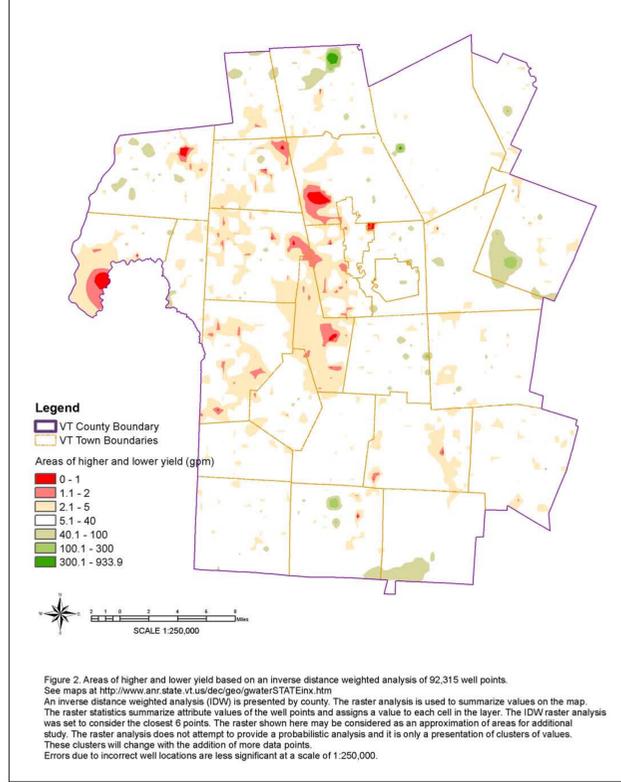
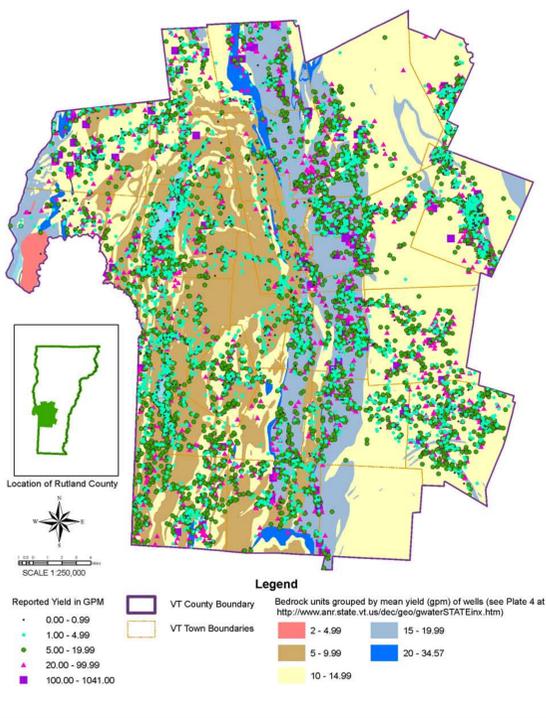


Figure 1. All Rutland County Bedrock Wells (points) and Bedrock Units Grouped by Yield. The map is the Rutland County portion (9566 wells) of the statewide analyses of 92,315 wells. Map scale is 1:250,000. Refer to the statewide groundwater resource maps on the VGS web site for a discussion of this data and map. Web: <http://www.anr.state.vt.us/dec/geo/gwater/STATEinrx.htm>



GROUNDWATER RESOURCES BY COUNTY

This county map is part of a map series used to evaluate Vermont's groundwater resources using existing data. The Rutland County maps show yield (gallons per minute) data for bedrock wells as reported in the VT DEC Water Supply Division database. A total of 92,315 wells in the State of Vermont were analyzed in the accompanying statewide study. Data were divided into counties for presentation (Figs. 1, 2). Well locations in the database are from well driller descriptions and sketches.

Some wells have been located by GPS or by correlating a well log to an E911 address. In Rutland County, 1400 out of 9,566 wells or 15% have an E911 or GPS address (Figure 3). The majority of wells, as shown on Figure 1, have suspect locations although errors due to incorrect well locations are less significant at a scale of 1:250,000.

Well yield (gpm) is generally estimated in the field with a bucket and timer. The time period is usually short and measurements are not meant to be precise. Comparisons of the mean and median values for all wells and the mean and median values for wells in Rutland County are shown in Table 1.

Wells are grouped into yield categories on the map presented here. Depth and yield vary due to many factors, including non-geologic factors. For example, a homeowner may drill until the desired yield is obtained. The factors are not indicative of capacity. Moore et al., 2002*, published "Factors Related to Well Yield in the Fractured-Bedrock Aquifer of the New Hampshire" in which they discussed a number of factors correlated positively or negatively to well yield. Among these factors are year drilled, median household income, drilling method, up gradient drainage area, thickness of overburden, depth drilled, proximity to streams/water bodies, type of bedrock, steepness of slope, elevation, fractures, and geologic structures.

The map presented is designed to be used in conjunction with other data and analyses. Groundwater flow in the crystalline bedrock of Vermont is mainly along planar features such as fractures, cleavages, faults, and bedding. These planar features may be interconnected and groundwater flow within this system is complex.

Area - specific groundwater resource studies, available on the VGS web site, were completed for Rutland and Wallingford.

