Public Meeting #1
July 20, 2016

Swann Street Storm Drainage Improvement Project – Phase 1
Introduction of Team Members

City of Raleigh Staff
- David Kiker, PE, Engineering Services
- Veronica High, PE, Engineering Services
- Carmela Teichman, Public Outreach & Education

WK Dickson Staff
- Scott Sigmon, PE
- Marc Horstman, PE
Presentation Overview

- Introduce Team Members
- Summarize Project Goals
- Historical Flooding
- Present Existing Conditions Findings
- Present Recommended Drainage Improvements
- Drainage Easements
- Proposed Schedule
- Questions/Answers/Break Out Sessions
Project Goals

- Eliminate Roadway Flooding
- Minimize First Floor Flooding of Homes
- Improve Access to Homes
- Stabilize Banks of Main Channel
Historical Flooding & Erosion

3700 Swann Street – June 2013
Historical Flooding & Erosion

3704 Swann Street – June 2013
Historical Flooding & Erosion

3708 Swann Street – June 2013
Historical Flooding & Erosion

3708 Swann Street – April 2016
Existing Conditions Findings

Hydrologic Models
- Rainfall Data
- Drainage Area
- Landuse
- Soils

Hydraulic Models – Primary System
- Field Surveyed Data
- Culvert Size, Length and Roughness
- Channel Size, Length and Roughness
- Peak Flows
- Starting Conditions

Hydraulic Models – Secondary System
- Pipe Size, Length and Roughness
- Peak Flows
- Starting Conditions
## Existing Conditions Findings

### Summary of Peak Flows

<table>
<thead>
<tr>
<th>Road Name / Location</th>
<th>Storm Event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2-year (cfs)</td>
</tr>
<tr>
<td>U/S Manuel Street</td>
<td>135</td>
</tr>
<tr>
<td>D/S Manuel Street</td>
<td>135</td>
</tr>
<tr>
<td>3618 Swann Street</td>
<td></td>
</tr>
<tr>
<td>Driveway Culvert</td>
<td>142</td>
</tr>
<tr>
<td>U/S Reach 2 confluence</td>
<td>149</td>
</tr>
<tr>
<td>U/S Varnell Avenue</td>
<td>189</td>
</tr>
<tr>
<td>D/S Varnell Avenue</td>
<td>187</td>
</tr>
<tr>
<td>Road Name/Culvert/Bridge Size</td>
<td>Level of Service</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Varnell Avenue – 60” RCP</td>
<td>5-Year LOS</td>
</tr>
<tr>
<td>Triple 36” RCPs at 3704 Swann</td>
<td>10-Year LOS</td>
</tr>
<tr>
<td>Bridge at 3700 Swann Street</td>
<td>10-Year LOS</td>
</tr>
<tr>
<td>60&quot; RCP at 3618 Swann Street</td>
<td>2-Year LOS</td>
</tr>
<tr>
<td>48&quot; RCP at 3618 Swann Street</td>
<td>&lt; 2-Year LOS</td>
</tr>
<tr>
<td>Bridge at 3614 Swann Street</td>
<td>2-Year LOS</td>
</tr>
<tr>
<td>Bridge at 3606 Swann Street</td>
<td>&lt; 2-Year LOS</td>
</tr>
<tr>
<td>Walkway Bridge at 3606 Swann Street</td>
<td>2-Year LOS</td>
</tr>
<tr>
<td>Walkway Bridge at 3600 Swann Street</td>
<td>10-Year LOS</td>
</tr>
<tr>
<td>Manuel Street – 54” RCP</td>
<td>5-Year LOS</td>
</tr>
</tbody>
</table>
Recommended Drainage Improvements

http://abc11.com/traffic
Recommended Drainage Improvements

Varnell Avenue Upsizing (60” RCP to a 72” RCP)
Recommended Drainage Improvements
Recommended Drainage Improvements

Triple 36” RCP Outfall Repairs
Recommended Drainage Improvements

3618 Swann St. Driveway Culvert Upgrades (48”/60” RCPs to 72” RCPs)
Recommended Drainage Improvements

3606/3614 Swann Street Driveway Bridges
Recommended Drainage Improvements

http://www.southroads.co.nz/assets/images/bridge_b.jpg

http://farm5.static.flickr.com/4104/4996264287_2f5fb875f5.jpg
Recommended Drainage Improvements

