

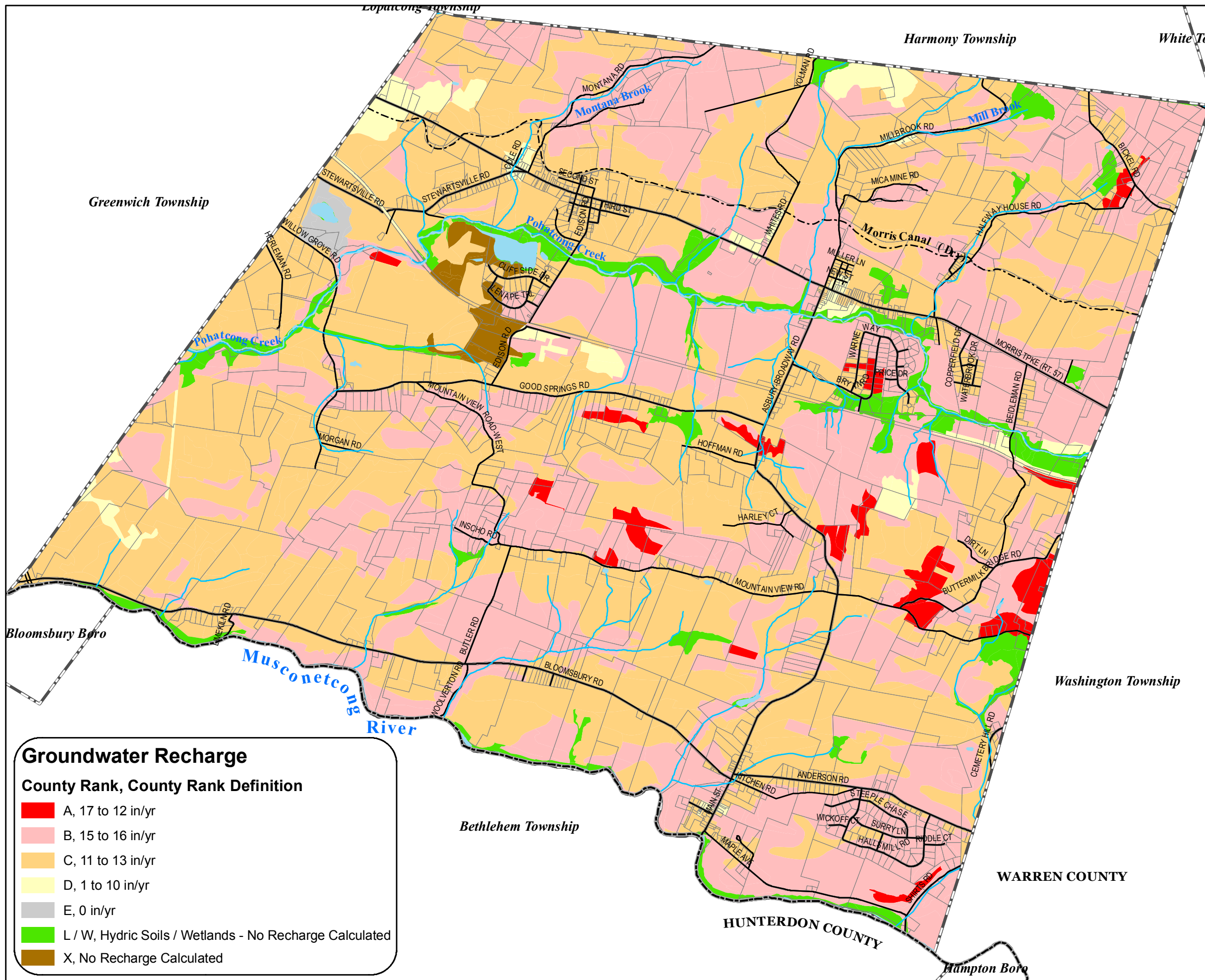
13: GROUNDWATER RECHARGE AREAS

Aquifers represent a geological unit, which can store and supply significant quantities of groundwater. Aquifer recharge is a function of groundwater recharge rates. Groundwater recharge represents the net amount of water that infiltrates the soil matrix to a point below the root zone of vegetation. Groundwater recharge necessarily accounts for the loss of gross precipitation due to evapotranspiration (physical and biological uptake), consumption, and surface runoff. These losses are determined by impervious cover, slope, and soil properties affecting percolation. The quantity of groundwater making it into the aquifer is based on the geology and aquifer pumping rates, but is less well modeled than groundwater recharge. Factors such as karst geology in sedimentary formations and fractured trap rock affect the transport of groundwater into aquifers.

