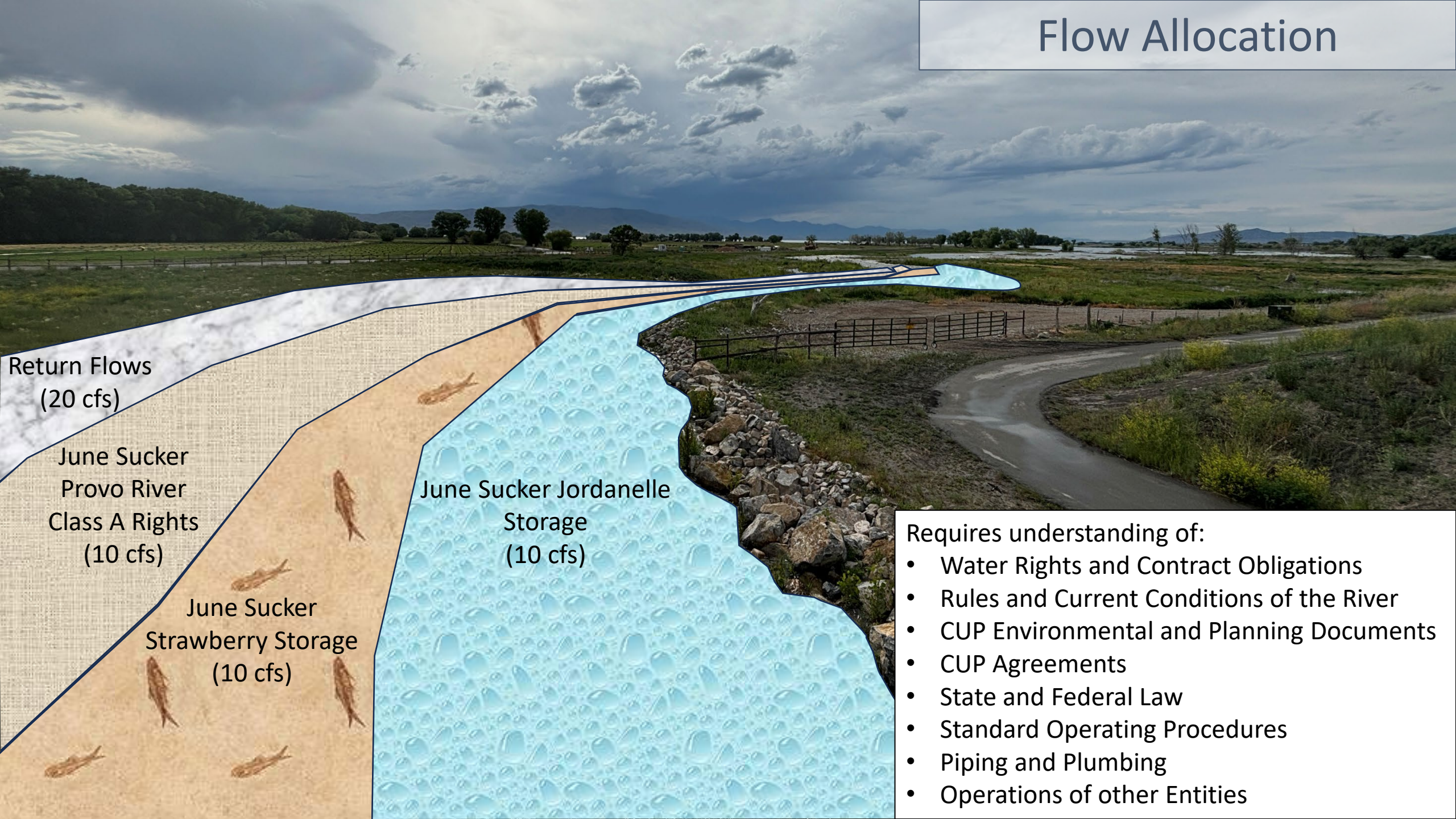
CWP Surface Water Use by Source WY 2025



Flow Measurement



Flow Allocation



Requires understanding of:

