Title: Envisioning the Possibilities of a Digital City: A Case Study of Rain Gardens and the Detention Pond on Great Northern Boulevard

Objective: To provide an in depth investigation of one way a fully digitized 3D map of Austin could serve the community and to review other ways this type of map could lead to greater "geospatial consciousness."

Data Sources:
1) Topography/elevation data
   NED   http://ned.usgs.gov/
   LIDAR data for Austin   http://www.capcog.org/information-clearinghouse/geospatial-data/
2) Watershed boundaries
   NHD Plus   http://www.horizon-systems.com/nhdplus/
3) Stream Gage and Precipitation Station data
   USGS   http://water.usgs.gov/maps.html
4) Land use including average house size and density of housing types
   City of Austin   http://www.ci.austin.tx.us/landuse/maps.htm
   CAPCOG   http://www.capcog.org/information-clearinghouse/geospatial-data/

Outline of steps:

1) Study of Existing Conditions
   a. Determine pond drainage area
   b. Determine approximate pond volume (pond area x pond depth)
   c. Determine average single family home size for the drainage area
   d. Determine single family lot density in drainage area
   e. Review historical stream flow and rainfall data for the area (before and after Memorial Day Flood)
2) Rain Garden design
   a. Design typical rain garden based on average roof size
   b. How would impervious cover change if rain gardens are integrated into development?
   c. Estimate number of rain gardens needed (pond volume / rain garden volume)
3) Assess feasibility
   a. Determine rain garden density – how does this compare to single family lot density? Is the required number and size of rain gardens realistic for the drainage area?
4) Discussion of what "geospatial consciousness" could look like in a digital city. How can results from this study be applied to other problems?