

Madera Water Market Strategy Pilot Program

Workshop 1 - Defining Opportunities



Agenda



- Welcome & Introductions
- Meeting Objectives
- Water Market Strategy Pilot Project Timeline
- Highlights on Early Partner Engagement
- Water Rights 101

Short Break

- Water Market Strategy Concept and Tools
- Exercise: Identify Opportunities, Constraints, Affected Parties

Refreshments Break

- Plenary Discussion
- General Comment
- Recap, Next Steps and Closing



Meeting Objectives

- Introduce water market concept, tools and context
- Identify partner opportunities, constraints and concerns
- Initiate discussion on affected parties and impacts
- Gain insights and begin to brainstorm for future partner discussions

Introductions



Please state your:

- Name and Affiliation
- Reason for interest in water market
- Favorite “gem” of Madera County

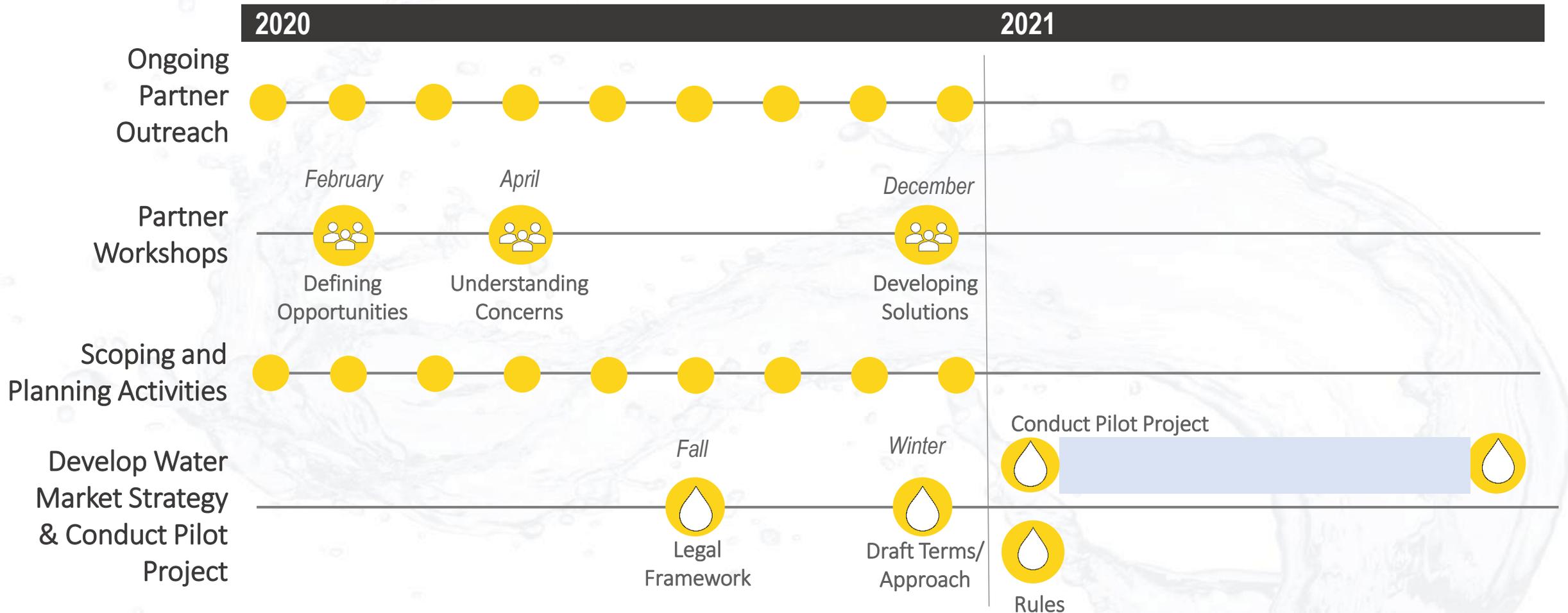
Ground Rules

- Respectful interaction
- One speaker at a time
- Honor agenda and time limits
- Use electronic courtesy





Proposed Pilot Project Timeline





Partner Assessment Interview Findings

Process and Objective

- Objective of partner assessment interviews between January - February
- Initial partners interviewed

Highlights

- Knowledge about water markets
- Level of support for water market strategy in Madera
- Key take-aways

Additional reflections from partners

Thank you for your input!



