



Yakima Basin Water Market Strategy Draft

Yakima Basin Integrated Plan | June 1, 2022

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Background: Market reallocation

- Market exists – greater activity since early 2000s
 - Relatively more activity in drought years
 - Presence of domestic mitigation (WBN) transfers
 - Domestic and environmental buyers are key market participants
 - Domestic needs led to innovation with the USBR-ECY storage contract
 - Inefficiencies in the process
- **Can a “smart market” help address inefficiencies?**



Key definitions

- **Smart market:** an electronic clearinghouse that matches buyers and sellers of water by price point and regulatory constraints.
- **Water right transfer:** change to an attribute of a water right. This requires filing a change application requesting Ecology's review of the right under RCW 90.03.380.
- **Market-based transfer:** voluntary agreement for consideration between two or more parties that results in a temporary or permanent change in a water right.
- **Water bank:** “mechanism for a water right holder to ‘deposit’ a water right with a private or public entity (the bank) that can make the water available for lease/sale on a temporary basis by another person for use in another location.”



Goals and objectives

- **Goal**

- Develop a robust smart market strategy that leverages multi-benefit water transactions to address water scarcity in the basin, increase drought resilience, and advance streamflow restoration.
- Advance market reallocation element of the Yakima Basin Integrated Plan.

- **Objectives**

- Analyze past market-based transfers and prior research to identify mechanisms to increase efficiencies.
- Analyze and synthesize research to develop mechanisms that increase market access and facilitate water transfers for all interested stakeholders.
- Provide recommendations to increase stakeholder participation in market-based transfers
- Develop a framework (smart) that will advance market-based transactions.



Project approach

- **Outreach:** gather feedback, understand concerns, vet research methods/findings, draft strategy feedback
- **Research:** water rights, crop-water values, consumptive uses, past market activity, instream flow needs, legal needs, water supply/storage, and policy
- **Analysis:** market simulations and water valuations, water rights transferability, streamflow needs, legal and policy needs, implementation requirements
- **Strategy:** increase transfer efficiency to address water shortages for irrigators, streamflows, and municipalities – broad applicability where possible



Literature review

- **Steps (Evans School)**
 - **Research literature** – Australia, Canada, Chile, U.S.
 - **Rules and regulations** – Washington, Oregon, Idaho, and Colorado
- **Key points**
 - **Trust and confidence** – timeliness and transparency in market structure and administration are crucial for stakeholder confidence in the market
 - **Decision timeliness + transparency** – underscores public trust in market
- **Provided key input on recommendations**
 - **Outside administrator** – private/NGO helps maintain trust and confidence, reduces conflicts of interest
 - **Management of water** – participants must have certainty that water will be available



Outreach

- **Technical Work Group (TWG)**

- Yakama Nation, Ecology, private water right holders, irrigation district managers, county water manager, non-profit, water resources experts (ret.)
- Provides a careful link to past activity on market-based transfers and sources of information
- Collegial and knowledgeable space to vet ideas and seek feedback

