OneWater Nevada
Our Sustainable Water Future

# Palomino Farms Sustainable Water Resource Feasibility Study

# UPDATE

OneWater Nevada's Palomino Farms Sustainable Water Resource Feasibility Study (Study) is part of a regional effort to optimize and expand available water resources. The purpose of the Study is to explore the coordinated use of surface water, groundwater, and recycled water (known as conjunctive use) to better manage our water resources.

The Hydrogeologic Study underway now is a part of the overall Study and aims to understand existing hydrogeologic conditions, water quality, potential deal-breakers, and help evaluate future recharge scenarios. Page 2 of this handout depicts the location of the Hydrogeologic Study Area.

**Preliminary Groundwater Modeling**

Preliminary groundwater modeling using existing data from previous studies found that the Palomino Valley Aquifer has the potential to store large quantities of water through groundwater recharge. However, preliminary analysis also suggested that elevated concentrations of arsenic and nitrate measured in the 1960's to 1980's may affect groundwater recharge operations.

**Summer and Fall 2021 Field Work**

Between July and October 2021, TMWA installed and tested eight monitoring wells to collect additional geologic, water quality, and groundwater flow data. Page 3 shows the location of the new wells (PF-MW01 through PF-MW08). Page 4 depicts the water levels and areas of high groundwater flow based on the information gained from these new wells, domestic wells, and historic information.