WATER RIGHTS 101

Legalese

Disclaimer:

I am not an attorney

This is not legal advice

This information is excerpted on a class that is much, much longer and more in-depth

What is a Water Right?

A water right is legal permission to use a reasonable amount of water for a beneficial purpose such as swimming, fishing, farming or industry.

Water is protected for the use and benefit of all Californians.

California's waters cannot be owned by individuals, groups, businesses, or governmental agencies. But permits, licenses, and registrations give individuals and others the right to beneficially use reasonable amounts of water.

Groundwater Rights in terms of water markets

You are not trading water rights

You cannot trade your overlying groundwater rights because they are appurtenant to the land

You may be able to trade an “allocation” of 0.5 AF/AC/YR

You cannot trade water over and above the 0.5 AF/AC regardless of how much crops currently use

Your rights to groundwater do not change with participation in the market

Reasonable and Beneficial Use

Reasonable Use - Reasonable criteria are in Article 10, Section 2, of California Constitution; can depend on geography, can change over time

Beneficial Use - Types of beneficial uses are in Title 23 of the Water Code:

Domestic, irrigation, power, frostbite, municipal, mining, industrial, fish and wildlife enhancement, aquaculture, fish and wildlife protection, recreational, water quality, stock water

More from the Water Code

“It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation.”

-Water Code, Section 106

Surface Water Rights and Groundwater Rights

-California water law is “special”

-Surface water rights and groundwater rights are treated as though surface water and groundwater are not related

Basic Surface water rights: pueblo, riparian, appropriative

Basic Groundwater rights: pueblo, overlying, appropriative

Surface and GroundWater Rights: Pueblo

- a water right to both surface water and groundwater
- only for settlements of the Mexican and Spanish government, including Los Angeles
- only held by municipalities
- highest priority of all water rights
- cannot be lost

Surface and GroundWater Rights: Appropriative

- surface water right as well as a groundwater right
- origins in hydrologic mining to dislodge gold from hillside
- quantified for a specific purpose and in a specific place
- senior appropriative rights holders get water before junior appropriative rights holders



Surface Water Rights: Riparian

- surface water right
- British in origin (from English common law)
- the right to use water if you are adjacent to it (or streamside) but the water must drain from the land you are using it on back into the waterway
- not quantified, but you can use only as much as to make reasonable and beneficial use from it (not waste it)
- cannot use for riparian water for storage
- not lost by non-use



Groundwater Rights: Overlying

Overlying rights - often called “riparian rights turned on their side” this is the right to use water directly underneath land that you own

Appurtenant to the land

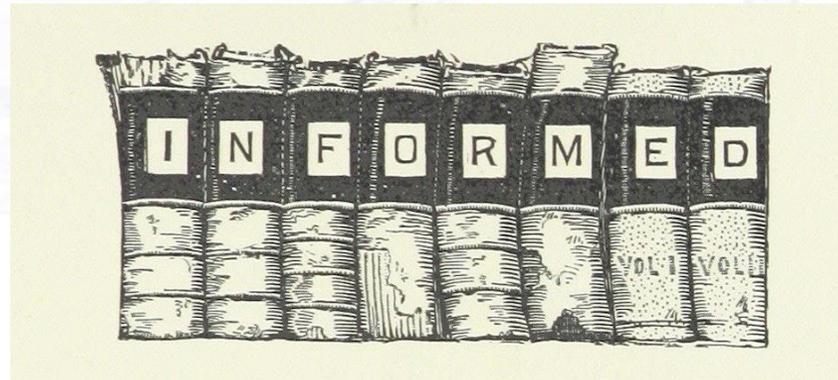
Groundwater Rights in terms of water markets

Again, you are not trading your water rights

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BREAK
(5 minutes)

Groundwater Marketing 101

February 25, 2020

Sustainable Groundwater Management Act

- Changes how groundwater is managed in California
- Requires *Groundwater Sustainability Agencies (GSAs)* to develop *Groundwater Sustainability Plans (GSPs)* to achieve sustainable groundwater management.
- Designated the three sub-basins in Madera County as high-priority, critically over-drafted.
- Must achieve *sustainable yield* by 2040.

