The Subwatersheds of the Tributaries to Bull Creek in Austin, TX

My project will focus on the Bull Creek watershed in Austin, TX. First, I will divide the watershed into individual subwatersheds, one for each of the tributaries, using ArcGIS. Then, I will characterize the tributaries based on a number of factors, including area, slope, tributary length, impervious cover, land use, pipe density, bedrock exposure, and soil type within the subwatersheds. This represents the extent of the project I will complete for the CE394K class. The GIS data is ultimately to be correlated with streamwater chemistry data from samples that I have been collecting since July, 2012, to test the hypothesis that urbanization is a primary modifier of streamwater chemistry in the Bull Creek watershed.

As a consequence of the history of land development, some Bull Creek tributaries are sourced and flow almost entirely in fully-developed areas, whereas others are located in protected natural areas. Thirteen tributaries have been classified as either urbanized (U) or non-urbanized (R) based upon land use within the tributary catchment. Access to two additional non-urbanized tributaries (R) located within the protected Balcones Canyonlands Preserve area is being requested from the Travis County. The data generated in ArcGIS will help to determine whether natural or anthropogenic effects dominate water chemistry within the tributaries to Bull Creek.

Figure 1 – Property lines and sample collection sites. GIS data collected from City of Austin and capcog.org GIS information clearinghouse.