Washington County
Ground Water Quality Improvement and Drinking Water Source Protection Plan

2014

Cover photograph: Overlooking the wetland along the Weiser River, courtesy of Sharonna Olsen, Weiser River Soil Conservation District

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2014

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Idaho Department of Water Resources

Idaho Public Health Districts

Idaho Soil and Water Conservation Commission

Idaho Association of Soil Conservation Districts

Natural Resources Conservation Service

University of Idaho Cooperative Extension

City of Weiser

Washington County, Idaho

Public and local government representatives providing input

Washington County
Ground Water Quality Improvement and
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Acronyms and Abbreviations

APA	American Planning Association
BMP	best management practice
CAFO	confined animal feeding operation
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
EQIP	Environmental Quality Incentives Program
GWQP	Ground Water Quality Plan
Home*A*Syst	Idaho Home Assessment System
HUC	hydrologic unit code
IASCD	Idaho Association of Soil Conservation Districts
IDAPA	Refers to citations of Idaho administrative rules
IDWR	Idaho Department of Water Resources
ISWC	Idaho Soil and Water Conservation Commission
ISDA	Idaho State Department of Agriculture
IWM	irrigation water management
IWRRI	Idaho Water Resources Research Institute
LUST	leaking underground storage tank
MCL	maximum contaminant level
mi^2	square miles
mg/L	milligrams per liter
NMP	nutrient management plan
NPA	nitrate priority area
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PWS	public water system
RCRA	Resource Conservation and Recovery Act

SBA	subbasin assessment
SWA	source water assessment
SWDH	Southwest District Health Department
TMDL	total maximum daily load
USGS	United States Geological Survey
UST	underground storage tank

1 Introduction

Drinking water in Washington County, Idaho, is supplied by ground water pumped from numerous public and private wells. In addition, the city of Weiser drinking water system relies primarily on surface water intakes from the Snake and Weiser Rivers. Clean, safe water is a vital resource for the state's economy and human health. Ground water and surface water are commonly interconnected, and both are vulnerable to contamination from nonpoint source pollution due to land use activities (e.g., farming) and point sources (e.g., gas stations) nearby. However, contamination can be prevented through efforts such as education and the use of best management practices (BMPs) to avoid or minimize vulnerability from potential contaminant sources.

Ground water provides over 95% of the drinking water in Idaho and is often taken for granted since it is concealed underground. Although the quality of ground water in Idaho is generally good, water quality monitoring shows that Idaho's ground water has been significantly degraded in certain portions of the state. This localized degradation negatively impacts water quality and potentially threatens domestic water supplies and other ground water beneficial uses, such as aquaculture, agriculture, mining, and industrial uses.

Nitrate is one of the contaminants responsible for this degradation and is one of the most widespread ground water contaminants in Idaho. Precipitation, irrigation, and sandy soils allow nitrate to percolate through soil and into surface water and ground water. While nitrate is just one of the potential ground water contaminants in Idaho, more is known about nitrate in Idaho ground water than other contaminants. In addition, the presence of nitrate is a good indicator of aquifer vulnerability and the potential for other water quality problems. The Idaho Department of Environmental Quality (DEQ) has defined and prioritized areas with ground water degradation by nitrate to most effectively allocate resources for water quality improvement. These areas are known as nitrate priority areas (NPAs).

This binder serves as the Washington County Ground Water Quality Improvement and Drinking Water Source Protection Plan. The information provided is an educational and informational resource for local governments and land-management entities. It is intended to provide background information for decision making and to help prioritize and coordinate water quality-related activities throughout Washington County. The information in this binder addresses the following:

- Discusses why nitrates are a concern and describes potential nitrate sources to ground water, as well as the risks associated with high levels of nitrate in ground water.
- Provides statewide NPA maps and rankings and Washington County maps identifying current NPAs within Washington County.
- Recognizes activities and accomplishments made to improve ground water quality throughout Washington County.
- Outlines the general strategies that will be implemented to reduce nitrate contamination in ground water and protect public water supplies.
- Presents information for protecting sources of public drinking water systems to be used during the decision-making process.

- Offers a summary of information relating to surface water quality and impaired streams in Washington County.
- Provides a list of agency contacts, regulatory directories, and website resources for technical assistance and resource information.
- Assembles sources of funding BMP implementation.
- Provides multiple public outreach and technical resources for use in strategic planning.

Idaho's Ground Water Quality Protection Act of 1989 (Idaho Code §39-1) authorized a comprehensive approach for maintaining and improving Idaho's ground water quality. The 1996 *Idaho Ground Water Quality Plan* (GWQP) was written as a result of the act and outlines the various state and local responsibilities for protecting Idaho's ground water quality (Ground Water Quality Council 1996). DEQ is designated as the primary agency to coordinate and administer ground water quality protection programs for the state. The GWQP is available on DEQ's website at *www.deq.idaho.gov/media/462972-idaho_gw_quality_plan_final_entire.pdf.*

The GWQP, Idaho Ground Water Protection Interagency Cooperative Agreement (January 2008), and DEQ Policy Memorandum PM00-004, Policy for Addressing Degraded Ground Water Quality Areas, provide guidance and direction in identifying, delineating, and prioritizing areas where ground water is significantly degraded.

As the primary agency responsible for ground water quality protection, DEQ chairs the Ground Water Monitoring Technical Committee. This committee meets periodically throughout the year to coordinate monitoring projects, share results and protocols, and develop evaluation criteria. The committee representatives from other agencies include the following:

- Idaho Department of Water Resources (IDWR)
- Idaho State Department of Agriculture (ISDA)
- Idaho Soil and Water Conservation Commission (ISWC)
- Idaho Association of Soil Conservation Districts (IASCD)
- Idaho public health districts
- Idaho Water Resources Research Institute (IWRRI)
- Idaho's universities
- Federal agencies (such as the United States Geological Survey [USGS])

DEQ helped develop the *Washington County Ground Water Quality Improvement and Drinking Water Protection Plan* in a collaborative effort with IDWR, ISDA, ISWC, IASCD, Southwest District Health (SWDH), University of Idaho Extension, and Natural Resources Conservation Service (NRCS).

2 Geologic Setting and Ground Water Conditions

2.1 Physical Setting

Washington County is located in western Idaho, bordered by Gem and Adams Counties to the east, Adams County to the North, Oregon to the west, and Payette County to the south. Washington County has a total area of approximately 1,475 square miles. Major drainages include the Snake River, which flows from south to north along the western border of the county, and the Weiser River, which flows from the north to the southwest in the central portion of the county. The Weiser River drainage area includes a majority of the central and eastern sections of Washington County. Elevations range from approximately 2,100 at the county seat of Weiser to approximately 7,800 feet in the Seven Devils Mountains in the north. Figure 2-1 shows a topographic map of Washington County and the surrounding area.

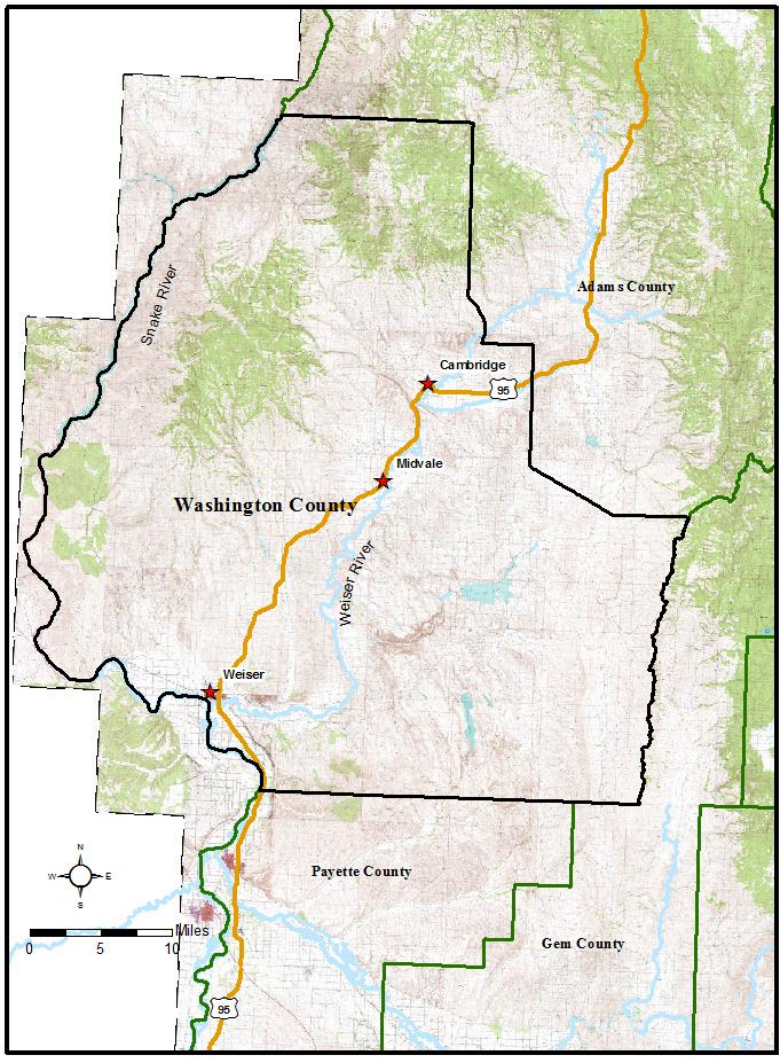

Figure 2-1. Topographic map of Washington County, Idaho, and vicinity.

2.2 Regional Geology[1]

Bedrock exposed in Washington County represents a variety of geologic processes that date from millions of years ago to the present. Underlying the majority of the county, exposed only along the western border and in the Snake River Canyon, are accreted terrane rocks. In Washington County, these rocks consist of sedimentary, metamorphic, and volcanic rock that originated far to the west of North America. The accreted terrane rocks were emplaced beginning approximately 100 million years ago when the present day western border of Idaho was also the western edge of the North American Plate. As the North American continental plate moved westward, the denser and heavier Pacific Plate slid beneath it. With continued westward movement, smaller land masses and volcanic islands within the Pacific Ocean collided with and docked against the western margin of the North American Plate. The Okanogan Highlands in eastern Washington is a large island that was jammed against the North American Plate, and the remains of a large group of oceanic islands lies along the western edge of Idaho and in the Blue and Wallowa Mountains of Oregon. Most of the accreted terranes in Idaho were covered by later basalt flows, and exposures are generally limited to mountainous areas and deep river canyons.

The majority of the exposed bedrock in Washington County is Columbia River basalts or the Weiser basalt. The Columbia River basalts present in Washington County erupted from fissures in northeastern Oregon and southeast Washington approximately 17 to 15 million years ago. The basalts flooded large areas of Oregon and Washington and flowed into and up valleys in western Idaho. The Columbia River basalts in Washington County are part of the Weiser Embayment, the southernmost of the three large lobes of basalt that entered western Idaho. The Weiser basalts are the youngest basalts in Washington County. Most of the Weiser basalts erupted from two groups of volcanoes located near the town of Cambridge, and the basalts are generally not associated with the fissure-erupted Columbia River basalts.

The southernmost portion of Washington County is part of the western Snake River Plain. The western Snake River Plain is a down dropped fault-block basin, with normal (vertical) north-northwest trending faults along the margins of the basin. The faulting along the margins of the western Snake River Plain began about 11 million years ago, the resultant central basin underwent rapid subsidence, and the subsidence was largely finished about 9 million years ago (Wood and Clemens 2002). A major lacustrine (lake) system, named Lake Idaho, developed in the basin and existed from about 9.5 to 1.7 million years ago. The lake system was formed by lava flows in western Idaho and eastern Oregon that blocked major surface water drainages in western Idaho. The lake's elevation and boundaries fluctuated over time, likely due to changes in precipitation, the lake's drainage basin, tectonics, or the establishment of a lower elevation outlet for the lake. Both lake and stream sediments, including volcanic ash, clay, silt, sand, and gravel, were deposited in the basin. The area surrounding Weiser contains Lake Idaho-related sediments (clay, silt and sand), and more recent stream- and wind-deposited sediments. Areas south and southeast of Cambridge contain older lake and stream sediments that were deposited adjacent to and above the Columbia River and Weiser basalts, which formed dams in stream canyons[1].

[1] The Regional Geology section is summarized from Alt and Hyndman (1995), and the Digital Atlas of Idaho (2014).

Figure 2-2 shows a geologic map of Washington County. The map shows recent (less than 10,000 years) sediments (Qa, Qs, Qls); sedimentary deposits related to Lake Idaho (Qts); sediments related to the Columbia River and Weiser basalts (Tcr); the Weiser basalt (Tmb) and Columbia River basalts (Tcr), and the sedimentary, metamorphic, and volcanic rocks of the accreted terrane (Jiz, KJif, KJim, Trof, MzPzb).

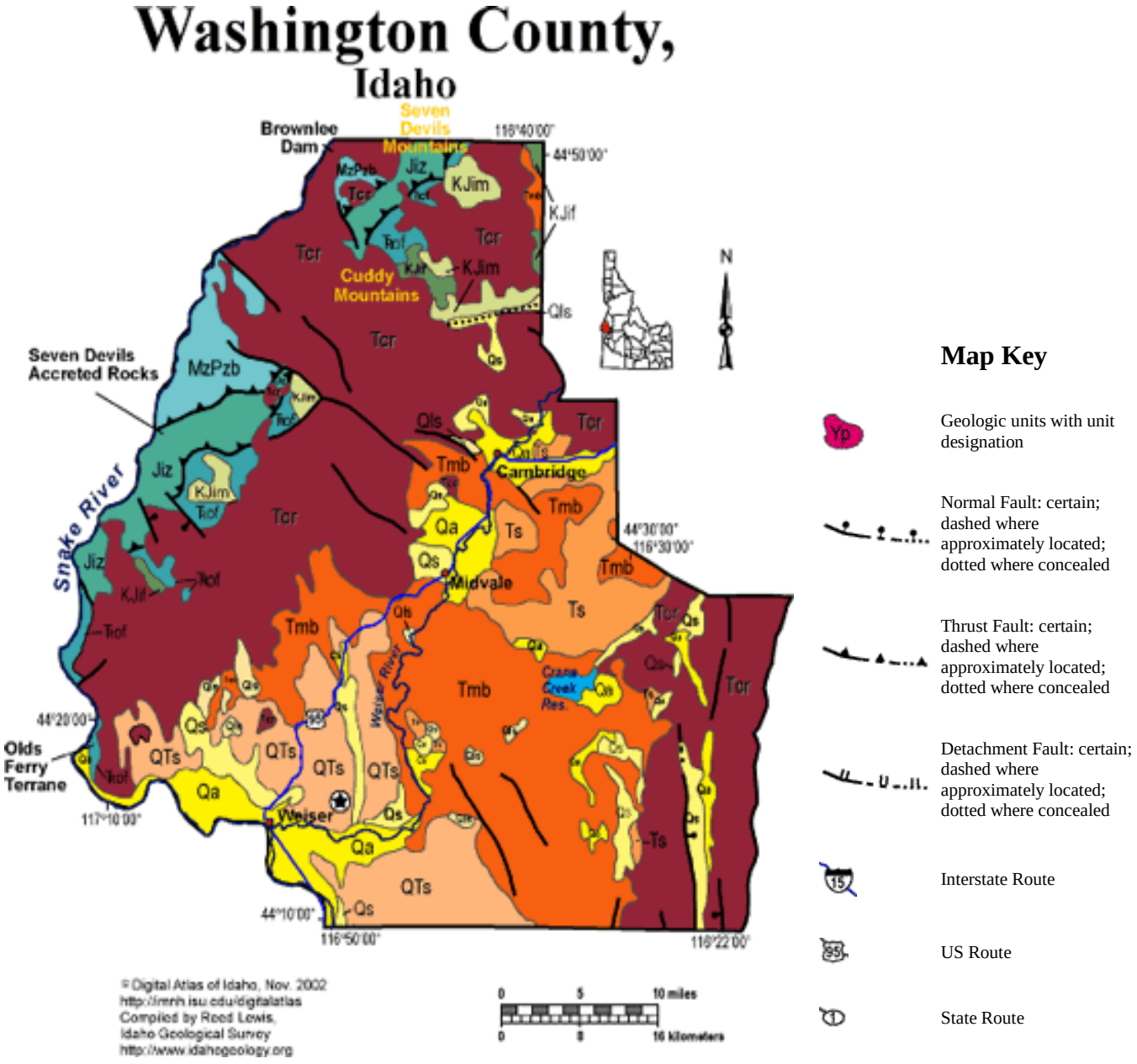

Figure 2-2. Geologic map of Washington County, Idaho (map legend on the next page).

Geologic Units

Qa	Quaternary alluvial deposits
Qs	Quaternary surficial cover, fluveolian cover on Snake River Plain, alluvial fans (Snake River Group)
Qls	Quaternary landslide deposits (only Weiser area)
Tps	Pliocene and Upper Miocene stream and lake deposits (Salt Lake Formation, Starlight Formation, Idaho Group)
Ts	Tertiary sedimentary rocks, undifferentiated
Tmb	Miocene basalt (basalt of Weiser and basalt of Cuddy Mtn.) (split with Tpb is at 5 Ma) (includes rocks shown as Tpb (Bond, 1978) in Owyhee County and Mt. Bennett Hills
Tcr	Miocene basalt (Columbia River Basalt Group)
Jiz	Izee Terrane
KJim	Dioritic, gabbroic, granitic, and amphibolitic rocks of the Blue Mountains island arc terrane
KJif	Felsic plutonic rocks intruded into the accreted terranes of western Idaho (includes tonalite and trondhjemite and granodiorite)
Trof	Olds Ferry Terrane
MzPzb	Baker Terrane

2.3 Ground Water Presence and Flow[2]

Within the Snake River Basin, surface water and ground water systems are commonly interconnected. Changes in ground water recharge or discharge have been observed to affect surface water flows. Similarly, infiltrating water from irrigation systems and stream flows represent a significant portion of the ground water budget.

