Oregon Department of Environmental Quality

Drinking Water Assessment for the Sandy Agricultural Water Quality Management Area

August 2024

Overview

- There are 69 public drinking water systems in the Sandy Agricultural Water Quality Management Area which utilize groundwater and surface water sources to serve approximately 717,691 persons regularly.
- A total of 43 public water systems within the past ten years received one or more alerts for exceeding the Maximum Contaminant Level Goal for total coliform bacteria. Seven of the public water systems had Maximum Contaminant Level violations within the past five years.
- A total of five public water systems within the past ten years received one or more alerts for exceeding the Maximum Contaminant Level Goal for *E. coli* bacteria. One public water system had a Maximum Contaminant Level violation within the past five years.
- No public water systems received an alert within the past ten years or a violation within the past five years for nitrate levels that exceed 5 milligrams per liter.
- There are 307 records of private domestic well sample results submitted to Oregon Health Authority's Real Estate Transaction program in the area. Of these, eight measured nitrate concentrations ≥3 mg/L.
- Contaminants in water supplies potentially related to agriculture occur near human populations, agricultural land uses, and aquifers susceptible to contaminant infiltration.
- DEQ recommends public water systems utilize Source Water Protection Practices to prevent potential contamination and increase resiliency.
- Resources for addressing risks to drinking water supplies can be found in either the Groundwater Resource Guide or Surface Water Resource Guide.

Water use

There are 69 public water systems within the Sandy Agricultural Water Quality Management Area which obtain drinking water from a combination of surface and groundwater sources. Drinking water is an important beneficial use under the Clean Water Act. When Clean Water Act standards are met in source waters, a drinking water treatment plant using standard technology can generate water meeting the Safe Drinking Water Act standards. **Figure 1** shows the drinking water source areas of the public water systems within the Sandy Agricultural Water Quality Management Area. A drinking water source area is defined as the area of land which contributes water to the drinking water supply and where potential contamination from human activities or natural sources may pose a threat to the water quality.

Of the 69 public water systems in the Sandy Agricultural Water Quality Management Area, 22 are active community public water systems which use either groundwater, surface water, or a combination of the two sources to serve approximately 707,327 people on a regular basis, in addition to visitors at recreation sites. There are two active non-transient, non-community workplace or school public water systems which use

groundwater to serve 1,800 persons regularly. The remaining 38 public water systems are transient non-community systems and state-regulated systems with an estimated service population of 7,274. There are an additional seven public water systems in the Sandy Agricultural Water Quality Management Area that are currently inactive. See **Table 1** for a list of the public water systems, their classifications, primary source and activity status, and populations served.

The Sandy Agricultural Water Quality Management Area is primarily forested with some agricultural land uses (e.g. berries, orchard fruits, vegetables and fruits, pumpkins, Christmas trees, fresh flowers and herbs) present in the western portion of the Management Area. Other land use and ownership within the Management Area includes private industrial forests, private rural lands, private urban lands, local government, agriculture, Bureau of Land Management, United States Forest Service, and Oregon Department of Forestry (**Figure 3**).

Bacteria

Total coliform bacteria alerts for public water systems are generated by Oregon Health Authority when their presence is detected in sample results. There are 43 public water systems within the past ten years which received one or more alerts for exceeding the Maximum Contaminant Level Goal for total coliform bacteria. The MCLG for total coliforms is zero. Of these public water systems, seven had more than 20 alerts in the last ten years: Portland Water Bureau, Trout Creek Bible Camp, Mt. Hood RV Village, Timberline Rim Water Co. Inc., Welches Water Company, ODFW Sandy Fish Hatchery, and Riverside Water District. None of the public water systems received violations for exceeding the Maximum Contaminant Level for total coliform bacteria within the past five years. A public water system will receive an MCL violation if total coliform is present in more than 5% of their routine samples taken each month. Additionally, a public water system will receive an MCL violation for total coliform bacteria if they fail to resample following a routine positive sample.

E. coli bacteria alerts for public water systems are generated by the Oregon Health Authority when their presence is detected in sample results. Within the Sandy Agricultural Water Quality Management Area, five public water systems had alerts for detections of *E. coli* bacteria in the past ten years (**Figure 1, Table 1**). One public water system had a violation with the Oregon Health Authority for *E. coli* bacteria in the past five years: Whistle Stop Bar & Grill. A public water system will receive an MCL violation for *E. coli* bacteria if they collect a sample indicating total coliforms are present and the resample is also positive for either fecal coliform or *E. coli* bacteria.

