Water Supply Planning:
Water Supply

The City’s Portfolio is comprised of three “source” components

- Surface Water
- Groundwater
- Recycled Water
Water Supply

All are interrelated, but each source has factors that determine its “value” as a resource

- Volume
- Reliability
- Regulatory Restrictions
Surface Water

Defined by the USGS as “water that is on the Earth's surface, such as in a stream, river, lake, or reservoir.”
Surface Water

Regulated since 1914 by the SWRCB thru “water rights”

• Riparian
• Pre-1914
• Appropriative
• Contract (RRFC)
Surface Water

Water rights may have a number of constraints including:

• Annual volume
• Diversion rate
• Point of diversion (POD)
• Place of use (POU)
• Beneficial use
• Season of use
• Seniority
• Abandonment
Surface Water

City of Ukiah has several sources via water rights
• Pre 1914
• Appropriative
  • Permit 012952
  • RRFC Contract

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<th>Pre-1914</th>
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<td>Annual Volume</td>
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<td>1954</td>
<td>1949</td>
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<tr>
<td>Abandonment</td>
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Surface Water

Production Facilities

• Ranney Collector
  • Built in 1966
  • 9027 gpm
• Well 3
  • Built in 1949
  • 300 gpm
• Divert underflow from Russian River
Groundwater

Defined by the USGS as “water that flows or seeps downward and saturates soil or rock, supplying springs and wells.”
Groundwater

Unlike Surface Water there is no “water rights” system for Groundwater

• There are also no corresponding constraints
• Reliable
• Low cost
• Sustainable Groundwater Management Act (SGMA) may eventually regulate diversions
Groundwater

Production Facilities

- Well 4 (1000 gpm)
- Well 7 (650 gpm)
- Well 8 (300 gpm)
- Well 9 (700 gpm)
Groundwater

City facilities designed to expressly avoid confrontation with limitations of Surface Water.

Matt Kennedy
Project Manager
GHD
Groundwater: Ukiah Valley

- Holocene alluvium is the water bearing unit in Ukiah Valley
- Alluvium is deposits from flood and landslide events
- Wells in this zone can produce more than 1,000 gallons per minute
Groundwater: Confined vs Unconfined

- Groundwater in the alluvium is either unconfined (shallow) or confined (deeper).
- Confining layers are composed of fat clays (high organics).
- City of Ukiah wells 4, 7, 8 and 9 are located in the confined aquifer zone.
Groundwater: City of Ukiah Wells

- Blue Clay is very consistent across valley area where City wells are located.
- Encountered at both Well 4 and Well 9.
- Wells are sealed to the Blue Clay
Recycled (reclaimed) Water

Defined by the USGS as “wastewater-treatment plant effluent that has been diverted for beneficial uses such as irrigation, industry, or thermoelectric cooling instead of being released to a natural water way or aquifer”
Recycled Water

Regulated by the SWRCB
- Place of use
- Beneficial Use
- WQ

Drought resistant
Recycled Water

Production Facilities
- Phases 1-3 (2018)
  - 1000 afy
- Phase 4 (TBD)
  - 400 afy
Supply vs Demand

City's average demand since 2006 is 3,178 AFY
Supply vs Demand

Total supply (22,702 AFY) greatly exceeds demand (3,178 AFY)
- Groundwater (4,000 AFY)
- Pre-1914 (2,023 AFY)
- Appropriative (14,479 AFY)
- Contract Water (800 AFY)
- Recycled Water (1,400 AFY)
Abandonment vs Growth

Abandonment is a serious liability for the City.

• Protecting City’s rights were the focus of past workshops
• Change Petition filed in 2002
  • Expand POU
  • Adding wells as PODs
  • Transfers
Abandonment vs Growth

Expand Place of Use (POU)
- Larger POU could increase use
  - Partially overlaps other Districts
  - Insufficient unmet demand
  - Concerns regarding growth
- Coterminous with 1995 Sphere of Influence
  - 1995 Sphere withdrawn
Abandonment vs Growth

Increase use by adding wells as POD

• Reclassifying wells as surface water would heavily restrict use of City’s most versatile source.
Abandonment vs Growth

Transfers
- Concerns regarding growth
- Expiration
- Significant unmet demand only in Redwood Valley
  - Can be remedied without petition
Abandonment vs Growth

Change Petition not approved
- Concerns regarding growth
- Resulted in Numerous protests
- EIR incomplete
Opportunities

Three ways to protect the City’s rights that also help the greater community

• Change operations
• Return RRFC contract water
• Repurpose unused supply
Opportunities

• Change operations
  • Utilize surface water facilities (Ranney and Well 3) whenever feasible
    • Turbidity
    • Cost
Opportunities

Return RRFC contract water
- Redwood Valley currently underserved
- Addition of COU contract would still not meet average demand
- Preserving agriculture deters urbanization and growth
- Save COU $40k annually
Opportunities

Repurpose unused supply

"Under certain conditions, a reduction or loss of the appropriative water right may not occur due to: (1) water conservation efforts; (2) use of recycled, desalinated, or polluted water; and/or (3) conjunctive use of groundwater and surface water.

Any credit claim based on conservation of water (Water Code section 1011), water quality and wastewater reclamation (section 1010), or conjunctive use of surface water and groundwater (section 1011.5) must be reported."
Opportunities

- Conservation
  - Baseline established in UWMP
- Recycled Water
  - Scale is significant
- Conjunctive Use
  - Recharge helps with SGMA
  - Could assist with achieving zero-discharge at WWTP
  - Ideal site at Riverside Park
Future Direction

Protect City’s water rights without using additional water
• Change operations
• Return RRFC contract water
• Report Conservation and Recycled Water
• Develop Conjunctive Use
• Amend or retract Petition
  • Approach
  • Footprint
• Water Rights Attorney
Questions?