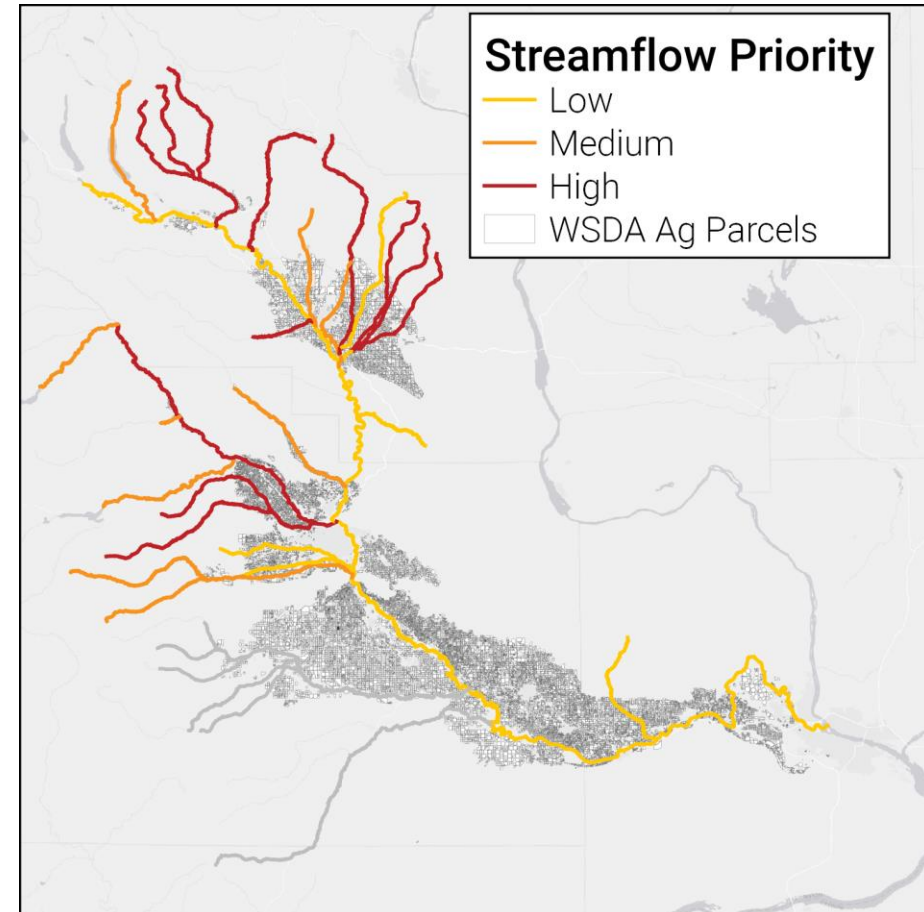
- **Past and ongoing outreach**

- YBIP presentations – workgroup and subcommittees
- Public press – newspapers, websites
- Similar efforts – WSU Technology for Trade, other WaterSMART water market grant recipients
- Private foundation funders and state and federal water managers



GIS and streamflows

- **Geospatial database development**
 - Data compilation and analysis
 - Water rights, crop types, parcels, etc.
- **Streamflow needs**
 - Evaluated major streams identified in CRIA
 - Utilized WDFW expertise on streamflow
 - Developed weighted streamflow needs table



Satus, Simcoe, and Toppenish Creeks are high priorities for flow restoration but are not included in the analysis.



Rules and regulation analyses

- **Rules for administration of a smart market**
 - Assist with rules framework for smart market
 - History of the Yakima Basin water rights rules and regulations
 - 'Terms & Conditions' for smart market participation
 - Drafted valid and invalid transfer scenarios to explain rules
- **Regulation and protection of water rights**
 - Identified practical challenges to protect and manage private water right transfers
 - Reviewed limitations to moving water within and among irrigation districts



Smart market simulations

- **Market simulations help us understand the potential value, impacts of water trading programs**
 - Formulate clear, specific, and programmable rule sets
 - Adjust “levers” in a sandbox setting and observe impacts
- **In practice, water trading doesn’t happen to the extent that is simulated**
 - Transaction costs
 - Endowment effects
 - Education + awareness
 - Other



Smart market simulations

- **Types of trading**
 - Private water rights
 - Intra-district (within-district)
 - Inter-district (between districts)
- **Contract duration**
 - Temporary (one year)
 - Permanent
- **Water demands**
 - Increase in drought years



Smart market simulations

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- **Water demands**
 - Increase in drought years
- **Private water rights trading rules**
 - No increase in CU
 - No stacked water
 - No upstream trades
 - Subject to curtailment (priority date)
- **Intra-district trading rules**
 - No increase in CU
 - No stacked water
 - Subject to curtailment (proratable)



Smart market simulations

Quantities of Water

Consumptive use is calculated using the WA Irrigation Guide (WIG)

Values of Water

Derived from WSDA's crop data layer and crop budgets

Transfer Rules

Intra-district trading and the trading of private water rights



Water use

Face value of water rights

4.3 million AF (FSOR)

Total agricultural consumptive use

1,156,530 AF (WIG)

Total stacked rights (Ag/CU)