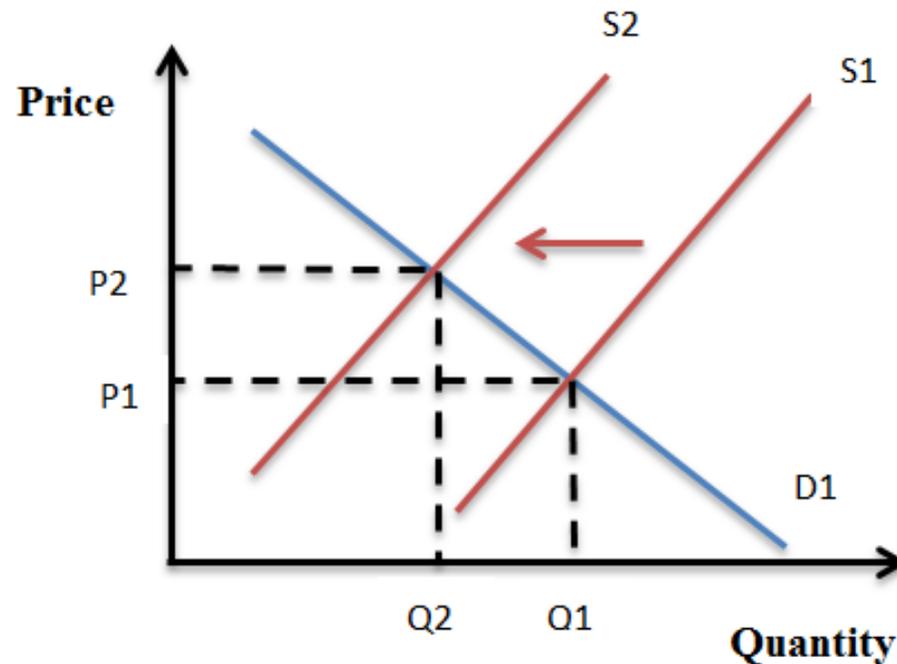
Role of Market

- Facilitate transfer of water from willing sellers to willing buyers.
- Enable more efficient reallocation of limited resources (e.g., compared to regulations alone).
- Incentivize water conservation and efficiency.
- Can result in positive social, environmental, and economic outcomes.
- Incentivize investments in additional supplies and new infrastructure (e.g., groundwater storage)

Market Supply and Demand

Three groundwater use decisions:

- **Buy** (higher-value crops)
- **Sell** (lower-value and/or annual crops)
- **Don't participate**



Potential Negative Impacts

- **Spatial:** Changing the location of groundwater pumping can change its impacts.
 - **Temporal:** Impacts vary in time (wet v. dry years); unintended consequences from carryover;
 - **Method/purpose:** Quality and quantity concerns
- Lead to economic, social, and environmental impacts

Benefits, costs, and economic impacts



Economic

Costs
Revenues
Regional economic impacts



Social

Local employment
DACs
Affordability
Subsidence damage/risk



Environmental

Groundwater dependent ecosystems
Recharge
Water quality

Water Market Strategies

Strategies to reduce adverse effects:

- Consumptive use limitations
- Trading zones
- Trading ratios
- Directional restrictions
- Cumulative extraction limits
- Spatial concentration limits
- Sustainability thresholds
- Closure dates
- Carryover limits
- Recharge credits
- Mitigation

“Trading programs are only as good as their governance systems and rules.”