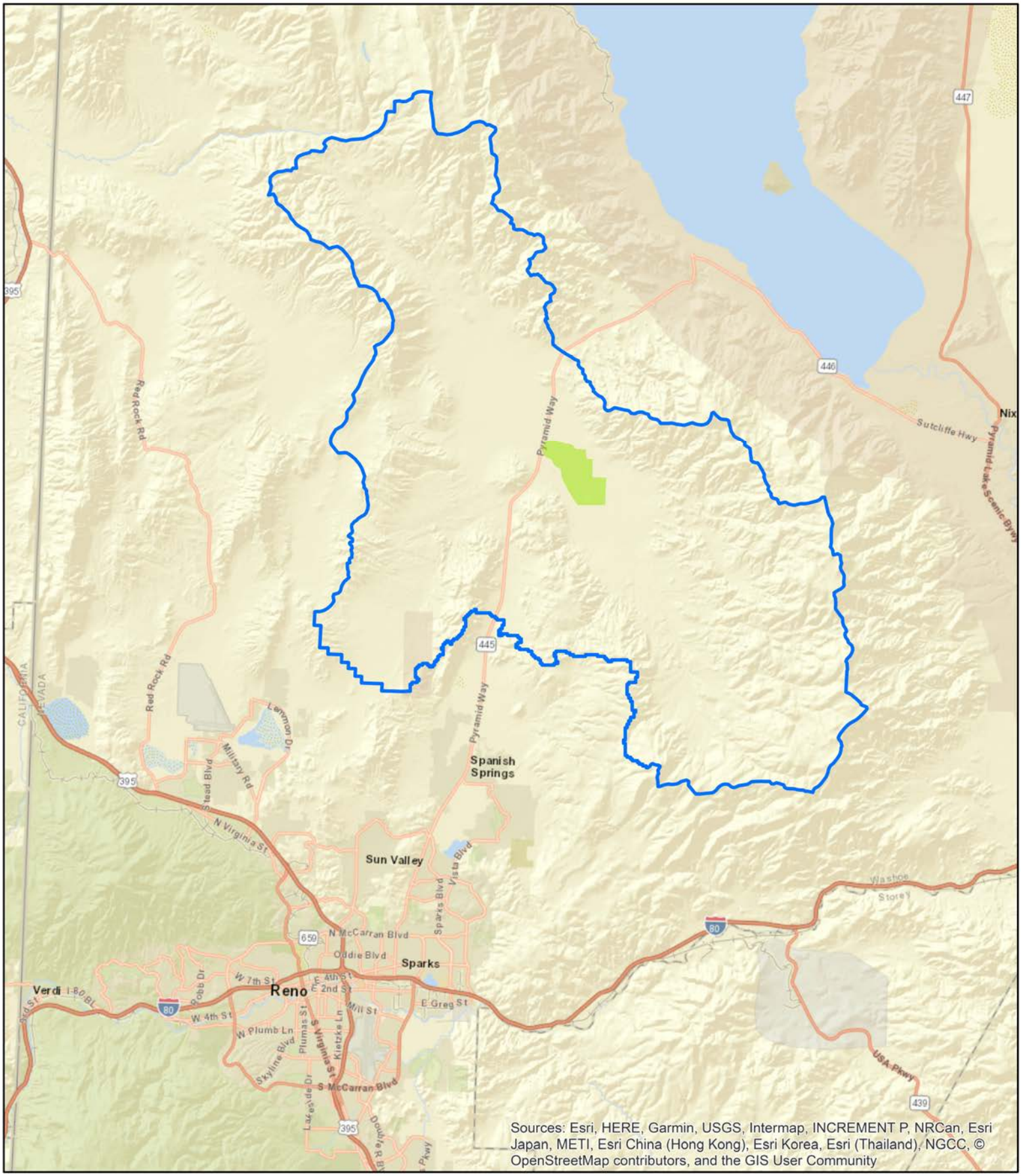
**Preliminary Results**

Soil samples show that high nitrate occurs at shallow depths in unirrigated areas, whereas high nitrate occurs at greater depths in irrigated areas. In most cases, water quality sampling confirmed that high nitrate occurs in the shallow aquifer and decreases with depth (see page 5).

Arsenic can be high in the valley due to the influence of geothermal activity. Arsenic concentrations are generally elevated in the west and south parts of the basin and lower in the central portion near the agricultural areas (see page 6).

**Next Steps**

- Collect water samples from three more wells in the area