The sedimentary aquifers in the Weiser area are primarily recharged by irrigation water, stream leakage, and snow melt.

[2] Ground Water Presence and Flow section summarized from Newton 1991, USGS 1994, and IDWR 1977.

The town of Weiser, valley areas adjacent to the Snake River, and the lower stretch of the Weiser River valley, are located within the western section of the Snake River Plain geologic province. The general aquifer system in the western Snake River Plain includes three units: an upper unit of sedimentary deposits; a middle unit of fine-grained sedimentary and volcanic rock; and a lower unit of volcanic rock. The upper unit includes more recent sedimentary deposits, and sediments associated with Lake Idaho. Water wells completed in the upper unit generally extract water from sand or gravel layers within the unit. A layer of blue-colored clay is often found at the base of the upper unit, which acts as a barrier to downward ground water movement, and separates the shallow aquifers from deeper aquifers located in the middle or lower units. Wells completed in the middle unit are generally screened in water-producing sediment layers within or below the blue clay. Recharge to the aquifers in the western Snake River Plain is from precipitation, basalt aquifers, underflow (deep ground water flow) across the boundaries of the plain, and infiltration of surface water from irrigated fields and irrigation canals and ditches.

The most productive aquifers in the Washington County are in the basalts, which underlie large areas of the county. Ground water in basalt occurs primarily in fractures, joints, or permeable zones between basalt flows that contain volcanic cinders or sediments. Recharge to the basalt aquifers is generally from precipitation and infiltration from surface streams.

In bedrock, like the accreted terrane rocks in western Washington County, ground water is generally located in unconsolidated material that fills valleys and lowlands, and within fractures, faults, or weathered zones in the bedrock. Recharge to these aquifers is likely from precipitation and infiltration from surface streams.

In the valley areas of Washington County that lie within the western Snake River Plain, the regional ground water flow direction is to the south and southwest towards the Snake River. Figure 2-3 shows the regional ground water flow directions in the western Snake River Plain, and the approximate ground water flow directions in southern Washington County. Ground water flow in the mountains, hills, and Weiser River basin likely follows the general surface topography, flowing from areas of higher elevations to lower elevations and following surface drainage features.

2.4 Ground Water Quality

Nitrate is present in shallow water ground at concentrations that frequently exceed the drinking water standard of 10 milligrams per liter (mg/L) beneath the southern half of Washington County, locally known as Weiser Flats. Arsenic has been detected in exceedance of the drinking water standard of 0.010 mg/L in ground water in the Weiser Flats area, especially in the Crane Creek and Mann Creek areas. In the Indian Hot Springs area, fluoride has been detected in exceedance of the drinking water standard of 4.0 mg/L. Atrazine has occasionally been detected in the Weiser Flats area.

In the area north of Cambridge near Lakey Hot Springs, arsenic has been detected in exceedance of the drinking water standard of 0.010 mg/L, and fluoride has been detected in exceedance of the drinking water standard of 4.0 mg/L.

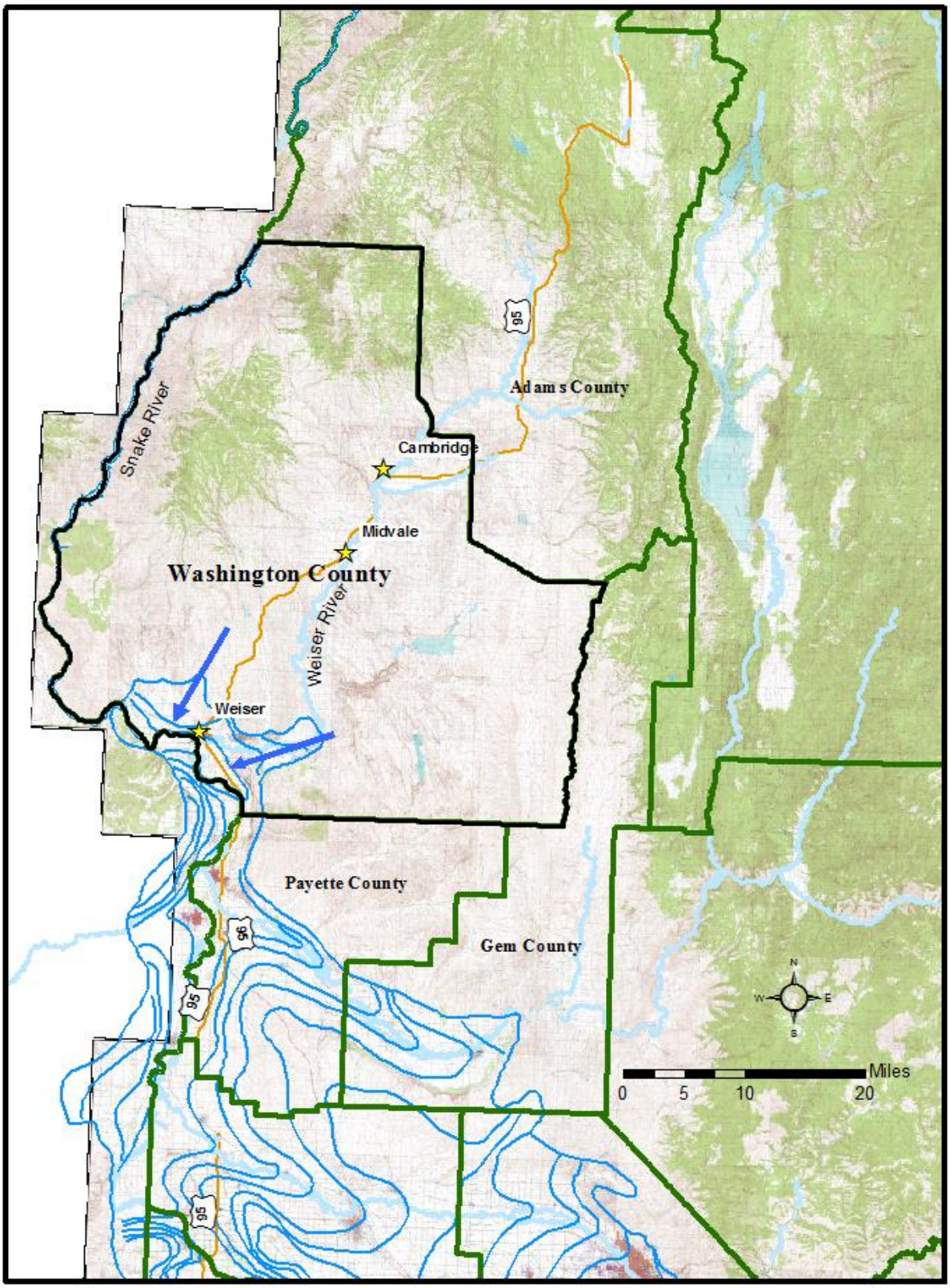

Figure 2-3. Ground water flow directions.

3 Statewide Nitrate Priority Areas and Rankings

As part of the goal to restore degraded ground water, DEQ has developed a list of NPA's throughout the state where ground water has been compromised due to nitrate contamination. The list ranks NPAs in the state based on severity of nitrate degradation; a ranking of "1" indicates the most severely impacted area in the state. A statewide map depicting current NPAs and rankings is provided in this section.

In 2001, DEQ, in consultation with the Ground Water Monitoring Technical Committee—comprised of staff from IDWR, ISDA, USGS, and the Idaho public health districts—delineated nitrate-degraded ground water areas using ground water quality monitoring analytical results combined with hydrogeologic and land use data. The first NPA delineation document was published in 2002. These initial NPAs can be viewed on DEQ's website at *www.deq.idaho.gov/media/472607-final_nitrate_priority_area_ranking_2002.pdf.*

Data used to define and rank the priority of each area are updated on a continual basis. However, updated NPA delineations and rankings only occur about every 5 years. The most recent delineation document was published in 2014 based on data collected prior to 2007 and is located on DEQ's website at *www.deq.idaho.gov/media/1117845/nitrate-priority-area-delineation-ranking-2014.pdf.* DEQ began reevaluating the NPAs in 2012. The areas, boundaries, and ranking were updated by incorporating data collected from 2007–2011.

The main criteria in identifying an NPA requires 25% of the ground water samples collected, in a hydrogeologically similar area, contain nitrate levels greater than or equal to 5 mg/L or one-half of the 10 mg/L federal drinking water standard for nitrate.

Areas are ranked based on criteria such as population, existing water quality, water quality trends, and other factors. The process also accounts for impacts on the beneficial uses (other than water supply) of an area's ground water.

Figure 3-1 shows 34 NPAs in Idaho, along with their rankings. Figure 3-2 is a map of the NPAs in DEQ's Boise region (Washington, Payette, Gem, Boise, Canyon, Ada, Owyhee, and Elmore Counties).

Table 3-1 summarizes the 2008 statewide ranking of NPAs, with data showing nitrate levels in each area.

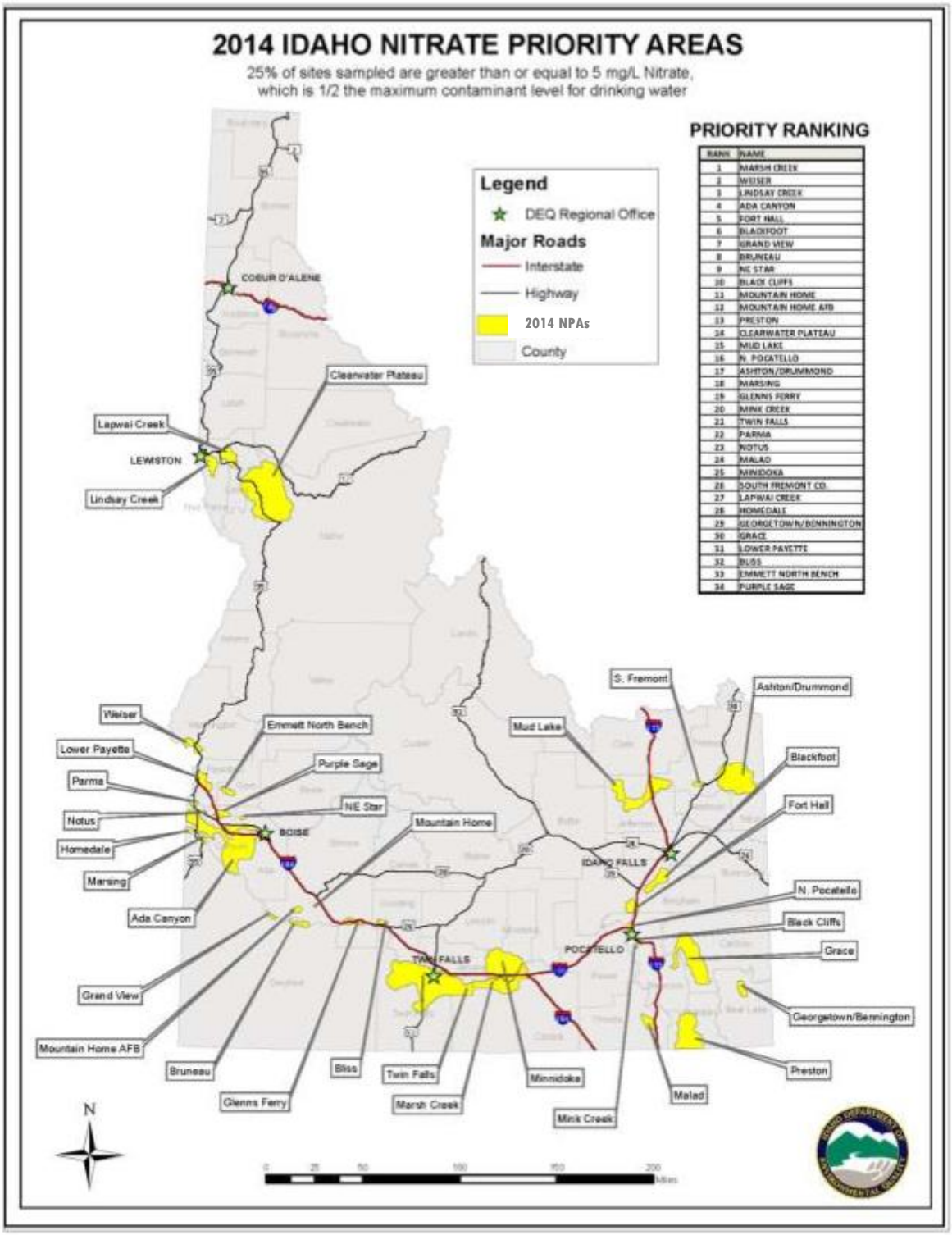

Figure 3-1. Map of 34 nitrate priority areas designated in Idaho, 2014.

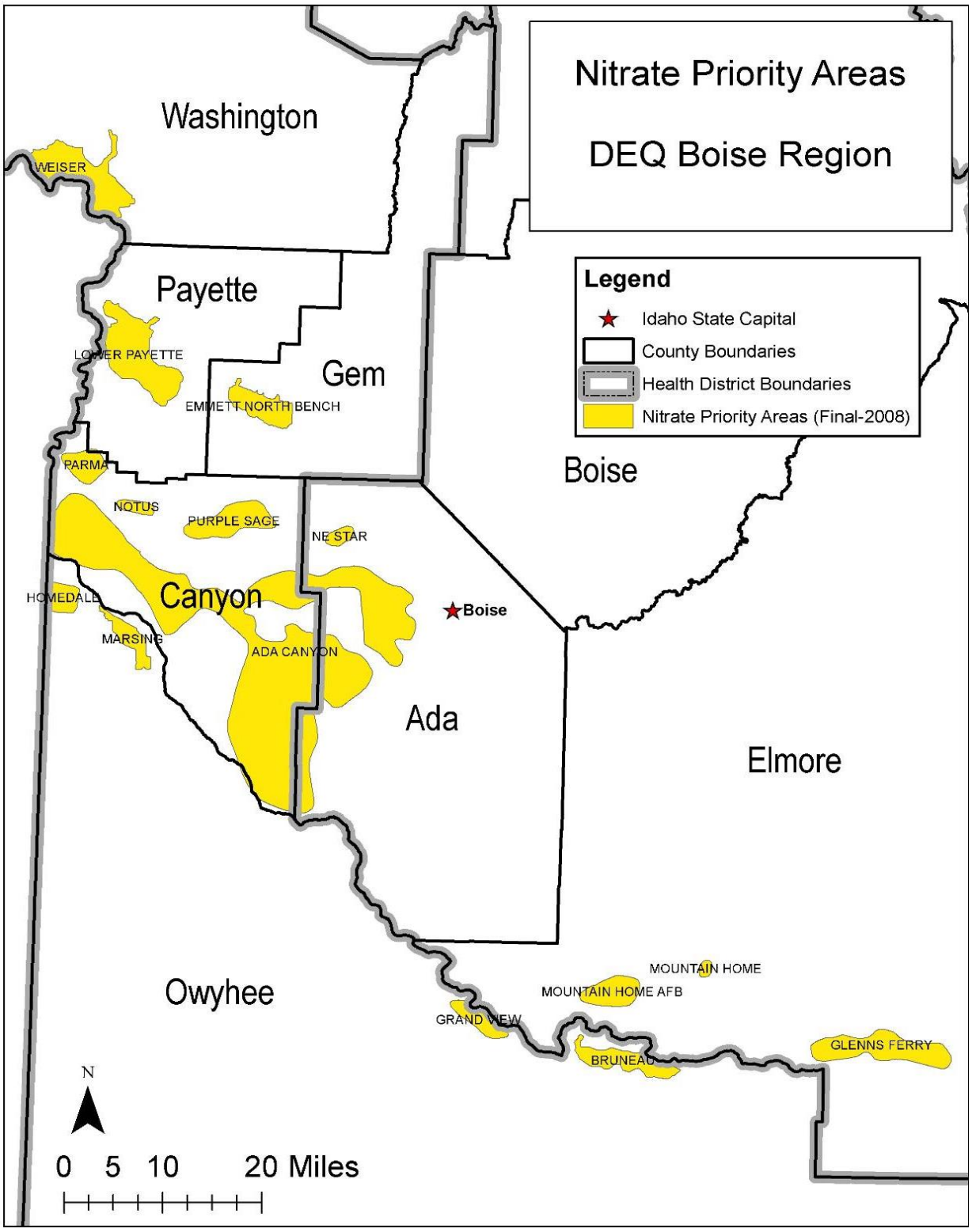

Figure 3-2. Nitrate priority areas in the Idaho Department of Environmental Quality's Boise region.

Table 3-1. Statewide nitrate priority area 2014 ranking summary sheet.

