

**Approximate Thickness of Overburden in Feet**

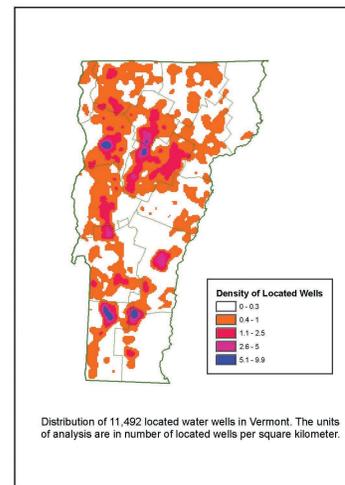
- >100
- 51 - 100
- 21 - 50
- <20
- Shallow Overburden and Exposed Bedrock

**USGS NWIS Site With > 100 Feet Overburden**



**Major Roads**

- Interstate Highway
- US Highway
- Vermont State Highway
- Class 1 Town Highway
- Lakes/Ponds
- Rivers/Streams
- Counties
- Towns



Distribution of 11,492 located water wells in Vermont. The units of analysis are in number of located wells per square kilometer.

**Purpose**  
This map is intended to show the approximate locations of areas with thick surficial geologic materials or overburden. These materials are highly variable in their thickness and water-bearing characteristics. With the limitations described below, the resulting overburden thickness raster is suitable for groundwater planning studies at scales of 1:100,000 and smaller (1:250,000, etc.).

**Data Sources**  
The thickness of overburden dataset (vtoverburden2) was produced by combining the following data: reported thickness of overburden for 11,492 bedrock water wells with E911 or GPS locations in the VT DEC Water Supply Division water well database, 141 water wells ending in surficial deposits (so-called "gravel" wells) with casing depth greater than 100 feet, and areas of shallow overburden as derived from soils, surficial geologic, and highway rock outcrop information. The soils data is from the USDA NRCS Soil Survey. The surficial geologic information is from the 1:250,000 map by Doll (1970). The highway rock outcrop information is from Ellissen and Springston (2007). These were merged into a single 30 meter raster, resampled to 270 meters, converted to integer values, converted to a point shapefile, and finally a new thickness of overburden raster was created from the point data using inverse distance weighting. The blue dots represent wells and borings with greater than 100 feet of casing as reported in the U.S. Geological Survey National Water Information system (NWIS).

**Density of well data**  
The inset map to left shows the approximate density of 11,492 water wells with E911 or GPS locations used in the production of the map of thickness of overburden. The density is the number of wells per square kilometer. As described above, additional soils, surficial geologic, and highway rock outcrop data was also used in the production of the overburden thickness map.

**Limitations of this dataset**  
1. The vtoverburden2 dataset is intended for use for planning purposes only and at 1:100,000 scale or smaller (1:250,000, etc.).

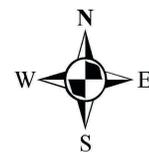
2. The lack of soils data for Essex County means that a great many areas with shallow or exposed bedrock have been omitted. Combined with the limited number of located water wells in this county, this means that the map is of very limited use in Essex County.

3. The dataset is of limited use within areas served by public water supplies due to the scarcity of water well data in these areas.

**References**  
Doll, C.G., 1970, Surficial geologic map of Vermont: Vermont Geological Survey, Montpelier, 1:250,000.

Ellissen, T.D., and Springston, G.E., 2007, Rockfall hazard rating of rock cuts on U.S. and State highways in Vermont: Research Project RSC010-974, Report 2007-16, Vermont Agency of Transportation, Materials and Research Division, Montpelier, 31 p.

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THIS MAP IS A SUMMARY OF EXISTING INFORMATION REGARDING THICKNESS OF OVERBURDEN. THE MAP IS NOT PROBABILISTIC AND SHOULD NOT BE USED TO PREDICT YIELD OR DEPTH.

**Thickness of Overburden in Vermont**

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