Market Exchange Platform/System

- Connecting buyers and sellers
- Transfer approval process
- Environmental review
- Operationalizing trading rules
- Tracking completed transfers
- Level of information available to potential buyers, sellers, and/or the public
- Responsible party/market administrator



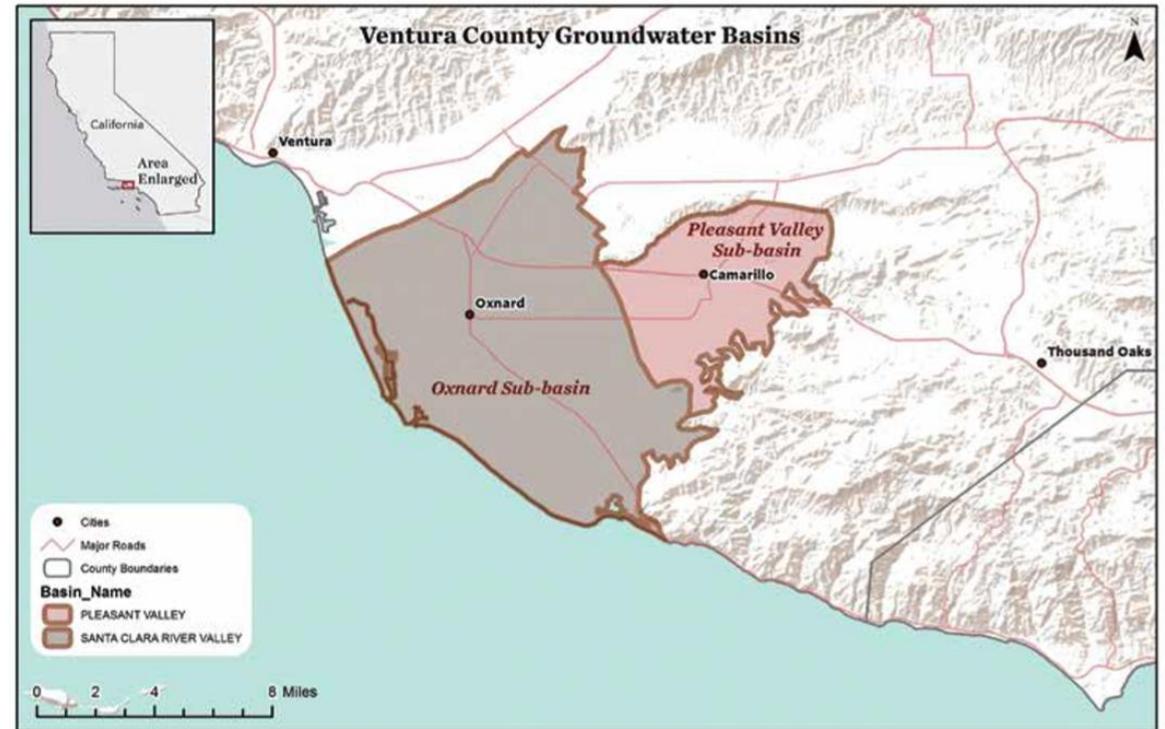
Key is to minimize transaction costs and reduce market biases/information asymmetry

Monitoring and Enforcement

- **Monitoring** – understand effect of transfers on basin conditions
- **Oversight and enforcement** – ensure compliance with overall limits and allocations
- **Evaluation/adaptive management**

Groundwater Trading in Action: Ventura County

- Ventura County - 11th most productive agricultural county in the nation
- 96,000 irrigated acres, half of which are in the Oxnard and Pleasant Valley basins
- Groundwater use: 91,000 AFY (2000 – 2015).
- Area farmers grow a mix of annual and permanent crops



Source: CERF, TNC, FCMA, Ventura County Farm Bureau, 2018

Fox Canyon Groundwater Management Agency

- FCGMA created in 1982 by California legislature.
- Long history of over-pumping and seawater intrusion resulted in classification as critically over-drafted.
- Expected reductions of up to 35%.
- Existence of FCGMA was key driver of the development of the groundwater market.