NITRATE PRIORITY AREA	DEQ_REG	ACRES	SQ_MILES	POPULATION	SITES	MAX_NO3	AVG_NO3	MEDIAN	PWS_SWA	# >= 2 mg/L	% >= 2 mg/L	# >= 5 mg/L	% >= 5 mg/L	# >= 10 mg/L	% >= 10 mg/L	TREND	SCORE	RANK
MARSH CREEK	TFRO	98788	154	17977	398	40.00	7.16	6.43	43	354	89	256	64	91	23	Incr. Trend	27.28	1
WEISER	BRO	25370	40	7501	131	43.50	13.21	12.00	23	116	89	107	82	77	59	No Trend	24.78	2
LINDSAY CREEK	LRO	28360	44	2269	67	21.00	5.64	4.12	17	42	63	29	43	17	25	Incr. Trend	20.91	3
ADA CANYON	BRO	257038	402	198458	1092	49.80	5.29	4.07	303	813	74	445	41	138	13	No Trend	19.83	4
FORT HALL	PRO	23881	37	1780	8	23.60	12.76	12.35	5	8	100	6	75	4	50	No Trend	19.75	5
BLACKFOOT	PRO	41540	65	3218	30	16.00	4.68	4.03	29	25	83	13	43	2	7	Incr. Trend	19.51	6
GRAND VIEW	BRO	5994	9	549	35	100.00	12.19	9.00	2	35	100	30	86	13	37	No Trend	19.00	7
BRUNEAU	BRO	13818	22	39	5	110.00	33.12	21.80	0	4	80	4	80	3	60	No Trend	18.60	8
NE STAR	BRO	3250	5	297	88	54.00	11.35	7.49	6	61	69	51	58	38	43	No Trend	18.58	9
BLACK CLIFFS	PRO	1030	2	493	26	28.68	10.61	9.75	18	18	69	16	62	13	50	No Trend	18.48	10
MOUNTAIN HOME	BRO	1663	3	406	45	40.00	11.17	8.07	5	38	84	26	58	16	36	No Trend	17.18	11
MOUNTAIN HOME AFB	BRO	9242	14	3250	37	29.20	7.20	5.60	9	33	89	22	59	8	22	No Trend	16.93	12
PRESTON	PRO	124409	194	11120	72	23.80	4.74	4.01	24	47	65	29	40	9	13	No Trend	16.60	13
CLEARWATER PLATEAU	LRO	359306	561	4347	216	77.10	7.24	4.30	27	155	72	93	43	50	23	Decr. Tendency	16.39	14
MUD LAKE	IFRO	129404	202	1916	80	15.20	3.92	3.87	13	57	71	21	26	6	7	Incr. Tendency	16.02	15
N. POCATELLO	PRO	7239	11	24542	32	12.30	4.19	4.08	44	25	78	10	31	2	6	No Trend	15.71	16
ASHTON/DRUMMOND	IFRO	162473	254	2564	191	47.00	7.25	6.62	20	168	88	135	71	32	17	Decr. Tendency	15.51	17
MARSING	BRO	6692	10	600	47	60.00	9.74	2.43	12	26	55	20	43	15	32	No Trend	15.45	18
GLENNS FERRY	BRO	16781	26	1496	17	73.30	11.62	5.13	3	10	59	9	53	4	24	No Trend	15.23	19
MINK CREEK	PRO	1976	3	715	40	21.00	4.84	3.00	32	26	65	14	35	8	20	No Trend	15.05	20
TWIN FALLS	TFRO	359150	561	76284	618	41.00	5.18	4.80	88	540	87	288	47	35	6	Decr. Trend	14.69	21
PARMA	BRO	7057	11	1063	19	14.50	4.58	2.10	4	10	53	8	42	4	21	No Trend	14.26	22
NOTUS	BRO	2674	4	168	7	16.00	5.79	6.70	1	5	71	4	57	1	14	No Trend	13.67	23
MALAD	PRO	22379	35	2803	13	17.00	4.86	3.77	3	8	62	5	38	2	15	No Trend	13.64	24
MINIDOKA	TFRO	147501	230	18612	337	83.00	5.45	4.26	69	230	68	140	42	30	9	Decr. Trend	13.36	25
SOUTH FREMONT CO.	IFRO	7693	12	979	15	35.00	8.47	3.50	6	8	53	5	33	3	20	No Trend	12.71	26
LAPWAI CREEK	LRO	34214	53	982	15	10.30	4.74	4.80	10	12	80	7	47	1	7	No Trend	12.65	27
HOMEDALE	BRO	5585	9	478	24	16.00	4.16	2.05	1	13	54	10	42	3	12	No Trend	12.48	28
GEORGETOWN/BENNINGTON	PRO	17764	28	795	22	13.30	4.72	4.89	4	15	68	11	50	2	9	No Trend	12.46	29
GRACE	PRO	152954	239	2977	69	37.20	4.54	3.20	16	46	67	18	26	5	7	No Trend	12.34	30
LOWER PAYETTE	BRO	28587	45	8755	246	61.00	5.91	4.11	39	169	68	103	42	38	15	Decr. Trend	11.96	31
BLISS	TFRO	6791	11	67	29	45.00	5.25	3.17	0	19	66	10	34	5	17	No Trend	11.72	32
EMMETT NORTH BENCH	BRO	11928	19	865	53	22.80	3.87	2.80	3	33	62	13	25	5	9	No Trend	11.39	33
PURPLE SAGE	BRO	16399	26	4032	120	27.00	5.28	4.55	24	92	77	55	46	11	9	Decr. Trend	10.74	34
TOTAL		**2138930**	**3342**	**402397**	**4244**				**903**	**3261**		**2013**		**691**				

Increasing Trend
Increasing Tendency
No Trend
Decreasing Tendency
Decreasing Trend

4 Washington County Nitrate Priority Area Maps

The map in Figure 4-1 shows the current NPA identified for Washington County. The NPA boundaries depicted on this map are approximate.

If you own a well and live in one of the NPAs, it is particularly important to test your well water on a regular basis. If your well is not in an NPA, this does not rule out the potential for nitrate contamination, so testing your well water regularly is still recommended. See Tab 14, "Public Information and Outreach Materials," for private well owner information and analytical laboratory contacts.

More information is provided about nitrates in ground water on DEQ's website at *www.deq.idaho.gov/water-quality/ground-water/nitrate.aspx*.

An interactive map-based source of information on ground water quality areas where nitrate concentrations potentially degrade drinking water quality is found at *mapcase.deq.idaho.gov/npa*. If 25% of ground water samples collected in an area contain nitrate levels greater than or equal to one-half the federal drinking water standard (i.e., greater than or equal to 5 mg/L), the area qualifies as an NPA. The federal drinking water standard for nitrate, as set by the United States Environmental Protection Agency (EPA), is 10 mg/L.

To view an interactive map-based source of information on ground water quality analytical data collected by DEQ (or DEQ contractors), go to *mapcase.deq.idaho.gov/gwq/*.

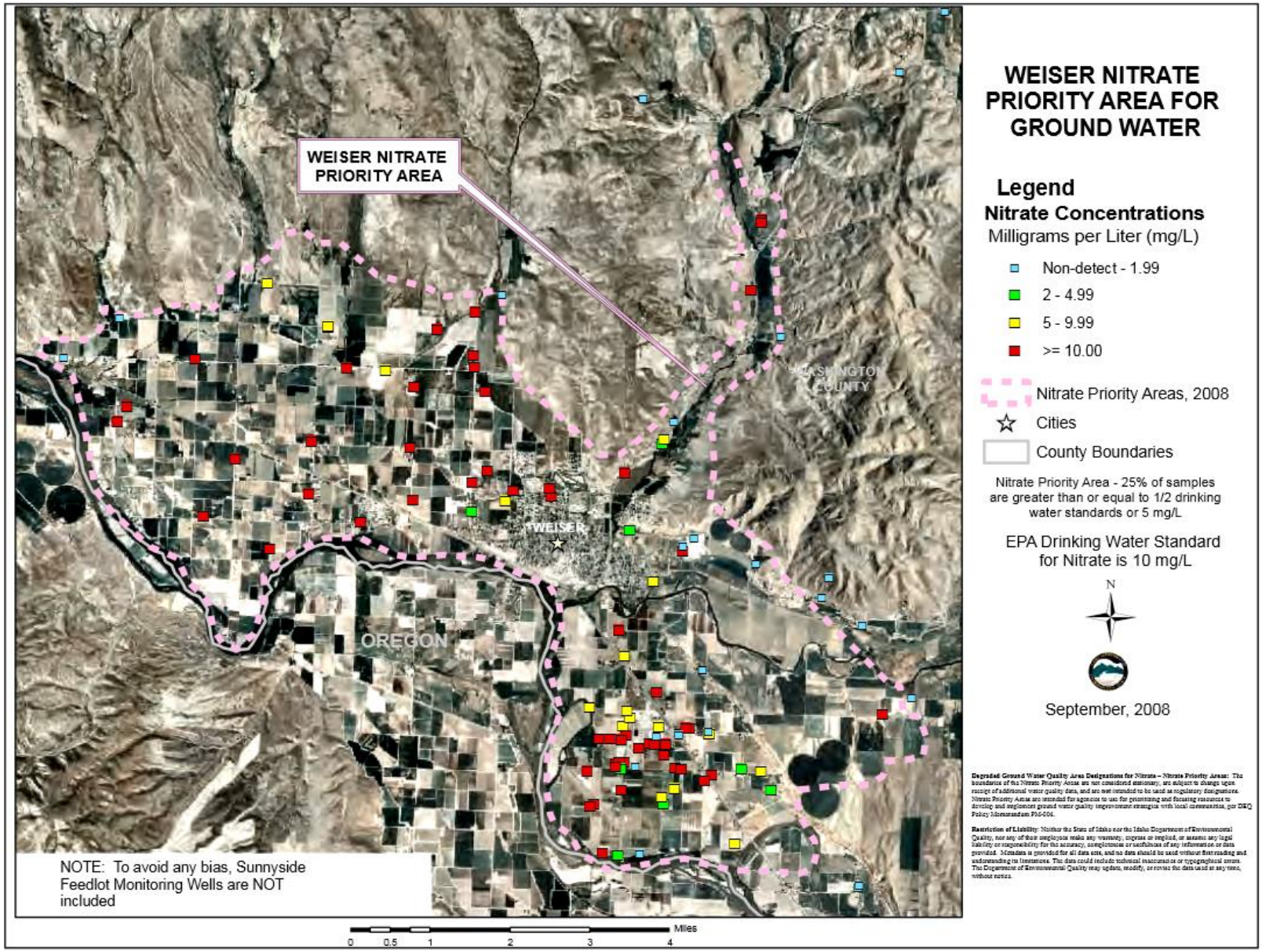

Figure 4-1. Weiser nitrate priority area for ground water.

5 Nitrate, Potential Nitrate Sources, and Other Ground Water Contaminants

5.1 Why is Nitrate a Concern?

Ground water supplies 95% of the water used in Idaho households and provides drinking water to more than 200 Idaho cities and towns. High levels of nitrate in drinking water are associated with adverse health effects. Therefore, strategies aimed at eliminating or minimizing nitrate contamination in the environment are critical.

Nitrate is a form of nitrogen. Nitrogen is an essential nutrient for plant growth; its compounds are vital components of plant foods and fertilizers. A variety of sources generate nitrate, such as precipitation, septic sewer systems, plants, waste from animals, nitrogen-based fertilizers, and other organic matter that returns nitrate to the soil as it decomposes.

Nitrate is the most widespread contaminant in Idaho's ground water; it is also the most preventable. In fact, it is "the most widespread contaminant found in Idaho ground water and the most common contaminant identified in public water drinking systems" (DEQ 2001). Nitrate levels in ground water serve as an indicator of the likelihood that other contaminants will reach the aquifer. While many other contaminants have been identified in Idaho ground water, nitrate's abundance, chemical mobility, and clear association with widespread land uses establish it as a priority contaminant.

Ground water quality monitoring data collected by DEQ, IDWR, ISDA, and USGS revealed nitrate concentrations, in some areas of Idaho, above or near the maximum contaminant level (MCL) for drinking water established by EPA.

5.2 Drinking Water Maximum Contaminant Level

The drinking water MCL is the highest permissible level of contaminant in drinking water for it to be deemed suitable for human consumption. EPA has established federal drinking water standards, called MCLs, for many contaminants; the MCL for nitrate is 10 mg/L. The Idaho ground water quality standard for nitrate in drinking water is also 10 mg/L. Nitrate concentrations of 2 mg/L or greater generally indicate an anthropogenic (human-caused) impact to ground water.

People who rely on private wells for their drinking water supply are particularly at risk of exposure to high levels of nitrate and other contaminants. Private well owners are not required to test their water on a regular basis and may not be aware a problem exists. See Tab 14, Public Information and Outreach Materials, for private well owner information and analytical laboratory contacts. Public water systems (PWSs) are subject to the Safe Drinking Water Act and are required to test regularly. Nitrate levels in public drinking water must be below 10 mg/L MCL.

5.3 Health Effects

Elevated nitrate levels can pose a health threat for both humans and animals and can be an indicator of other water quality problems. The MCL of 10 mg/L is based on studies assessing the risk of developing

methemoglobinemia (also known as blue baby syndrome) in infants as a result of exposure to nitrates. Methemoglobinemia is the inability to absorb oxygen in the blood system. Nitrate levels above the regulatory level have been associated with methemoglobinemia. The condition typically affects newborns and infants up to 6 months of age and occurs when nitrate is converted to nitrite in a child's body. Nitrite reduces oxygen in the child's blood, leading to shortness of breath and blueness of skin. This condition can be serious, causing the child's health to deteriorate rapidly over a period of days, and can result in death. Other populations potentially vulnerable to methemoglobinemia include pregnant women, adults with reduced stomach acidity, adults who lack a hereditary enzyme needed to combat effects of nitrate in their body, and dialysis patients (Cohen and Wiles 1996). Healthy adults are typically not affected short-term by elevated nitrate in water. However, long-term effects for consuming high-nitrate water are uncertain (Mahler et al. 2007).

High-nitrate water is generally a health hazard to animals only when used with high-nitrate feed. Short-term use of water with nitrate levels up to 40 mg/L is generally considered acceptable for animals. Water with nitrate levels greater than 100 mg/L is not recommended for livestock (Mahler et al. 2007). For more information about how water quality can affect animals, visit Washington State University's College of Veterinary Medicine website at *www.vetmed.wsu.edu/rdvm/links.aspx* or the University of Idaho's College of Agricultural and Life Sciences website at *www.avs.uidaho.edu/.*

5.4 Nitrate in Ground Water

Nitrate is soluble in water and can easily pass through soil to ground water supplies. Ground water is the primary source for drinking water in the Washington County area; therefore, ground water with high nitrate levels can potentially impact drinking water reserves. Nitrate can persist in ground water for decades and accumulate at high levels as more nitrogen is added to the soil every year and leaches into the ground water. High levels of nitrate in soil, ground water, and drinking water can originate from the application of nitrogen in the form of commercial fertilizer and animal waste, legume crop plow-down, and septic tank failures. Shallow wells, wells in sandy soil, or wells that are improperly constructed or maintained are more likely to have nitrate contamination than deeper wells with protective casings and effective well seals. Nitrate in ground water is often an indicator of aquifer vulnerability and may suggest the presence of other contaminants. The presence of higher concentrations of nitrate in ground water is generally associated with certain land use activities (Tab 6). Whenever nitrogen-containing compounds come into contact with soil, a potential for nitrate leaching into ground water exists. Nitrate is highly soluble and will stay as a solution in percolation water after leaving the root zone until it reaches ground water. Nitrate is difficult to remove from water; it cannot be removed from water by boiling, filtration, disinfection, or water softening. Water treatment that is effective in removing nitrate includes distillation, reverse osmosis, and ion exchange.

6 Potential Nitrate Sources

"It's not a matter of who is most responsible.
What's important is that you do what you can in the hope that
what you do matters."—unknown

Sources of nitrate include both point and nonpoint sources. A point source is a distinct and mappable supply of contamination. Nonpoint source pollution occurs with no visible or obvious point from which the contamination originates. Identified below are land use practices often serving as both point and nonpoint sources associated with nitrate contamination. When these land use practices are managed appropriately, they do not result in the degradation of water quality. However, poor management or inadequate control over such land use activities can lead to decreased water quality.

6.1 Well Construction

Older well construction standards did not offer the level of protection to ground water that more current standards require. Older well seals can allow contaminants from the land surface to move down along the outside casing of the well toward ground water. A well with multiple-screened intervals may create cross-contamination between aquifers. Also, improperly abandoned wells provide a direct connection between the land surface and the aquifer, allowing surface contaminants an easy path to ground water. Each circumstance or combination of issues can increase the probability of developing a nitrate contamination problem within an aquifer.

6.2 Residential Land Uses

6.2.1 Fertilizer Application, Irrigation Practices, and Other Residential Activities

The following activities associated with residential development are possible contributors to nitrate problems in residential areas:

- Excessive use of fertilizer on lawns, gardens, and other landscaping
- Excessive use of water on lawns, gardens, and landscaping
- Animal waste management (pastures and kennels)
- Septic system discharge

The combination of these activities may be a potential source of nitrate contamination in ground water.

Pastured animals on small acreages can also degrade ground water if not managed properly. According to Scott Jensen with the Canyon County Cooperative Extension Service, "Pasture management involves more than just grass care. It involves managing the interrelationships among animals, plants, and soil" (Jensen 2002).

Information for rural residential homeowners is currently available from the University of Idaho Extension and through the Homestead Assessment System (Home*A*Syst). Home*A*Syst helps homeowners, farmers, or ranchers determine how safe their drinking water is, assess practices and activities that may potentially contaminate ground water, and take action. Worksheets and factsheets

are available at *homeasyst.idahoag.us* to assist with site evaluations, identify practices known to increase the risk of contaminated drinking water, and help develop an action plan for reducing risk.

6.2.2 Septic Systems

Domestic septic systems may contribute to elevated concentrations of nitrate in ground water. The standard household septic system is not designed to effectively treat wastewater for nitrates. Properly operating systems deliver a certain amount of nitrate to the ground water (an average of about 45 mg/L of nitrate [EPA 1978]). Generally, this source of nitrate is not a concern when the volume of wastewater is relatively small compared to the volume of ground water.

Ground water problems can occur in areas where high septic densities exist. Primarily, these sites are found within cities' urban growth boundaries or in more isolated subdivisions. Low-density settings have little impact as ground water dilutes the discharged wastewater and spreads pollutants over a large area. As densities increase, discharge volumes increase as well and may overcome the ground water's ability to dilute wastes, thereby increasing the potential for contamination.

Idaho's septic system regulations under "Individual/Subsurface Sewage Disposal Rules" (IDAPA 58.01.03) and "Rules Governing the Cleaning of Septic Tanks" (IDAPA 58.01.15) are implemented through Idaho's public health districts, with technical assistance from DEQ. In cases where the concentration of nitrate entering ground water may be a problem, additional treatment systems can be placed on the septic tanks, reducing the effluent nitrate concentration to 27 mg/L or 16 mg/L.

