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GIS Analysis of Junkyards as a Potential Threat to NYC Drinking Water Quality

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The New York City (NYC) watershed covers an area of over 1,900 square miles in the Catskill Mountains and Hudson River Valley. While the watershed occupies just 5% of the state geographically, it is the source for 50% of the state's public drinking water. The watershed, which consists of 19 reservoirs, provides 1.1 billion gallons of drinking water daily to about 8 million residents in New York City and about 1 million residents in Westchester, Putnam, Ulster, and Orange counties.

There are a wide variety of potential threats to NYC drinking water quality. Junkyards, including automobile dismantling, auto recycling, and scrap processing operations, are a source of hazardous chemicals and materials that can contribute to aquatic environmental problems, including ground and surface water contamination. Water contamination can result from spills, leaks, or improperly stored vehicles that have not been properly dismantled or whose fluids have not been drained. Storm events generate stormwater, which can transport spilled or exposed chemicals to surface water, such as rivers, streams, or reservoirs. Precipitation from storm events can also percolate through the site and contaminate groundwater.

To more closely examine the potential threat that junkyards may pose to drinking water sources within the NYC watershed, a map was created using geographical information system (GIS) software. Analysis consisted of (1) mapping the location of junkyards within the watershed and (2) determining distances from reservoirs and their feeder streams. A slope and elevation analysis was also undertaken to evaluate water flow patterns. Final analysis and results are pending.