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CE 365K - Maidment

Eanes Creek Flood Prevention Project Proposal

Objective and Scope

The Rollingwood area is infamous for flooding during heavy rainfall which often leads to motorists being swept off of Bee Caves Road into Eanes Creek, as shown in Figure 1. Although attempts have been made by local residents and officials to temporarily prevent incidents, a more reliable and permanent solution should be devised to ensure safety and efficiency on roads near Eanes Creek.

Figure 1: Vehicle Swept into Eanes Creek on in Oct. 2013

Source: Rollingwood Police Department

Specifically, we aim to improve drainage on Bee Cave Road, where it intersects with Eanes Creek. Our design for the site will follow the low impact development model in order to maximize efficiency and aesthetic value. Figure 2 displays the primary area of interest for our project.

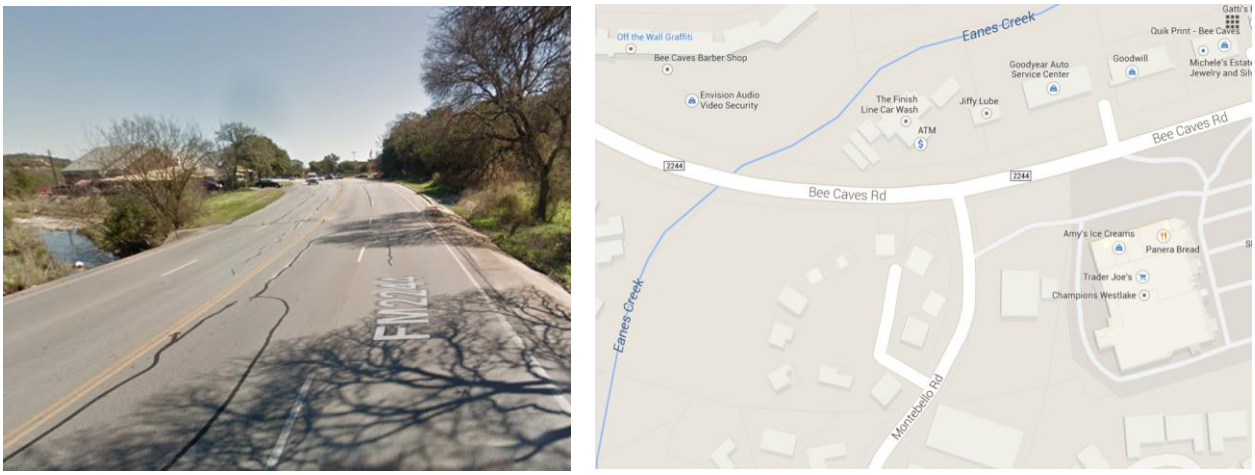

Figure 2: Street Map (Left) and Aerial Map (Right) of Region of Interest

Data and Simulation Models

For this project, we will utilize ArcGIS and CAD software to create representations of our site and design elements. A simulation model will help to show how the site functions currently and how our design will improve the site. We will also have to determine the flow rate upstream from the intersection of Eanes Creek and Bee Caves Road taking the annual precipitation for that area into account. Meanwhile, we'll need to consider any impervious cover contributing to the excessive runoff into Eanes Creek triggering massive flooding. After factoring in all of these elements, we will be able to determine runoff into Eanes Creek and ensure that our proposed design will reduce flooding sufficiently.

Division of Tasks

Within our team, Peter will work on the detailed CAD drawing of our project plan, Amyriz will be responsible for the GIS database as the representation model, and David & Christin will collaborate on the simulation models with the proposed plan, as well as determining the flow rate into Eanes Creek from the discharge area before and after the proposed solution. Lastly, we will all collaborate on the creation of a cohesive report which incorporates all of our respective contributions to the final design.

References:

Urbaszewski, Katie. *"Bee Cave Road Flooding Leaves Cars in Creek."* Austin American Statesman, 16 Oct. 2013.