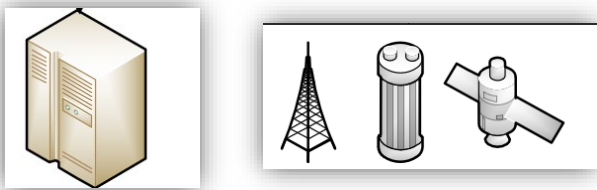
- Water Rights and Contract Obligations
- Rules and Current Conditions of the River
- CUP Environmental and Planning Documents
- CUP Agreements
- State and Federal Law
- Standard Operating Procedures
- Piping and Plumbing
- Operations of other Entities

Historical Process

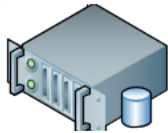
Equipment Sensor
(Auto, Manual, 3rd Party)



Remote Terminal Unit
(RTU)



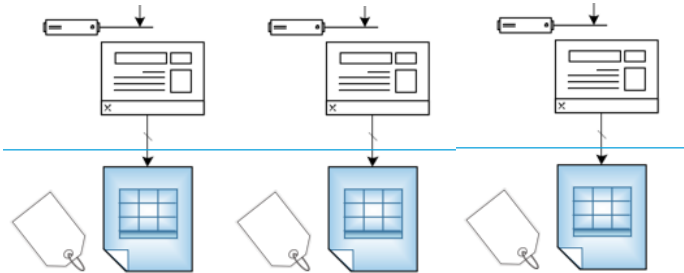
Communication Network
(radio, fiber, satellite, etc.)



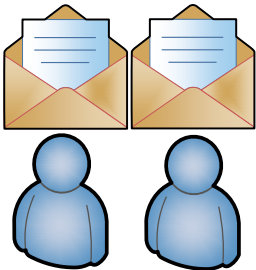
SCADA Server

Excel – SCADA Addin

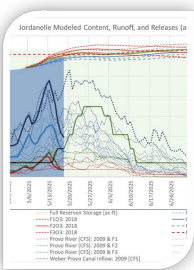
Excel – Data Approval
and Flow Allocation
Multiple “Records”



Report Distribution
(Email)



Water Users,
UDWR, DOI,
USBR, CBRFC, etc



Operation Forecasts
(Excel)

The Problem

- Multiple Records – Multiple Places
 - Change Management?
- Unsustainable
 - Data Naming Convention
 - Inconsistent methods in workbooks
- Transfer of Institutional knowledge
- Unique Water Right and Contract processes are not conveyed
- Many single points of failure (high risks)
- Data Integrity
- Internal and External Data Sharing and Integration





