A STUDY IN PROACTIVE WATER SUPPLY PLANNING

Kirk Holmes – Municipal Services Director, City of Moses Lake
Kelsey Mach, LG – Aspect Consulting

City Overview

- City of Moses Lake serves 22,000 people
- Estimated population growth of 3% annually
- Water right portfolio of 13,104 acre-ft per year
- 18 active wells (1 gravel, 17 basalt)
- 2034 demand exceeds existing source capacity

Current Water Supply

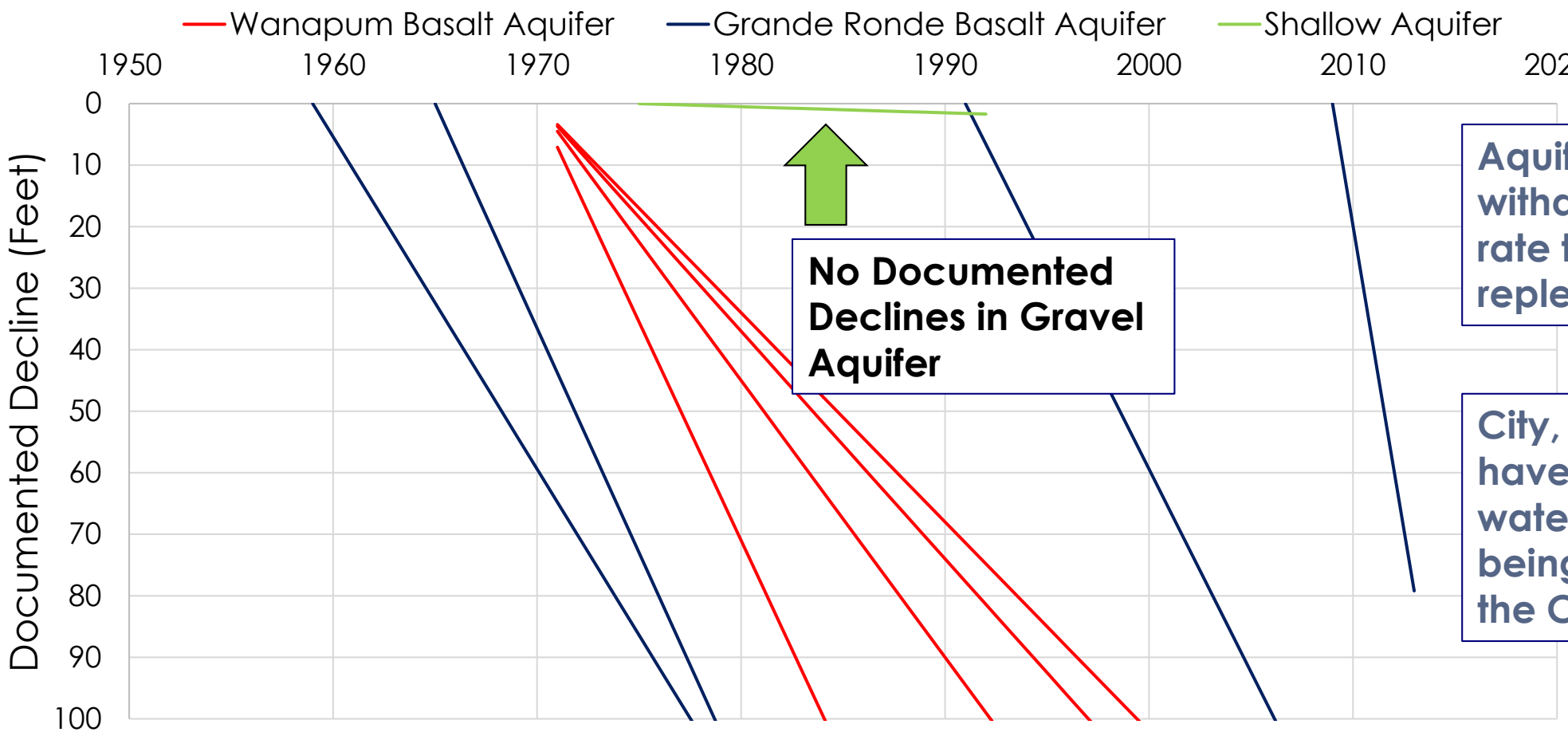
Wanapum and Grande Ronde Basalt Aquifer

- Majority of wells and water rights
- Good water quality
- Water capacity/reliability challenges are now a critical challenge for the City long-term