The locations of public water systems with *E. coli* bacteria alerts occur near areas designated for land use as private rural land, private industrial forests, Bureau of Land Management, and United States Forest Service. Refer to DEQ's Surface Water Resource Guide > Section 3.0 – Surface Water Characterization and Risks > Using Oregon Data to Identify Priorities > Bacteria Data and Susceptibility, to learn more about preventing bacterial contamination in surface water bodies from various land uses.

Nitrates

An alert for elevated nitrate concentrations is generated by the Oregon Health Authority when nitrate sample results for public water systems exceed 5 mg/L. Within the Sandy Agricultural Water Quality Management Area, none of the public water systems had an alert for elevated nitrate results in the past ten years or an MCL violation in the past five years (the MCL for nitrate is 10 mg/L).

There are numerous private groundwater wells for domestic use within the Sandy Agricultural Water Quality Management Area. The Domestic Well Testing Act database includes submitted records of real estate transaction testing data from 1989 to 2018. There are 307 records of private domestic well samples within the

Management Area. Of these 307 records, eight measured nitrate concentrations ≥3 mg/L, four measured nitrate concentrations ≥5 mg/L, one measured nitrate concentrations ≥7mg/L, and none of the records measured nitrate concentrations ≥10mg/L (**Figure 1**). For wells testing at elevated concentrations, attention to well depth, well construction, nitrate leaching potential of local soils, and proximity to nutrient sources such as septic systems, fertilizer use areas, and high concentrations of livestock should be considered when investigating the cause of nitrate contamination.

Of the soils assessed in the Sandy Agricultural Water Quality Management Area, most have high nitrate leaching potential, according to the Natural Resources Conservation Service's (NRCS) National Cooperative Soil Survey (**Figure 2**). Nitrate leaching potential is based on the area's slope, precipitation, and land use. Nitrate from fertilizers and septic systems can readily penetrate aquifers used for drinking water when leaching potential is high. Additionally, bacteria removal through soil filtration can be less effective in sandy soils. Measures to reduce leachable nitrate in soils reduce risk to groundwater sources of drinking water. Refer to section 5.0 - Pollutant Reduction Tools in the Groundwater Resource Guide to learn more about nitrate leachability and potential reduction strategies.

DEQ specifically addresses drinking water issues identified for public water systems. A query of Oregon Water Resources Department's (OWRD's) water rights database for private domestic points of diversion (using a threshold of 0.005 cubic feet per second for domestic surface water rights that are household use only, not irrigation) identified 53 private domestic surface water rights in the Sandy Agricultural Water Quality Management Area (see **Figure 1**).

Other contaminants

Water quality samples from public water systems within the Sandy Agricultural Water Quality Management Area also detected other contaminants including copper, manganese, fluoride, tetrachloroethylene, toluene, sodium, lead, total haloacetic acids (also known as HAA5) and total trihalomethanes (also known as TTHM). These are unlikely to be related to agricultural activities. Within the past 10 years, the City of Sandy received 44 alerts for HAA5 and the City of Portland 15 alerts for HAA5. HAA5 and TTHM are disinfection byproducts that form when chlorine compounds that are used to disinfect water react with other naturally occurring chemicals in the water.

Contact

For more information, please contact the Drinking Water Protection Program or send an email to drinkingwater.protection@deq.oregon.gov.

Non-discrimination statement

DEQ does not discriminate on the basis of race, color, national origin, disability, age or sex in administration of its programs or activities. Visit DEQ's Civil Rights and Environmental Justice page.

Table 1. Public Water Systems within the Sandy Agricultural Water Quality Management Area

Note: Table 1 does not include public water systems that purchase drinking water from these water systems.