Solution – Digital Water Management



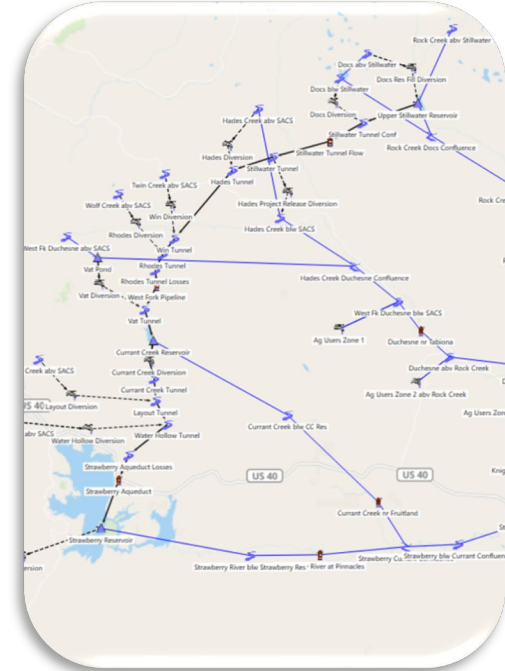
Historical Record DB

- Consistent Data Structure
- One Place all “Records”
- Change Management



Contracts/Water Rights DB

- Centralize Knowledge
- Digitized Commitments



Computation Tool - Riverware

- Consistent Methods
- Water Rights Solver
- Operational Forecasts

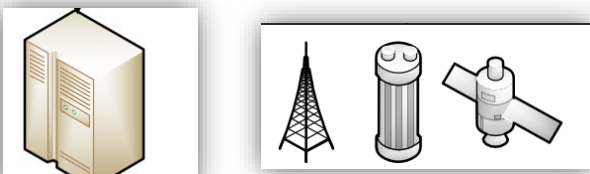


Historical Process

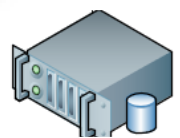
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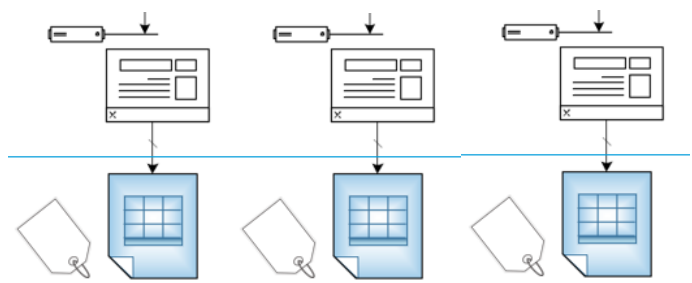
Communication Network
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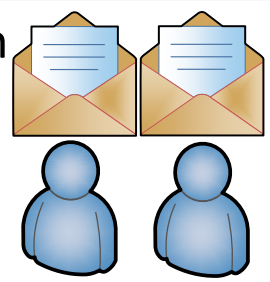
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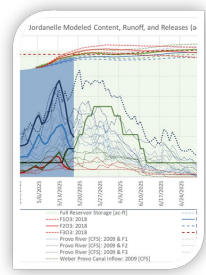


Report Distribution
(Email)