- Collect water levels and water quality samples from interested Domestic Well owners
- Collect additional soil samples under irrigated areas to assess nitrate depth
- Update the groundwater model: geology, geophysics, water quality, hydraulics
- DRI analyzing compatibility of potable and recycled water with existing Palomino Valley groundwater – complete by end of February 2022




TRUCKEE MEADOWS WATER AUTHORITY

Figure 1: Hydrogeologic Study Area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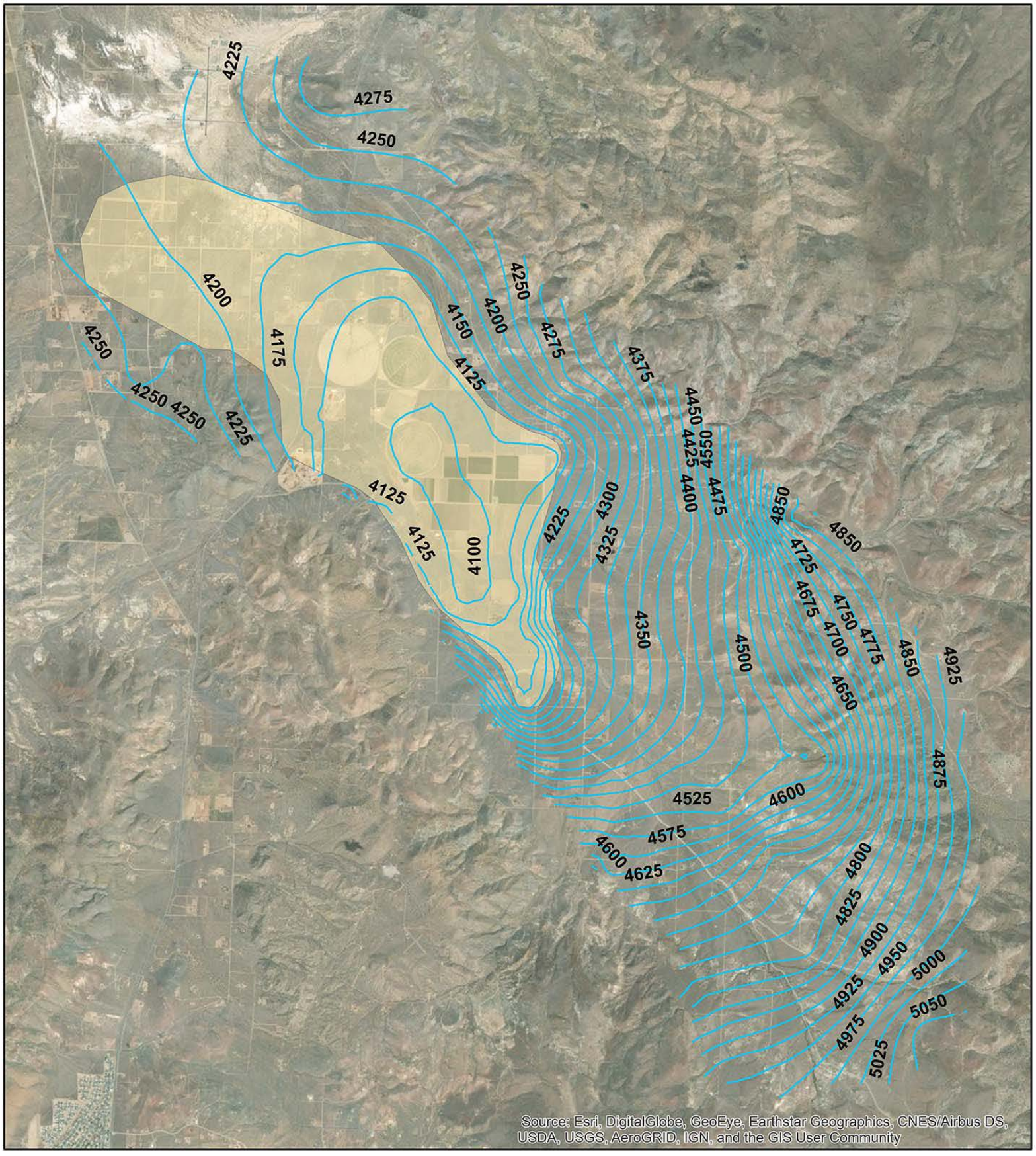
TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.

