

Other studies have sought to characterize the size of the effluent plume below an ISDS to determine the appropriate distance between the EDA and nearby surface water and wetlands. The studies showed the average plume length was approximately 80 feet, with a range from 30 to over 300 feet (Schneeberger et al., 2015; MPCA, 1999).

Of the 843 parcels in the Parsons Creek watershed, 383 fall within 100 feet of a stream, wetland, or other waterbody. 367 parcels fall within 75 feet and 331 parcels fall within 50 feet (Figure 5). Not all of these properties would have ISDS within 50, 75, or 100 feet of a waterbody or wetland as, in some cases, only a small portion of the parcel intersects the buffer. However, the proximity to surface waters and wetlands is likely a concern for multiple properties in the watershed.

The Number of ISDS in the Watershed

Too many ISDS in an area may overwhelm the area's carrying capacity for treatment because individual septic plumes may intermingle and pollute large areas of groundwater. Yates (1985) has shown that areas with a density of more than 0.06 septic tanks per acre are potentially problematic for surface water quality. Mallin (2004) has shown that a density of more than 0.26 septic tanks per acre can lead to fecal contamination.

In the 1,459 acre (2.26 square mile) Parsons Creek watershed, the number of "built" parcels in the watershed was used as a proxy for the number of ISDS as the exact number of systems is not known. Of the 843 parcels in the watershed, 664 are considered "built," indicating there are approximately 0.45 ISDS per acre in the watershed, which is almost twice the density shown to be problematic in other studies.