

**A river runs through it:
Impacts of SH 130 development on water quality in Austin, Texas**

Term Project Status Report
Tom Hilde
GIS in Water Resources
27 October 2011

I. Updated Objective

Narrowing my previous objective of measuring the impacts of development on water quality and environmental integrity, I am now focusing on the recent development of the State Highway 130 bypass of Austin. Has the development of this infrastructure directly impacted water quality in crossing streams? In addition, because the inclusion of additional exit ramps will surely spur new development along this corridor, what are the likely indirect impacts of the project in the form of future urbanization in this area?

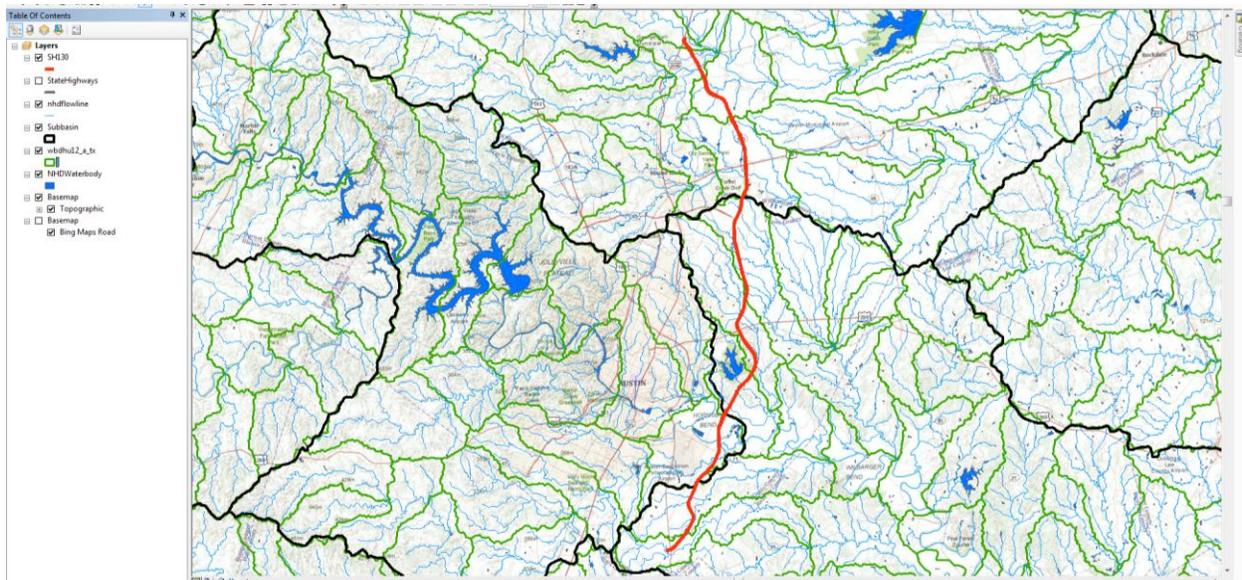
II. Status

In order to begin the investigation of these questions, I first researched the project's development process in order to find any possible environmental or water quality issues that were identified from the outset. I located the Draft Environmental Impact Statement Re-evaluation that was completed in August 2006 for a segment of the project, likely the most disputed portion. The U.S. EPA requires the reporting of crossings of impaired waters, and while there are no impaired stream crossings associated with the project, the report discusses discharge locations into area streams. Discharge locations for this segment of the project include Cedar Creek, Plum Creek, the San Marcos River, and the Guadalupe River (with corresponding catchment areas including the Colorado River basin, Guadalupe River basin and San Marcos River basin). None of these streams are listed as impaired, and therefore coordination with TCEQ was not required. The document indicates that water quality impacts are not expected.

Due to the nature of major construction projects such as this, oftentimes the EIA/EIS process is not as thorough as one would hope. This, along with the large number of streams and watersheds that are intersected by the project, made me curious to find out exactly how many streams and corresponding watersheds were at risk of seeing water quality impacts, and to what extent this might be happening.

I have put together a basemap in order to begin this investigation. The Region 12 National Hydrography Dataset and Catchment Flowline Attributes were acquired from NHDPlus, and HUC12 Watershed Boundaries were downloaded from USDA. Regional road data was acquired from CAPCOG, and the SH 130 location and route has been exported from this data. This will be used to identify intersecting stream lines, HUC12 watersheds and larger subbasins. Using the annual flow data included with the flowline attributes, the larger intersecting streams can be identified and analyzed.

Basemap: SH 130 and Intersecting Streams and Watersheds



III. Plan to Execute

I am in the process of acquiring USDA stream gage data that I hope to use for a few analysis. First, I would like to compare the water quality and flow data of crossing streams of interest, both at the nearest upstream and downstream gages from SH130, in order to identify any interesting changes in data. I would also like to analyze time series data at these locations from preconstruction, construction and post-construction phases to identify any possible impacts. Finally, I would like to focus on an area along the SH 130 corridor that was recently annexed or is in the process of development. Looking at possible development scenarios and corresponding changes in SH 130 traffic and impermeable surface cover, what would be the corresponding impacts on runoff and stream water quality?