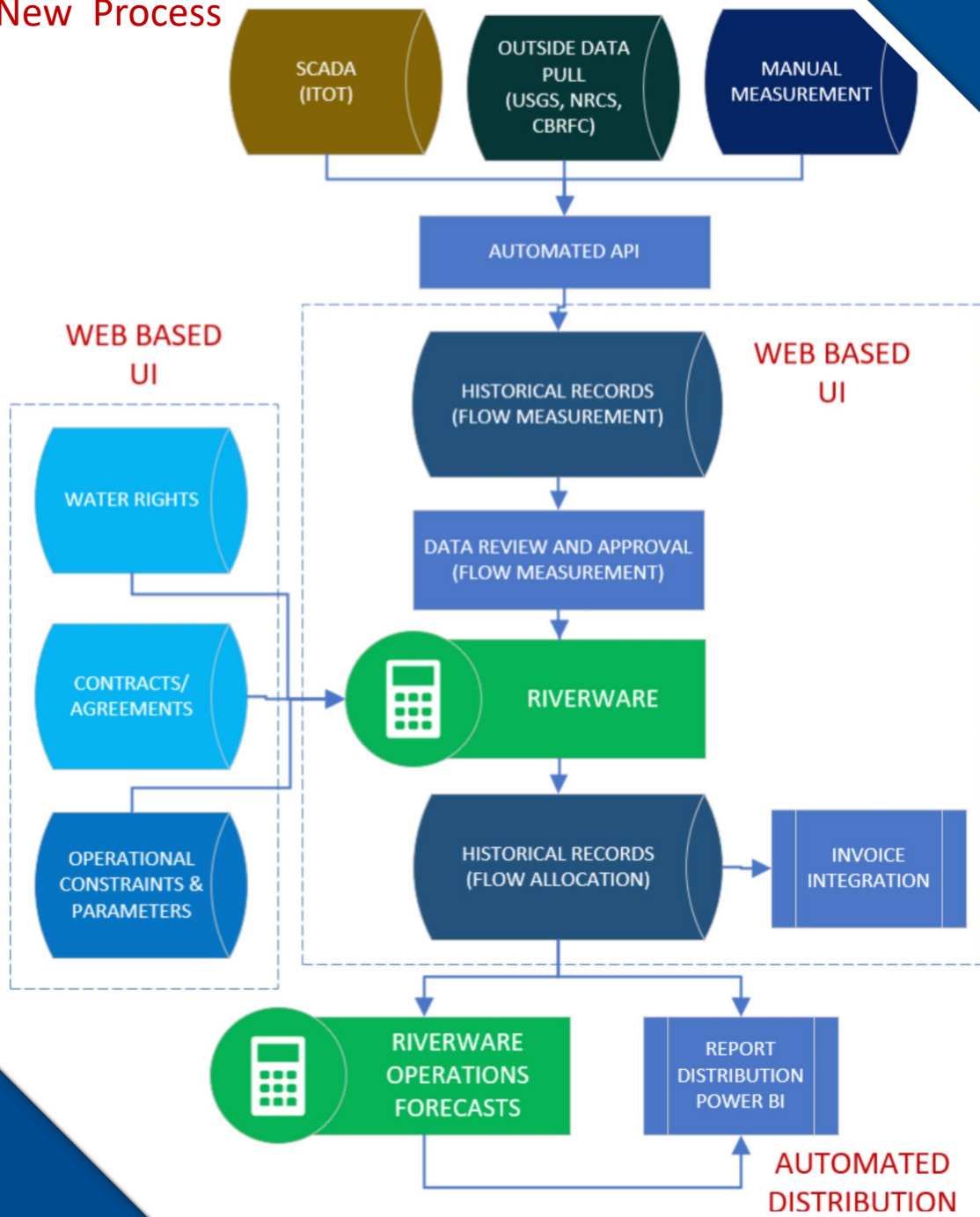


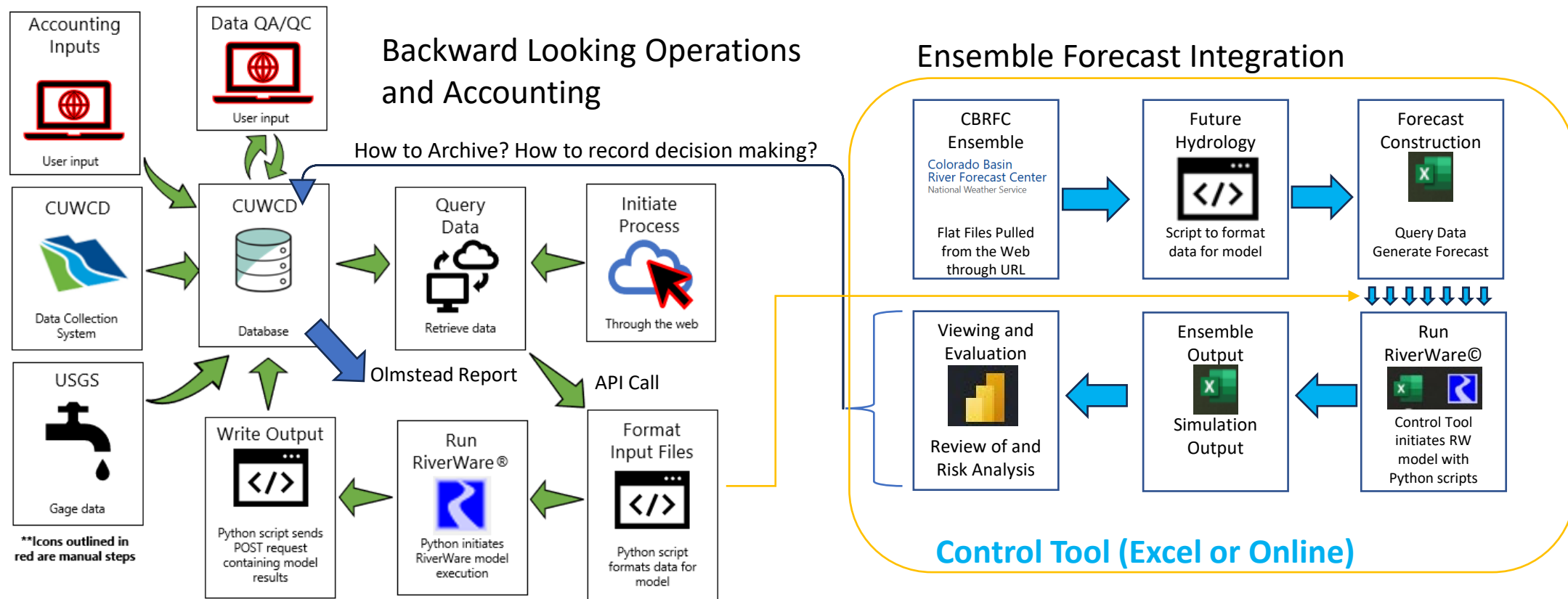
Water Users,
UDWR, DOI,
USBR, CBRFC, etc

Operation Forecasts
(Excel)