**Wells Monitored within the Hydrogeologic Study Area Palomino Valley, Nevada**

| | |
|---|---|
| DATE | 11/10/2021 |
| MAP BY: | JK |
| REQUESTED BY: | CK |
| SCALE: | 0 500 1,000 Feet |

NORTH

NAD 83 NEVADA STATE PLANE WEST FEET

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## Legend

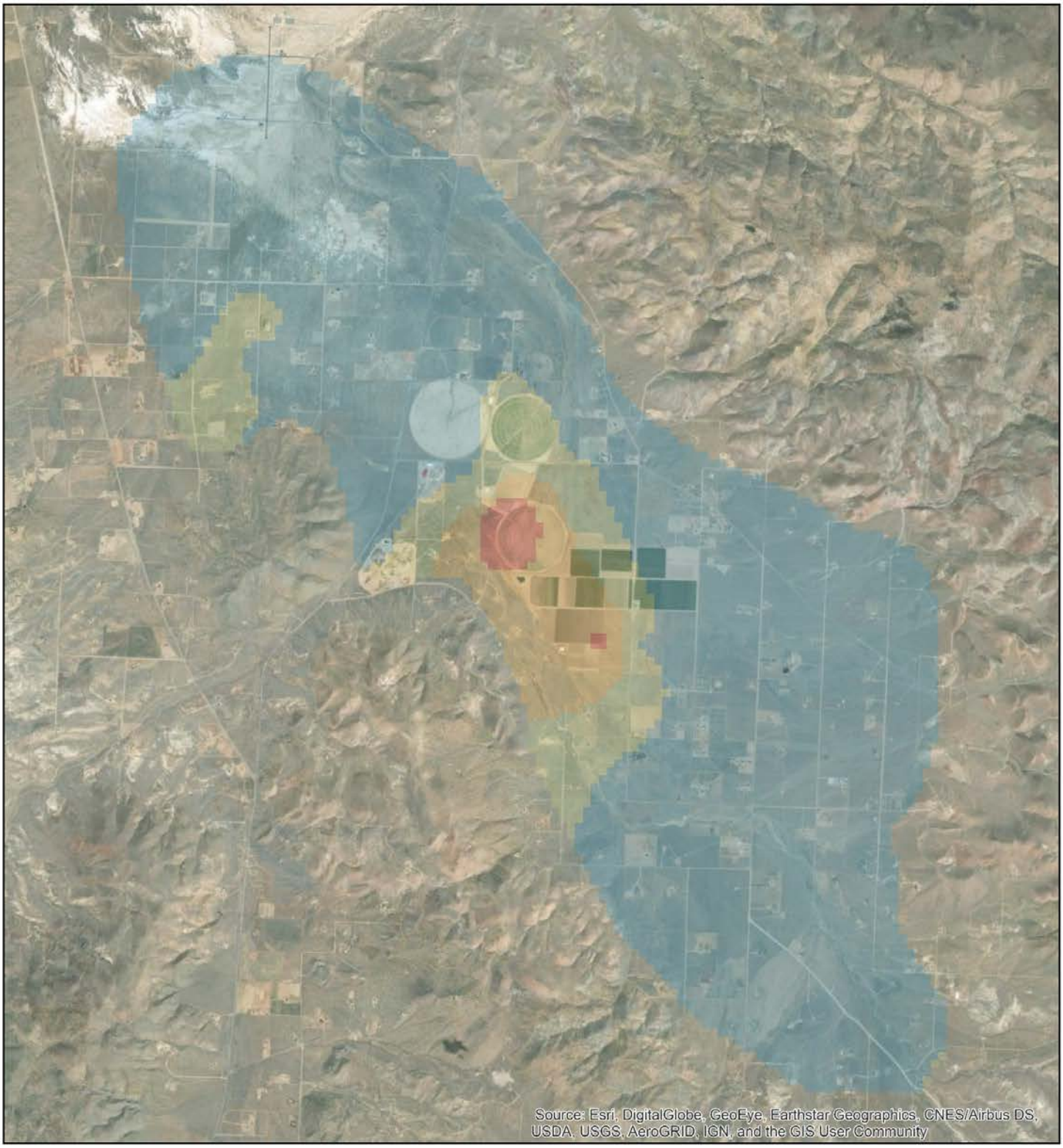
Hydraulic Head (ft amsl)

