WASHINGTON STATE DEPT OF NATURAL RESOURCES
WASHINGTON GEOLOGICAL SURVEY

Aggregate Resource Inventory of Spokane County, Washington

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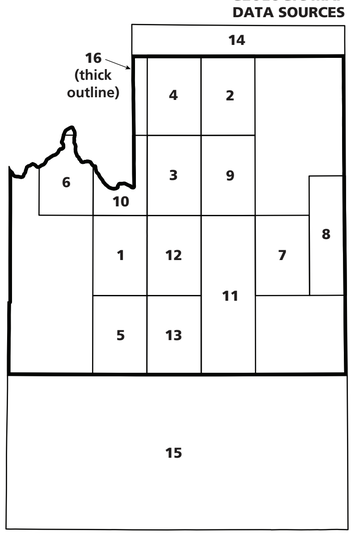
ABSTRACT

This aggregate resource inventory for Spokane County identifies potential sources of aggregate—both sand and gravel, and bedrock (rock and stone)—using a combination of surficial and bedrock geologic mapping, subsurface information from boreholes and water wells, aggregate testing data, and records of current and historical mining activity. The aggregate resource classification scheme assesses both the quality and quantity of potential resources, and communicates that assessment using four classifications: Demonstrated, Inferred, Speculative, and Not a Resource. Areas within the Turnbull National Wildlife Refuge were not analyzed for this study. In total, our inventory classifies 574,681 acres of land as having the potential for economically significant aggregate resources, which is about 51 percent of the county's land area. For sand and gravel resources mapped as Demonstrated and Inferred (our highest-certainty resource classifications), we estimate 7.4 billion to 26.4 billion cubic yards of aggregate (11.9 billion to 47.5 billion tons). Note that the ranges for volume and tonnage estimates in this inventory are larger than those in other counties we have mapped due to variability in subsurface records in Spokane County. Because of the difficulty of quantifying the thickness of bedrock aggregate resources, we did not estimate their volume or tonnage.

Approximately 97,000 acres (17%) of areas containing potential aggregate resources may be inaccessible for resource extraction because they are on land classified as developed according to the National Land Cover Database. A service-area analysis indicates that active aggregate mines are well distributed, with only 29 percent of the county more than a 10-mile driving distance from an active mine. An additional analysis explores opportunities to minimize transportation costs by prioritizing future sources of aggregate nearest to areas of aggregate demand. This assessment uses a road-network transportation analysis that identifies 89 percent of the aggregate resource areas in our inventory as being within a 20-mile driving distance from a variety of points of aggregate demand.

	DISCOVERED RESOURCE	UNDISCOVERED RESOURCE			
	Demonstrated	Inferred	Speculative	Not a Resource	Excluded Federal Lands
SAND AND GRAVEL	>80 feet thick	>80 feet thick	unknown thickness		
	25–80 feet thick	25–80 feet thick			
	<25 feet thick	<25 feet thick			
BEDROCK (ROCK AND STONE)	undetermined thickness	undetermined thickness	undetermined thickness		

GEOLOGIC MAP DATA SOURCES



1:24,000-scale Quadrangle		Reference
1	Airway Heights	Derkey and others, 2004a
2	Chattaroy	Hamilton and Derkey, 2005
3	Dartford	Derkey and others, 1998
4	Deer Park	Derkey and others, 2005
5	Four Lakes	Hamilton and others, 2004a
6	Four Mound Prairie	Derkey and Hamilton, 2007
7	Greenacres	Derkey and others, 2004b
8	Liberty Lake and Newman Lake	Derkey and others, 2004d
9	Mead	Derkey, 1997
10	Nine Mile Falls	Derkey and others, 2003
11	Spokane NE and Spokane SE	Derkey and others, 1999
12	Spokane NW	Derkey and others, 2004c
13	Spokane SW	Hamilton and others, 2004b

1:100,000-scale Quadrangle		
14	Chewelah	Waggoner and others, 1990a
15	Rosalia	Waggoner and others, 1990b
16	Spokane	Joseph and others, 1990

