Today’s Agenda

1. Conjunctive Use Recap
   What is being done near-term for water marketing?

2. Water Marketing Discussion
   What can this be turned into long-term?

3. Getting to an Operational Bank

4. Next Steps
Conjunctive Use Recap
Conjunctive Use Recap

- **Recharge Potential**
  - Existing Opportunities: 31,446 acre-feet/year
  - Near-Term Potential: 63,221 acre-feet/year
  - Total: 94,667 acre-feet/year
  - Value: $100 - $170 million

- **Recovery Potential**
  - Existing Opportunities: 36,392 acre-feet/year
  - Near-Term Potential: 58,151 acre-feet/year
  - Total: 94,542 acre-feet/year
  - Value: $40 - $70 million
Simulated Groundwater Bank
10-Year Historical (Existing Potential)

10-Year Water Bank Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Banked Water (TAF/yr)</td>
<td>25.3</td>
</tr>
<tr>
<td>Average Recovered Water (Less Losses) (TAF/yr)</td>
<td>17.5</td>
</tr>
<tr>
<td>Ending Banked Water Balance (TAF)</td>
<td>68.3</td>
</tr>
<tr>
<td>Unrecoverable Water (TAF/yr)</td>
<td>0.9</td>
</tr>
</tbody>
</table>

Graph showing water balance and budget over 10 years.
Simulated Groundwater Bank
10-Year Historical (Near-Term Potential)

<table>
<thead>
<tr>
<th>Year</th>
<th>Banked Water Balance</th>
<th>Recharged</th>
<th>Incremental Recovery</th>
<th>Cumulative Unrecoverable Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10-Year Water Bank Budget

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Banked Water (TAF/yr)</td>
<td>37.9</td>
</tr>
<tr>
<td>Average Recovered Water (Less Losses) (TAF/yr)</td>
<td>27.0</td>
</tr>
<tr>
<td>Ending Banked Water Balance (TAF)</td>
<td>94.8 TAF</td>
</tr>
<tr>
<td>Unrecoverable Water (TAF/yr)</td>
<td>1.4</td>
</tr>
</tbody>
</table>
## Existing vs. Near-Term Banking Operations

<table>
<thead>
<tr>
<th></th>
<th>Existing</th>
<th>Near-Term</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>10-Year Water Bank Budget</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Banked Water (TAF/yr)</td>
<td>25.3</td>
<td>37.9</td>
<td>12.6</td>
</tr>
<tr>
<td>Average Recovered Water (Less Losses) (TAF/yr)</td>
<td>17.5</td>
<td>27.0</td>
<td>9.5</td>
</tr>
<tr>
<td><strong>Ending Banked Water Balance (TAF)</strong></td>
<td>68.3</td>
<td>94.8</td>
<td>26.5</td>
</tr>
<tr>
<td>Unrecoverable Water (TAF/yr)</td>
<td>0.9</td>
<td>1.4</td>
<td>0.5</td>
</tr>
<tr>
<td>Potential Water Sale Revenue* over Simulation Period</td>
<td>$5.3 – $8.8 million/yr</td>
<td>$8.1 – $13.5 million/yr</td>
<td>$2.8 – $4.7 million/yr</td>
</tr>
</tbody>
</table>

TAF = thousand acre-feet
* Assumed $300 to $500 per acre-foot
Water Marketing Discussion
Water Marketing Mechanisms

Institutional mechanism to allow for efficient market-based re-allocation of water supplies.

- Water Transfers
- Groundwater Banks
Water Transfers

Voluntarily sale or/exchange of the right to use all or a portion of the water that would have been consumptively used.

Should result in “real water”:
- Stored Surface Water
- Groundwater Substitution
- Crop Idling/Shifting
- Conserved Water

2 types of transfers:
- Short-Term (Spot Market)
- Long-Term
Region’s Experience in Water Marketing

Have regional experience with water transfers

- Dating from late 90s to this year
- Opportunistic, short-term spot market

Key Challenges:

- Unpredictable, subject to Delta conditions, administratively inefficient, customer perception
Groundwater Banking

Banking is the storage of surface water in groundwater aquifer for later recovery. Involves active adaptive management (accounting, monitoring).

Stored Water Sources:
- Local supplies (water rights, CVP, recycled water, flood/stormwater)
- External partners’ supplies (TBD)

End Users:
- Local and/or External (agricultural, M&I, refuge, in-stream flow augmentation)

2 potential bank types: Regional or Federally Recognized
Groundwater Bank Benefits

• Streamlines transfers and exchanges

• Supports expansion of conjunctive use and water marketing

• Uses region’s surface water rights and entitlements

• Promotes groundwater basin sustainability

• Provides predictability for long-term investment
Getting to an Operational Bank
Getting to an Operational Groundwater Bank

Visioning, Scoping, & Foundational Analyses
- Asset Development & Investment Evaluation
- Market Analysis
- Governance & Implementation

Feasibility Determination
- Project Description
- External Partners Initial Commitments
- Financial Feasibility
- Governance Structure