High K Zone

TRUCKEE MEADOWS WATER AUTHORITY

0 0.5 1 2 3 4 Miles

# Nitrate




**Legend**

**Nitrate Conc. (ppm)**

- < 1
- 1 - 5
- 5 - 10
- > 10

N

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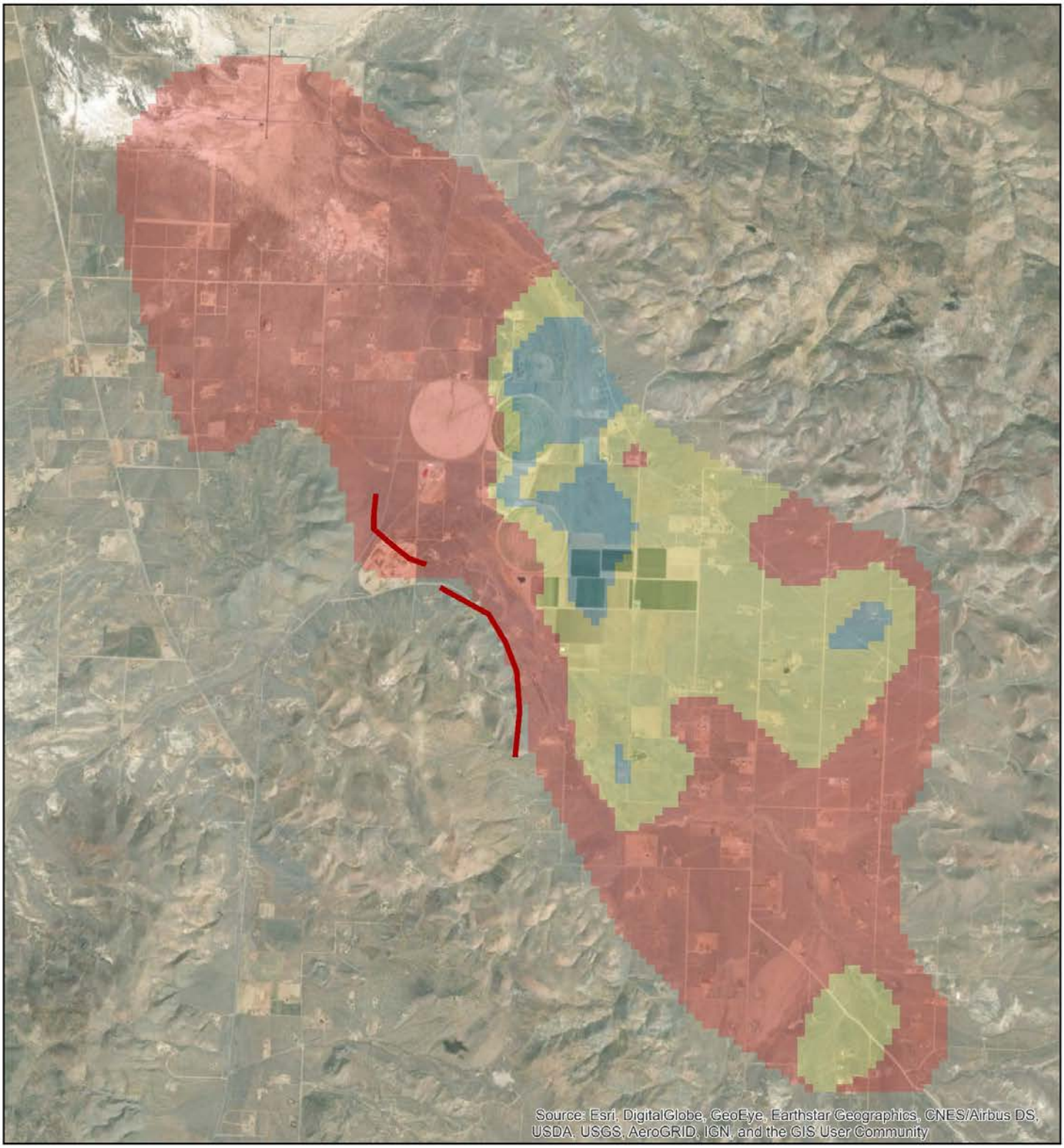
0 0.375 0.75 1.5 2.25 3

Miles

# Arsenic




**Legend**

Geothermal Faults

**Arsenic Conc (ppm)**

< 5

5 - 10

> 10

TRUCKEE MEADOWS WATER AUTHORITY

0 0.375 0.75 1.5 2.25 3

Miles

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# Palomino Farms Sustainable Water Resource Feasibility Study

## What is the Study?

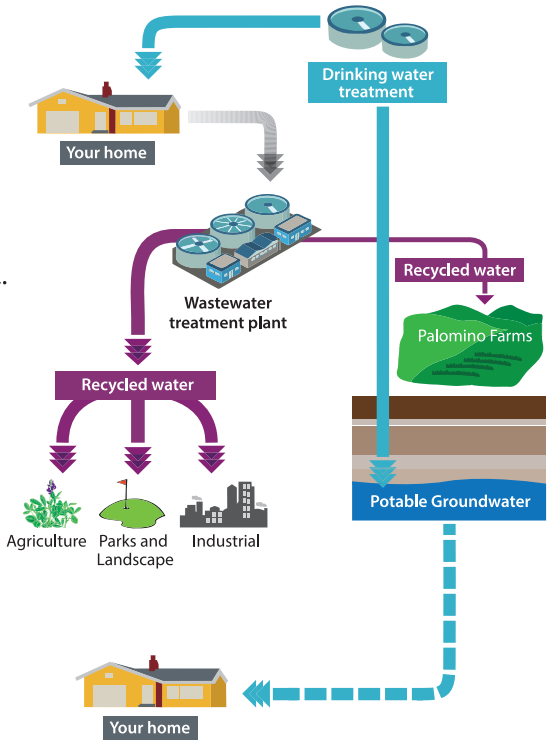
OneWater Nevada's *Palomino Farms Sustainable Water Resource Feasibility Study* (Study) is part of a regional effort to optimize and expand available water resources. The purpose of the Study is to explore the coordinated use of surface water, groundwater, and recycled water (known as conjunctive use) to better manage our water resources.