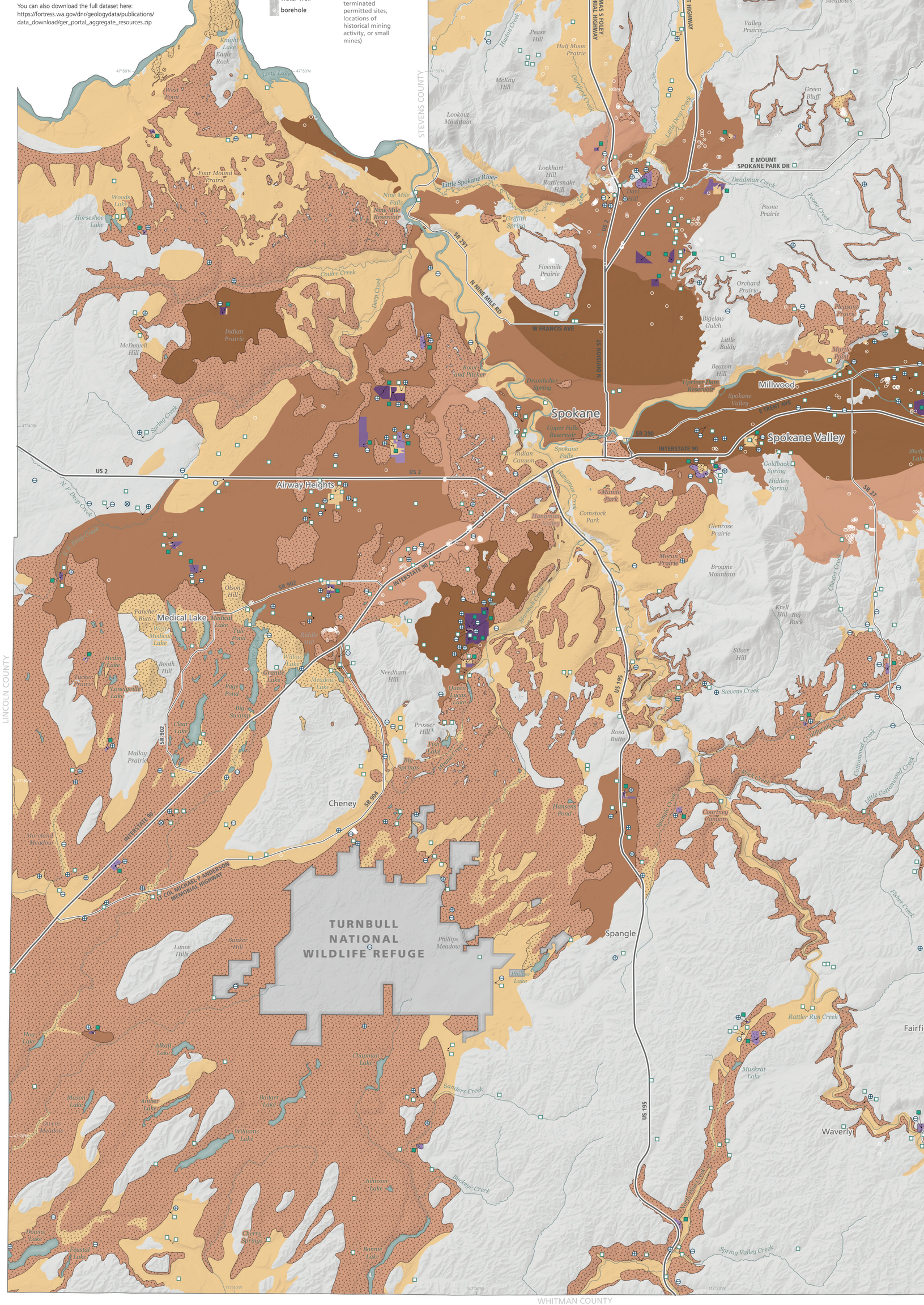
Some of the resource areas were mapped at 1:24,000 scale, which is more detailed than the scale shown on this map sheet (1:100,000). To maintain readability at the map scale, city boundaries are not shown. For a more detailed view of the data please visit the Washington Geological Survey Geologic Information Portal: geologyportal.dnr.wa.gov

You can also download the full dataset here: https://fortress.wa.gov/dnr/geologydata/publications/data_download/ger_portal_aggregate_resources.zip

TEST SITE
- pass
- partial fail / incomplete test
- fail

SUBSURFACE SITE
- water well
- borehole

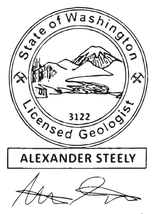
SURFACE MINE SITE
- active permitted mine site (may include sites that are in the reclamation phase)
- other mine site (includes inactive, cancelled, or terminated permitted sites, locations of historical mining activity, or small mines)



0 5 10 15 20 MILES

0 5 10 15 20 KILOMETERS

SCALE 1:100,000



ALEXANDER STEELY

November 2024

Lambert conformal conic projection

North American Datum of 1983

Base map data: City, town, federal lands, highway, and stream data from Washington State Department of Natural Resources (DNR). Physical feature names from the USGS Geographic Names Information System (GNIS). Shaded relief generated from a lidar bare-earth digital elevation model (available from the Washington Geological Survey, lidarportal.dnr.wa.gov) and from a 10-meter resolution USGS digital elevation model.

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