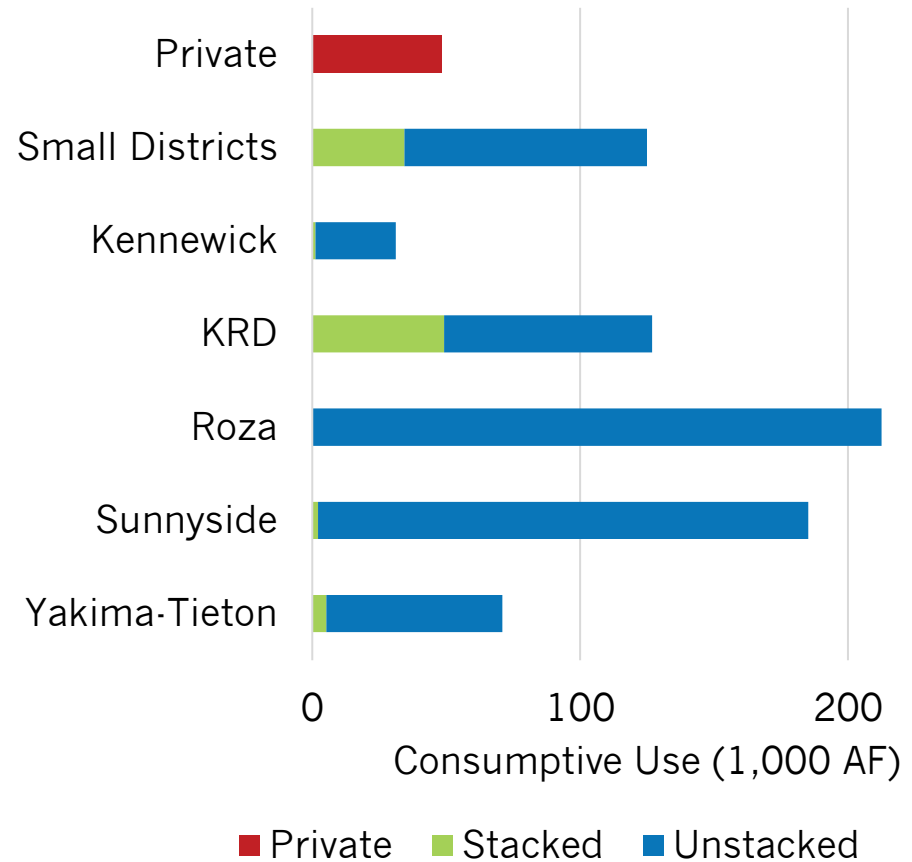
92,404 AF (WIG)

Total unstacked rights (Ag/CU)

659,414 AF (WIG)

Total private water rights (Ag/CU)

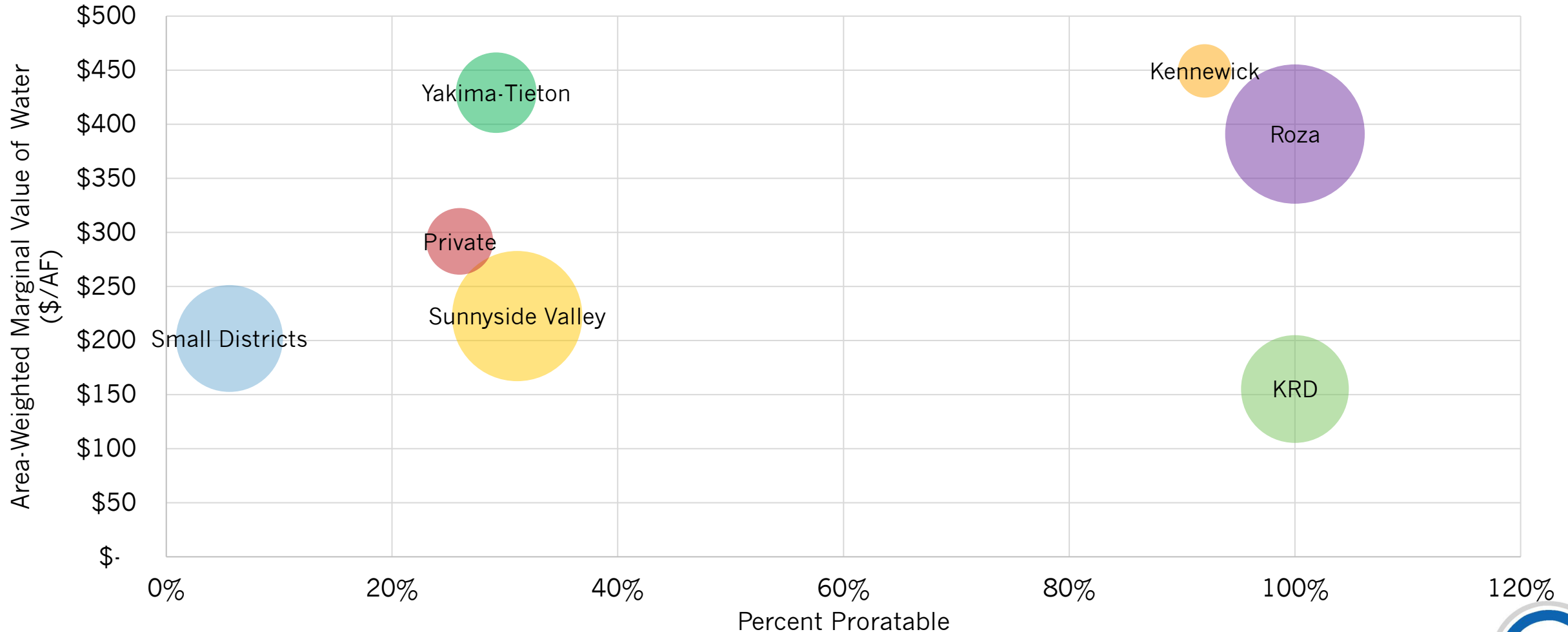
48,575 AF (WIG)



Results are draft preliminary and subject to change.