PWS ID	Public Water System Name	System Type	Population	MCLG/MCL Alert
Surface Water Systems				
4100359	CORBETT WATER DISTRICT	Community	2954	
4100657	PORTLAND WATER BUREAU	Community	666200*	E. coli
4100702	RHODODENDRON WTR ASSOC	Community	980	
4100789	SANDY, CITY OF	Community	12991	
Groundwater Systems				
4101183	ARK RV PARK	Non-Community	30	E. coli
4105429	ARRAH WANNA ESTATES WS	Non-Community	25	
4101265	ARRAH WANNA WATER COMPANY	Non-Community	40	
4101461	BIG FOOT MOBILE PARK	Community	60	
4100143	BRIGHTWOOD WATER WORKS	Community	100	
4190034	CAMP ARRAH WANNA	Non-Community	100	
4193660	CAMP COLLINS YMCA	Non-Community	250	
4190060	CAMP HOWARD-CYO	Non-Community	160	
4193545	CAMP NAMANU-RANCH	Non-Community	40	
4100628	COUNTRY CLUB WATER DISTRICT	Community	150	
4194570	FIRESIDE CENTER Inactive System	Non-Community	30	
4193676	GOLDEN POLES CHALET	Non-Community	25	
4100336	GOVERNMENT CAMP WATER SYSTEM	Community	200	
4191948	HAGARS AT VIKING PARK Inactive System	Non-Community	50	
4194291	HOOD HIDEAWAYS	Non-Community	32	
4100700	LADY CREEK WATER SYSTEM	Non-Community	100	
4106021	LODGES AT SALMON RIVER MEADOWS Inactive System	Non-Community	40	
4191943	METRO PARKS - OXBOW	Non-Community	822	
4100144	MOUNTAIN AIR WATER ASSOC	Community	170	
4193635	MT HOOD BREWING COMPANY	Non-Community	25	
4194841	MT HOOD INN	Non-Community	50	
4190063	MT HOOD KIWANIS CAMP	Non-Community	160	
4194548	MT HOOD RV VILLAGE	Community	200	
4105395	NORTH BRIGHTWOOD IMPROV ASSN	Community	50	
4105528	ODFW SANDY FISH HATCHERY	Non-Community	25	
4191064	OPRD AINSWORTH STATE PARK	Non-Community	150	
4194495	OPRD BRIDAL VEIL FALLS ST PARK	Non-Community	100	
4191067	OPRD GUY W TALBOT SP	Non-Community	90	
4191063	OPRD LEWIS & CLARK STATE PARK	Non-Community	400	
4193559	ORAL HULL FOUNDATION FOR BLIND	Non-Community	25	
4190528	OREGON TRAIL SD - COTTRELL ELEM	Non-Transient Non-Community	300	
4193558	PARADISE TRAIL LODGE	Oregon Very Small	12	
4100142	PIONEER MOBILE HOME PARK	Community	400	
4100632	RIVERSIDE WATER DISTRICT	Community	120	
4100637	SALMON RIVER PARK WTR IMP DIST	Non-Community	40	

4100936	SALMON VALLEY WATER COMPANY	Community	1500	
4194943	SKI BOWL EAST Inactive System	Non-Community	750	
4190074	SKI BOWL WEST Inactive System	Non-Community	250	
4100629	SLEEPY HOLLOW WATER DISTRICT	Community	135	
4193457	SUMMIT CAFE	Non-Community	25	
4191957	TADS CHICKEN N DUMPLINS Inactive System	Non-Community	100	
4100639	TIMBERLINE RIM WATER CO INC	Community	800	
4195203	TOP STOP FOOD AND FUEL	Non-Community	33	
4195485	TRACKERS WATER SYSTEM	Non-Community	25	
4191958	TROUT CREEK BIBLE CAMP	Non-Community	150	E. coli
4100901	TROUTDALE, CITY OF	Community	16185	
4194678	USFS CAMP CREEK CG (LOWER) HP2	Non-Community	100	
4194392	USFS CAMP CREEK CG (UPPER) HP1	Non-Community	100	
4192637	USFS GREEN CANYON CG	Non-Community	50	
4194849	USFS LOST CREEK CG #1	Non-Community	40	
4192612	USFS MULTNOMAH FALLS/WAHKEENA	Non-Community	3200	
4194679	USFS RILEY CG (MIDDLE) HP #2	Non-Community	30	
4192641	USFS TIMBERLINE LODGE 1	Non-Transient Non-Community	1500	
4194843	USFS TOLLGATE CG	Non-Community	40	
4192639	USFS TRILLIUM LAKE CG	Non-Community	500	
4192636	USFS ZIG ZAG RS Inactive System	Non-Transient Non-Community	70	
4193546	WELCHES MOUNTAIN PROPERTIES	Non-Community	50	
4100937	WELCHES WATER COMPANY	Community	60	E. coli
4105233	WHISTLE STOP BAR & GRILL	Non-Community	100	E. coli
4100627	WILDWOOD ANNEX WATER DISTRICT	Community	25	
4100904	WOOD VILLAGE, CITY OF	Community	3907	
4105221	WYEAST MOUNTAIN ACADEMY	Non-Community	60	
4195216	ZIG ZAG MOUNTAIN STORE	Non-Community	70	
4101159	ZIG ZAG VILLAGE WATER SYSTEM	Community	80	
4101241	ZIG ZAG WATER CO-OP	Community	60	