More specifically, the Study is focused on determining the viability of bringing water to the Palomino Farms area as part of a long-term sustainable water management plan. The hope is to preserve farmland and open space, and determine whether the aquifer could be utilized as an underground reservoir to store large quantities of water for the future.

Additional benefits for residential well owners and agricultural users in the area would be improved groundwater levels, and potential improvement to water quality.

## Here's how it would work:

- Recycled water from Reno, Sparks and Washoe County water reclamation facilities would be piped to Palomino Farms for use in farmland irrigation. This would dramatically reduce the need for groundwater pumping by the agricultural wells supplying this area.
- Potable water from Truckee Meadows Water Authority would also be sent through a separate pipeline to Palomino Farms in the winter, when water is more plentiful, and recharged into the Palomino Valley aquifer via injection wells.
- The aquifer would be replenished, storing water for later use. The groundwater basin in the Palomino Farms area would be brought into balance and sustainably managed.




Providing a new potable and agricultural water supply to Palomino Farms would improve local groundwater levels, help preserve farmland and open space, and maintain the rural lifestyle and character of the area. The imported water would be for groundwater basin replenishment only, not for domestic well hook ups.

## Potential future benefits of this project include:

- A potable water pipeline running between Sparks and Palomino Farms would provide TMWA greater flexibility and resilience in improving water supply and potentially water quality in the coming years.
- The recycled water and potable water infrastructure improvements being contemplated by the Study could also complement the potential later addition of A+ Advanced Purified Water to the overall water supply.

OneWater Nevada's Palomino Farms Sustainable Water Resource Feasibility Study is one part of a regionally comprehensive, research-driven approach to water resource management being supported collaboratively by the University of Nevada, Reno, City of Reno, City of Sparks, Washoe County, and Truckee Meadows Water Authority.

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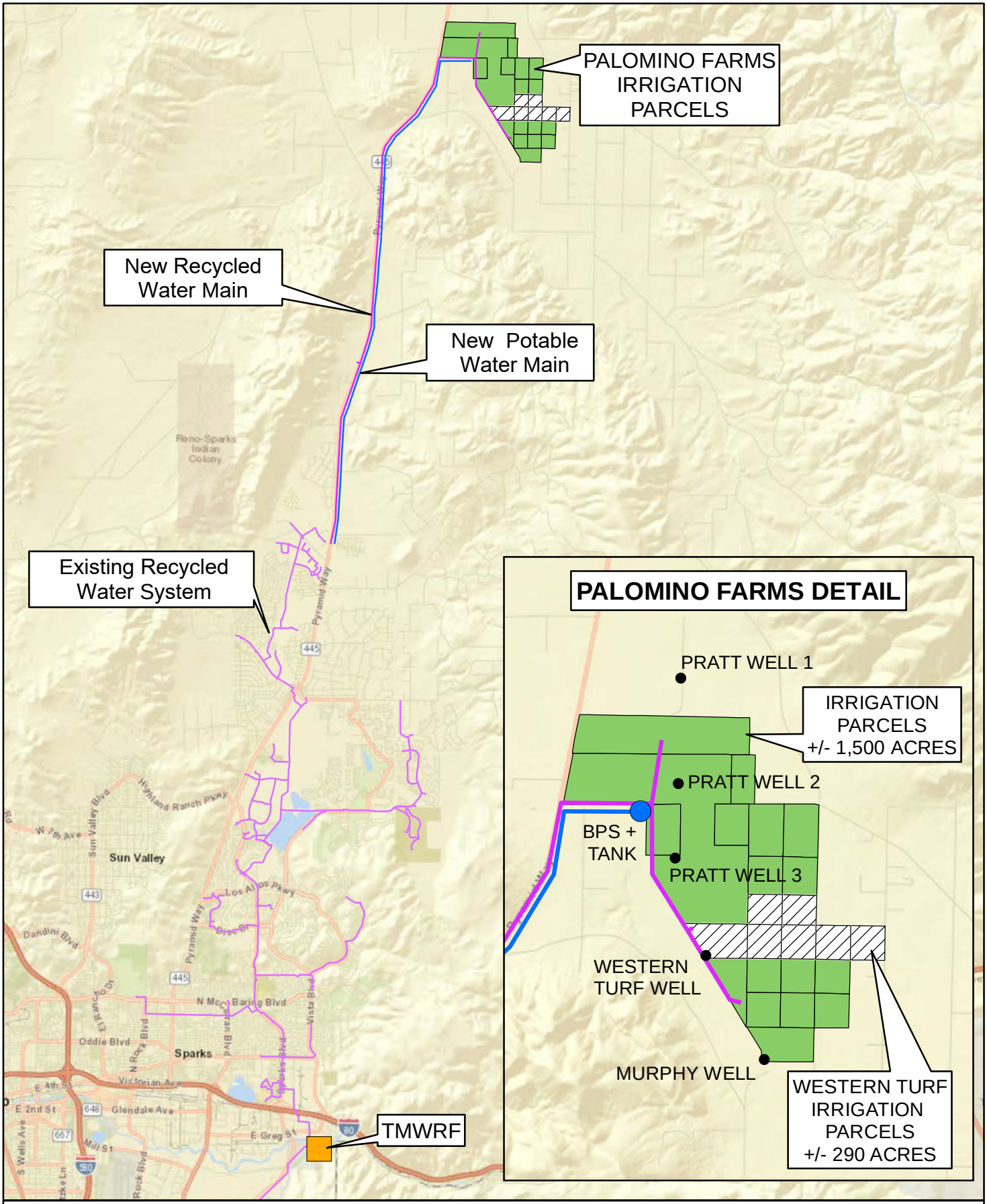
For more information visit: **www.palomino-farms.com**

