

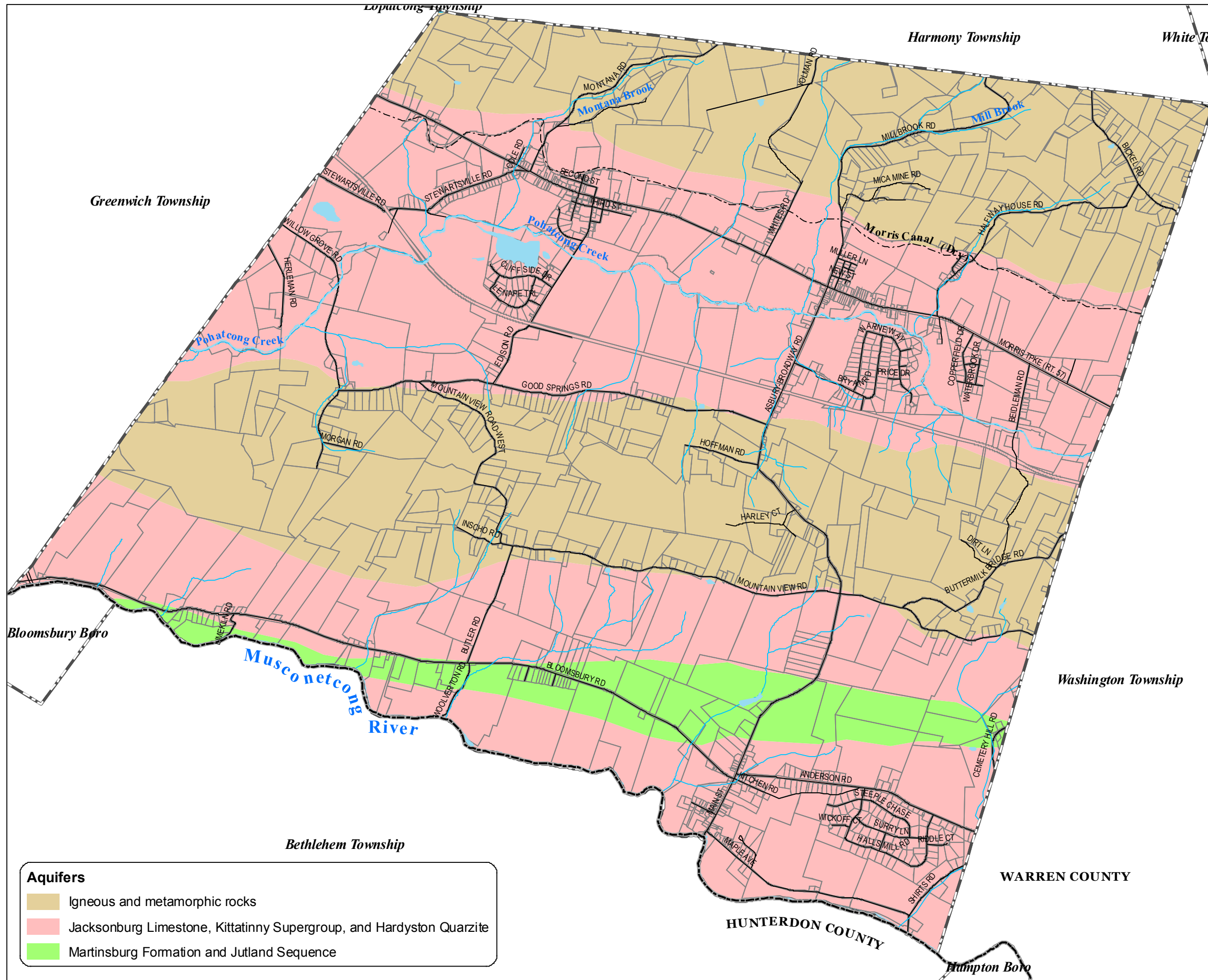
14: BEDROCK AQUIFERS

An aquifer is a geologic formation capable of supplying groundwater through wells. Aquifers are defined as porous, water-saturated layers of sand, gravel or bedrock that can yield an economically significant amount of water. Rain and storm water runoff infiltrate the soil and seep down into fissures, cracks and small interconnections and voids between individual grains in the underlying bedrock. There are three bedrock aquifers ([Figure 13](#)) in Franklin Township: (1) Jacksonburg Limestone, Kittany Supergroup and Hardyston Quartzite, (2) Igneous and Metamorphic Rocks, and (3) Martinsburg Formation and Jutland Sequence.