Gravel Aquifer

- Good water capacity/reliability
- Growing physical and legal capacity
- Some water quality challenges

Groundwater Trends



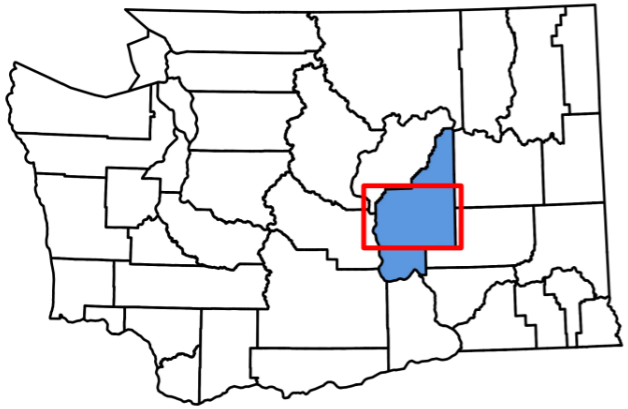
No Documented Declines in Gravel Aquifer

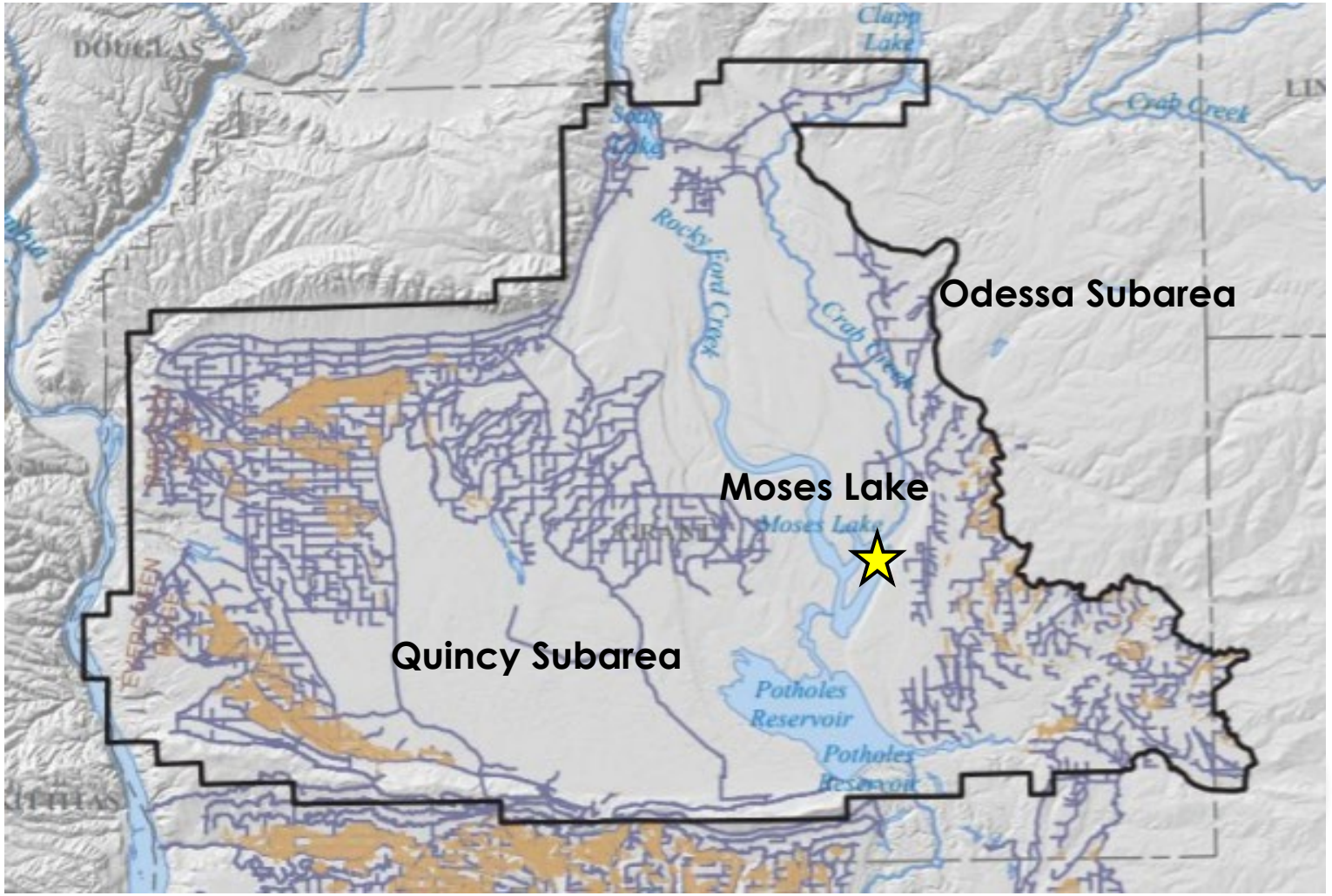
Aquifers are being withdrawn at a greater rate than they are being replenished