Approximately 52% of the state's population receives its drinking water from groundwater. Franklin Township relies solely on groundwater sources because there are no publicly available water supply systems. Therefore, it is important to identify those critical areas in Franklin Township with the highest potential for groundwater recharge in order to protect and preserve this vital resource from contamination and land use practices that would negatively impact either the quality or quantity of available groundwater ([Figure 12](#)). The primary goal of the Highlands Protection Act, to preserve the ground and surface water resources of the area through tools to be identified in the Regional Master Plan, requires the characterization of groundwater recharge areas.

The data for this figure has been obtained from the New Jersey Geological Survey (NJGS). The NJGS has developed a model for mapping groundwater recharge areas. The model utilizes rainfall data from climate-meteorological monitoring stations, land use/land cover datasets (including impervious surface coverage, wetlands, agricultural, and residential and commercial development), geology, soil types and specific properties, and the extent of wetlands (streams, rivers, lakes, swamps, bogs, etc.). These data are combined to determine the potential in any area for groundwater recharge. This Figure is grouped according to ranks based on groundwater recharge rates. A single soil unit may have several ranks based on slope, proximity to wetlands, and land use.

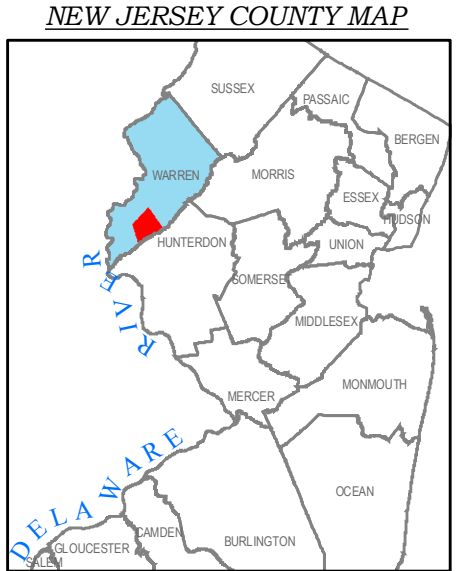
In general, there is good groundwater recharge throughout Franklin Township. At 51.87% of Township area, groundwater recharge rates of 11 to 13 inches/yr are the predominant groundwater recharge rate. Additional recharge of varying rates from 17 to 12 inches is expected in 1.85% of the Township. Wetlands, open waters, and hydric soil areas are expected to contribute no measurable groundwater recharge; these areas account for 9.25% of Township area. Optimal recharge rates from 15 to 16 inches/yr are found in 38.10% of the Township.



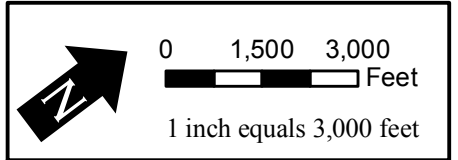
Groundwater Recharge

County Rank, County Rank Definition

- A, 17 to 12 in/yr
- B, 15 to 16 in/yr
- C, 11 to 13 in/yr
- D, 1 to 10 in/yr
- E, 0 in/yr
- L / W, Hydric Soils / Wetlands - No Recharge Calculated
- X, No Recharge Calculated



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- SOURCES:**
1. Parcel, roads and the Franklin Township Boundary data obtained from Warren County Planning Dept. "This map was developed using the Warren County New Jersey, Geographic Information System digital data, but this secondary product has not been verified by Warren County and is not county-authorized."
 2. Surface water data obtained from the NJDEP, Division of GIS.
 3. Groundwater Recharge data obtained from the New Jersey Geological Survey. Recharge calculated through NJGS GSR-32 report/program.

FIGURE 12
GROUNDWATER RECHARGE

NATURAL RESOURCE INVENTORY
 FRANKLIN TOWNSHIP
 WARREN COUNTY, NEW JERSEY

Legend

- County Boundary
- Municipal Boundaries
- Ponds/Lakes

Streams

- Streams
- Morris Canal (Dry)
- Roads
- Parcels