Jacksonburg Limestone, Kittatinny Supergroup and Hardyston Quartzite Aquifer account for the largest bedrock aquifer in Franklin Township (8101.0 acres or 53.7%). This aquifer is associated with the low lying portions of the Township. The rocks of this aquifer contain limestone and dolostone which is highly fractured and dissolvable in water. The abundance of fractures in the limestone gives it the ability to store and transmit large quantities of water making it a high yield aquifer. However, high transmissivities within this aquifer means that pumping may affect water levels in adjacent communities, particularly those lying in the direction of groundwater flow. In addition, the cavernous nature of limestone and the very qualities that make it a good aquifer can cause problems in well development where cavities are likely to contain large amounts of sediment and may require extensive treatment to clean the water. This aquifer is also sensitive to contamination due to the interconnection of various cavities

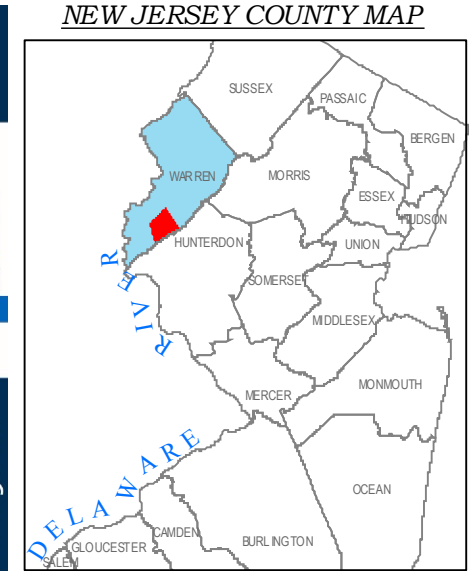
Aquifers made of igneous and metamorphic rocks amount to 6162.1 acres or 40.9% of the Township area. These are found along the Pohatcong ridgeline and the ridgeline along the Harmony Township boundary line. This type of aquifer is underlain by Precambrian igneous and metamorphic granites and gneisses. This aquifer has a characteristic tight, crystalline structure making them virtually incapable of storing or transmitting groundwater. However, these older formations are also heavily weathered and fractured, making it a relatively productive aquifer. The rock of this aquifer is less fractured in comparison to the Jacksonburg Limestone, Kittatinny Supergroup and Hardyston Quartzite aquifer, making it a low-yield aquifer.

Martinsburg Formation and Jutland Sequence aquifers account for the remaining 813.5 acres or 5.4% of the Township. This aquifer runs along the higher elevations of the Musconetcong valley in the Township. The rocks of this aquifer are sedimentary and consist of shales, sandstone and slates. This aquifer is also less fractured than the above two aquifers, making it a low-yield aquifer.

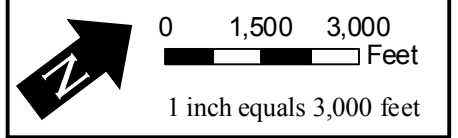


Aquifers

- Igneous and metamorphic rocks
- Jacksonburg Limestone, Kittatinny Supergroup, and Hardyston Quarzite
- Martinsburg Formation and Jutland Sequence



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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. Aquifer data obtained from the New Jersey Geological Survey.

**FIGURE 13
 BEDROCK AQUIFERS**

NATURAL RESOURCE INVENTORY
 FRANKLIN TOWNSHIP
 WARREN COUNTY, NEW JERSEY

Legend

- County Boundary
- Municipal Boundaries
- Ponds/Lakes
- Streams**
- Streams
- Morris Canal (Dry)
- Roads
- Parcels

