

The Personal Geodatabase as a BMP for Stormwater Management

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NC State University implemented the use of GIS for urban forest inventory and management in 1997. Since that time other University departments have taken advantage of GIS as a tool to effectively manage operations for both the natural and built environment. As the scope and use of technology progressed over the past 10 years, so has development of campus infrastructure. Due in part to a University bond package passed in 2000, NCSU has 40 major construction projects slated through 2009. New buildings bring new sources of runoff and require construction of additional stormwater management components. Construction means loss of green space and presents the need to efficiently manage water quality impacts. State and Federal law requires management of stormwater to protect water quality. In response to this mandate, NCSU has a MS4 permit encompassing approximately 2,500 acres of intensively managed urban landscape. In 2005, NCSU Environmental Affairs began GIS development for the campus stormwater system.

Strategies for geodatabase design include:

- 1) Design as a personal geodatabase to simplify implementation but allow for multiple users.
- 2) Database management system for immediate use to inventory stormwater structures with links to documents.
- 3) Design the geodatabase for future uses such as modeling water movement through and pollutant removal within the network of bioretention areas, infiltration basins, or wetlands.
- 4) Provide the ability to integrate spatial and tabular data with other campus departments or local agencies.

In essence, a well designed geodatabase allows GIS to become a BMP for the stormwater management system.

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