City, Ecology and others have acknowledged water level declines as being a large concern for the City long-term

Regional Water Context

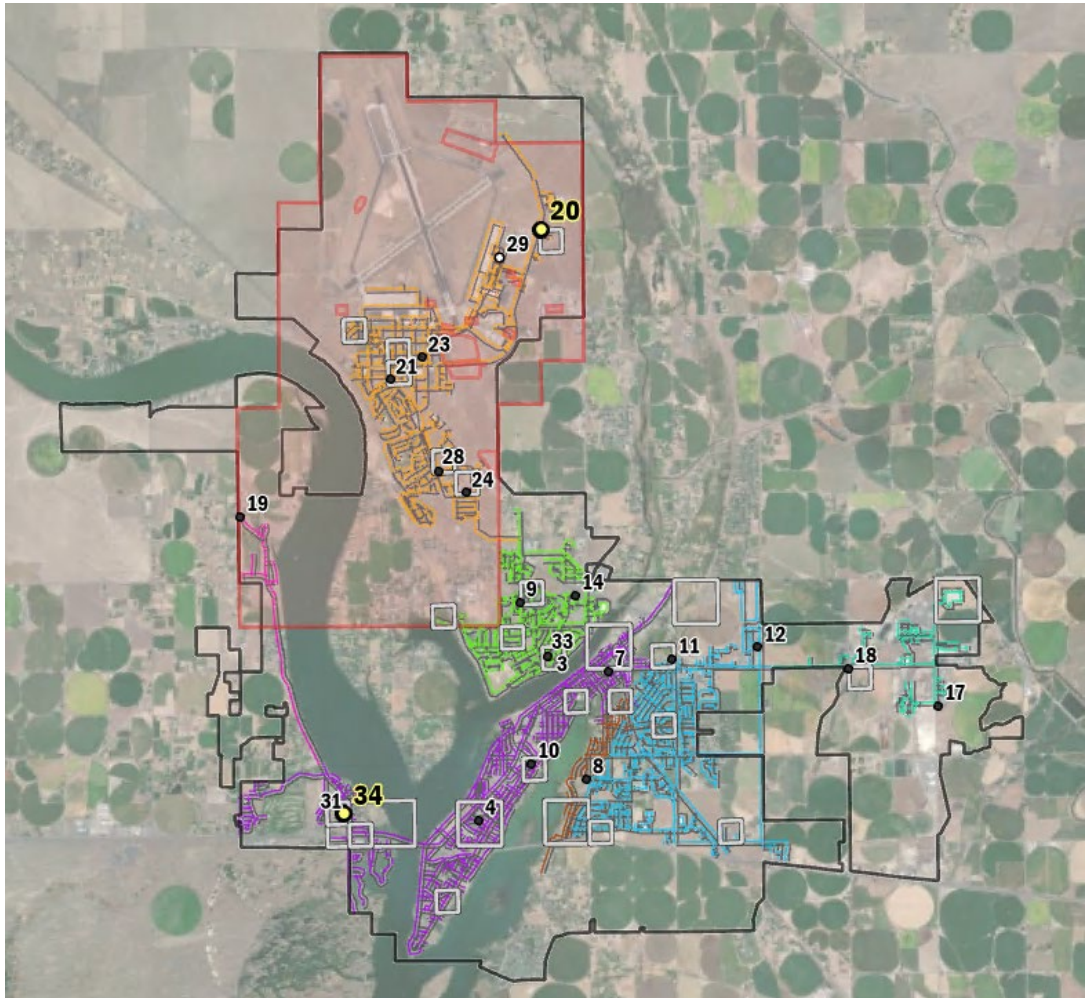
- Quincy Subarea
- Columbia Basin Project
- Multiple flavors of federal, state and local water regulations, policy and management