Water values, seniority, CU



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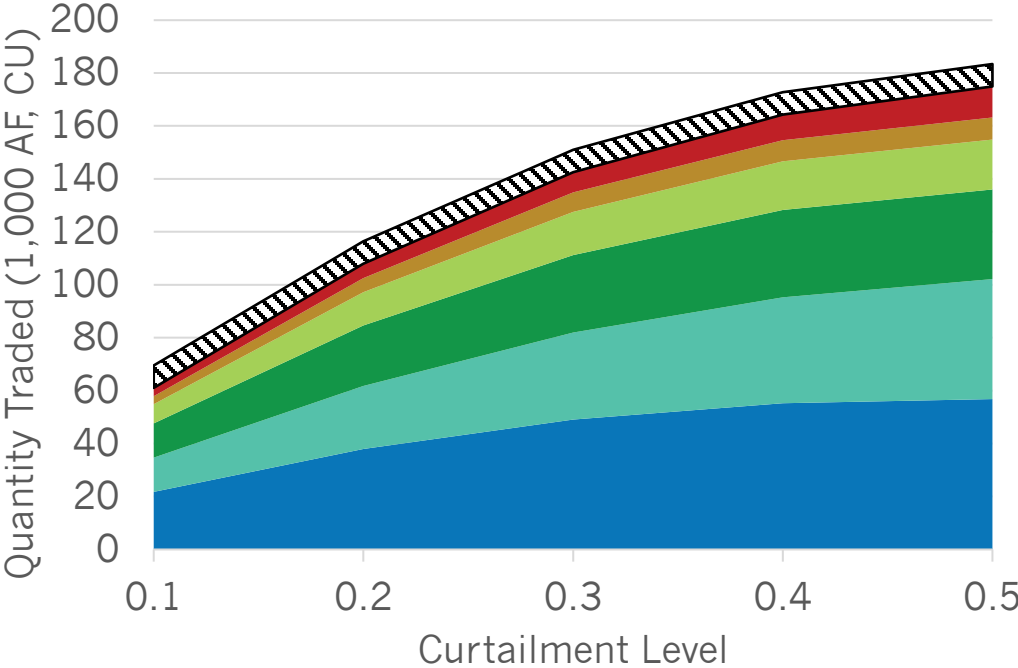


Market simulations

Intra-district + private water rights

Intra-district trading in the major districts accounts for 80-90% of simulated agricultural trading activity

Could be additional gains (e.g., via inter-district trading)



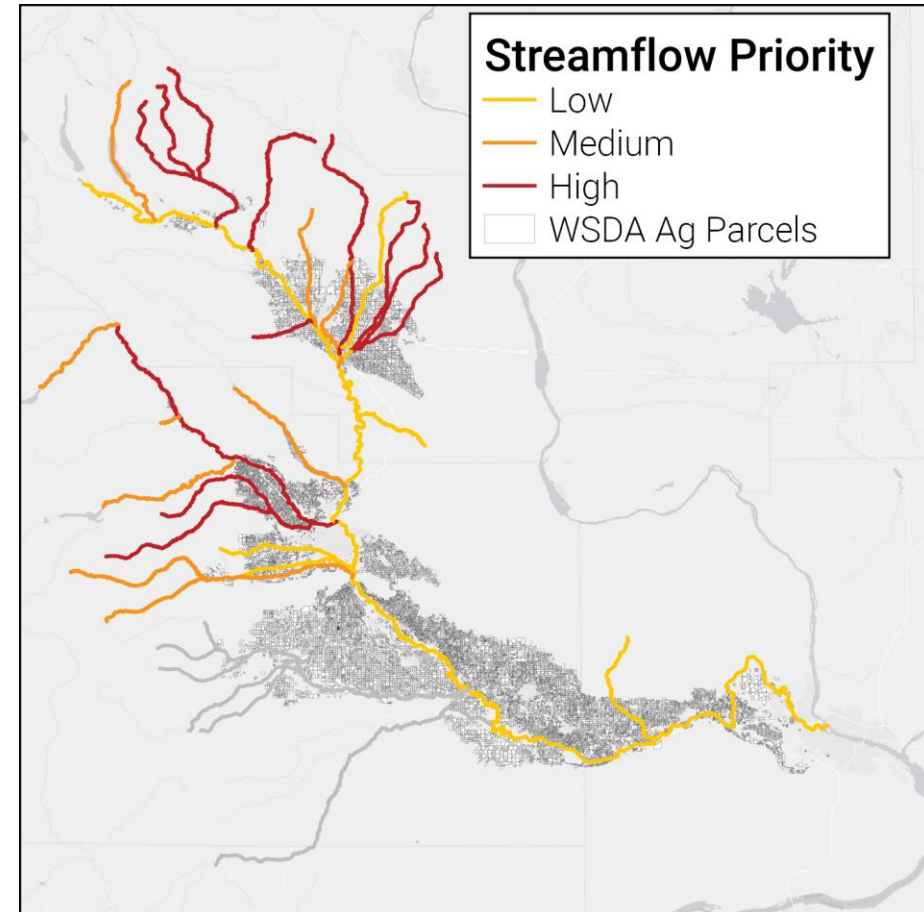
- Roza
- Sunnyside
- KRD
- Yakima-Tieton
- Kennewick
- Small Districts
- ▨ Private