New Process





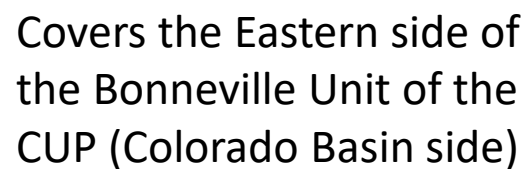
Reports:

Customer Accounting

- DWRi Interaction
- Stakeholder Information
- Other Accounting Information

Review and Risk Analysis:

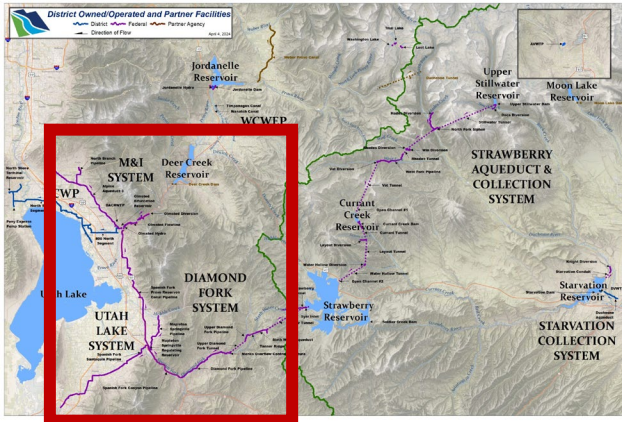
- Operational Questions
- Stakeholder Communication
- Planning and Decision Support
- Other “What if” scenarios/operations



Backward and Forward-looking forecast operations.

- CBRFC Inputs – 40 Ensemble traces
- Used to evaluate Reservoir filling and drawdown operations.
- Supports decision making processes for customer storage.
- Supports Utah's Demand Management pilot Project for water stored that is part of the Upper Basin and Reclamation's Provisional Accounting MOU.