System Type

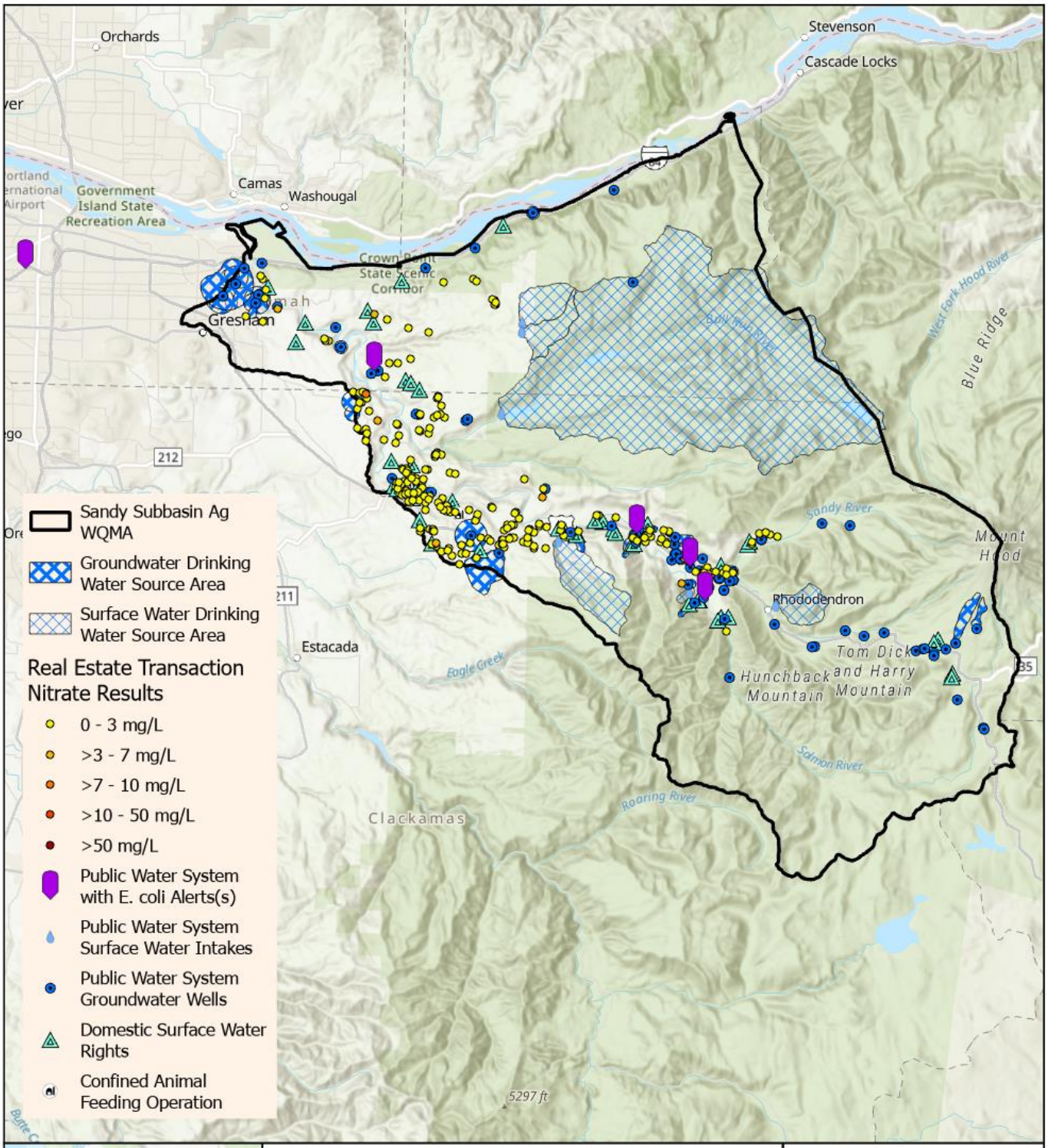
C - "Community Water System (C)" means a public water system that has 15 or more service connections used by year-round residents, or that regularly serves 25 or more year-round residents.

NTNC - "Non-Transient Non-Community Water System (NTNC)" means a public water system that is not a Community Water System and that regularly serves at least 25 of the same persons over 6 months per year.

NC - "Transient Non-Community Water System (NC)" means a public water system that serves a transient population of 25 or more persons.