Local Water Supply Context

- EPA Moses Lake Superfund Site
- Moses Lake Irrigation and Rehabilitation District
- Large Urban Growth Area with multiple pressure zones and many wells



City Goals

- **Plan and take action to prepare for future population growth and groundwater declines in the deep aquifer**
- **Explore and employ a variety of water supply solutions**

Water Supply Solutions

- Shallow Aquifer
- Moses Lake
- Columbia Basin Project
- ASR
- Conservation
- City Ordinances

Shallow Aquifer

1) Obtain Legal Authority

- **Appeal Ecology Decision** (preserving existing water rights)
- **Launch the Water Right Acquisition Program**

2) Develop Physical Infrastructure to Use Water

- **Prioritize a list of shallow well sites**
- **Department of Health source approval process**
- **EPA coordination**

City Shallow Aquifer Claims

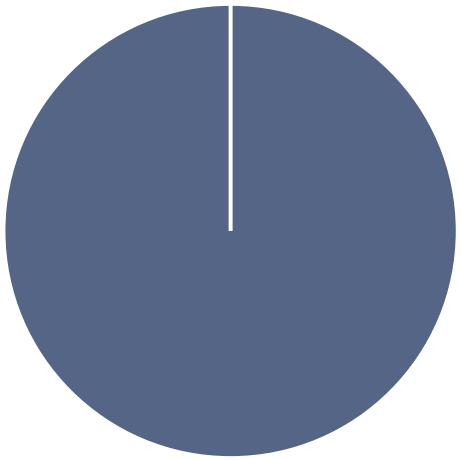
- Appeal on Ecology decision
- Following an extensive investigation Ecology settles with the City granting them 1,046 acre-feet per year from the shallow aquifer

Water Right Acquisition Program

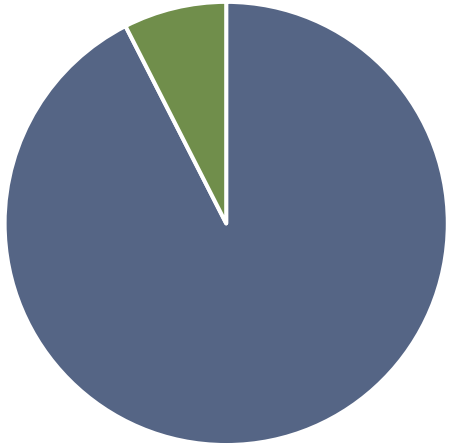
- Started in 2020
- Evaluate and rank water rights in UGA and outside of UGA for City acquisition
- Opportunistic acquisitions
- Currently working on completing acquisition of 5th shallow aquifer water right

