

Oakland County Surface Geology & Hydrology



LANDFORMS AND SEDIMENT TYPES

- Outwash Plain, Glacial Channel, Recent Alluvium: Stratified Sand and Gravel
- End Moraine: Till
- Ground Moraine: Till
- Water-Lain Moraine: Till
- Glacial Lake Plain: Sand, Silt, and Clay
- Kame: Stratified Sand, Gravel, and Debris Flow Deposits
- Esker: Stratified Sand and Gravel

ELEVATION RANGES OF GLACIAL LAKE SHORELINE FEATURES (beach ridges and wave-cut terraces)

- Lake Maumee Shoreline (790' - 765')
- Lake Arkona Shoreline (710' - 694')
- Lake Whittlesey Shoreline (740' - 735')
- Lake Warren Shoreline (685' - 680')
- Lake Wayne Shoreline (665' - 660')

Highway
Major Road
Railroads
Lakes & Ponds
Rivers & Streams
Municipal Boundaries

Map Created on May 21, 2003

About the Map...

The surface geology map was created using Geographic Information System (GIS) technology. The first layer is a digital topography model of the county developed with data from Global Positioning System (GPS) satellites. A surface geology layer was draped over the digital topography. The surface hydrology (i.e. rivers and lakes) was then added, followed by highways and municipal boundaries.

An appropriate digital surface geology layer of the entire county at the required scale was not available in the public domain. Therefore a geology model was compiled by using inferences from landform topography and published and unpublished sources. Particular emphasis was placed on the surface map of the County published by USGS geologists Twenter and Knutlis (1972) in a Geological Survey water resources paper.

Step 1: Create a digital surface geology map

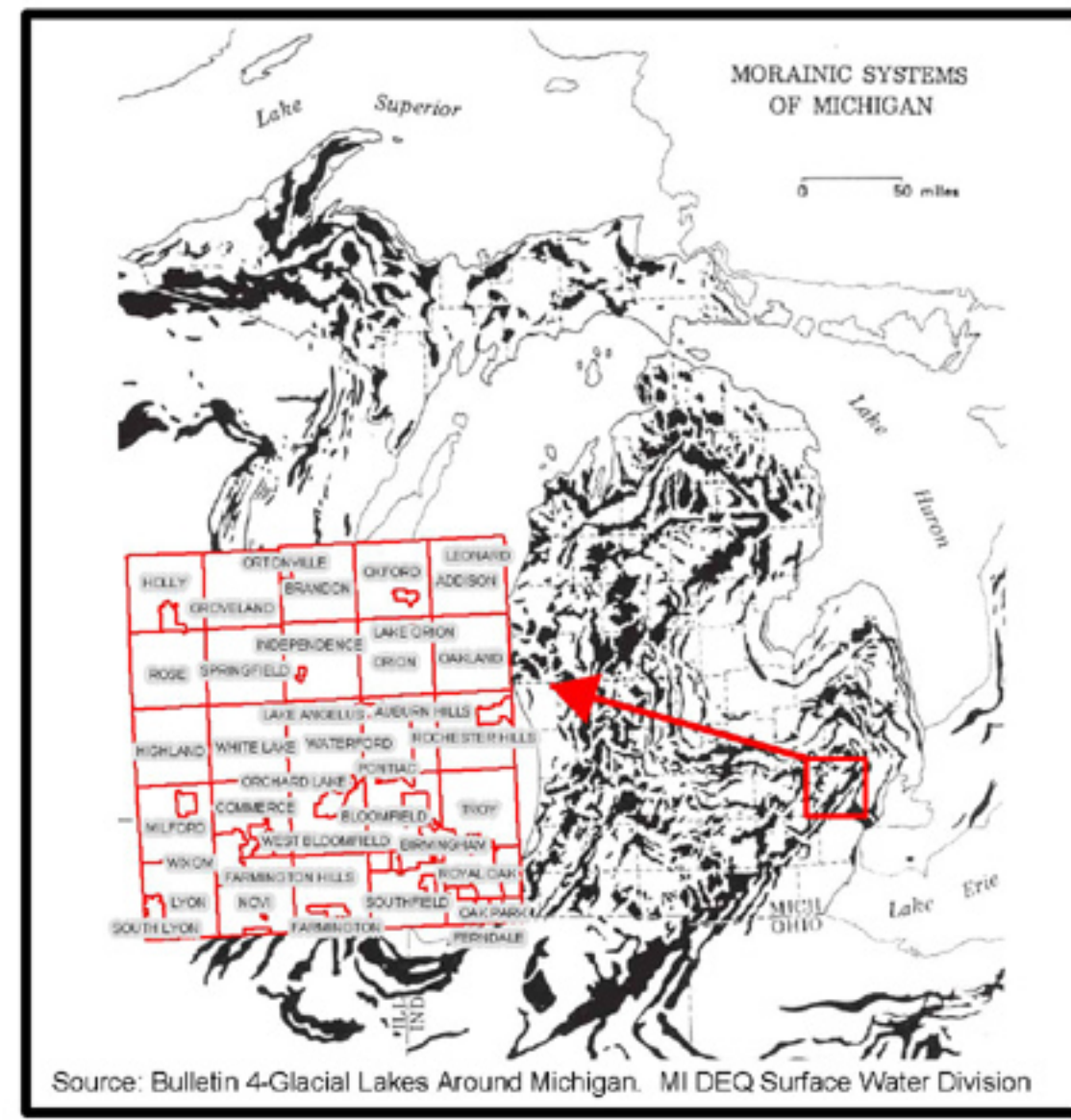
Field geologists and geographers worked to produce this map of surface geology for Oakland County. The map was converted to digital form using Geographic Information System technology.

Step 2: Create a digital terrain model

A digital terrain model is created by using horizontal (x, y) and vertical (z) positional data from Global Positioning Systems (GPS). This process uses location data measured using satellites to simulate the topography, or lay of the land.

Step 3: Overlay the geology map on top of the terrain model

The final product is a map of the surface geology deposits draped over the topography. This allows the viewer to see not only the types of deposits, but the shape of the land that is formed.



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Geology GIS data assembled by
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www.co.oakland.mi.us/peds/program_services.html

GIS base provided by Oakland County Department of Information Technology
GIS Utility
www.co.oakland.mi.us/gis/