Enabling Conditions

- **Water Scarcity** – SGMA Sustainable Yield
- **Fixed Allocations** - historically-based pumping allocation per well
- **Agricultural Stakeholder Support** – market idea and design driven by local growers
- **Market Design Expertise** – Pacific Lutheran Center for Economic Research and Forecasting; The Nature Conservancy
- **Capacity and Funding** - \$1 million Conservation Innovation Grant (CIG) from the federal Natural Resource Conservation Service.

Pumping Allocations

- Based on historic pumping
- Ramp-down to 20-year goal
- Carryover allowed
(up to 100% of current year's annual allocation)
- Borrowing against future allocations not allowed



Trading Rules

- Third-parties may participate in market (e.g., agricultural lessees, environmental users)
- Trades are limited to annual leases of up to 100% of allocation
- Market allows for trading of new supplies
- No permanent transfers
- Directional restrictions (SMAs)

Reporting and Accounting

- Accurate water use data needed to ensure participants do not exceed pumping allocations
- Pumpers required to move to automated monthly reporting through installation of AMI telemetry on all agricultural wells.
- Water users own the AMI data
 - AMI administrator reports monthly pumping total to FCGMA; total pumping year-to-date to the water market administrator.
 - Granular enough to detect cheating while still providing growers with data security.
- FCGMA incentive program offered rebates for early installation

Market Exchange

- Third-party administrator (CERF) increases trust in process
- Buyers and sellers pay 2% fee (4% total) per trade to cover administrative costs
- Anonymous and algorithmic matching system
 - Addresses concerns that influential parties can control the price of water or exclude growers from market activity.
 - Algorithm matches bids and offers (maximum WTP with minimum WTA)
 - Incentivizes market participants to reveal their true price and reduces opportunity for strategic bidding.
- Exchange administrator reports trading activity using aggregated data to ensure grower anonymity.

Lessons Learned

- GSAs wishing to create water markets should create their GSPs with the market in mind.
- Accurate water use data is needed to ensure compliance with GSP and water market
- Water market goals and rules should be tailored to participants' interests and needs.
- Testing the market through a pilot program helps to “get the bugs out.”
- Developing a water market requires significant agency, stakeholder, and technical capacity/expertise.

Source: CERF, TNC, FCMA, Ventura County Farm Bureau, 2018

Questions?

Mapping Exercise: BREAK OUT ACTIVITY

(30 Minutes)



- Break into 3-4 groups with the following representation:
 - Chowchilla Subbasin
 - Madera Subbasin
 - Delta-Mendota Subbasin
 - Residential
 - Farming/Ag/RCD
 - General participant - identify interest, if applicable

Post-it Color	Question
PINK	Where are you on the map?
GREEN	In the same location on the map, identify and list potential opportunities related to a water market
YELLOW	In the same location on the map, identify and list potential concerns or challenges associated with a water market
BLUE	Identify areas on the map and list potential economic, social, or environmental impacts and affected parties



Mapping Exercise: DISCUSSION GUIDE

(15 Minutes)

- What are the group's main concerns about the water market?
- What were some opportunities/challenges identified?
- Were any opportunities/challenges identified by multiple interests? Which ones and why?
- Was there a noticeable concentration (by location) where opportunities/challenges were placed? If yes, what are they and where? Why?
- Were there any environmental concerns identified? If yes, what are they and where?
- In discussing challenges, were any particular affected parties identified? If yes, where?
- In discussing challenges, were there any ideas to mitigate these challenges which were identified? If yes, what are they?

Considerations for Breakout Groups

- **Equity** – pumping allocations; DACs; ongoing monitoring of use; past conservation; drinking water sources.
- **Outside influences** – protecting integrity of market, concerns about other influences.
- **Market rules/transactions** – banking/carry over, transaction costs, data security.
- **Adverse impacts/positive influences** – groundwater levels, environmental/environmental management goals, groundwater quality, cost of groundwater pumping, other sustainability indicators.
- **Opportunities** - other ways with dealing with reductions in water use - crop shifting, developing new recharge projects, water reuse.