Project Approvals
- Local Approval
- External Partners Agreements
- State Approvals
- Federal Approval

Implementation
- Monitoring, Accounting, Reporting, & Adaptive Management

External Partners

CEQA/NEPA

Monitoring, Accounting, Reporting, & Adaptive Management
Visioning, Scoping, & Foundational Analyses

Asset Development & Investment Evaluation
Quantify Marketable Assets for Different Levels of Physical and Institutional Investments

Market Analysis
Identify Market Focus and Preferences (Types, Partners, and Requirements)

Governance & Implementation
Develop Implementation Plan to Support Targeted Markets and Investments

Hydrological, Operational & Physical Constraints Analysis

Infrastructure & Investment Considerations

Legal and Environmental Constraints Analysis

Water Market Identification & Evaluation

Financial Model Development

Financial Scenario Analysis

Governance and Partnership Framework

Water Marketing Support Tools

Monitoring Plan

RWRP – Conjunctive Use Existing & Near-Term Opportunities

ARBS – Conjunctive Use Long-term Opportunities

RWRP – Water Market Research

Water Market Identification & Evaluation

Financial Model Development

Financial Scenario Analysis

Governance and Partnership Framework

Water Marketing Support Tools

Monitoring Plan

ARBS – CalSim 3.0 regional model

SGMA – Regional Groundwater (IWFM) Model*

* Total cost: $0.8-$1M
  - Funded: $500k
  - Unfunded:
    - South American Basin $300k
    - Cosumnes $200k

◆ WaterSMART Water Marketing Project
Feasibility Determination

**External Partners Initial Commitments**
- Type and level of participation in banking
- Partially funded by RWRP – CVP Engagement ($25k)

**Financial Feasibility**
- Confirm local participants & their Level of participation in banking.
- Not funded $50k to $200k

**Governance Structure**
- Outline preferred governance structure, and roles & responsibilities.

**CEQA/NEPA**
- Regional & Statewide Impact Analyses using CalSim 3.0 & Regional Groundwater Model.
- Not funded $1.18 M to $1.47 M
Project Approvals

Local Approval
- Local Partners Each Approve Participation in Project & Governance

External Partners Agreements
- Confirm Participants & Their Level of Participation

State Approvals
- State Water Board Notifications /Approvals (as applicable)

Federal Approval
- Reclamation Approval of CVPIA Groundwater Bank

Not funded
$120k to $235k
Implementation

Ongoing implementation activities for operating a groundwater bank.

- Monitoring
- Accounting
- Reporting
- Adaptive Management
Funding Needs for Getting to an Operational Groundwater Bank

Visioning, Scoping, & Foundational Analyses:
- Asset Development & Investment Evaluation: Already funded
- Market Analysis: Already funded
- Governance & Implementation: $300k - $500k (IWFM model)

Feasibility Determination:
- External Partners Initial Commitments
- Financial Feasibility
- Governance Structure: $50k - $200k
- CEQA/NEPA: $1,180k - $1,465k

Project Approvals:
- Local Approval
- External Partners Agreements
- State Approvals: $100k - $200k
- Federal Approval: $20k - $35k

Implementation:
- Monitoring, Accounting, Reporting, & Adaptive Management

Total Preliminary Cost for Unfunded Actions:
$1.7M to $2.6M

Education & Public Engagement: $150k
Funding Sources & Status*

- American River Basin Study: $807,862 (18%)
- WaterSMART Water Marketing Project: $400,000 (9%)
- Regional Water Reliability Plan/Regional Drought Contingency Plan: $658,906 (15%)
- Sustainable Groundwater Management Act (DWR): $357,000 (8%)
- Unfunded: $2,200,000 (50%)

* Excludes In-Kind Funding
# Funding Proposal Discussion

<table>
<thead>
<tr>
<th>Fiscal Year Tasks</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FY 18/19</strong></td>
<td><strong>$0.5M</strong></td>
</tr>
<tr>
<td>$100k: State/Federal/Partners + Agency Engagement</td>
<td></td>
</tr>
<tr>
<td>$300k: IWFM model</td>
<td></td>
</tr>
<tr>
<td>$100k: Public Outreach</td>
<td></td>
</tr>
<tr>
<td><strong>FY 19/20</strong></td>
<td><strong>$1.1M</strong></td>
</tr>
<tr>
<td>$900k: CEQA/NEPA</td>
<td></td>
</tr>
<tr>
<td>$100k: Feasibility/Approvals</td>
<td></td>
</tr>
<tr>
<td>$50k: Public Outreach</td>
<td></td>
</tr>
<tr>
<td><strong>FY 20/21</strong></td>
<td><strong>$0.6M</strong></td>
</tr>
<tr>
<td>$450k: CEQA/NEPA</td>
<td></td>
</tr>
<tr>
<td>$150k: Approvals</td>
<td></td>
</tr>
</tbody>
</table>
Next Steps
Next Steps

• RWRP Meeting – July 11 & August 8

• Initiate engagement with local & external potential partners

• Develop public outreach strategy

• Develop RWRP Report