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Term Project Proposal

Storm water retention and treatment has gained recognition over the past decade as one of the trendy new topics within the environmental engineering field. Conventionally, storm water has been managed via impermeable manmade systems such as storm drains and culverts which lead to outfalls into the nearest stream or body of water. However, two problems can arise from such design. Although originally constructed to alleviate flooding concerns, the use of impermeable surfaces and direct flow into water bodies alters the unit hydrograph of a stream's response to precipitation events by concentrating flow into more isolated, intense events during storms. Secondly, runoff from an urban environment is regularly contaminated from fertilizer, oil and grease, bacteria, metals, and organics that can be washed away from various sources within the city. Over the past few decades, retention and treatment in the form of bioswales, rain gardens, and vegetative strips have gained recognition for their role in both the muting of storm runoff events and treatment of harmful pollutants.

The goal of my project is to investigate the effectiveness of implemented storm water retention systems within San Diego, California in terms of both a) receiving water streamflow and b) water quality. During the summer of 2012, I worked at the Department of Storm Water for City of San Diego who can hopefully provide me access to their ArcGIS map of the entire city storm water conveyance system which follows flow from inlet to outfall. I plan to research constructed storm water best management practice systems on the City of San Diego website and using the NHDPlus dataset I can find appropriate catchments in which these projects lie and

corresponding flowlines. From these flowlines, I can obtain data from USGS stream gages for flow information and consult the City of San Diego for water quality information. An analysis will be done on these data for before (using the storm water conveyance system map) and after (using the locations of the swales and NHDPlus catchment data) the implementation of the given storm water project to see if any benefit has resulted since construction.