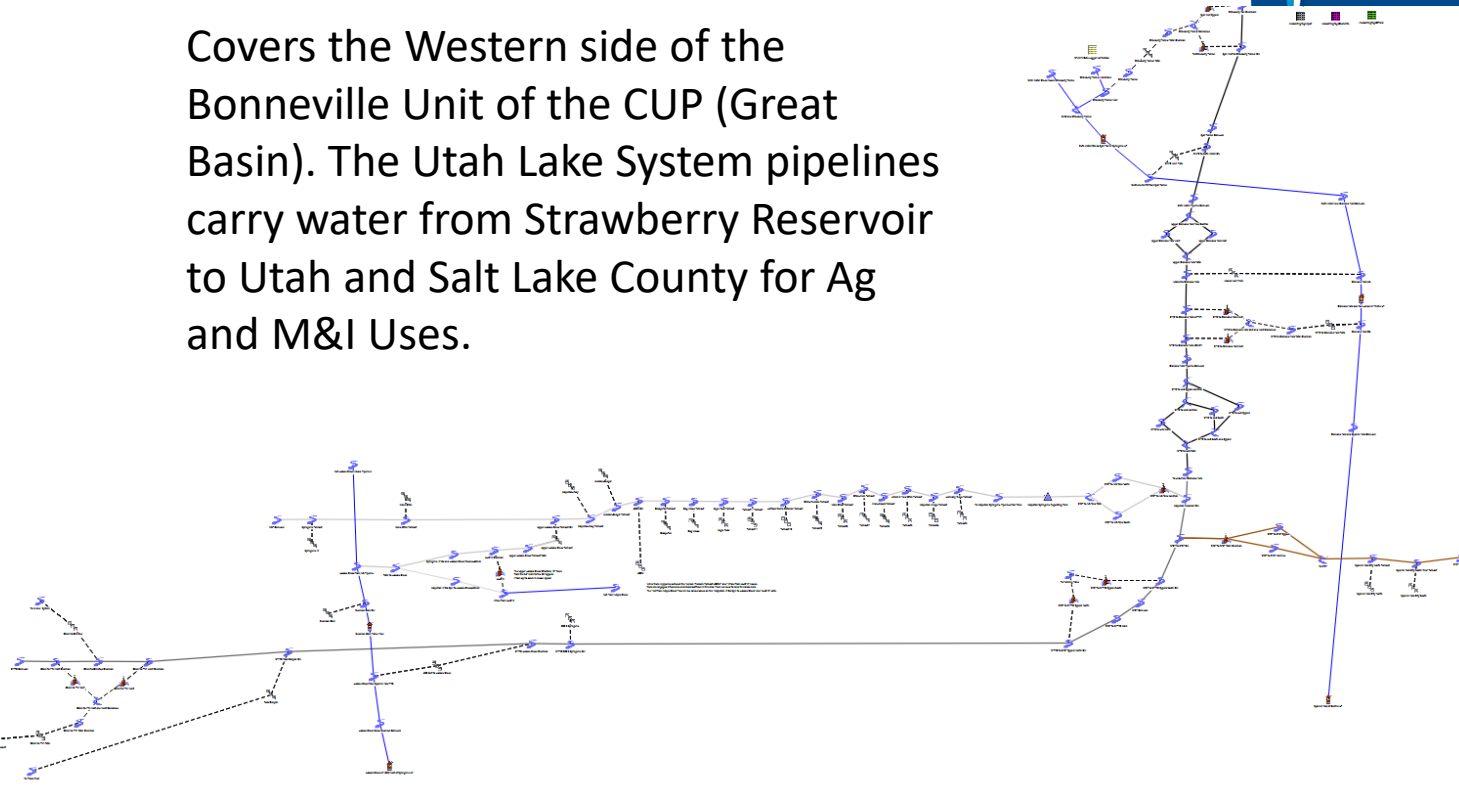


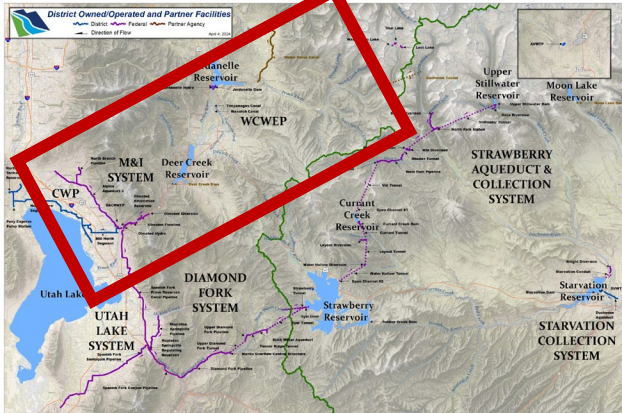
Utah Lake System (ULS) Accounting Model

Backward-looking accounting.

- Accounts for delivery from Strawberry Reservoir to the customers along the ULS System.
- Reconciles water delivered through the Syar and Strawberry Tunnels.
- Produces report ready analysis for use in customer accounting and reporting to the State of Utah.