In NPAs, local public health districts may require a ground water impact analysis to be conducted for all proposed subdivisions. This assessment determines the number of septic tanks permitted on a single subdivision site, avoiding any adverse impact on ground water quality. These analyses are referred to as nutrient-pathogen studies. DEQ reviews the nutrient-pathogen studies on behalf of each health district.

Additionally, health districts perform day-to-day activities to regulate septic systems. These tasks include conducting site evaluations and inspections, issuing system permits, and issuing septic tank pumper licenses. Health district programs have also been developed to address key issues, such as establishing design standards and acceptable waste management practices for private septic systems; establishing criteria under which sanitary permits are issued to build private septic systems discharging pollutants to waters in the state; and establishing site soil evaluation standards for placement of septic systems.

Other DEQ septic system regulation responsibilities include conducting plan and specification reviews for large soil absorption systems or drainfields with greater than 2,500 gallons per day effluent; reviewing nutrient-pathogen studies for large soil absorption systems; heading the technical guidance committee; reviewing new technologies; and providing training courses for installers and pumpers.

6.3 Agriculture

Agricultural activities generate sources of nitrate through all forms of fertilizers, legume crops, and organic matter. Nitrogen not used by plant growth is stored in the soil and can leach to ground water as nitrate if sufficient water is available to carry the compound through various layers of soil (known as the soil profile).

Several factors influence the degree of nitrogen leaching in agricultural areas. For instance, soil type, irrigation practices, and volume of water applied affect how quickly and easily nitrate leaches through the soil. The nitrogen source itself, application season, and application rate directly impact overall levels of nitrogen introduced. Overapplication of nitrogen can occur in several ways:

- Applying fertilizers at rates greater than what the crop needs or can use
- Failing to account for residual and organic nitrogen sources already present in the soil profile, especially in the form of nitrogen-fixing crops
- Inappropriately timing nutrient application with regard to crop needs
- Failing to account for other nitrogen sources such as irrigation water
- Failing to calibrate solid waste delivery systems to ensure uniform application over the entire land application area
- Failure to conduct nutrient analysis of solid waste and wastewater to determine the appropriate amount for land application

Irrigation systems may include gravity, solid set, hand line, wheel line, drip, surge, and center pivot. All systems have the potential to increase nitrate levels in ground water. Gravity or flood irrigation methods apply large volumes of water and are most effective in leaching nitrate through the soil profile and have the highest potential to degrade ground water quality.

A number of programs and activities address irrigation practices. The University of Idaho's Nutrient and Pest Management Program is an educational effort based on soil testing programs and soil fertility recommendations appropriate to soil type and crop. The NRCS, ISWC, and local soil and water conservation districts coordinate and implement a number of programs. Their focus is to use cost-sharing BMPs and educational outreach to reduce nutrient loads from agriculture and provide nutrient management planning and engineering technical support. These programs include the Environmental Quality Incentives Program (EQIP), Soil and Water Conservation Assistance Program, and State Water Quality Program for Agriculture. For additional program information, visit the NRCS website at *www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/*.

6.4 Animal Feeding Operations and Dairies

An animal feeding operation is defined as holding or confining animals in buildings, pens, or lots. Sources of nitrate from such animal feeding operations are typically attributed to runoff, facility wastewater, and manure. To protect ground water, regulations regarding solid and liquid effluents are in place for outfits feeding more than 1,000 head of animals. Waste management for operations feeding less than 1,000 head of animals is voluntary.

The ISDA has the authority to promulgate and enforce rules for dairy operations. Noncompliance with the rules or discharge violations may result in revocation of authority to sell milk for human consumption. ISDA also conducts dairy waste inspections to prevent waste discharges and evaluate waste collection, treatment, handling, disposal, and management procedures for compliance with the federal Clean Water Act and ISDA regulations.

Additionally, ISDA collects ground water samples for nitrate analysis during annual inspections at all active dairies in Idaho. Every 5 years, ISDA will run nitrogen isotope tests on water samples from each dairy showing nitrate concentrations greater than 5 parts per million. ISDA also has authority to require further compliance and operation changes where evidence indicates a dairy is a nitrate source

contributing to aquifer degradation. To date, follow-up has been restricted due to limited staff resources.

If a dairy or feedlot discharges into a surface water body, EPA issues a National Pollutant Discharge Elimination System (NPDES) permit.

Information on the location of dairies and feedlots with NPDES permits regulated and permitted by EPA can be found at *www.epa.gov/myenvironment/*. To access NPDES dairy and feedlot information for your area from this website, follow these steps:

- Enter your location, such as address, zip, city, county, water body, or park name.
- Select My Maps.
- Select Water under the Map Contents box in the upper right corner of the map.
- Select Water Dischargers.

6.5 Industrial and Municipal Wastewater Land Application Areas

Wastewater land application facilities generate nutrient-rich water called process water. Such facilities are among the few sources of nitrate regulated by DEQ. These facilities are required to obtain a wastewater reuse permit to apply wastewater to land. DEQ's regulatory waste discharge permit system requires land appliers to take the following steps:

- Schedule process water applications to meet crop nutrient and water needs.
- Develop management plans for irrigation and nutrient use.
- Develop water and nutrient budgets.
- Sample wastewater, ground water, soil, and crops as required by permit.
- Prepare reports on how activities are functioning and whether the process is meeting established
- goals.

6.6 Ground Water Recharge

Ground water recharge occurs naturally when standing water is allowed to seep into the ground. Depending on the specific conditions, recharge with contaminated water may adversely affect the ground water quality.

Managed ground water recharge takes place when water is pumped into a recharge basin or is injected into the ground in compliance with an IDWR permit.

6.7 Ground Water and Surface Water Interaction

The mutual influence and interaction between ground water and surface water quality are important considerations in evaluating sources of nitrate contamination. In some areas, ground water and surface water are hydraulically connected and combine to form a single water source. Thus, if degraded water quality exists in one, it may degrade the other as well.

6.8 Stormwater Disposal

As land development increases, so does the volume of concentrated stormwater runoff. A variety of contaminants, including nutrients, are contained in the runoff. However, nitrate is found in relatively low concentrations in most stormwater and has a low-to-moderate potential for contaminating ground water, either through surface percolation (the downward movement of water through soil and rocks) or through subsurface infiltration and injection practices (Pitt et al. 1994).

Stormwater management methods use ponds (retention, detention, evaporation, and infiltration), seepage beds, swales, or a combination. Practices infiltrating stormwater (i.e., allowing stormwater to enter the soil's surface) have the greatest potential to contribute nitrate to ground water.

Over the past 30 years, a number of local jurisdictions have implemented stormwater management functions at various levels of authority. These entities often require detention or retention of stormwater runoff during real estate development activities. In practice, jurisdictions requiring on-site control of stormwater flows after development activities are completed expect the runoff to be retained on site. This is due to few developments having access to drains, canals, or water bodies for off-site stormwater discharge.

In addition, federal stormwater regulations require some municipalities, construction sites greater than 1 acre, and certain types of industrial facilities to obtain permits from EPA to discharge stormwater. Even in some urban areas, NPDES permits are required for stormwater runoff. For more information on NPDES permit requirements, see EPA's website at *yosemite.epa.gov/r10/water.nsf/Stormwater/stormwater+permits.*

Federal regulations require municipalities to implement programs controlling runoff from new development and redevelopment areas.

6.9 Other Ground Water Contaminants

Although nitrate is a common and widespread contaminant in ground water within Washington County, other potential and major contaminant sources exist and are briefly discussed in this section. Also note there are several naturally occurring contaminants (metals) present in ground water within Washington County.

Regardless of the efforts operators and regulators undertake to protect human health and the environment, releases still occur. Accidental spillage, leaking underground pipes, or improper handling of waste materials can all lead to ground water contamination.

6.9.1 Petroleum Sources

Often businesses, such as gas stations, store large quantities of petroleum in underground storage tanks (USTs). Gas tanks and/or piping leaks have the potential to leak benzene, ethyl benzene, toluene, xylenes, and naphthalene that can impact shallow ground water. DEQ conducts inspections of UST facilities on a regular basis to confirm current standards are being met and tanks are not leaking. DEQ inspectors are required to visit each facility at least once every

3 years; however, leaks may still occur even with prevention systems in place. DEQ oversees petroleum release investigation and cleanup under the leaking underground storage tank (LUST) program. An overview of USTs and LUSTs in Idaho is provided on DEQ's website at *www.deq.idaho.gov/waste-mgmt-remediation/storage-tanks.aspx.*

6.9.2 Hazardous Chemicals

chemicals. Inspectors at DEQ regularly examine businesses using and storing chemicals considered to be hazardous and operations generating hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Their purpose is to confirm materials are handled properly and facilities are in compliance with hazardous waste rules and regulations. Some of these chemicals do enter the environment and are present in ground water. DEQ oversees chemical release investigation and cleanup activities under its ground water program, RCRA program, and/or remediation program. An overview of hazardous waste management in Idaho is provided on the DEQ website at *www.deq.idaho.gov/waste-mgmt-remediation.aspx*.

6.9.3 Mapping Ground Water and Drinking Water Contaminant Sources

EPA offers an online mapping application for several of the federally regulated programs in Idaho affecting ground water and drinking water.

The EPA-managed MyEnvironment search application is designed to map a cross section of environmental information based on the user's location. Information includes, but is not limited to, the following:

- Toxic releases and hazardous waste sites (TOXMAP).
- Superfund information links.
- Brownfields Program information links.
- Hazardous waste information links.
- Cleanups in my community map.
- USGS streamflow levels data for stream gauges.
- Water conditions for local water bodies based on EPA Water Quality and Impaired Stream data.
- EPA local drinking water provider and community water system information from the Safe Drinking Water Information System.
- Water quality monitoring activities—Provides the ability to identify monitoring stations in your neighborhood by the pollutants they measure.
- New and expiring facility permits in my area—This feature reports new and expiring permits (from EPA's Integrated Compliance Information System database) given to facilities that emit pollutants to water in your neighborhood.
- Watershed—This feature shows your area's watershed and connects you to EPA's Surf Your Watershed website, which provides a variety of links to citizen-based groups at work in your watershed, water quality data, and more.
- Fish advisories per area.

To get started, visit *www.epa.gov/myenvironment/* and enter your location.

If you are interested in other online mapping tools, see Tab 4 and or Tab 9 for links to interactive map-based sources of information on ground water quality.

7 Washington County Water Quality Activity Overview and Accomplishments

Table 7-1 gives an overview of completed water quality activities and accomplishments in Washington County.

Table 7-1.Overview of activities completed to improve ground water quality in Washington County.

Drinking Water Systems and Wells	
Number of active public water systems in Washington County as of 2013	16
Number of Washington County well permits issued by Idaho Department of Water Resources since January 1950	2,380
Drinking Water Source Protection Plans	
City of Cambridge	2002
City of Midvale	2007
City of Weiser	2003
Washington County Grant Awards for Water Quality Projects §319[a] Grant Awards: Nonpoint Source Implementation for Surface Water and Ground Water	
2002—Scott and Mann Creek Implementation	$102,428.00
2003—S074 Weiser Water Quality	$280,141.00
2004—S119 Weiser Flat-Hog Creek Artificial Wetland	$17,500.00
2005—S185 Weiser Water Quality Phase II	$190,547.00
2010—S405 Payette Ditch Water Discharge Treatment	$51,737.00
2012—S463 Cove Creek Wetlands	$127,698.00
2014—S514 Weiser Irrigation Automated Head Gate Project	$54,856.00
2015—Phase III Weiser Flat Wetlands	$94,106.00
Total §319 funds since 2002	**$919,013.00**
Surface Water Pollutant Load Allocations (Total Maximum Daily Loads [TMDL])	
Brownlee River (Weiser Flat) Subbasin	2003
Lower Payette River Big Willow Creek Little Willow Creek	TMDL 2000; 2008 2013
Weiser River Subbasin	2007

a. Refers to §319 of the federal Clean Water Act.

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8 General Strategies for Improving Ground Water Quality

The general and regional management strategies provided in this section address nitrate in ground water and offer suggestions to maintain or improve ground water quality in each NPA. These same strategies will also serve to protect and preserve shared ground water and drinking water resources throughout Washington County.

The implementation of these strategies is voluntary and based on the premise that citizens of Washington County want to manage their activities to limit potential impacts on their ground water resource. Along with participating entities, state and federal agencies will periodically evaluate the progress and success of these strategies in reducing nitrate levels in each NPA.

The goals of these strategies are as follows:

- Reduce nitrate contamination in each NPA to protect public health.
- Improve ground water quality in Washington County to an extent that warrants removing the NPAs from the statewide nitrate priority list.
- Protect and preserve the ground water and drinking water resources in the county.

The proposed objectives to support achieving these goals are as follows:

- Make resources available to local governments to assist in their decision-making processes.
- Educate the public about health risks associated with drinking water containing high nitrate levels and promote testing of private wells for nitrate concentrations.
- Educate the public about sources of nitrate in ground water to promote prevention, protection, and remediation efforts in maintaining and improving water quality.
- Implement agricultural, industrial, and residential BMPs to reduce nitrate loading of the ground water, thereby improving ground water quality.

Plan development would include the following:

- Gather a team of government and local advocates.
- Seek opportunities to hold education and outreach events.
- Attain grant funding if local communities show interest.

For each implementing agency, there is a table of action items (Table 8-1 through Table 8-9) including general time frames for completing each item. Detailed information regarding the agencies and the resources they offer is found under Tab 11, “Agencies, Directories, and Website Resources.”

Table 8-1. Idaho Department of Environmental Quality implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Facilitation and Reporting	
Report implementation updates at Interagency Ground Water Protection Committee meetings (see the Idaho Ground Water Protection Interagency Cooperative Agreement [DEQ 2008])	As necessary
Post summary reports and revised plan on DEQ website.	As necessary
Work with county commissioners and other local officials to evaluate adequacy of local zoning and land use planning initiatives.	As requested
General Information and Education	
Provide copies of the final *Washington County Ground Water Quality Improvement and Drinking Water Source Protection Plan* and any future updates to local decision makers, including Washington County commissioners, Washington County growth and development office, city planning and zoning office, and Washington Soil and Water Conservation District. Post plan and revisions on DEQ's website.	As needed
Work with communities to promote proper fertilizer application in parks, cemeteries, schools, and golf courses.	Ongoing
Make the final plan available to public via DEQ's website.	Ongoing
Grant Oversight	
Award and oversee §319 Clean Water Act grant project funding and source water protection grant projects.	Annually
Public Drinking Water Systems	
Review and approve all plan and specification submittals for engineering design of new public water supplies.	As needed
Prepare source water assessments for all new public water supplies.	As needed
Coauthor or write, review, and certify drinking water source protection plans for public water systems (PWSs).	As requested
Require and review PWS monitoring data to confirm drinking water complies with all state and federal maximum contaminant levels.	Frequencies vary

Action Item	Time Frame
Use sanitary survey inspections to familiarize PWSs with source delineation information, provide an opportunity for PWSs to update their potential contaminant inventory, disseminate relevant outreach and education materials, and solicit involvement in the state's drinking water protection certification program.	As needed
Monitoring	
Compile regional water quality data. With input from other agencies and the public, adjust boundaries of the Washington County nitrate priority area as appropriate.	2008; approximately every 5 years thereafter
Conduct coordinated ground water monitoring as needed to better characterize nitrate concentrations and trends, identify the vertical extent of contamination, and/or identify the presence of nitrate contamination within and outside of the nitrate priority area boundaries.	Regularly
Within a regional context, assess whether a ground water quality monitoring project is warranted and whether funding is available.	Second quarter of each year

Table 8-2. Southwest District Health Department implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Septic Systems	
Provide information about treatment system options and septic system maintenance at public locations in cities that are in or near nitrate priority areas and at the Washington County courthouse.	Ongoing
Continue with the review and permitting of all new, expanded, and replacement septic systems.	As requested
Inspect existing septic systems when new homes or home extensions are added.	As needed
Private Water Supply Wells and Public Health	
Provide information regarding the responsibilities of private well owners/users at public locations in cities in or near nitrate priority areas and at Washington County offices. Include information and resources for understanding proper well location with respect to potential sources of contamination, installation procedures, and wellhead maintenance.	Ongoing
Provide information about the health effects of nitrate at public locations in cities that are in or near nitrate priority areas and at Washington County offices.	Ongoing
Promote regular testing of private wells to determine if any contamination is present.	Ongoing
Provide sample bottles and information about analytical laboratories for testing of private wells.	As requested

Table 8-3. Local conservation districts with the assistance of Idaho Association of Soil Conservation Districts and Idaho Soil and Water Conservation Commission implementation tasks for Gem County nitrate priority areas.

