III. GEOLOGIC AND CLIMATOLOGIC SETTING

In order to better characterize the water resources of central Indiana, it is important to consider them within their overall geologic and climatologic setting.

A. CLIMATE SETTING AND CLIMATE CHANGE

Indiana's climate is classified as temperate continental and humid. Continental climates have a pronounced difference in average seasonal temperatures between summer and winter. Humid climates are those where the normal annual precipitation exceeds annual evapotranspiration. The average annual temperature varies across the state from 48°F (8.7°C) in the northeast to 57°F (13.7°C) in the southwest. The Central Indiana area has an average annual temperature of ~52°F (Fig. III-1A; Newman, 1997; Clark, 1980).

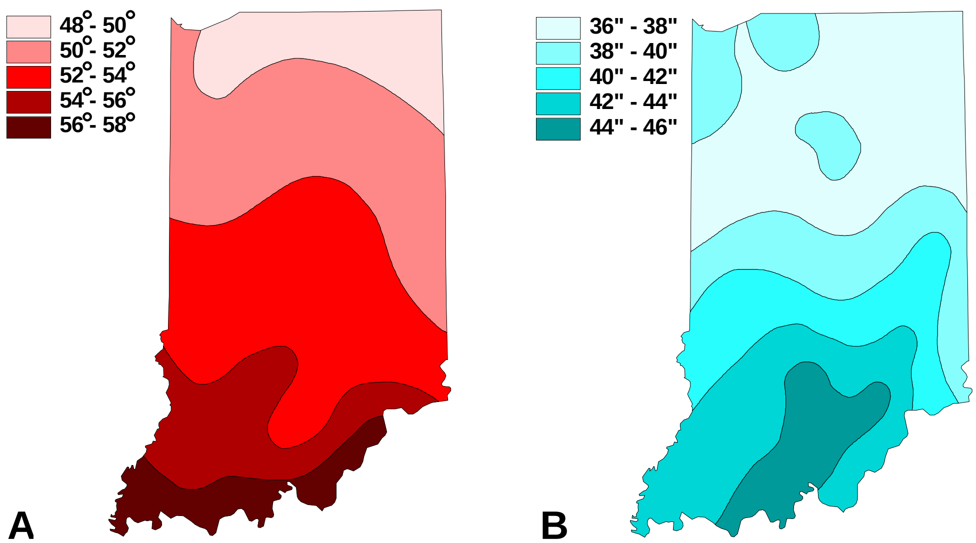

Figure III-1: (**A)** Average annual temperature in degrees Fahrenheit (ºF). (**B)** Average annual precipitation in inches (1931-1980). Modified from Clark, 1980.

The average annual precipitation for Central Indiana is 38" to 40" (97 to 102 cm) (Fig. III-1B; Newman, 1997). In central areas of the state, the wettest seasonal period is late spring; the driest is February (Fig. III-2; Newman, 1997). In central Indiana, more than half (54%) of the average annual precipitation occurs during the five-to-six month frost-free growing season. This distribution of rainfall affects the timing and magnitude of water recharge to groundwater resources as well as the timing and magnitude of surface runoff (Fig. III-3; Clark, 1980). Using the average values, about 68 % of the precipitation is lost as evaporation, while approximately 9% will recharge groundwater reserves, and the remaining 23% becomes surface runoff (Fig. III-4; Clark, 1980).