Web: <http://www.anr.state.vt.us/dec/geo/gwater/inrx.htm>

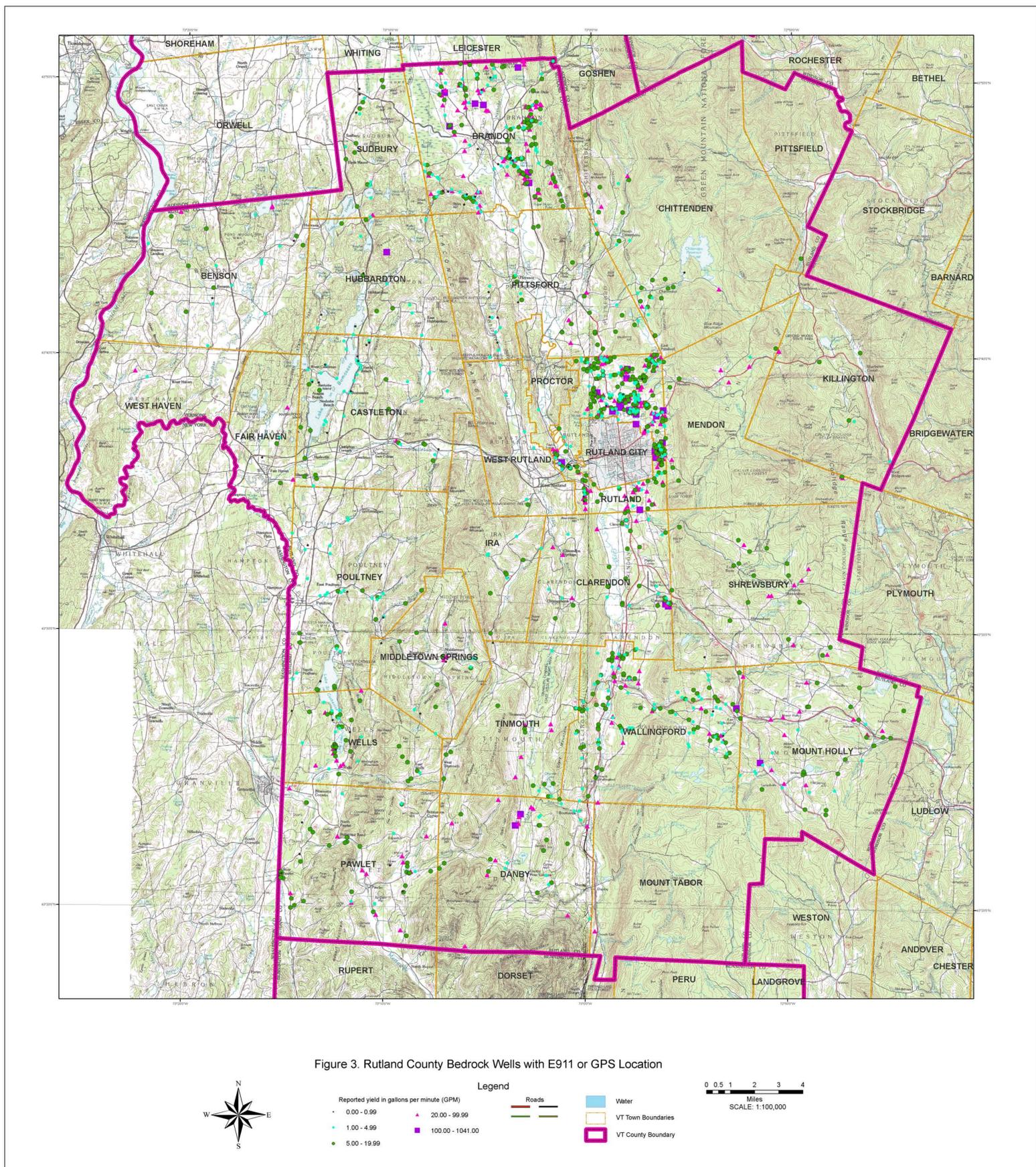
* 1. De Simone, D., 2006, Surficial Geology and Water Recharge Potential Maps for the Wallingford 7.5 Minute Quadrangle, Vermont Geological Survey Open File Report 2006-1. <http://www.anr.state.vt.us/dec/geo/Wallingford/WallingfordMain.htm>

2. Van Hoesen, J., 2009, Surficial geology and hydrogeology of Rutland, Vermont. Vermont Geological Survey Open File Report VG09-7. <http://www.anr.state.vt.us/dec/geo/gwater/Rutland.htm>

3. Moore, R.B., Schwarz, G.E., Clark, S.F., Jr., Walsh, G.J., and Degnan, J.R., 2002, Factors related to well yield in the fractured-bedrock aquifer of New Hampshire. USGS Professional Paper 1660.

TABLE 1

	State of Vermont	Rutland County
# of wells	92315	9566
# of located wells	10807	1400
Mean yield, GPM	13.76	13
Median yield	6	6
Maximum reported yield	1200	1041
Standard Deviation	22.82	23
Mean depth, FT	293.02	329
Median depth, FT	260	285
Maximum reported depth	1765	1765
Standard deviation	157.99	178
% wells with yield <= to mean	70%	5043 or 53%
% wells with yield > mean	30%	4523 or 47%
% wells with depth <= mean	56%	5949 or 62%
% wells with depth > mean	44%	3617 or 38%



Reported Well Yields in Bedrock Wells, Rutland County, Vermont

by
Marjorie Gale, George Springston, Ryan Knox and Laurence Becker
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