OVS - "Oregon Very Small" means a public water system, which serves 4 to 14 service connections or serves 10 to 24 people. Monitoring requirements for these systems are the same as those for Transient Non-Community water systems.

** Population for these water systems located outside of the Sandy Subbasin Agriculture Water Quality Management Area. Part of the source water area for these water systems extends into other Agricultural Water Quality Management Areas.*



Drinking Water Source Areas in the Sandy Subbasin Agricultural Water Quality Management Area

0 3.5 7 Mi

Figure 1

N

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, NASA, NGA, USGS, Oregon Metro, Oregon State Parks, State of Oregon GEO, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS

Coordinate System: NAD 1983 Lambert Conformal Conic

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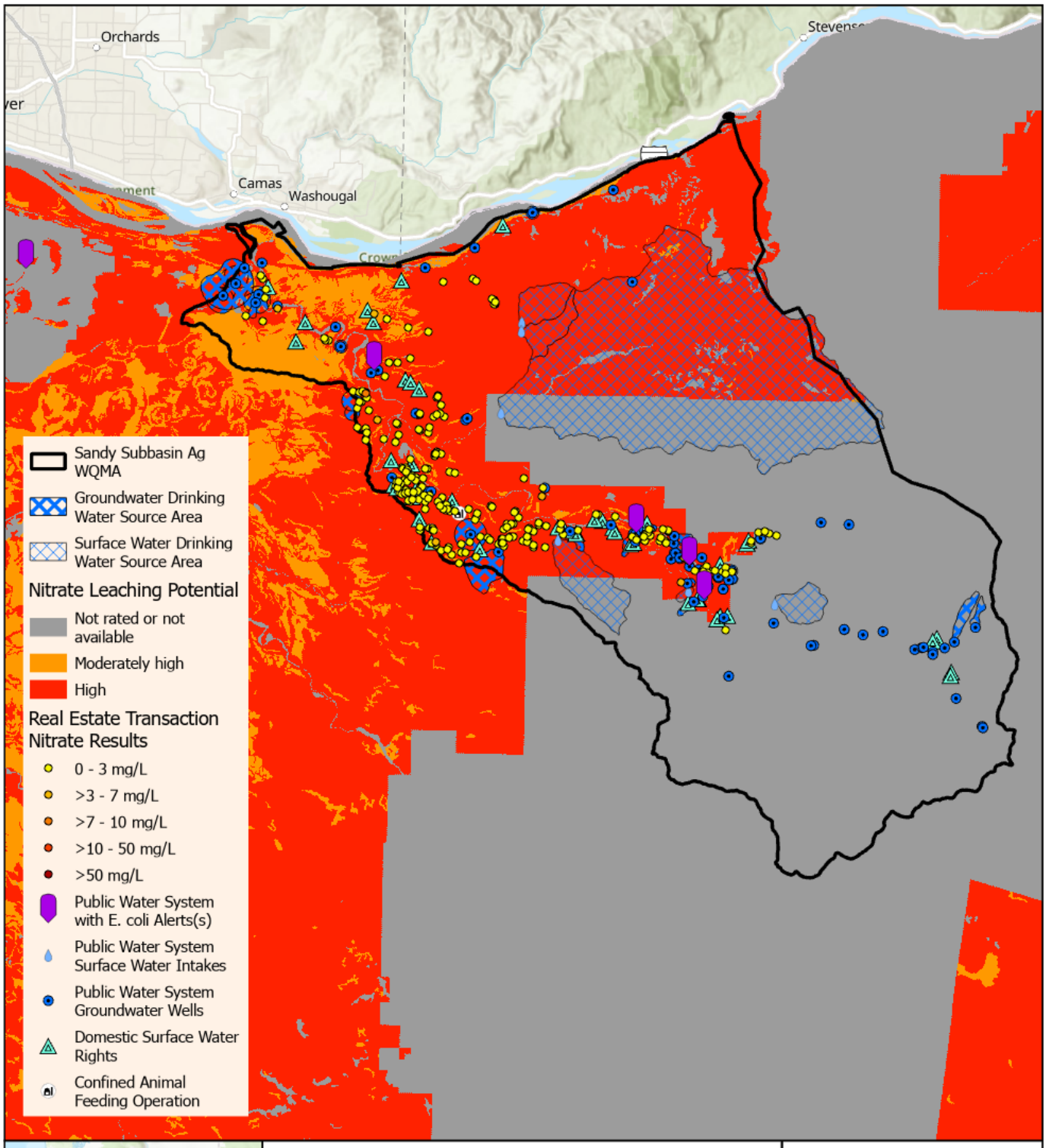