Action Item	Time Frame
Public Awareness, Education, and Outreach	
Prepare an information and education plan that includes timelines, public service announcements, brochures, mailings, demonstrations, and tours.	Ongoing
Contact producers to inform them of the following: –Water quality goals and objectives for projects implemented –Potential agricultural impacts of nitrate contamination in ground water –Benefits of proper nutrient management plan (NMP) –Irrigation water management (IWM) benefits –Details on incentive programs –Information and education programs	Ongoing
Conduct IWM outreach: –Conduct irrigation workshops. –Make soil moisture monitoring equipment available to producers interested in optimizing their irrigation applications. –Encourage sprinkler irrigators to take advantage of the Idaho Power Energy Efficiency for Agricultural Irrigation program.	As requested Ongoing
Identify additional high-priority landowners and offer them information on the benefits of implementing NMP and IWM, using data and outputs compiled over the course of the project.	Ongoing
Work with communities to promote proper fertilizer application in parks, cemeteries, schools, and golf courses.	Ongoing
Work with county commissioners and other local officials to evaluate adequacy of local zoning and land use planning initiatives.	As requested
Provide information and training to private landowners who accept manure or compost from animal feeding operations for use as fertilizer. Develop and distribute the following information and training: –Identify target audience. –Create informational brochures, flyers, or pamphlets as guidance for proper storage and application methods. –In coordination with the University of Idaho Extension and other interested groups, develop seminar and presentation materials for workshops. –Disseminate information to the target audience through mailings, workshops, or other means as appropriate.	Ongoing

Action Item	Time Frame
Best Management Practices—Program Planning	
Submit a §319 Clean Water Act grant application to fund implementation of best management practices (BMPs) as outlined in the district's 5-year plan.	2015
Establish a steering committee of Washington Soil and Water Conservation District members and staff from IASCD, ISWC, DEQ, ISDA, and NRCS to develop a project plan that will include the following: –Criteria for prioritizing activities in the nitrate priority areas for NMP, IWM, and total maximum daily loads (TMDLs) –Contracting procedures for NMP –Estimating incentives to be offered and methods of distribution –Monitoring and evaluation of BMP effectiveness –Information and education outreach options and methods to be used	2015
Prepare a work plan that includes the following components: –Develop a producer contact list for project information and education. –Prepare a written conservation plan and contract for NMP development and implementation (NMP services to include soil sampling, analysis, and planning for crops with cost share). –Educate landowners on IWM and installation and monitoring of water sensors. –Track load reductions. –Deliver project findings reports to DEQ biannually. –Provide an educational campaign to major producers and other landowners. –Evaluate unregulated manure storage sites to identify risk to ground water supplies. –Develop remediation plans and implement BMPs, including evaluation of agronomic application rates.	2001–2014
NMP, IWM, and BMP Implementation and Evaluation	
Implement NMPs: –Identify and focus on high-priority or critical areas. –Review water quality monitoring reports and data from other agencies. –Contact critical landowners. –Develop and conduct NMPs. –Follow-up with producers to review and evaluate NMPs. –Compile general (nonproducer-specific) information in report to DEQ.	Ongoing
IWM evaluations: –Identify fields to evaluate. –Install soil moisture equipment. –Analyze data. –Report findings to producers. –Compile general (nonproducer-specific) information in report to DEQ.	Ongoing

Action Item	Time Frame
Implement BMP effectiveness evaluation program: –Analyze soil sampling data and fertilizer receipts to determine compliance with NMPs –Analyze soil moisture sensor data to evaluate irrigation management recommendations. –Review ground water quality results for samples collected within all nitrate priority areas identified in Washington County.	Fourth quarter of each year
Perform Biannual Reviews and Prepare §319 Clean Water Act Grant Report for DEQ	
Conduct status review with each participant.	Annually
Prepare report with general information about activities and results conducted and submit to DEQ in a time frame that coincides with the invoice period (as required by DEQ).	As required
Prepare a work plan that includes the following components: –Develop a producer contact list for project information and education. –Prepare a written conservation plan and contract for NMP development and implementation (NMP services to include soil sampling, analysis, and planning for managing the amount, source, placement, form, and timing of the land application of nutrients and soil amendments for plant production).	Implementation schedule to be set after funding is obtained.

Notes: Idaho Association of Soil Conservation Districts (IASCD), Idaho Soil and Water Conservation Commission (ISWC), Idaho Department of Environmental Quality (DEQ), Idaho State Department of Agriculture (ISDA), and Natural Resources Conservation Service (NRCS)

Table 8-4. United States Department of Agriculture, Natural Resources Conservation Service implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Public Awareness, Education, and Outreach	
Coordinate with and support the Washington Soil and Water Conservation District information and education plan.	Ongoing
Provide timely announcements of all Farm Bill sign-ups and other funding opportunities for implementation of best management practices (BMPs) to address resource concerns.	Ongoing
Work with producers involved in Natural Resources Conservation Service (NRCS) programs and provide information on the following: –Water quality resource concerns on their lands –Potential impacts of nitrate contamination to ground water quality –Proper nutrient management –Irrigation water management (IWM) and the benefits of high-level IWM implementation –Use of conservation crop rotation and other practices to mitigate ground water quality impacts	Ongoing
Participate in community activities and meetings and provide technical assistance and information on BMPs to address ground water and surface water quality concerns.	Ongoing
Coordination with Conservation Partners	
Inform all conservation partners of the availability of special Environmental Quality Incentives Program (EQIP) funding (Agricultural Water Enhancing Program and Cooperative Conservation Partnership Initiative) to target specific resource concerns and areas of concern.	Ongoing
Work with the NRCS, State Ground Water Monitoring Technical Committee, and the soil and water conservation districts to use ranking and other processes to target special resource concerns (e.g., nitrate priority areas).	Ongoing
Participate in and coordinate with any special projects (e.g., §319 Clean Water Act projects) active in the county to help implement BMPs. Assist ISWC and soil and water conservation district, when requested, in evaluating program success through water quality modeling of estimated load reductions.	Depends on active projects
Participate as a member of the Idaho State Department of Agriculture, Agricultural Ground Water Committee and the Idaho Department of Environmental Quality, Ground Water Monitoring Technical Committee to stay abreast of current issues and inform partners of NRCS activities.	Ongoing

Action Item	Time Frame
Implementation of Conservation Practices	
Use the existing field office work plan to accomplish the following: –Provide information to producers on incentive programs, such as EQIP to implement BMPs. –Develop contracts with producers and assist with the implementing needed conservation practices that address resource concerns –Use NRCS tools to track progress and results	Ongoing
Contract with interested producers and provide technical assistance to implement conservation practices that address ground water and surface water quality protection and/or mitigation. Include the following management practices: –Irrigation water management –Nutrient management –Pest management –Conservation crop rotation –Residue management –Prescribed grazing Include the following structural practices and improved technologies: –Upgrade irrigation systems and technologies to improve efficiency –Filter strips and riparian buffers –Sediment basins and pump-back systems –Waste management systems and manure management on animal feeding operations	Ongoing

Table 8-5. Idaho State Department of Agriculture implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Education and Outreach	
Through the Idaho State Department of Agriculture, Agriculture Ground Water Coordination Committee, complete the following: –Request that University of Idaho fertilizer application guides are reviewed and updated as needed –Promote education and outreach regarding potential sources of nitrate –Promote voluntary implementation of best management practices (BMPs)	Ongoing
Work with communities to promote proper fertilizer application in parks, cemeteries, schools, and golf courses.	Ongoing
Work with county commissioners and other local officials to evaluate adequacy of local zoning and land use planning initiatives.	As requested
Water Supply Wells	
Promote use of Home*A*Syst as a tool to assess and change homeowner and farmstead activities that have the potential to contaminate drinking water wells.	Ongoing
Livestock Facility Waste Management	
Continue to require nutrient management plans (NMPs) at every licensed dairy and beef cattle feeding operation designated as a confined animal feeding operation (CAFO) (>1,000 head of animals) to help control runoff and infiltration of animal waste.	Ongoing
Identify all beef cattle feeding operations (<1,000 head of animals) that could be considered significant contributors of contaminants to waters of the state and work with the operators to properly manage waste and develop NMPs for their facilities.	Ongoing
Manure Storage and Application	
Continue to aid owners and operators in developing the required manure storage and application procedures in beef and dairy facility NMPs.	Ongoing
Develop information and training for private landowners who accept manure or compost from animal feeding operations for use as fertilizer. Develop the following components: –Identify target audience. –Create informational brochures, flyers, or pamphlets as guidance for proper storage and application methods. –In coordination with the University of Idaho Extension and other interested groups, develop seminar and presentation materials for workshops. –Disseminate information to the target audience through mailings, workshops, or other means, as appropriate.	Ongoing

Action Item	Time Frame
Monitoring	
Collect samples annually for coliform bacteria and nitrate at licensed dairies.	Ongoing
Every 5 years, monitor dairy wells that have nitrate levels greater than 5 parts per million for nitrogen isotopes.	
Conduct ground water monitoring for pesticides according to the Idaho Pesticide Management Plan and federal Insecticide, Fungicide and Rodenticide Act grant while coordinating with the Idaho Department of Environmental Quality and Idaho Department of Water Resources.	

Table 8-6. Idaho Department of Water Resources implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Information and Education	
Using the well permitting process, provide information to homeowners concerning the potential presence of nitrate in drinking water supplies.	Ongoing
Work with county commissioners and other local officials to evaluate the adequacy of local zoning and land use planning initiatives if requested.	As requested
Monitoring	
Through the Statewide Ambient Ground Water Quality Monitoring Program, conduct ground water monitoring to better characterize nitrate contamination, determine nitrate concentration trends, and identify the presence of nitrate contamination inside and outside the nitrate priority area boundaries.	Ongoing

Table 8-7. Confined animal feeding operation siting team implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
The Idaho State Department of Agriculture (lead agency of Idaho's confined animal feeding operation [CAFOs] site advisory team), Idaho Department of Environmental Quality, and Idaho Department of Water Resources will continue to review sites proposed for CAFOs, determine environmental risks, and submit site-suitability determinations to counties.	As requested

Table 8-8. University of Idaho Extension implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Information and Education	
Provide education to all fertilizer users through University of Idaho Extension educators, workshops, website, and materials, such as newsletters and factsheets. Information should address proper irrigation and fertilizer application procedures, rates (based on University of Idaho Extension guidance), and timing, with consideration for crop up-take, migration of excess nitrates, and impacts to ground water.	Ongoing
Encourage ongoing outreach and provision of information by the University of Idaho Extension to small acreage operations and part-time agricultural operations (hobby farms).	Ongoing
Distribute University of Idaho Extension publications to homeowners in priority areas through mass mailings or through distribution by local retailers and develop new publications as needed. Educational materials should address fertilizer and pesticide application rates and impacts to ground water.	Ongoing
Promote demonstration projects and disseminate results.	Ongoing

Table 8-9. Municipalities implementation tasks for Washington County nitrate priority areas.

Action Item	Time Frame
Ground Water Quality Protection	
"Environmental Quality—Health" (Idaho Code §39-1) states "Cities, counties and other political subdivisions of the state shall incorporate the ground water quality protection plan in their programs and are also authorized and encouraged to implement ground water quality protection policies within their respective jurisdictions…" (Idaho Code 39-126, available at *legislature.idaho.gov/idstat/Title39/T39CH1SECT39-126.htm*).	As appropriate
Education and Outreach	
Work with residents, landscape contractors, cemeteries, and schools within jurisdiction to promote proper fertilizer application.	Ongoing
Work with DEQ, ISDA, IDWR, IASCD, ISWC, other agencies, and local governments to gather their input on local zoning, plans, and ordinances.	As needed
Comprehensive Planning	
"Local Land Use Planning" (Idaho Code §67-65) states "When considering amending, repealing, or adopting a comprehensive plan, the local governing board shall consider the effect the proposed amendment, repeal, or adoption of the comprehensive plan would have on the source, quantity and quality of ground water in the area" (Idaho Code §67-6537, available at *http://legislature.idaho.gov/idstat/Title67/T67CH65SECT67-6537.htm*). Review and consider maps of watersheds, aquifer recharge areas, ground water basins, and unique water resource conditions to accurately determine the potential impacts of development on water quality and water resources in areas of interest. Identify existing and potential water pollution sources (landfills; chemical storage sites; abandoned commercial, industrial, and mine properties; and agricultural nonpoint sources) when considering land use changes. Identify appropriate land uses in areas of sensitive water resources.	As appropriate
Ordinance Development	
Develop ordinances that support the comprehensive plan and ground water and drinking water resource protection. Consider a requirement for additional studies to assess impacts to ground water quantity and/or quality due to development activities and changes in land use.	As appropriate

Action Item	Time Frame
Planning and Zoning Decisions	
Consider potential impacts to water quality when evaluating land use changes. Use the confined animal feeding operation (CAFO) siting team to review sites proposed for CAFOs and determine environmental risks. Consider the harmful impacts that may occur to ground water resources before approving the following: –Fertilizer manufacturing and/or distribution centers –Commercial endeavors that use large volumes of liquids in aboveground and belowground tanks –Placement and/or expansion of CAFOs or animal feeding operations –Subdivision development; specifically residential densities using individual wells and septic systems	As appropriate
Work with the Association of Idaho Cities and Idaho Association of Counties as necessary and appropriate.	Ongoing and as appropriate

Notes: Idaho Department of Environmental Quality (DEQ), Idaho State Department of Agriculture (ISDA), Idaho Department of Water Resources (IDWR), Idaho Association of Soil Conservation Districts (IASCD), and Idaho Soil and Water Conservation Commission (ISWC)

9 Drinking Water Source Protection

PWS can be publicly or privately owned and serve many Idahoans. A PWS is defined as an operation serving at least 25 people or 15 service connections for at least 60 days per year. Many citizens get their drinking water from private wells that are not regulated under the Safe Drinking Water Act. As such, private well owners are responsible for ensuring their water is safe to drink.

Over 95% of Idaho's drinking water comes from ground water. Protecting this resource is largely done through voluntary action where communities develop programs to help prevent drinking water supplies from being contaminated. These programs may involve creating a drinking water protection plan and implementing regulatory and/or nonregulatory management practices. Most human activities at the land surface cause some change in water quality in the aquifer below. Where ground water is the primary source of drinking water, a community should protect the physical area around the wellhead and the areas above which the well pumps water for drinking.

The maps in this section show Washington County PWSs and their source areas, known as delineations, or the portions of the watershed or subsurface area contributing ground water to wells. Figure 9-1 depicts the delineations for all of Washington County. Figure 9-2 depicts the delineations for the Midvale and Cambridge areas of Washington County. Figure 9-3 depicts the delineations for the Weiser and Midvale areas of Washington County. Figure 9-4 provides a county view of domestic and PWS wellheads. Each well can act as a conduit for ground water contamination. The maps in this section are provided as a reference tool when making land use decisions that may affect ground water and/or drinking water quality in Washington County.

Preventing ground water contamination requires thoughtful management and cooperation on the part of citizens and the various levels of government. In many cases, land use planning efforts by both city and county governments are the best instruments available for protecting aquifers. If potential contamination sources are prevented from being located over critical recharge areas, the risk of contamination can be greatly reduced.

DEQ sees great potential to protect public health and preserve and protect Idaho's drinking water by providing community leaders a county-wide mapping application that depict drinking water capture zones and delineations. These maps should be considered as land use decisions are made.

For interactive map-based sources of information on ground water quality and for areas where nitrate concentrations potentially degrade drinking water quality, visit *mapcase.deq.idaho.gov/npa/*.

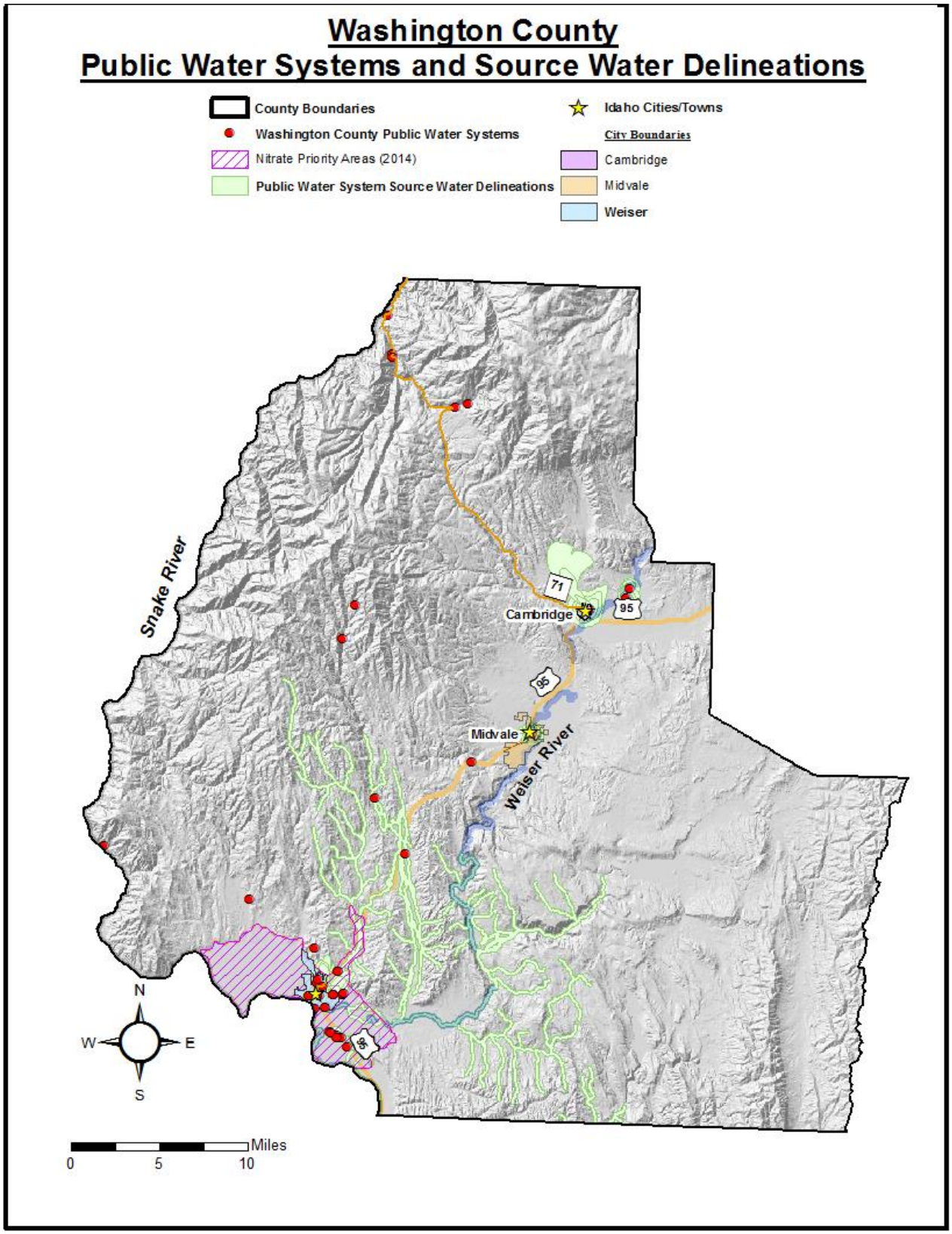

Figure 9-1. Public water system source areas relating to Washington County nitrate priority area.