We welcome public input about the feasibility study.
To share questions or comments, please contact: info@palomino-farms.com

6/2021




## Map of Feasibility Study Area and Conveyance System

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# Palomino Farms Sustainable Water Resource Feasibility Study

# Frequently Asked Questions

**Is this project about facilitating growth in Palomino Valley?**
**No. Quite the opposite.**
The feasibility study is exploring the pros and cons of bringing recycled water to the Palomino Valley area for farmland irrigation, which will decrease groundwater pumping by large agricultural wells. In return, the farms will remain farms with no opportunity to be developed. Potable, drinking water would also be recharged into the aquifer and banked for later use in Spanish Springs.

**Will Palomino Farms and LW Land be developed in the future?**
**No.**
If the project is implemented, the farms will be preserved as open space and farmland, with a deed restriction to prevent development.

**Why would Palomino Farms and LW Land Company agree to this?**
Because it is a win/win for everyone involved. Palomino Farms and LW Land Company believe that the highest and best use of the farms in Palomino Valley is for them to remain farms. While they will make money through the sale of surplus water rights and the continued agricultural use of the land, if this transaction occurs, their underlying intention is to preserve the rural nature of the valley—which is the reason most people moved out there in the first place.

**Is using recycled water for irrigation safe?**
**Yes.**
There are numerous places around the country where recycled water is used for farmland irrigation. Recycled water is used in Washington, Texas, Arizona, Florida, California, and many other states for irrigating a variety of edible food crops—including lettuce, strawberries, and grapes, as well as silage and alfalfa.

**Will the aquifer be sustainably managed?**
**Yes.**
By irrigating farmland with recycled water, the aquifer will be allowed to rest and begin to recover naturally. Drinking water would also be recharged and banked in the aquifer for later use. ***There would always be more water preserved in the aquifer than taken out.*** The amount of water stored in the aquifer would be permitted by, and reported to, the State Engineer's office. This would be public information, verifiable by anyone.

**What work is being performed for the feasibility study?**
New monitoring wells are being drilled to help understand the aquifer and to thoroughly evaluate water quality.

**What is the timeline for the feasibility study?**
The hydrogeologic study, monitoring well drilling and water quality testing will be completed by early 2022. Water rights, land ownership, costs and permitting considerations will also be evaluated during this same period. Information will be shared with Palomino Valley residents, the State Engineer's office, Pyramid Lake Paiute Tribe, and other stakeholders as the study progresses.

**Will Palomino Valley residents have to pay a recharge fee like they do in Golden Valley?**
**No.**
There will be no fees for Palomino Valley residents as a result of this project.