Drinking Water Source Areas in the Sandy Subbasin Agricultural Water Quality Management Area
NRCS Nitrate Leaching Potential - Irrigated

0 3.5 7 Mi

Figure 2

N

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, NASA, NGA, USGS, Oregon Metro, Oregon State Parks, State of Oregon GEO, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS

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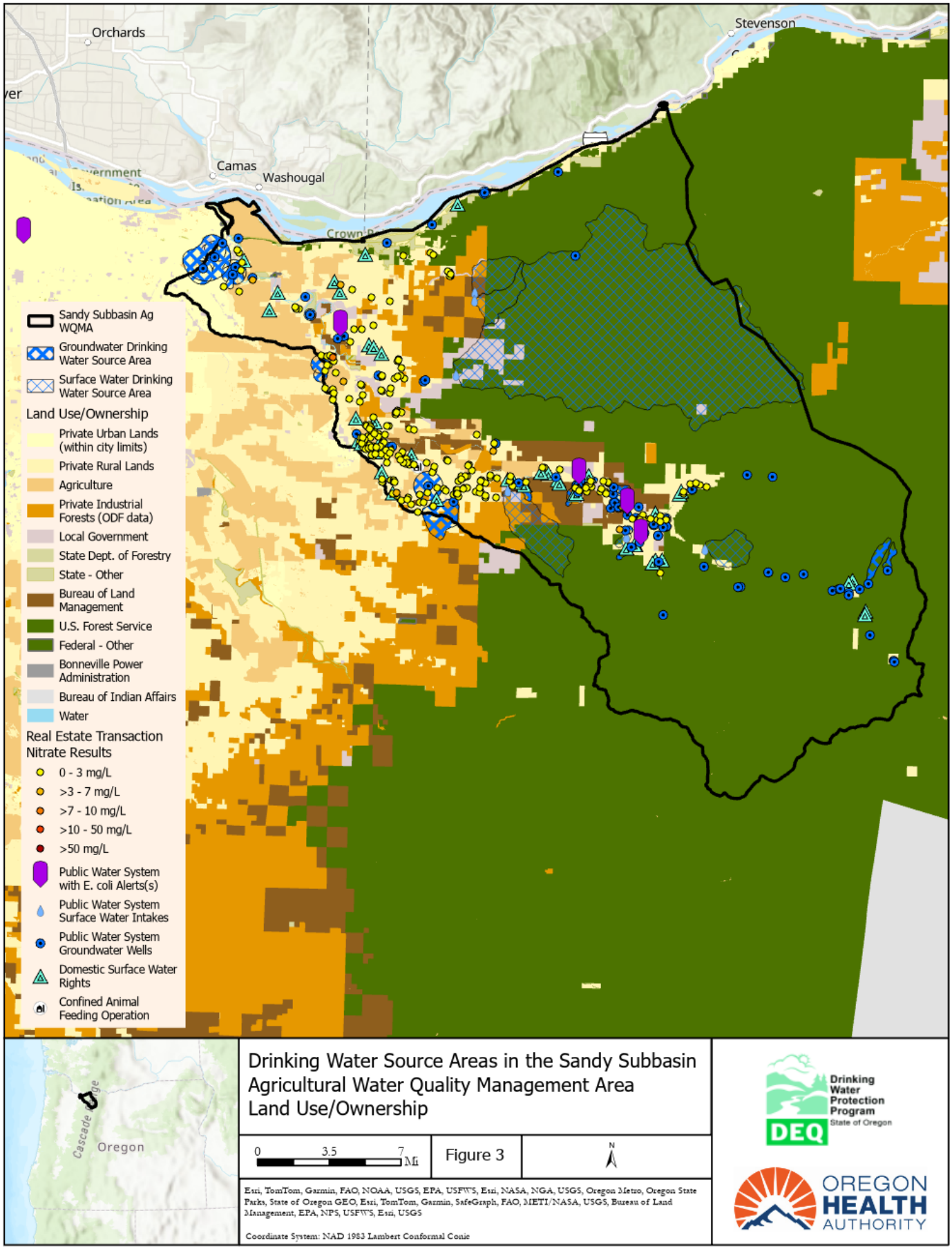

Drinking Water Source Areas in the Sandy Subbasin Agricultural Water Quality Management Area Land Use/Ownership

0 3.5 7 Mi

Figure 3

N

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, USFWS, Esri, NASA, NGA, USGS, Oregon Metro, Oregon State Parks, State of Oregon GEO, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS, Esri, USGS

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