Why the need for the overview?

- Significant groundwater development
- Groundwater levels are declining; discuss data
- Recent applications protested — closer look at data
- Next steps
Estimated New Groundwater Permits Issued in Harney County (Primary)

- Non-Cancelled Rights Only
- Annual Permits Issued
- Cumulative
Aquifer system before pumping wells:

- Groundwater in the aquifer
- Local Recharge
- Groundwater Inflow
- Natural Discharge
- Springs
- Stream baseflow
- Evapotranspiration
Aquifer system with pumping wells:
Harney well logs (by year)
Number of wells by section:
- 1 - 2
- 3 - 4
- 5 - 7
- 8 - 44

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors.
Aquifer system with pumping wells:

Pumping wells

Recharge to the aquifer

Groundwater Inflow

Pre-pumping Level

Local Recharge

Aquifer Storage

Natural Discharge

Up-Gradient Pumpage
Harney Basin: Groundwater Budget Compared to Groundwater Permits

- **USGS Estimated GW Recharge (Robison, 1968):** 260,000 acre-feet
- **OWRD Accounted GW Discharge to Streams:** 89,200 acre-feet
- **Unaccounted GW Discharge:** 170,800 acre-feet
- **Permitted GW Use:** 287,500 acre-feet
- **Estimated GW Permits Developed:** 201,250 acre-feet
Greater Harney Valley Groundwater Level Trends

Oregon Water Resources Department
April 2015 Draft

- Red: Wells with water level decline
- Yellow: Wells with no decline
- Blue: Wells with uncertain trend

Greater Harney Valley Area
Groundwater Level Trends: HARN 50422

HARN 50422
Land surface elevation: 4132'
Well Depth: 400'

OWRD LOGID HARN 50422
Harney County
22S/32.5E - 32ab

Water Level (Feet Below Land Surface)

Groundwater Level Trends: HARN 1061

HARN 1061
Land surface elevation: 4136'
Well Depth: 135'

OWRD LOGID HARN 1061
Harney County
24S/34E - 30cc

Water Level (Feet Below Land Surface)

Year

Water Level
65 70 75 80 85 90 80 75 70 65
Groundwater Level Trends: HARN 1245

Well Depth = 160 ft
Casing Depth = 40 ft
Seal Depth = 20 ft
Aquifer = Gravel Layers in Clay & Sand

HARN 1245
Mims Recorder Well
T25S/R34E-sec 06 bbb
Harney Valley
(Crane Vicinity)

Install Solinst Transducer

Groundwater Level
(Feet below land surface)

Date & Time

1-Jan-2006 1-Jan-2008 1-Jan-2010 1-Jan-2012 1-Jan-2014

4066 4071 4076 4081 4086

Groundwater Elevation
(elevation in feet above sea level)
Groundwater Level Trends: State Obs. Well 180

HARN 1387
Land surface elevation: 4132'
Well Depth: 108'

State Obs Well 180
OWRD LOGID HARN 1387
Harney County
26S/33E - 13daa

Graph showing water level (feet below land surface) from 1962 to 2013.
Groundwater Level Trends: Weaver Springs Area
Allocated versus Developed in the Harney Valley Area

Legend
- Greater Harney Valley
- Not Growing
- Growing
Looking Forward

• Basin groundwater study: 3-5 years for results
• Water right transfers and offset/mitigation option
• Basin Rules update for OAR 690-512
• Place-Based Planning
Looking Forward: Groundwater Study

- More detailed geological mapping
- Locate wells and measure groundwater levels
  - Surface water and groundwater interaction
  - LIDAR acquisition
  - Estimate groundwater use
  - Refine recharge estimates and groundwater basin boundaries
Looking Forward: Transfers and Mitigation

- Water right transfers: moving wells and acres on certificated groundwater rights

- Offset/mitigation: flexibility with groundwater permits; some limitations
• Add option, that would sunset, to offset/mitigate for a new use by canceling existing permit

• Classify groundwater for exempt uses only in the Greater Harney Valley area
Looking Forward: Place-based planning

• Understand current water conditions and evaluate other water supply options

• Design solutions that account for unique basin hydrology

• Meeting water quality and water quantity needs

• Collaborative process will help leverage broader array of funding sources
Questions ? ?

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