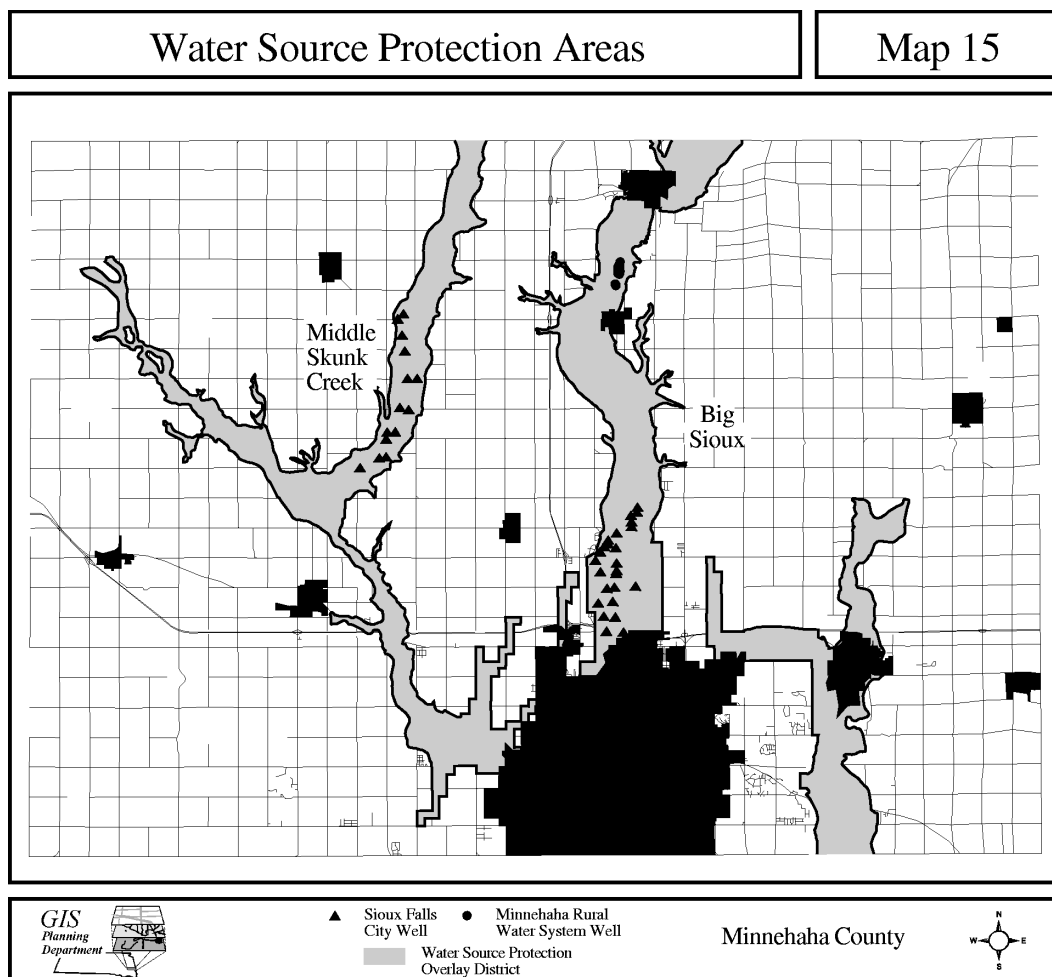


Water Source Protection

Shallow aquifers and streams are at risk of contamination by a variety of sources - inadequate wastewater treatment and disposal attributed to both on-site and municipal sources, mismanagement of waste from livestock facilities, overuse of fertilizers and pesticides, solid waste disposal sites, and sites for the storage and manufacture of regulated substances. The county enforces measures to protect these vulnerable areas through the water source protection overlay district provisions of the zoning ordinance. The overlay district prohibits uses which pose a high risk of contamination to groundwater resources and regulates other potentially damaging uses so that adverse environmental impacts are minimized.

A large number of public wells withdraw groundwater from the county's shallow aquifers. The Sioux Falls well field is concentrated within a five mile segment of the Big Sioux aquifer north of the city. More recently, the city expanded their well field into the Middle Skunk Creek aquifer southeast of Colton. Rural water wells are also located in the Big Sioux aquifer south of Dell Rapids. Map 15 shows the well sites in relation to the county's water source protection overlay district.



Hydrologic studies have identified the interrelationship of ground and surface waters where a stream is in contact with an aquifer, as is the case with the Big Sioux River and the outwash deposits along the Big Sioux valley. Depending on the relative water levels, water may move into or out of a stream. An influent stream supplies water to an aquifer while an effluent stream receives water from the aquifer. Groundwater discharge from aquifers into the Big Sioux forms the base flow of the river. This base flow is a significant part of the total flow during periods of low surface runoff but becomes a same fraction of the total flow when high surface runoff occurs. A comprehensive management program is important not only above the aquifer but within the entire drainage basin because of the connection between ground and surface waters.

Other measures which have been implemented by the county to protect the environment include requirements for solid waste disposal and management facilities (solid waste ordinance) and siting and installation requirements for individual wastewater systems (on-site wastewater treatment systems ordinance). Waste disposal from concentrated animal feeding facilities is controlled by the conditional use permit process of the zoning ordinance and state environmental laws.