Results are draft preliminary and subject to change.



Environmental buyers

- An environmental buyer **does not** significantly increase the total amount traded
- An environmental buyer **does** significantly increase the amount traded on high- and medium-priority reaches
 - e.g., sellers on high- and medium-priority reaches are matched more than those on low-priority reaches



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Simulation takeaways

We analyzed intra-district trading and the trading of private water rights.

- The majority of the agricultural benefits are realized in the intra-district market, but instream flow benefits accrue only through the private water rights market.
- The participation of a funded environmental flow buyer can drive more instream flows, particularly in high- and medium-priority reaches.
- While the trading rules are restrictive/conservative, they are easily adapted.
 - e.g., to unstack water rights, to allow inter-district trading, to allow permanent trades, etc.

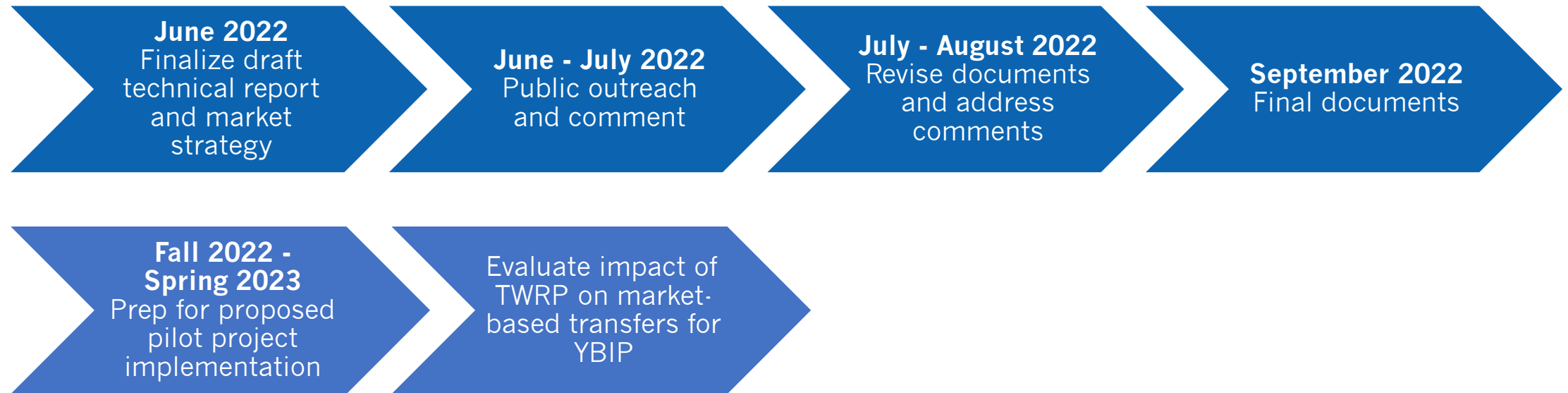


Key draft strategy recommendations

- **Adopt and implement a smart market tailored to the Yakima Basin – pilot program to focus on water-short years.**
- Implement a simplified process for entering the smart market.
- Annual audit of smart market code and performance for consistency with Yakima Basin transfer rules and requirements; clean audit means no impairment/3rd party issues.
- Potential adoption of a web-based tool like OpenET (<https://openetdata.org/>) as a standard tool to determine water use for temporary transfers.
- Support for additional monitoring and enforcement for water transfers.



Next steps



Thank you!

Submit questions and comments to Justin.Bezold@tu.org
YakimaBasinWaterMarketing.org

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