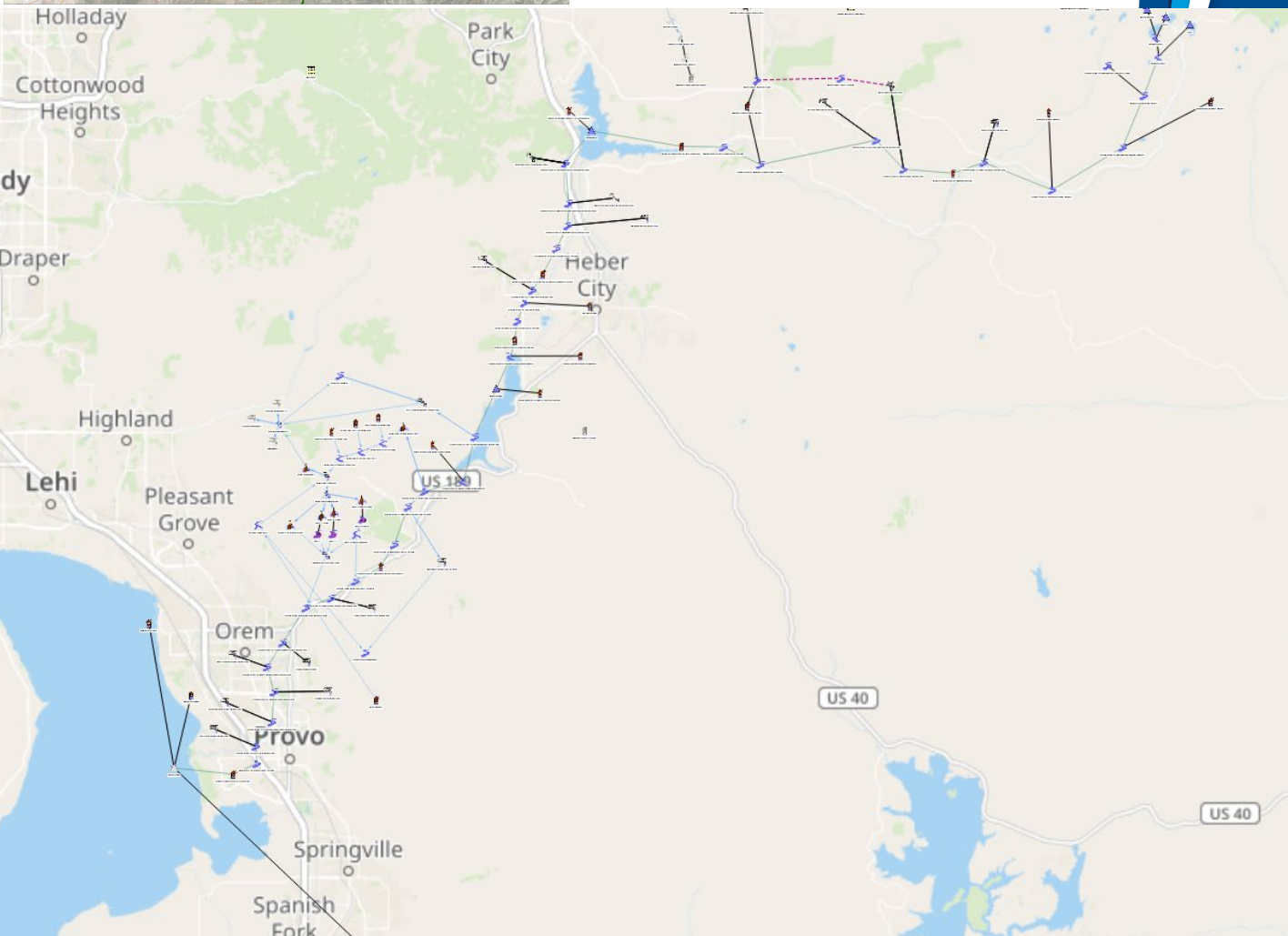
Covers the Western side of the Bonneville Unit of the CUP (Great Basin). The Utah Lake System pipelines carry water from Strawberry Reservoir to Utah and Salt Lake County for Ag and M&I Uses.





Provo River Operations

- Jordanelle Reservoir
- Deer Creek Reservoir
- Utah Lake
- Water User Delivery

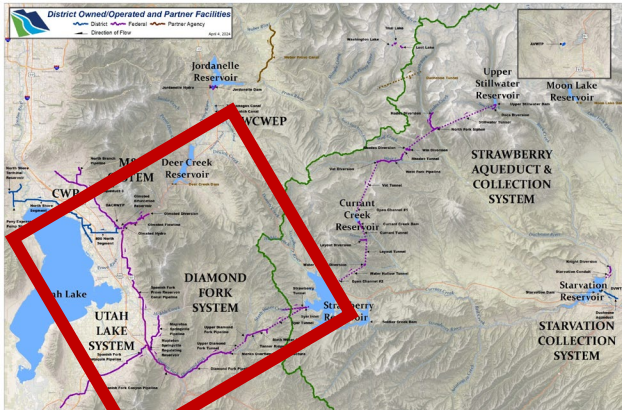


Provo M&I Accounting and Forecast Model

Backward and Forward-looking forecast operations.

- CBRFC Inputs – 40 Ensemble traces
- Accounting and Physical operations
- Minimum Flow constraints and Flow Targets
- Supports CUWCD supplementary delivery and coordination with Utah Division of Water Rights.