BREAK

Pizza is available in the adjacent breakroom



Plenary: DISCUSSION GUIDE

(15 Minutes)

- What are the group's main concerns about the water market?
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- Were any opportunities/challenges identified by multiple interests? Which ones and why?
- Was there a noticeable concentration (by location) where opportunities/challenges were placed? If yes, what are they and where? Why?
- Were there any environmental concerns identified? If yes, what are they and where?
- In discussing challenges, were any particular affected parties identified? If yes, where?
- In discussing challenges, were there any ideas to mitigate these challenges which were identified? If yes, what are they?



Comments and Reflections

Recap, Next Steps and Closing Remarks



- What we learned today in Partner Workshop #1
- Partner Workshop #2: *April 30, 2020*
- Review Water Market Pilot Project Timeline
- We invite you to continue to share comments!

KEARNS & WEST

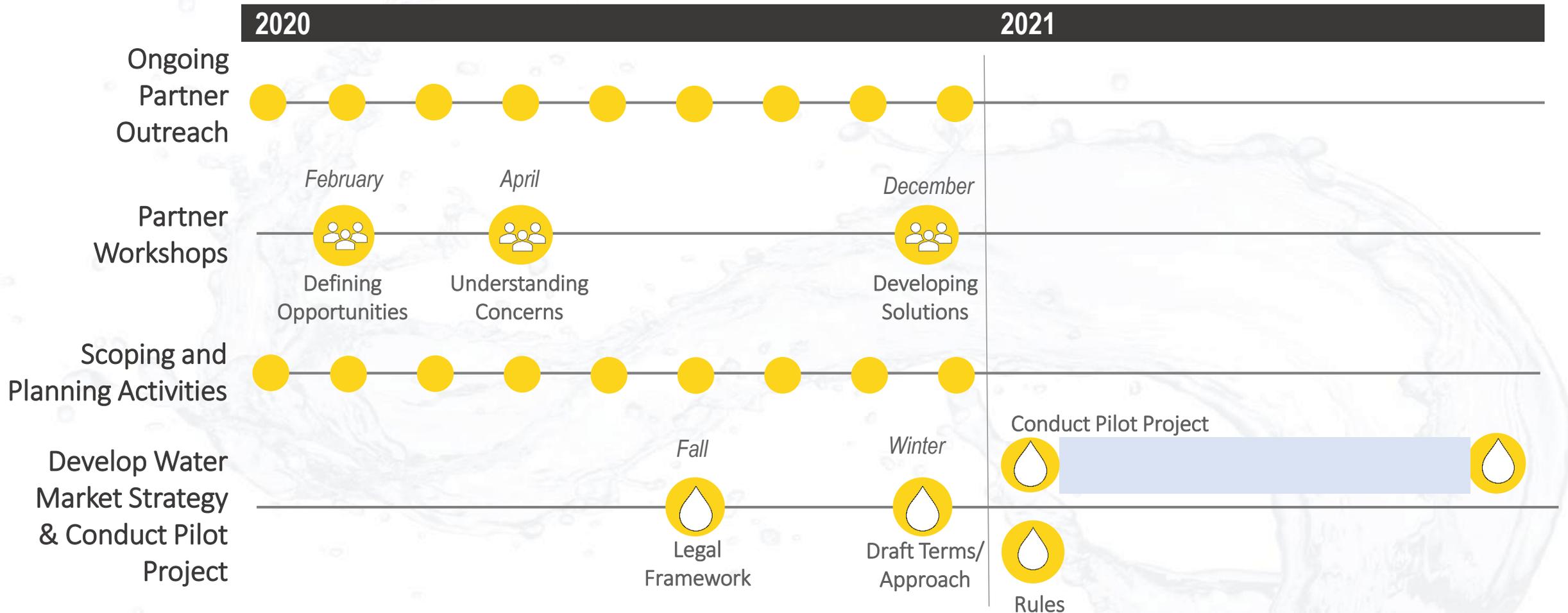
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- Closing remarks



Proposed Pilot Project Timeline





Madera Water Market Strategy Project Workshop 1

Thank you for attending!

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