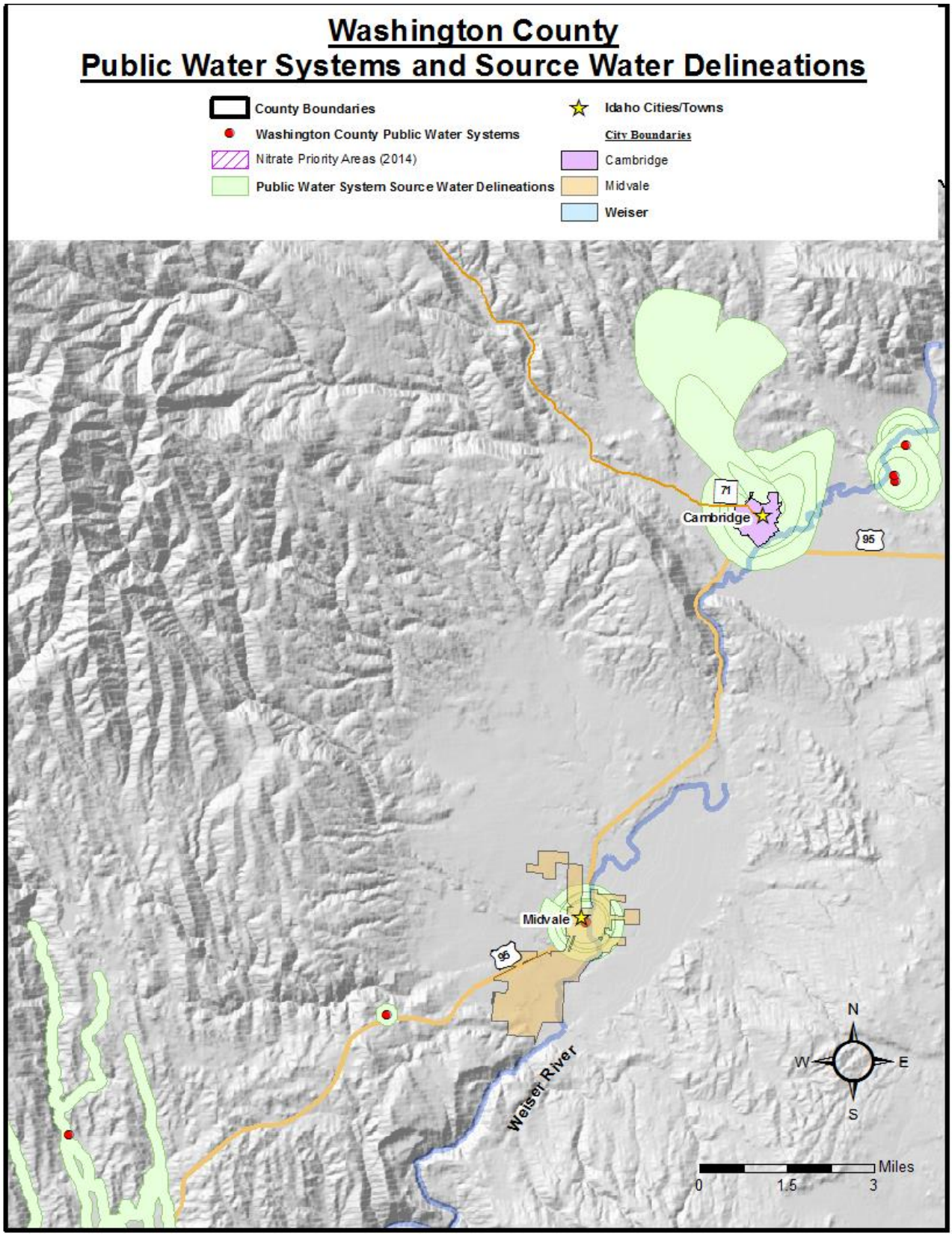

Figure 9-2. Public water system source areas relating to Midvale and Cambridge.

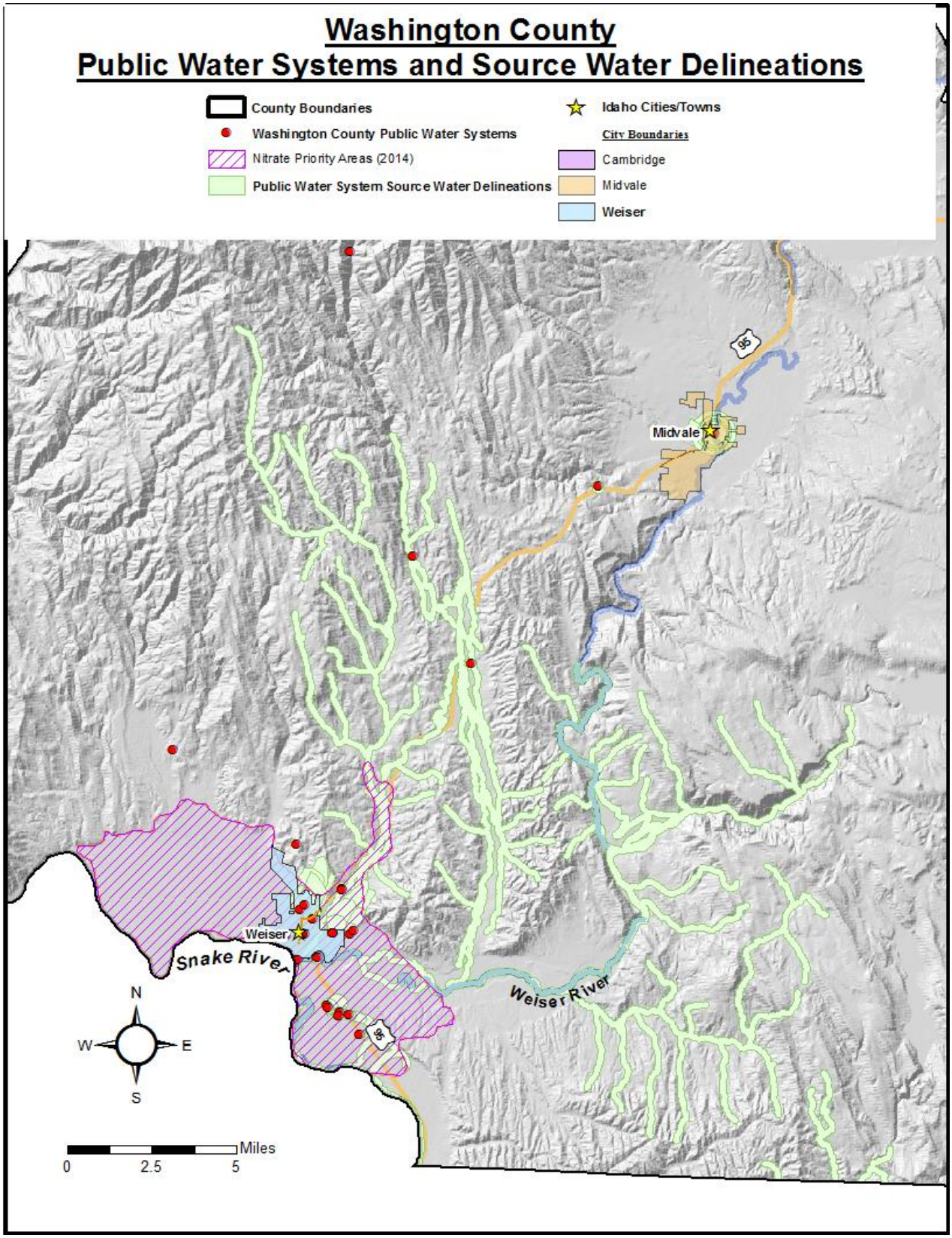

Figure 9-3. Public water system source areas relating to Weiser and Midvale.

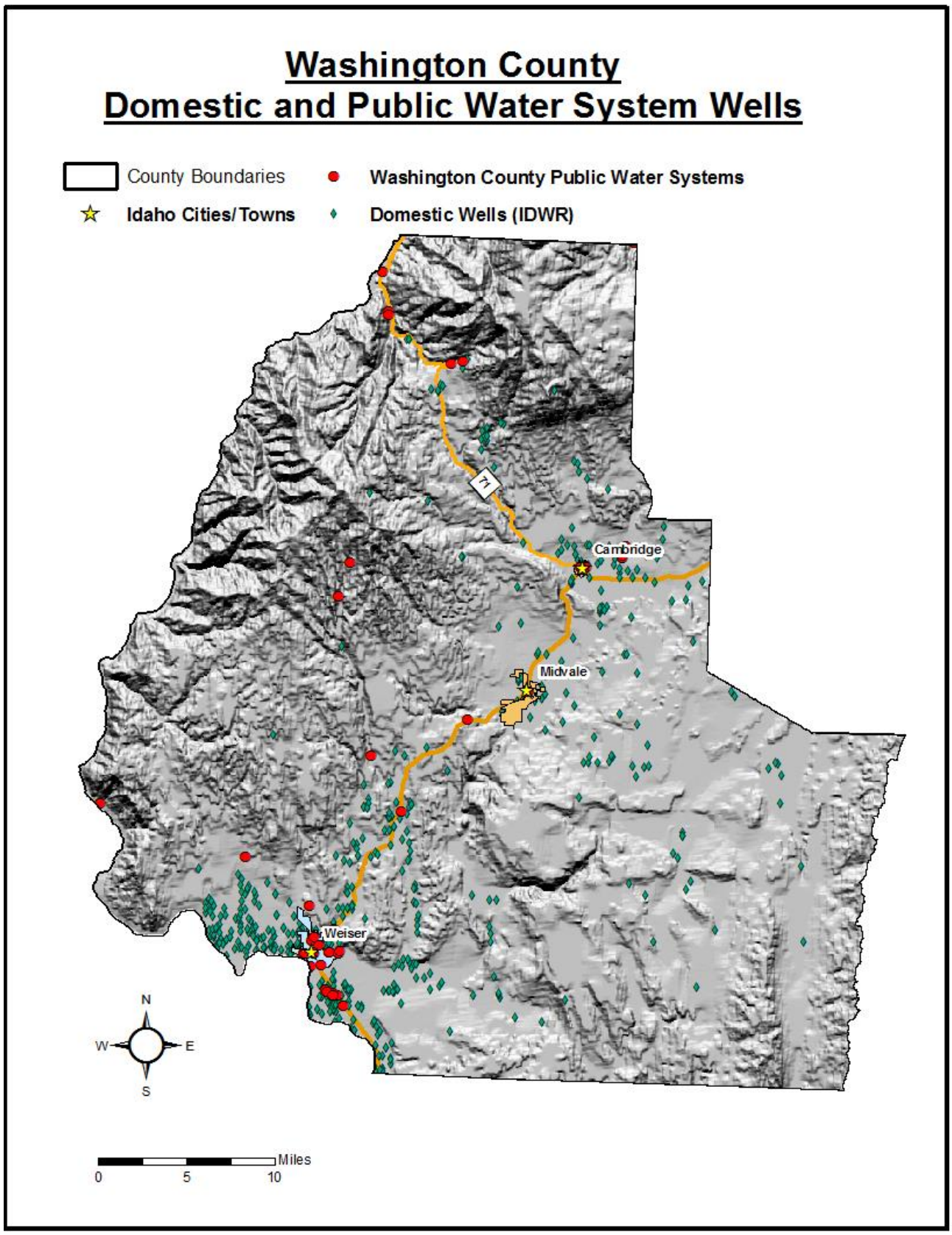

Figure 9-4. Washington County domestic and public water system wells.

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10 Surface Water Total Maximum Daily Loads

This section is provided as a resource for making land use decisions to protect surface water quality and to use as supporting documentation for funding requests about projects related to ground water and surface water quality.

Ground water and surface water are interrelated (Figure 10-1). Ground water is surface water (i.e., lakes, rivers, streams, or overland flow) that has percolated into and through the ground to an aquifer (the porous sediment or fractured rock below the water table). Ground water may move back into surface water bodies through seeps, springs, or base flow into a river or lake, depending on the geology of an area.

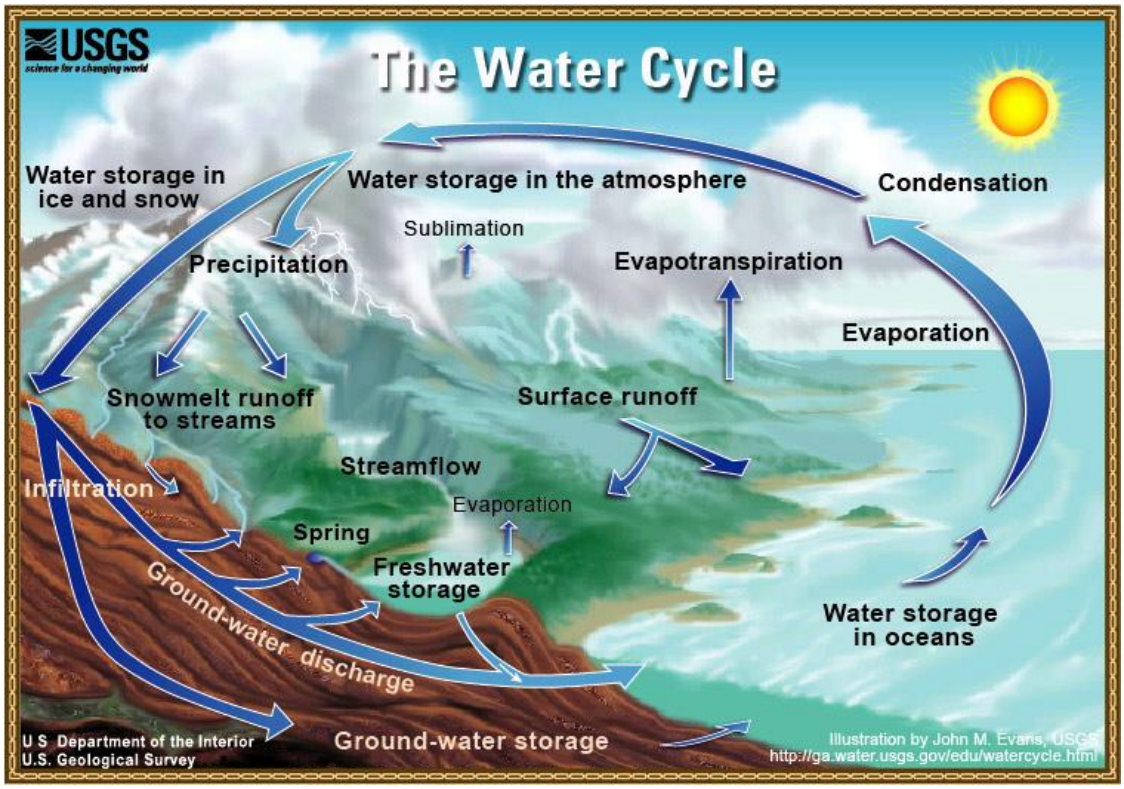

Figure 10-1. Interaction between ground water and surface water.

Many management practices known to protect ground water quality are also used to prevent nonpoint source surface water pollution. Unlike point sources, which are directly related to a specific source or facility, nonpoint sources are generally related to activities taking place at multiple locations throughout a watershed or large-scale activities. Nonpoint source pollution is the cumulative effect of activities such as fertilizer use, pesticide use whether for home or agriculture, oil disposed down storm drains, and various land use practices including urban development, agriculture, mining, and forestry. For these reasons, modifying land use activities can reduce and control nonpoint source pollution. Due to Idaho's rural nature, most water pollution in the state is related to nonpoint sources.

To restore degraded surface waters in the state, Idaho (DEQ specifically) must develop water quality management plans for its various water bodies. These are called subbasin assessments and total maximum daily loads (TMDLs). The TMDL provides a pollution budget written for point and nonpoint sources of pollution for that surface water body. It includes a calculation of the maximum amount of a pollutant a water body can receive from human-caused sources and still meet water quality standards. The pollution budget is expressed in terms of load: the amount of pollutant added to a water body during a given time or per a given volume of water.

There are a number of watersheds (drainage areas) within the county boundary. Each watershed is a basin or subbasin, depending on scale, and each may be subject to a TMDL.

To learn more about the quality of the surface water bodies in Washington County, Figure 10-2 provides a point of reference.

Information regarding the beneficial use support status and causes of impairment to a surface water can be found using the hydrologic unit code (HUC) number/name, or water body name.