Shallow Aquifer Water Rights

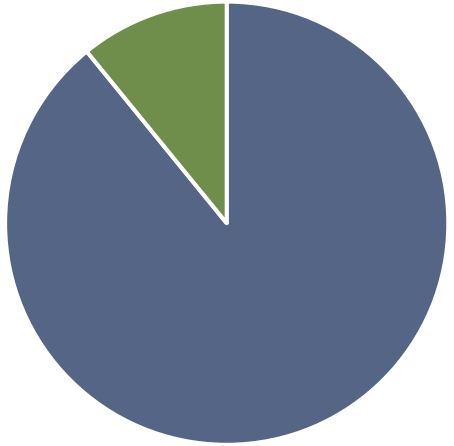
March 2020
No Shallow Water Rights



March 2021
Ecology Settlement



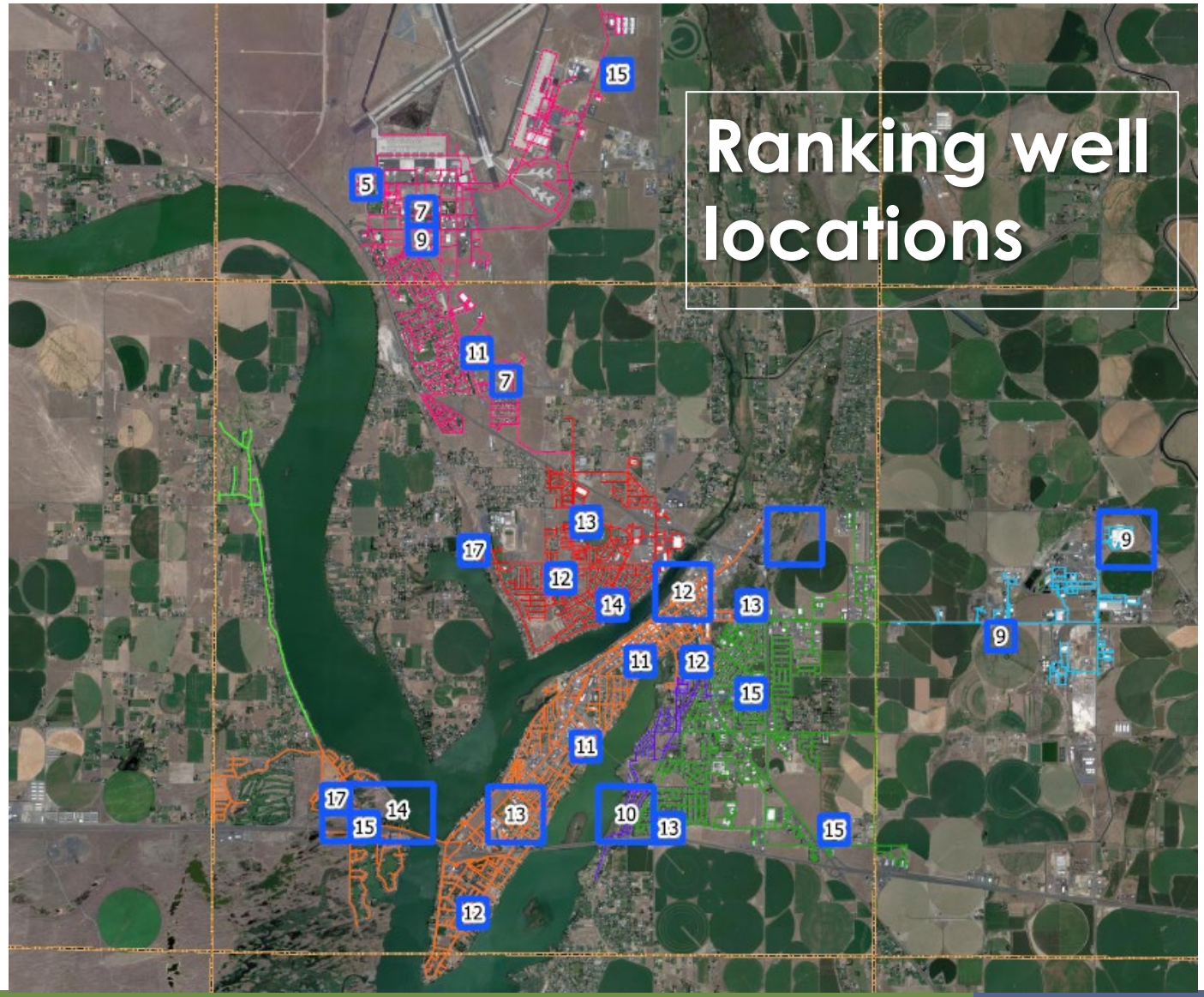
October 2021
Ecology Approves 4th Water Right Transfer



To date, the City holds water rights authorizing approximately **1,600 acre-feet per year** from the shallow aquifer.