Dade Street Channel Improvements – Bid Alternate
Recommended Drainage Improvements

Dade Street Channel Improvements – Bid Alternate
Recommended Drainage Improvements

Optimized inlet installation
Easement Definition:

Right granted from a property owner to another for a specific use of a portion of the owner’s land. Utility operators (gas, electric, sewer, etc.) often have easements for the purpose of installing and maintaining their utility lines and structures. As with most utility easements, storm drainage easements are permanent and run with the land (i.e., survive any sale of the property). They generally require the property owner to give up certain rights, such as building permanent structures (additions, decks, certain types of fences, etc.) within the easement to allow for proper function of the system and unimpeded maintenance access.

- Grant Easements
- Fences
- Exemptions
- Stormwater to Facilitate
## Schedule

<table>
<thead>
<tr>
<th>Task</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contract Signed</td>
<td>March 1, 2016</td>
</tr>
<tr>
<td>Field Survey Collected</td>
<td>April 26, 2016</td>
</tr>
<tr>
<td>Draft Engineering Report Submitted to City</td>
<td>June 8, 2016</td>
</tr>
<tr>
<td>30% Design Plans Submitted to City</td>
<td>June 23, 2016</td>
</tr>
<tr>
<td>Conduct Public Meeting</td>
<td>July 20, 2016</td>
</tr>
<tr>
<td>Complete 70% Design Plans</td>
<td>February 2017</td>
</tr>
<tr>
<td>Acquire Easements</td>
<td>March – June 2017</td>
</tr>
<tr>
<td>Secure Environmental Permits</td>
<td>June 2017</td>
</tr>
<tr>
<td>Finalize Design Plans</td>
<td>October 2017</td>
</tr>
<tr>
<td>Relocate Private Utilities</td>
<td>Nov 2017 – April 2018</td>
</tr>
<tr>
<td>Prepare Project For Bid</td>
<td>January 2018</td>
</tr>
<tr>
<td>Council Approval of Bid</td>
<td>July 3, 2018</td>
</tr>
<tr>
<td>Begin Construction</td>
<td>August 2018</td>
</tr>
</tbody>
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City’s Website:  
http://www.raleighnc.gov/  

- Choose Departments  
- Choose Engineering Services  

Bottom of Page Go to Projects:  
- Citizen Assistance - We Are Here To Help  
- Rates and Fees  
- Development, Permits and Stormwater Inspections  
- Projects  
- Stormwater Quality
Inside Projects Go to Learn More About Projects:

- Capital Improvement Projects
- Water Quality Cost Share
- Drainage Assistance
- Green Infrastructure (GI) and/or Low Impact Development (LID)
- Watershed Studies

Veronica High, PE: Stormwater Infrastructure Program Manager

Learn more about Projects

Bottom of Page Go to CIP Projects:

- Alexander Rd/McCarthy
- Audubon Drive
- Beechwood-Cypress
- Brenwood Today
- Brockton Dam
- Crabtree Blvd. Culvert

Scroll Down Until You Get to Swann Street Phase 1:
Swann Street Drainage Improvements Phase I

Type: Storm Drainage System
Budget: $300,000
Team:
- Stormwater Management (Lead)
- WK Dickson

Current Activity

Topographic survey collected in March and April 2016. This data has been incorporated into modeling of primary and secondary drainage systems. Engineering consultant (WK Dickson) finalizing draft engineering evaluation including modeling, report and supporting calculations. City staff and WK Dickson conducted field meetings with property owners along Swann Street to solicit feedback with historical flooding. City staff and WK Dickson met the US Army Corps of Engineers permitting coordinator in the field to discuss options to stabilize channel banks and replace existing bridges or culverts.

Typical project design for a similar CIP project is 18-24 months. An aggressive schedule of 18 months was developed for this project and is currently being met. During this time construction documents are created along with all of the required public meetings, permitting, approvals, and easements required to release the documents for bid.