To see an interactive, map-based source of information on the water quality of lakes, rivers, and streams in Idaho, including the Clean Water Act §303(d)-listed water bodies, visit *mapcase.deq.idaho.gov/wq2010/.*

To see TMDL documents for the impaired waters in Washington County, visit the DEQ website at *www.deq.idaho.gov/water-quality/surface-water/tmdls/table-of-sbas-tmdls.aspx.*

An overview of the TMDL process is found at *www.deq.idaho.gov/water-quality/surface-water/tmdls.aspx.*

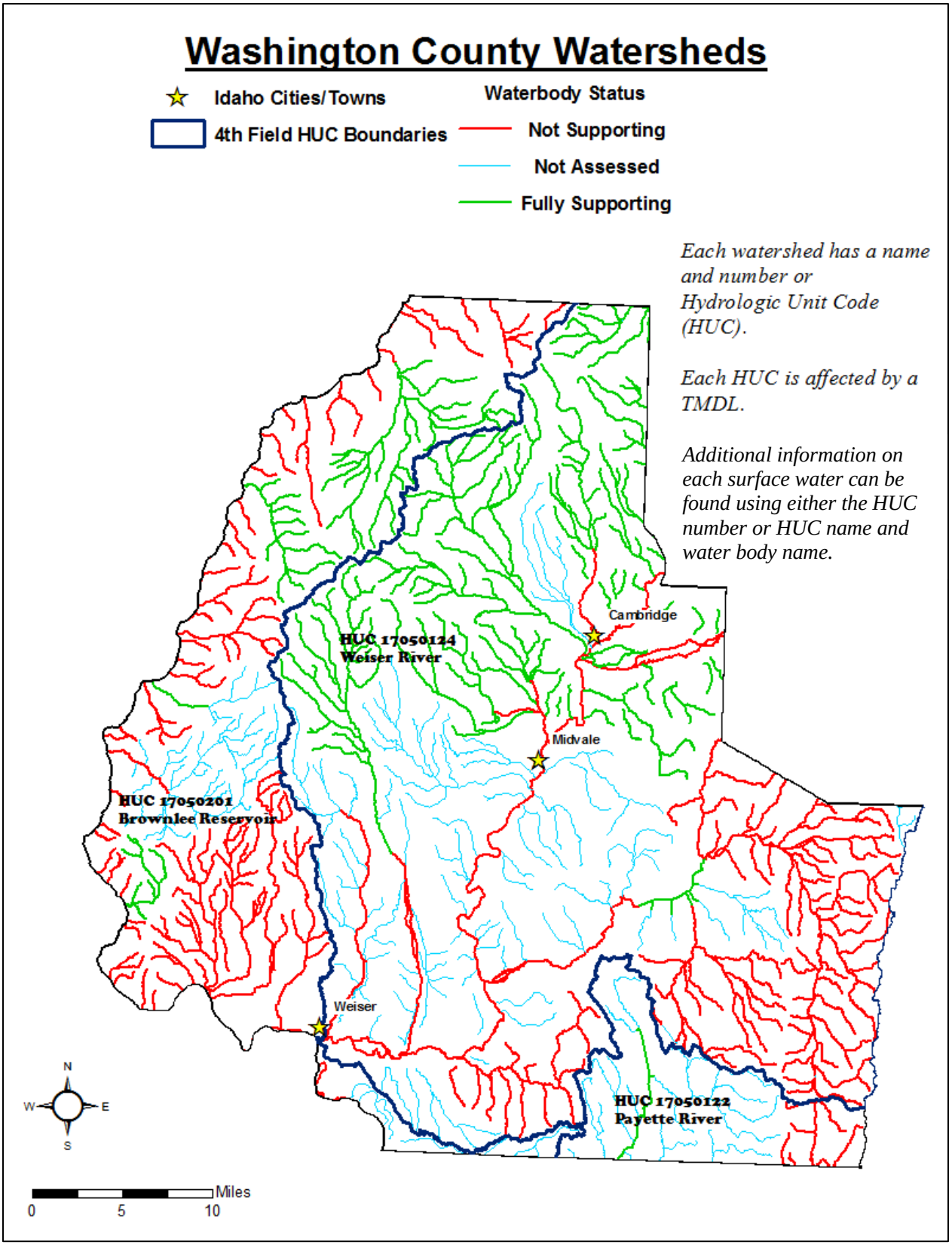

Figure 10-2. Washington County watersheds.

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11 Agencies, Directories, and Website Resources

Table 11-1 lists entities that can assist in ground water quality management and/or drinking water protection. Additional information and resources are found in section 11.1.

Table 11-1. Resources and authorities for ground water quality management in Idaho.

Resource	Phone Number and Website
Weiser River Soil Conservation District –Nutrient and irrigation water management plans –Grant opportunities –Technical assistance –Restoration and urban conservation	(208) 549-4250 *http://iascd.wordpress.com/tag/weiser-river-soil-conservation-district/*
Idaho Soil and Water Conservation Commission –Technical assistance to owners/operators of private lands for planning, implementing, and evaluating agricultural best management practices –Nutrient and irrigation water management plans	(208) 332-1790 *http://swc.idaho.gov/*
Idaho State Department of Agriculture –Beef and dairy animal feeding operations –Confined animal feeding operation (CAFO) siting team –Pesticides	(208) 332-8500 *www.agri.idaho.gov*
Idaho Home Assessment System –Fertilizer storage, application, and handling –Animal waste –Lawn and garden management –Well condition assessment tools	(208) 332-8603 *homeasyst.idahoag.us/*
Idaho Department of Water Resources –Well construction, permits, underground injection –Water rights –Hydrogeologic studies	(208) 287-4800 *www.idwr.idaho.gov*
Natural Resources Conservation Service Technical assistance to implement conservation practices for erosion control and water quality	(208) 378-5700 *www.id.nrcs.usda.gov/*
Idaho Department of Environmental Quality –Ground water quality –Nutrient-pathogen studies –Public drinking water systems –Source water protection –CAFO siting team –CAFOs for swine, poultry, horses, sheep, mink, and deer –Wastewater permitting, large soil absorption systems, land application	(208) 373-0550 *www.deq.idaho.gov*

Resource	Phone Number and Website
Southwest District Health –Septic tanks and drainfields –Subdivision sanitary restrictions –Noncommunity drinking water systems –Smaller community drinking water systems –Private well owner assistance with water quality sampling	(208) 549-2370 *www.publichealthidaho.com/*
Idaho Water Resources Research Institute –Project WET –Outreach and training materials on water issues for teachers	(208) 332-4422 *www.uidaho.edu/research/iwrri/outreach/teacher education* *www.projectwet.org*
University of Idaho Extension—Washington County –Agricultural research results –Education and outreach for the general public	(208) 414-0415 *http://extension.uidaho.edu/washington/*
University of Idaho Animal and Veterinary Science Department Water quality effects on animal health	(208) 885-6345 *www.uidaho.edu/cals/avs*
Idaho Rural Water Association Training and technical assistance for water and wastewater systems	(855) 245-9250 or (208) 343-7001 *https://irwa.sharepoint.com/Pages/training.aspx*
Association of Idaho Cities Ordinance development assistance	(208) 344-8594 *http://www.idahocities.org*

11.1 Regulatory Directory and Website Resources

The following is not intended as a source of regulatory guidance but is provided to direct readers to proper agencies.

11.1.1 Idaho Department of Environmental Quality

DEQ is responsible for protecting the quality of ground water in Idaho and relies on a combination of programs to protect ground water from pollution, clean up degraded ground water, and monitor and assess ground water quality. DEQ's ground water policy is to maintain and protect the existing high quality of Idaho's ground water and restore degraded ground water, where feasible. DEQ has identified areas, known as NPAs, where ground water quality has been degraded. DEQ conducts *source water assessments* to help PWSs understand potential threats to their public water supplies, and approves and regulates PWSs and wastewater systems. DEQ Ground Water Program staff in the state office can be contacted at (208) 373-0502. Ground Water Program staff in DEQ's Boise Regional Office can be contacted at (208) 373-0550.

See the DEQ web pages listed below for more information:

- Ground water information specific to nitrate contamination
  www.deq.idaho.gov/water-quality/ground-water/nitrate.aspx
- Information on private, domestic drinking water
  www.deq.idaho.gov/water-quality/ground-water/private-wells.aspx
- Drinking water protection information
  www.deq.idaho.gov/water-quality/source-water/protection.aspx
- Information regarding source water assessments of public drinking water systems
  www.deq.idaho.gov/water-quality/source-water/assessments.aspx
- Information on source water protection grants (when available)
  www.deq.idaho.gov/water-quality/grants-loans/source-water-protection-grants.aspx
- Information regarding the operation of swine and poultry facilities
  www.deq.idaho.gov/water-quality/wastewater/cafos.aspx
- Information on nutrient-pathogen studies for septic tank effluent evaluations
  www.deq.idaho.gov/water-quality/wastewater/septic-systems/nutrient-pathogen-evaluations.aspx
- Information on design of septic systems
  www.deq.idaho.gov/water-quality/wastewater/septic-systems/technical-guidance-manual.aspx
- 2010 interactive map of §305(b) Integrated Report
  mapcase.deq.idaho.gov/wq2010/

11.1.2 Idaho State Department of Agriculture

ISDA serves the agriculture industry and consumers through regulatory and service activities. ISDA safeguards the public, plants, animals, and environment through promotion, education, and regulation. ISDA is responsible for dairy and feedlot permitting and monitoring, pesticide management and monitoring, agricultural chemical regulation, and nutrient management. ISDA staff can be contacted at (208) 332-8500.

ISDA programs affecting ground water quality are described below:

- The Nutrient Management Program is designed to minimize adverse impacts on surface water or ground water. Managing nutrients is a priority to protect agriculture's economic viability and the environment. For more information, visit *www.idahoag.us/Categories/Environment/nmp/indexnmp.php.* The ISDA Division of Animal Industries can be reached at (208) 332-8540. Additional CAFO information can be found at *www.idahoag.us/Categories/Animals/cattleFeedlots/indexcattlefeedlots.php.*
- Authority to regulate siting of CAFOs in Idaho rests with the counties. County ordinances can regulate CAFO zoning and contain environmental protection clauses and rules about waste removal. Counties can request an environmental risk assessment for site suitability. CAFO siting information is available at *www.idahoag.us/Categories/Environment/cafoSiting/indexsitingTeam.php*. ISDA Dairy & Eggs can be reached at (208) 332-8550. Additional dairy information can be found at *www.idahoag.us/Categories/Animals/Dairy/indexdairyMain.php*.

- The Agricultural Water Quality Program implements monitoring and protection programs related to pesticides with public and private partners to protect ground water and surface water quality. The ISDA Water Quality Program staff can be reached at (208) 332-8597. For more information, visit *www.idahoag.us/Categories/Environment/water/indexwater.php*.
- The Division of Agricultural Resources works to promote, direct, and ensure safe agricultural and environmental practices. Through education and enforcement, the division ensures compliance with federal and state rules and laws governing pesticide use in Idaho. The ISDA Agricultural Resources program can be reached at (208) 332-8605. For more information, visit *www.idahoag.us/Categories/Pesticides/indexPesticides.php*.

11.1.3 Idaho Soil and Water Conservation Commission

ISWC's purpose is to provide support and service to Idaho's 51 soil and water conservation districts, encouraging the wise use and enhancement of soil, water, and related resources. Responsibilities of the ISWC include the following:

- Administer general funds appropriated by the Idaho Legislature to the districts for implementing resource conservation practices.
- Provide technical assistance personnel to the districts to administer water quality projects and conduct soil surveys.
- Participate in the National Cooperative Soil Survey program, a comprehensive effort to provide modern soil survey information on all nonfederal lands.
- Administer the Conservation Improvement Grants program.

IWSC staff can be contacted at (208) 332-1790. For more information, visit *www.swc.idaho.gov.*

11.1.4 Soil Conservation Districts

Soil conservation districts provide action at the local level to promote the wise and beneficial conservation of natural resources, with emphasis on soil and water. Idaho's soil conservation districts, ISWC, and NRCS have forged a unique local, state, and federal partnership to promote soil conservation. Water quality projects are administered locally by soil and water conservation districts. These projects address nonpoint source water quality problems coming from agricultural activities and encourage voluntary use of BMPs.

Soil conservation district offices and contact information are found at *iascd.org/*. TMDL field staff and field office locations can be found at *http://storage.cloversites.com/idahoassociationofsoilconservationdistricts/documents/2011-12%20DistrictsWithChairman.pdf.*

Soil and water conservation district programs relating to ground water quality are described below:

- The Idaho Home Assessment System (Home*A*Syst) provides information on protecting drinking water. It is a cooperative project developed, coordinated, and supported by several state and federal agencies and organizations. The contact for Home*A*Syst can be reached at (208) 332-8603. Additional information about Home*A*Syst can be found at *http://homeasyst.idahoag.us/.*
- Idaho OnePlan (IASCD) provides data and tools to help growers develop a single conservation farm plan that can be preendorsed by various agencies, streamlining and simplifying the

regulatory process that farmers face. Idaho OnePlan is a multiagency project to combine government regulations and current BMPs for agriculture into a single plan. OnePlan integrates federal, state, and local regulations for nutrient, pest, and waste management; water quality and wetlands; air quality; financial assistance; endangered species; and petroleum storage tanks. The contact for Idaho OnePlan at IASCD can be reached at (208) 888-1890 extension 102. Additional information about Idaho OnePlan can be found at *www.oneplan.org.*

11.1.5 Southwest District Health

The mission of Idaho's seven public health districts is to prevent disease, disability, and premature death; promote healthy lifestyles; and protect the health and quality of the environment. Central and Southwest District Health departments are responsible for small public water systems, nonpublic water systems, septic tank and sewage disposal rules for nonmunicipal systems, and approving permits for new and replacement septic systems.

SWDH is responsible for Adams, Canyon, Gem, Payette, Owyhee and Washington Counties. Additional information can be found at *www.publichealthidaho.com/default.asp.* Some of SWDH's responsibilities are described below:

- SWDH Environmental Health Services regulates subsurface sewage disposal systems in cooperation with DEQ. Developers/homeowners should contact SWDH to discuss applications and permitting requirements for subsurface sewage disposal system. Note that a subsurface sewage permit is usually a prerequisite to obtaining a building permit from the county. SWDH Environmental Health Services can be contacted at (208) 455-5400. Additional septic tank information can be found at *http://www.swdh.org/septic-systems.asp.*
- SWDH Environmental Health Services is responsible for maintaining and releasing sanitary restrictions in force on all platted subdivisions (see Idaho Code §50-13 at *legislature.idaho.gov/idstat/Title50/T50CH13.htm*). SWDH may require a nutrient-pathogen study, depending on the location of the subdivision, size of the lots, and density of dwellings. SWDH Environmental Health Services can be contacted at (208) 455-5400.
- Owners of private water supplies have the sole responsibility to maintain them and ensure safe potable water. The Private Water Program, administered by SWDH, provides education, technical assistance, and water sampling for a nominal fee. Private residents can choose to collect their own water samples as well. SWDH can provide guidance on what tests are beneficial and what the results mean to public health. For more information, contact the SWDH Public Drinking Water Coordinator at (208) 455-5400, or visit their website at *http://www.swdh.org/private-public-water.asp*
- SWDH has developed the following brochures related to ground water issues:
  - Nitrate in Drinking Water, available at *http://www.swdh.org/pdf/Nitrate-Nitrite-in-Drinking-Water.pdf*
  - Well Water Safety: A Guide for Private Well Owners, available at *www.swdh.org/private-public-water.asp*
  - Disinfecting Domestic Wells, available at *www.swdh.org/PDF/Disinfecting-Domestic-Wells.pdf*
  - Hydrogen Sulfide in Drinking Water, available at *http://www.swdh.org/PDF/Hydrogen-Sulfide-in-Drinking-Water.pdf*
  - Arsenic in Drinking Water, available at *http://www.swdh.org/pdf/Arsenic-in-Drinking-Water.pdf*

- The Idaho Department of Health and Welfare has a brochure for private well owners available at *http://idahodocs.contentdm.oclc.org/cdm/singleitem/collection/p15100coll7/id/239697/rec/1*.

11.1.6 Idaho Department of Water Resources

IDWR serves the people of Idaho and protects their welfare by ensuring water is conserved and available to sustain Idaho's economy, ecosystem, and the resulting quality of life. IDWR provides a variety of services for the public, such as water rights research, historical record reproduction of water rights, driller's reports, and dam safety inspections. IDWR issues permits for water wells and develops rules for well construction. IDWR is also responsible for the statewide monitoring of ground water quality. The IDWR State Office can be contacted at (208) 287-4800. The IDWR Western Regional Office, in Boise, can be contacted at (208) 334-2190. More information is available on the web pages listed below.

- Most private water supplies consist of a single well serving a single residence. IDWR regulates and permits all wells in Idaho. Well construction standards and permit applications are located at *www.idwr.idaho.gov/watermanagement/wellinformation/default.htm.*
- Water resource information can be found at *www.idwr.idaho.gov/*.
- IDWR maintains an interactive mapping website with well construction and water quality information at *www.idwr.idaho.gov/geographicinfo/mapserver/mapserver.htm.*
- Statewide ground water quality data can be found at *http://maps.idwr.idaho.gov/Groundwater/edms*.
- Note: this site is periodically offline for data management.
- IDWR injection well information and requirements are at *www.idwr.idaho.gov/watermanagement/wellinformation/injection/injection.htm.*

11.1.7 Natural Resources Conservation Service

NRCS provides technical assistance to farmers, ranchers, and other private landowners, helping them implement conservation practices on their land. This includes providing information on soils, forestry management, pasture and hayland management, erosion control, and water quality. For NRCS field office programs and technical resources, contact (208) 378-5700. NRCS field office contact information by county and conservation district is available at *http://offices.sc.egov.usda.gov/locator/app*.

NRCS programs can be generally divided between financial assistance and technical assistance. Information about NRCS programs can be accessed at *www.id.nrcs.usda.gov/programs/.* More information on specific programs is given below:

- EQIP is a voluntary conservation program that allows some farmers to receive financial and technical assistance with conservation practices on agricultural land. For more information, visit *www.nrcs.usda.gov/wps/portal/nrcs/main/id/programs/financial/eqip/.*
- The Conservation Innovation Grants program is voluntary and is intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging federal investment in environmental enhancement and protection, in conjunction with agricultural production. For more information, visit *www.id.nrcs.usda.gov/programs/cig/index.html.*

- The Cooperative Conservation Partnership Initiative provides financial and technical assistance for conservation practices on agricultural land. For more information, visit *www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/ccpi/.*
- The Conservation Reserve Program provides financial and technical assistance to eligible farmers and ranchers to address soil, water, and natural resource concerns. For more information, visit *www.fsa.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp.*
- The Conservation Technical Assistance Program provides technical assistance supported by science-based technology and tools to help people conserve, maintain, and improve their natural resources. For more information, visit *www.nrcs.usda.gov/programs/cta/.*
- Ecological Sciences/Technical Resources for water quality include the following:
  - Idaho Nutrient Transport Risk Assessment, a water quality risk assessment tool for conservation planning (2006), available at *www.nrcs.usda.gov/wps/portal/nrcs/detail/id/technical/?cid=nrcs144p2_046692.*
  - Nitrogen Transport Risk Assessment (August 2005), available at *www.nrcs.usda.gov/wps/portal/nrcs/detail/id/technical/?cid=nrcs144p2_046692.*
  - Nutrient management can be found at *www.id.nrcs.usda.gov/technical/nutrient_management.html.*
  - Agronomy can be found at *www.id.nrcs.usda.gov/technical/agronomy.html.*
  - Idaho soils program technical resources can be found at *www.id.nrcs.usda.gov/technical/soils/index.html*.