In the process of acquiring another **200 acre-feet.**

Shallow Aquifer - Physical Availability



Surface Water Supply Sources

Moses Lake

- Managed by Moses Lake Irrigation Rehabilitation District
- Limited by proximity to Lake

Columbia Basin Project - M&I Water Service Contract

- Reclamation and East Columbia Basin Irrigation District
- Limited by proximity to canal
- ~$120 per acre-foot per year

Moses Lake Surface Water

MOSES LAKE IRRIGATION AND REHABILITATION DISTRICT

- Developing a collaborative relationship with MLIRD
  - Interlocal agreement
- Working with Ecology to understand the validity and legal flexibility around this complex water right

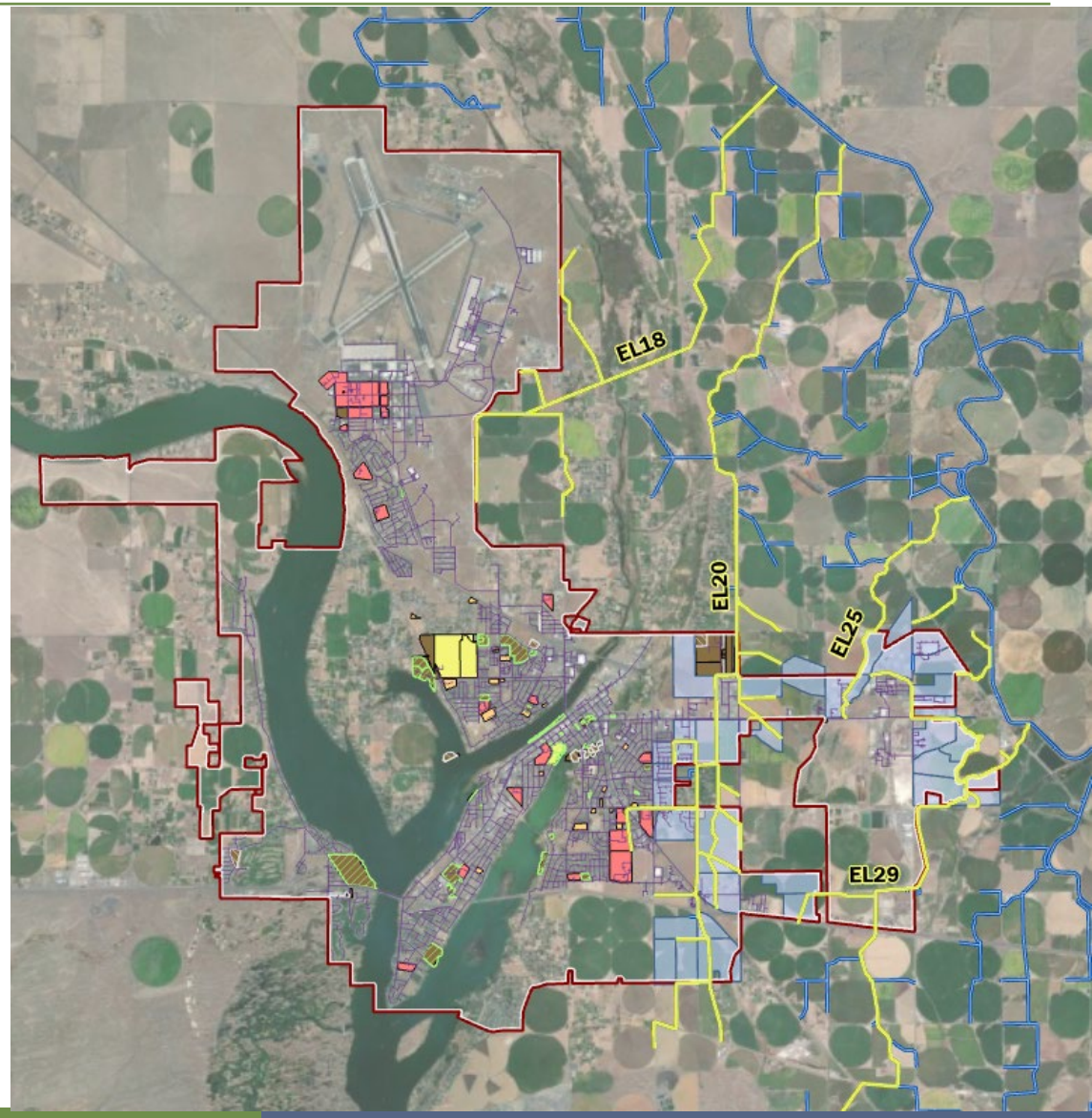
M&I Contracts

- Legal water availability
- Physical availability dependent on canal capacity determined by ECBID
- Limited to seasonal use

