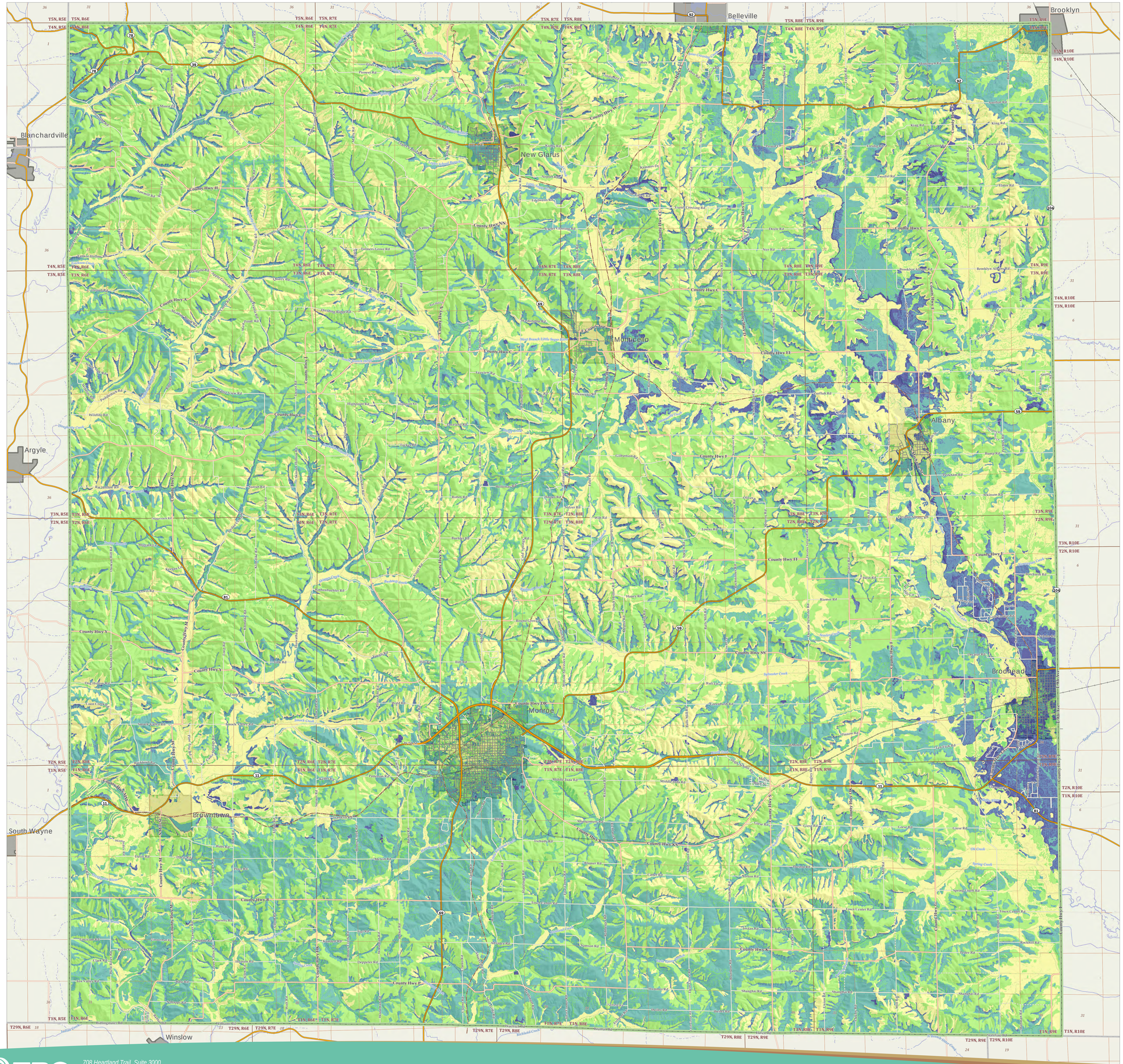
PLATE 4
Green County Groundwater Recharge



BASEMAP FEATURES

- Green County Boundary
- State Road
- County Road
- Township Road
- Gravel Road
- Village/City Street
- Private Drive
- Multiuse Trail
- Public Land Survey System Township Boundary
- Public Land Survey System Section Boundary
- Railroad
- Perennial Stream/River Flowline
- Intermittent Steam/River Flowine
- Populated Place (City/Village)