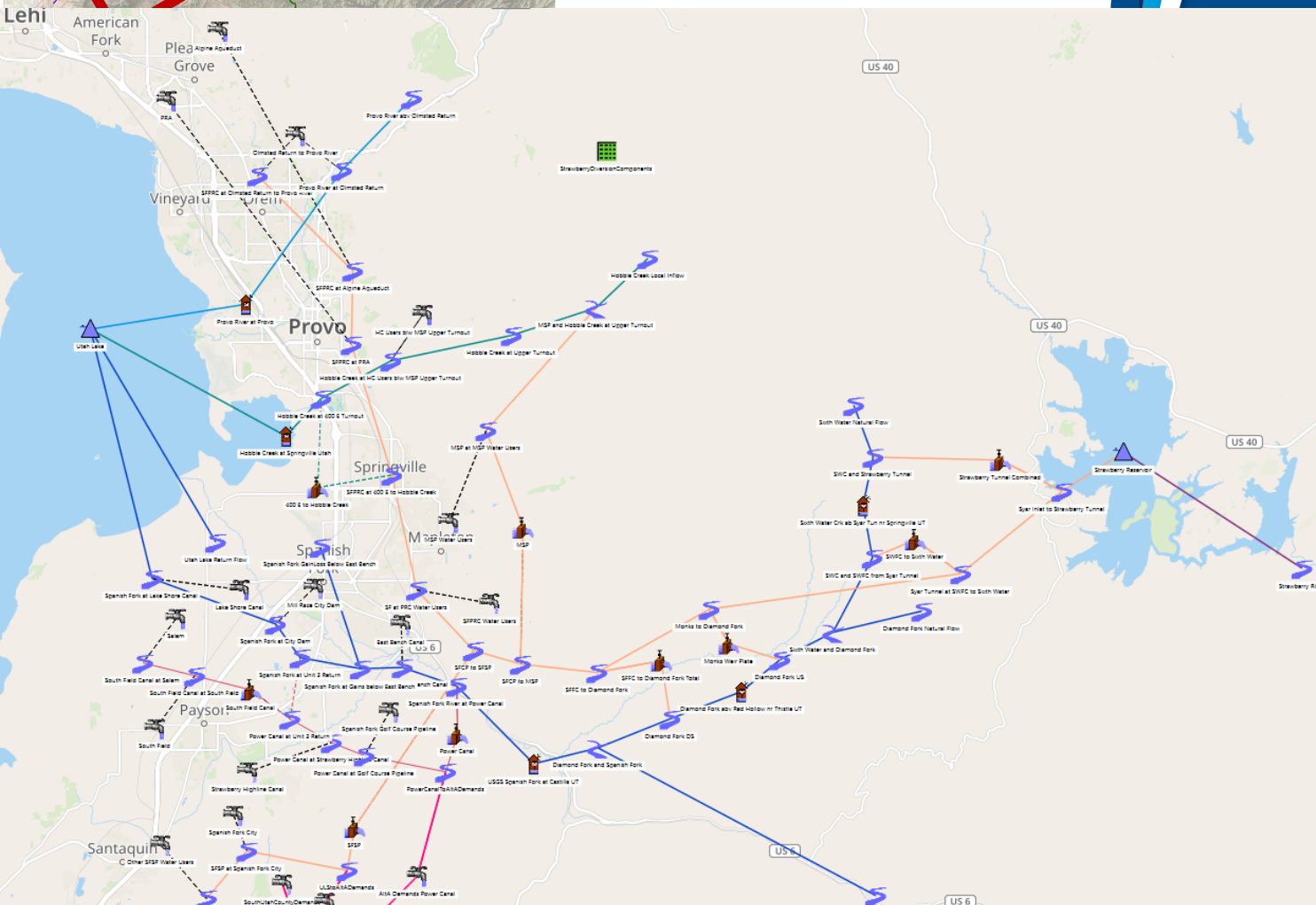
Full Unit Evaluation

- Planning
- Drought Contingency
- NEPA Process

CUP Unit Planning Model

Long-Term Planning Evaluation

- Historical Verification
- Future Evaluation
- 1 to 75 Year planning horizons
- Planning Modeling has been use to support:
 - Evaluation of Utah Lake Management Plan
 - Drought Contingency Planning
 - NEPA planning simulation
 - Other activities



Discussion

- District has created a Digital Water Management System for consistency and quality control
- RiverWare plays a crucial roll in ensuring that consistency and provides a platform that easily interacts with the Districts Manager interfaces
- Seamless connections to the Districts Database
- Systematic database approach improves transfer of institutional knowledge

Future Improvements and Questions

- Data structure for reservoir storage accounts
- Data structure for storing and utilizing Riverware forecast runs.



Thank You

*Questions — see us after
the presentation*

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District

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CENTRAL UTAH WATER
CONSERVANCY DISTRICT



PRECISION
WATER RESOURCES ENGINEERING