The goals of this project were to use Geographic Information System technology to:

1) To develop a computationally efficient hydrologic model of the Cool Run Watershed based on existing GIS layers and data.
2) To correct local data anomalies to make the Digital Elevation Model (DEM) support true runoff patterns in the Cool Run Watershed.
3) To compile all important and relevant GIS data for use by others in forecast modeling and developing best management practices to protect the Cool Run Watershed.
4) To model runoff impacts from each different land use within the Cool Run Watershed.

GIS Data Complied for the Cool Run Watershed:

Methods Used ArcMap Spatial Analyst Tools To:

1) Import a 10x10 DEM of the study area
2) Delineate the boundaries of the Cool Run Watershed
3) Calculate the flow direction and flow accumulation rasters
4) Combin stream channels inferred from flow accumulation with actual stream features as targets for runoff modeling
5) Model runoff impacts from each land use within the watershed
6) Obtain impervious surface data to determine where the largest amount of storm water runoff will originate from

What GIS is:
GIS is a system composed of hardware, software, and data. GIS is used to capture, store, integrate, manipulate, analyze, and display data related to location on the Earth’s surface. It incorporates geographical features with tabular data in order to map, forecast, analyze and come up with best management practices to solve real-world problems.

What ArcMap?
ArcMap is the comprehensive map authoring and data analysis component of ArcGIS Desktop. It is an application used for querying, analyzing, editing, and mapping data. In ArcMap, you compile, edit, and create data. It is also the application used for cartography.

What is Hydrologic Modeling?
Hydrologic models are simplified, conceptual representations of a part of the cycle of water in a particular watershed. They are primarily used for hydrologic prediction and for understanding hydrologic processes.

What is a watershed?
An area of land where all of the water that is under it or drains off of it, goes to the same place.