11.1.8 University of Idaho Extension

Professionals with the University of Idaho Extension work with Idahoans to address agricultural, natural resource, youth, family, community, and environmental issues. Collaborative relationships with countless agencies, groups, and individuals make a vast array of innovative educational programs available to the state. Extension faculty are joined by several thousand volunteers and dozens of cooperating agencies, organizations, and businesses, both public and private, on local, state, and national levels.

In keeping with the land-grant mission, the University of Idaho Extension, Southern District provides lifelong education and serves the needs of adults and youth in the district. The Southern District encompasses 17 counties of southwestern and southcentral Idaho. Agricultural enterprises include farming, ranching, and dairy. Tree fruit, seed, row crops, and forages are the main crops spanning the Boise, Payette, and Weiser River valleys. Cow-calf operations center in the rangeland areas of Owyhee, Washington, and Adams Counties. Dairies are located primarily in Ada and Canyon Counties. Extension education covers production, management, and marketing of these agricultural commodities, as well as natural resource conservation and development. The Southern District can be contacted at (208) 885-7025. A list of extension offices by county is available at *www.extension.uidaho.edu/find.asp*.

Dairy and beef producers can draw on University of Idaho Extension expertise to protect herds and operate more efficiently. The extension provides research-based, local information to help producers protect the environment and manage their animals. More information can be found at *www.extension.uidaho.edu/animals.asp.*

The University of Idaho Extension provides timely and local research-based information to help growers control pests, market products, and find new varieties. More information can be obtained at *www.extension.uidaho.edu/crops.asp.*

11.1.9 Idaho Water Resource Research Institute, Project WET

IWRRI's Project WET provides educational materials, lesson plans for watershed protection, and teacher workshops to reach children and their parents. The program is implemented by the IWWRI. More information can be obtained at *www.uidaho.edu/research/iwrri/outreach/teachereducation* or *www.projectwet.org.*

11.1.10 General State of Idaho Contacts

For information about other state resources not found in this section, see Idaho's official website at *www.accessidaho.org*.

11.1.11 Idaho's Geospatial Data Clearinghouse

Downloadable geographic information systems data allow efficient processing of geospatial data into deliverable data and maps. Idaho's Geospatial Data Clearinghouse is available at *http://inside.uidaho.edu/*.

11.1.12 United States Environmental Protection Agency

EPA's **MyEnvironment** is a search application that allows the user to find environmental data for their area. It is available at *www.epa.gov/myenvironment/.*

12 Funding Sources

12.1 Section 104(b)(3) Tribal and State Wetland Protection Grant, United States Environmental Protection Agency

The Tribal and State Wetland Protection program, created by EPA in 1990 under the Clean Water Act §104(b)(3), provides financial assistance to state, tribal, and local government agencies to develop new wetland protection programs, or refine and improve existing programs. All projects must clearly demonstrate a direct link to improving an applicant's ability to protect, restore, or manage its wetland resources. More information is available at *www.epa.gov/owow/wetlands/initiative/*.

12.2 Section 319 (h) Nonpoint Source Grants, United States Environmental Protection Agency/Idaho Department of Environmental Quality

The Nonpoint Source Management program provides financial assistance for implementing BMPs to abate nonpoint source pollution. DEQ manages the nonpoint source program. All projects must demonstrate the applicant's ability to abate nonpoint source pollution through the implementation of BMPs. More information is available at *www.deq.idaho.gov/water-quality/grants-loans/nps-§319-subgrants.aspx.*

12.3 Conservation Operations Program, Natural Resources Conservation Service

The Conservation Operations Program (CO-01) provides technical assistance to individuals and groups of landowners to establish a link between water quality and implementation of conservation practices. The NRCS technical assistance program provides farmers and ranchers with information and detailed plans needed to conserve their natural resources and improve water quality. More information on NRCS is available at *www.nrcs.usda.gov/programs.*

12.4 Conservation Technical Assistance, Natural Resources Conservation Service

The NRCS provides conservation technical assistance to private landowners, conservation districts, tribes, and other organizations. Conservation plan preparation and BMP implementation is the main form of technical assistance. Assistance includes interpreting soil, plant, water, and other physical conditions needed to determine the proper BMPs. The Conservation Technical Assistance program provides financial assistance in implementing BMPs described in the conservation plan. More information on NRCS is available at *www.nrcs.usda.gov/programs.*

12.5 Environmental Quality Incentives Program, Natural Resources Conservation Service

EQIP offers technical assistance and cost-share monies to landowners for establishing a 5- to 10-year conservation agreement for activities such as manure management, pest management, and erosion control. The program gives special consideration to contracts in those areas where agricultural improvements will help meet water quality objectives. More information is available at *www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/eqip*.

12.6 Conservation Programs, Natural Resources Conservation Service

NRCS's natural resources conservation programs help people reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damage caused by floods and other natural disasters. Public benefits include enhanced natural resources that help sustain agricultural productivity and environmental quality while supporting continued economic development, recreation, and scenic beauty. More information is available at *www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs.*

Programs include, but are not limited to, the following:

- Conservation Technical Assistance Program and activities
- Environmental Improvement Programs
  - Agricultural Management Assistance
  - Cooperative Conservation Partnership Incentive
  - Environmental Quality Incentives Program (EQIP)
  - National Water Quality Initiative (NWQI)
  - Conservation Innovation Grants (CIG)
  - Wildlife Habitat Incentive Program (WHIP)

More information for programs specific to Idaho is available at *www.id.nrcs.usda.gov/programs/.*

12.7 Source Water Protection Grants, Idaho Department of Environmental Quality

DEQ's Source Water Protection Grants provide funding for projects to protect sources of public drinking water. Projects can take either a local or regional approach. Local projects will concentrate on protecting a specific community public water supply system, while regional protection activities will cover multiple systems and communities. Water treatment and water system operations and maintenance are not eligible activities. More information is available at *www.deq.idaho.gov/water-quality/grants-loans/source-water-protection-grants.aspx*.

12.8 Resource Conservation and Rangeland Loan Development Program, Idaho Soil and Water Conservation Commission

The Resource Conservation and Rangeland Loan Development Program provides grants for improving rangeland and riparian areas and loans for developing and implementing conservation improvements. More information is available at *swc.idaho.gov/programs_services/rcrdp.html.*

12.9 Financial Programs, Idaho Water Resource Board

The Idaho Water Resource Board Financial Program assists local governments, water and homeowner associations, nonprofit water companies, and canal and irrigation companies with funding for water system infrastructure projects. The types of projects that can be funded include public drinking water systems; irrigation systems; drainage or flood control; ground water recharge; and water project engineering, planning, and design. Funds are made available through loans, grants, bonds, and a revolving development account. More information is available at *www.idwr.idaho.gov/waterboard/Financial%20program/financial.htm*.

12.10 Aquifer Protection District, Local Initiative

"Aquifer Protection Districts" (Idaho Code §39-5) provides a mechanism for counties overlying sensitive resource aquifers to form an aquifer protection district. The purpose of such a district is to protect existing and potential ground water supplies and recharge areas, particularly those areas contributing to public water supplies. An aquifer protection district is created through an election. Once established, the district can raise revenue through fees charged to landowners benefitted by the availability of water from the aquifer protected by the district. This revenue ensures an area can pay for ongoing programs and services needed to protect the aquifer. The revenue can be used as matching funds to receive additional resources. Unfortunately, this legislation would need to be amended to include general resource aquifers before a county could pursue this option.

In 2006, Kootenai County voters approved the formation of the state's first aquifer protection district established to ensure the county can continue to pay for services and programs necessary to prevent the contamination of drinking water. Those services include protecting source water, preventing spills by secondary containment and proper handling of hazardous materials, minimizing septic discharges, managing stormwater, monitoring ground water quality, and conducting education and outreach activities. More information on the Kootenai County Aquifer Protection District is available at *www.phd1.idaho.gov/environmental/rathdrum/protectionprogram.cfm.*

12.11 Embrace-A-Stream Program, Trout Unlimited

Trout Unlimited provides funding to landowners for small-scale stream restoration projects. These projects have significant involvement from Trout Unlimited volunteers. For more information, see *www.tu.org.*

12.12 Fish America Foundation

The Fish America Foundation provides matching funds for restoration projects entailing the improvement of sport fisheries. For more information, see *www.fishamerica.org.*

12.13 Pheasants Forever

Pheasants Forever can provide up to 100% cost-share for projects establishing, maintaining, or enhancing wildlife habitat for pheasant and other upland game. For more information, see *www.pheasantsforever.org.*

13 Planning Tools for Local Governments

The information presented in this section is specific to local government planning for protecting ground water and source water within their jurisdiction.

Local governments are encouraged to use the following tools during the planning, zoning, and permitting process to protect and improve ground water and source water in Washington County.

1. Review Environmental Planning Tools and Techniques.

   This document is useful in protecting ground water by linking land use to water quality and is available on DEQ's website at *www.deq.idaho.gov/media/458914-env_planning_tools_entire.pdf*.

2. Review Idaho Land Use Handbook : The Law of Planning, Zoning, and Property Rights in Idaho.
   This free handbook is available from Givens Pursley LLP. You must provide an e-mail address. *www.givenspursley.com/Publications.aspx*.
3. Use the checklists included at the end of this section.
   - Use the Local Government Checklist for Individual Project Proposals when evaluating land use decisions and approving proposed projects within your jurisdiction.
   - Use the Local Government Checklist for Addressing Source Water in Comprehensive Plan when reviewing county and municipal comprehensive plans to ensure source water protection has been addressed.
4. Consider using BMPs for projects that may affect ground water. BMP information is available from the following websites:
   - *www.deq.idaho.gov/media/458917-compendium_report_2003_entire.pdf*
   - *www.oneplan.org/BMPs.asp*
5. Use American Planning Association (APA) Policy Guides provided at the end of this section.
   - APA Policy Guide for Water Resources Management, available at *www.planning.org/policy/guides/adopted/waterresources.htm.*
   - APA Policy Guide for Solid and Hazardous Waste Management, available at *www.planning.org/policy/guides/adopted/wastemgmt.htm.*
   - Additional APA policy guides are available at *www.planning.org/policy/guides/index.htm*
6. Review the following information and resources provided at the end of this section.
   - *Advice Worth Drinking* brochure, available at *http://wiki.epa.gov/watershed2/index.php/Source_Water_Collaborative*
   - *Your Water Your Decision* brochure, available at *www.yourwateryourdecision.org/media/download/OfficialsGuideV14.pdf*
7. Use geospatial and interactive mapping tools.

   There are many sites for downloading and viewing geospatial information. Much of the available and downloadable data about other potential ground water contaminant sources is available through INSIDE Idaho. INSIDE Idaho is the official geospatial data clearinghouse for

the state. It serves as a comprehensive geospatial data digital library, providing access to, and a context within which to use, geospatial data and information by, for, and about Idaho.

INSIDE Idaho and other data providers use a set of services allowing efficient processing of geospatial data into deliverable data and maps.

- These services are based on a number of web service models and protocols including REST, SOAP, KML, and OGC W*S and are broadly supported by a large number of products, including desktop geographic information system.
- These services directly access data and map products without downloading individual data files.

There are a variety of ways to search the available data but general categories include the following:

- Biota
- Boundaries
- Climatology/meteorology/atmosphere
- Economy
- Elevation
- Environment
- Farming
- Geoscientific information
- Health
- Imagery/base maps/earth cover
- Inland waters
- Location
- Oceans
- Society
- Structure
- Transportation

To get started, visit *http://insideidaho.org/index.html*. This website provides access to DEQ, IDWR, and state agency map products.

Local Government Checklist for Individual Project Proposals

- ☐ Does the project deplete ground water supplies or interfere substantially with ground water recharge so that there would be a net deficit in aquifer volume or a lowering of the local ground water level? For example, would the production rate of preexisting nearby wells drop to a level that would not support existing land uses or planned uses for which permits have been granted?

- ☐ Does the project discharge into the ground water?

- ☐ Does the project discharge any waste material into the ground from septic tanks or other sources, if any (for example: domestic sewage, industrial, agricultural, etc.)?

- ☐ Does the proposed project discharge any waste materials to surface waters?

- ☐ Does the project alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?

- ☐ Does the project create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

- ☐ Does the project include measures to reduce or control surface, ground, and runoff water?

Local Government Checklist for Addressing Source Water in Comprehensive Plan

Water, General

- ☐ Make an inventory of water resources
- ☐ Map watersheds, aquifer recharge areas, ground water basins, unique water resources
- ☐ Analyze institutional arrangements and responsibilities for water management
- ☐ Assess adequacy of existing regulations to address water resources

Water Quality

- ☐ Assess the current and future quality of water resources
    - ☐ Perform ground water tests in the vicinity of landfills and hazardous materials dumps, ponds, tanks, and storage areas
- ☐ Assess the current and future quantity of water resources
    - ☐ Analysis of current and future water consumption
- ☐ Identify existing and potential water pollution sources
    - ☐ Inventory hazardous materials dumps, ponds, and storage sites
    - ☐ Identify proposed, existing, and abandoned sources of pollution
    - ☐ Identify existing nonpoint sources of contaminants
    - ☐ Identify existing contaminated sites
    - ☐ Identify existing ground water contamination
- ☐ Assess adequacy of regulations for
    - ☐ Use, storage, and disposal of hazardous materials
    - ☐ Control of point and nonpoint sources
    - ☐ Stormwater runoff

Assess Policy Direction Concerning

- ☐ Protection, use, and development of water resources
- ☐ Protection of watersheds and aquifer recharge areas
- ☐ Preservation of wetlands, wild rivers, and watersheds
- ☐ Prevention of contamination
- ☐ Identification of appropriate land uses in areas of sensitive water resources
- ☐ Actions necessary to maintain or improve water quantity and quality to meet projected needs
- ☐ Water conservation (ground and surface) and reuse
- ☐ Drought management and emergency contingency plans
- ☐ Direction for the establishment of local development standards that
    - ☐ Incorporate better site design
    - ☐ Use best management practices for managing impacts on water resources
    - ☐ Address the on-site prevention, retention, and treatment of stormwater runoff
- ☐ Financing strategies for needed improvements
- ☐ Private, nongovernment-owned/-operated water systems
- ☐ Implementation of policy direction

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14 Public Information and Outreach Materials

The brochures listed below and provided in this section involve ground water quality and are designed for the general public. The developing agency for each brochure is included, along with the website address for the brochure, if available.

- *Arsenic in Drinking Water* (SWDH)
  www.swdh.org/pdf/Arsenic-in-Drinking-Water.pdf
- Assistance adopting or updating zoning or subdivision ordinances (Association of Idaho Cities)
  www.idahocities.org/
- *Basic Information: Fluoride in Drinking Water* (DEQ)
  www.deq.idaho.gov/media/520884-fluoride_brochure.pdf
- *Fertilizer and Pesticide Use at Home* (DEQ)
  www.deq.idaho.gov/media/522676-fertilizer_pesticide.pdf
- *Homeowner's Guide to Septic Systems* (DEQ)
  www.deq.idaho.gov/media/474190-septic_homeowners_guide.pdf
- *Idaho Private Well Owner Brochure* (Idaho Department of Health and Welfare)
  www.phd7.idaho.gov/EH/Water/Forms/IDHWwellownerbrochure.pdf
- *Iron in Your Well Water* (SWDH)
  healthandwelfare.idaho.gov/Portals/0/Health/EnvironmentalHealth/Iron_Labs_.pdf
- *It Will Never Be This Obvious: Four Steps to Well Water Safety* (Idaho Department of Health and Welfare)
  www.healthandwelfare.idaho.gov/LinkClick.aspx?fileticket=VSJEz0yl5ck%3D&tabid=95&mid=948
- Laboratories certified for drinking water analyses (Idaho Department of Health and Welfare)
  healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx
- *Standards for Land Development (CDHD)*
  www.cdhd.idaho.gov/pdfs/eh/land_standards_development.pdf
- Nitrates
  - *Nitrate in Your Well Water*
    healthandwelfare.idaho.gov/Portals/0/Health/EnvironmentalHealth/Nitrates_Labs_.pdf
  - *Nitrate in Idaho's Ground Water*
    www.deq.idaho.gov/media/473065-nitrate_in_idahos_gw_english.pdf
  - *Nitrate in Idaho's Ground Water*–Spanish
    www.deq.idaho.gov/media/473068-nitrate_in_idahos_gw__spanish.pdf
- *OnePlan: For Your Place, on Your Time* (IASCD)
  www.oneplan.org/
- *Septic Systems and Drainfields: What You Need to Know*
  www.deq.idaho.gov/media/657502-septic_systems_and_drainfields.pdf
- Subsurface Sewage Disposal Application—SWDH
  www.swdh.org/pdf/Septic-Application.pdf

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15 Idaho Environmental Guide: A Resource for Local Governments

The *Idaho Environmental Guide* is a resource for local government officials to assist in managing a community's environmental responsibilities. Local government officials should consult this guide before approving projects to understand and consider impacts to air, water, and/or land potentially affecting the health, welfare, and sustainability of communities within their jurisdiction. The *Idaho Environmental Guide* is informational and should be used in strategic planning for environmental issues. This guide is not an all-encompassing summary of state and federal rules and regulations. The *Idaho Environmental Guide* can be accessed through DEQ's website at *www.deq.idaho.gov/media/654730-ieg-2012.pdf.*

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