Water Supply for Non-Ag Irrigation

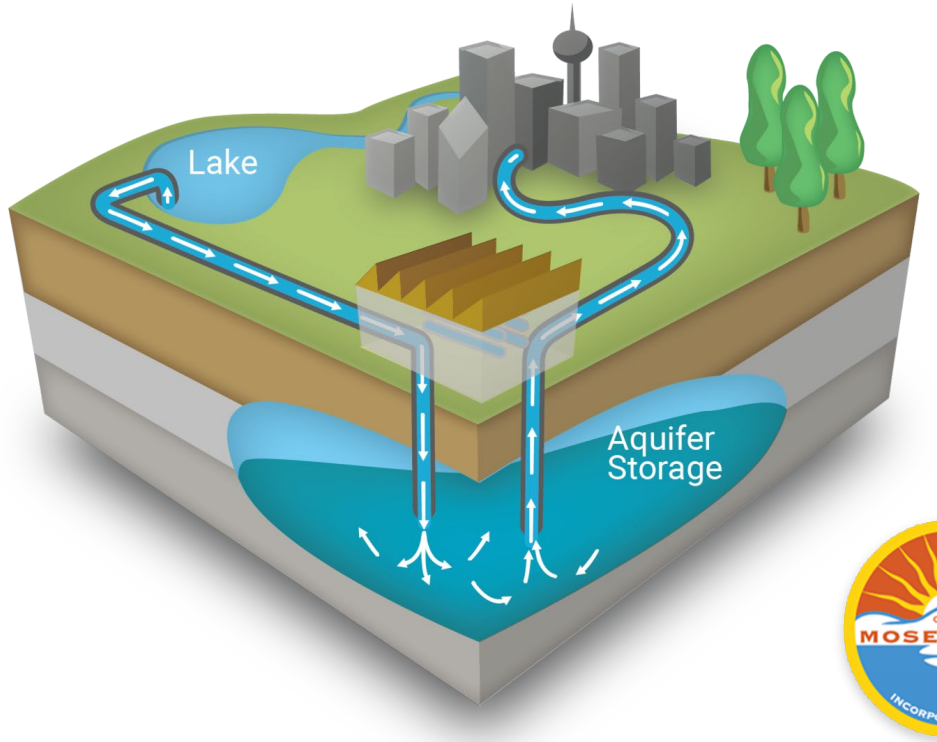
Implementation

- **Identify existing locations for pilot water supply swap**
  (i.e., City parks, schools, fairgrounds, etc.)
- **Potential City ordinance requiring use of alternative water supply sources where possible**
- **Purple pipe system is pricy**



Aquifer Storage and Recovery (ASR)

- **Columbia River Basalt Aquifer has been shown to work for ASR** (Othello, Walla Walla, Kennewick)
- **Multiple source options** (canals, lake, shallow wells)
- **OCR Grant for initial feasibility study** ($200,000)



Other Water Supply Efforts

- Conservation
  - Public outreach
  - City sponsored programs
- Well Rehabilitation
  - Not a long-term solution
- City Ordinances
  - Water right requirements for new developments
  - Requirements around use of alternatives for new non-potable water supply

Summary

- Increasing demands with decreasing physical water supply
- The City is exploring all possible options for assuring water supply security for the future
- Efforts require collaboration with many local, state, and federal entities:
  - MLIRD
  - Department of Ecology, Department of Health
  - EPA, Bureau of Reclamation

Thank you!

Kelsey Mach – kmach@aspectconsulting.com

Kirk Holmes – kholmes@cityofml.com