

# Frazier Avenue Stormwater Basin Rehabilitation Project:

## Interactive Educational Map

Loulou Dickey

CRP 458: Final Project Proposal

### Executive Summary

I plan to create an interactive map for citizens of the neighborhood around the detention basin I am redesigning as my engineering senior design project. The map will include information about the watershed and explain the design process used to rehab the basin and the impact it has on downstream water quantity and quality.

### Abstract

My senior design project is in collaboration with the City of Des Moines, who recently obtained ownership of an old detention basin on Frazier Avenue. The basin is no longer functioning properly and the city requested a redesign to address water storage for flood prevention and water quality improvement through sediment control. Additionally, the city desires an educational component of the project for citizens in the neighborhood.

Creating an interactive project map will allow citizens to gain insight into the project and the watershed they live in. The URL to the map will be posted on a signboard next to the basin. Information included on the map will be the watershed boundaries, the stream network the basin outlets to, land cover classification in the sewershed, sewer network, rain data, estimated runoff volume to the basin, and storage volumes within the basin.

### Technology

ESRI shapefiles including polygon and point files

GeoJSON data (converted from ESRI shapefiles)

JQuery

Leaflet and Plugins

AJAX

### Data

Land cover data obtained from the Iowa DNR and processed by me. Sewer network data provided by City of Des Moines. Watershed maps provided by project collaborators. All shapefiles will be converted to GeoJSON format for web mapping. Weather input from NOAA or other sources, to be used in runoff calculation within the map.

### Challenges

- Daily rainfall data may be difficult to pull into the map.
- Calculation of runoff may be difficult to code into JS, some equations are very complex.
- Land cover map is a raster file, may need to be converted to polygons for use in this project.
- Interactive components yet to be determined. Perhaps user can input a storm event (1 yr, 5 yr, 100 yr) or a precipitation amount.