ANNUAL GROUNDWATER RECHARGE

Modeled Groundwater Recharge Rate

- < 4 inches/year
- 4 - 6 inches/year
- 6 - 8 inches/year
- 8 - 10 inches/year
- 10 - 12 inches/year
- > 12 inches/year

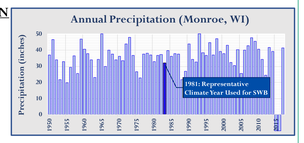
ABOUT THIS MAP

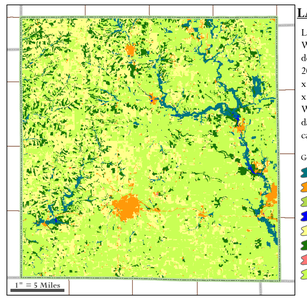
Groundwater recharge was estimated using a soil-water balance (SWB) model developed by USGS. The datasets described below are utilized by the model to estimate annual groundwater recharge. Daily climate information is a tabular dataset the others are represented as coded raster (grid) files for the county. The miniature maps shown below have been generalized for presentation. All raster files were generated at a 50'x50' grid resolution.

Information in this map is the result of a model of the available data and is not a substitute for site-specific ground and subsurface studies that should be conducted as appropriate.

LOCAL CLIMATE INFORMATION

Climate data used for modeling purposes was provided by the National Oceanic and Atmospheric Administration (NOAA) Climate Data Online dataset. Daily climate information including precipitation and temperature information at Monroe was used for the model. The year 1981 was used for climate data as it has been determined in state code (NR 151) to be a representative climate year and has been used for similar studies in southern Wisconsin. Shown to the right are annual precipitation totals in Monroe, WI.





LAND USE CLASSIFICATION

Land use data for green county was provided by the Wiscland 2.0 dataset (WDNR, 2016.). This data is derived from Landsat satellite imagery acquired between 2010 and 2014, with an original grid resolution of 30m x 30m. For the SWB model, this was resampled to a 50' x 50' resolution. Shown to the left is the generalized Wiscland Level 1, 8-category land use map, while the data used for the SWB model had a more detailed a 23-category classification.

Generalized Green County Land Use

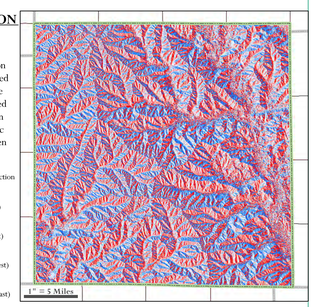
- Wetland
- Urban/Developed
- Shrubland
- Open Water
- Grassland
- Forest
- Barren
- Agriculture

SURFACE FLOW DIRECTION

To determine flow routing of surface water in the model, a flow direction grid was generated from topographic information using Geographic Information Systems (GIS) software. Shown to the right is a classified flow direction grid, indicating the direction of surface water flow at each grid cell. The information is derived from high resolution LiDAR topographic elevation surface information. The LiDAR-based topographic surface was originally provided as a 5' x 5' grid by Green

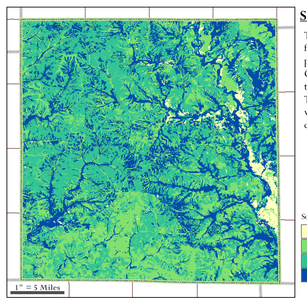
Surface Flow Direction

- 1 (East)
- 2 (Southeast)
- 4 (South)
- 8 (Southwest)
- 16 (West)
- 32 (Northwest)
- 64 (North)
- 128 (Northeast)



SOIL PROPERTIES

The remaining model parameters for the model come from soil survey information (NRCS, 2016). Two parameters from the soil survey are used, Hydrologic Group and Available Water Capacity. Show to the left is the Hydrologic Group rating for the soils in the county. These parameters represent soil infiltration rates and water-holding capacity. Both of these parameters were converted to 50' x 50' resolution grid files.



Soil Hydrologic Group and Typical Infiltration Rates

- A (> 0.3 inches/hour)
- B (> 0.15 - 0.3 inches/hour)
- C (0.05 - 0.15 inches/hour)
- D (< 0.05 inches/hour)

MAP REFERENCES

DRAFT

N

0 1 2 Miles

1:48,000

0 4,000 8,000 12,000 16,000 Feet

1" = 4,000'

GREEN COUNTY WISCONSIN

there's an art to it.

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