Agriculture is the dominant land use within the sub-watersheds, with the exception of Little Eagle Branch-Woodruff Branch and Eagle Creek-Long Branch/Irishman Run which are transitioning to suburban development (Fig. IV-4). Topography of the watershed is relatively flat and consists of productive soils (Fig. IV-5) developed in glacial till and loess (Fig. IV-6). The upland soils consist predominantly of the Crosby-Treaty-Miami Association. Valleys are commonly Patton-Del Rey-Crosby Association and Sawmill-Lawson-Genesee Association. Crosby upland soils are somewhat poorly drained, while Miami soils are well drained. Miami and Crosby soils are developed in loess and the underlying calcareous glacial till, while Patton soils are formed in silty, water-laid sediments. Unconsolidated deposits may be several hundred feet thick in the watershed and are dominated by loam till. Alluvium and lake deposits fill some valleys. Bedrock includes Paleozoic-age carbonates (limestone and dolomite), siltstones, and shales (Fig. IV-7; Shaver *et al*., 1986; Gray *et al.*, 1987; Gray, 1989; and Rupp, 1991).

Monthly precipitation normals for the Eagle Creek Watershed taken from 1971-2000 Whitestown, IN data show lowest precipitation occurring in February with an average of 2.35 inches, and highest precipitation occurring in July with an average of 4.54 inches of rainfall. The mean annual precipitation for the Eagle Creek Watershed area is 41.37 inches. Monthly mean temperatures for this area from 1971-2000 show January as having the lowest average temperature of 26.0°F and July as the being the warmest month with an average temperature of 74.7°F (PAMG, 2003).

Streamflow measured in Eagle Creek Watershed at Zionsville (U.S. Geological Survey streamflow gauging station 03353200) is highest in March with a monthly average of 192 ft^3/s and lowest in September with a monthly average of 20.7 ft^3/s (Fig. IV-8). Monthly averages are taken from a 1957-2002 record (USGS, 2003). Average annual runoff in Eagle Creek at Zionsville for the 1958-97 water years is about 13 inches (Stewart *et al*., 1998).

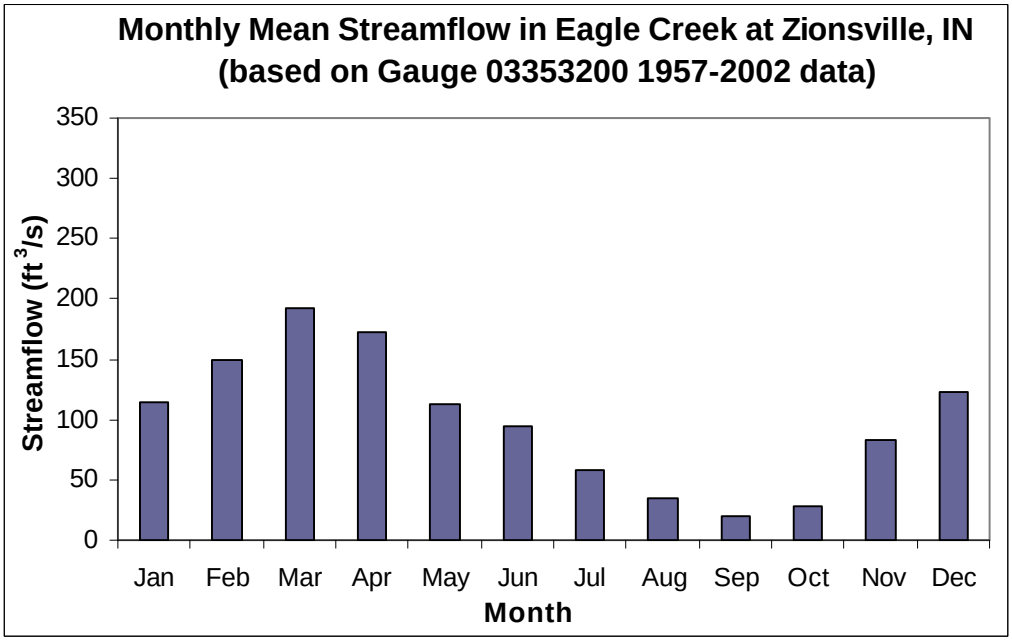

Figure IV-8