

Existing Conditions Analysis Summary Meeting



Beckwith-Meadow Storm Drainage Improvements Project

December 11, 2014



Introduction of Staff

- **Charlotte-Mecklenburg Storm Water Services (CMSWS) Staff**
 - David Perry, PE – Project Manager
 - Phone - 704-336-4202
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 - Doug Lozner, PE – Watershed Area Manager
- **STV/Ralph Whitehead Associates**
 - Edward Vance, PE – Project Manager
 - Davin Morrison, PE – Senior Engineer

Housekeeping Items

- Sign-In
- Fill out a Questionnaire if you did not previously
- Customer Service Comment Cards
- Question and Answer period after presentation

Meeting Purpose and Agenda

- Purpose
 - Provide a summary of the Existing Conditions analysis
 - Request input from property owners/residents on the Existing Conditions analysis results
 - Obtain additional information from property owners/residents on perceived drainage issues
- Agenda
 - Charlotte-Mecklenburg Storm Water Services Summary
 - Project Selection and Citizen Involvement
 - Existing Conditions Analysis Summary
 - Alternatives Analysis and future project milestones
 - General Questions and Comments



CMSWS Summary

Storm Water Program Roots:

- 1911 – Mecklenburg County Drainage Commission created
- 1993 – Charlotte obtained and begin to comply with a NPDES Phase I permit
 - Charlotte established a storm water fee to fund NPDES required measures and to address drainage issues

What the program includes:

- *Administration and Technology*
- *Water Quality*
- *Design Management*
- *Engineering*

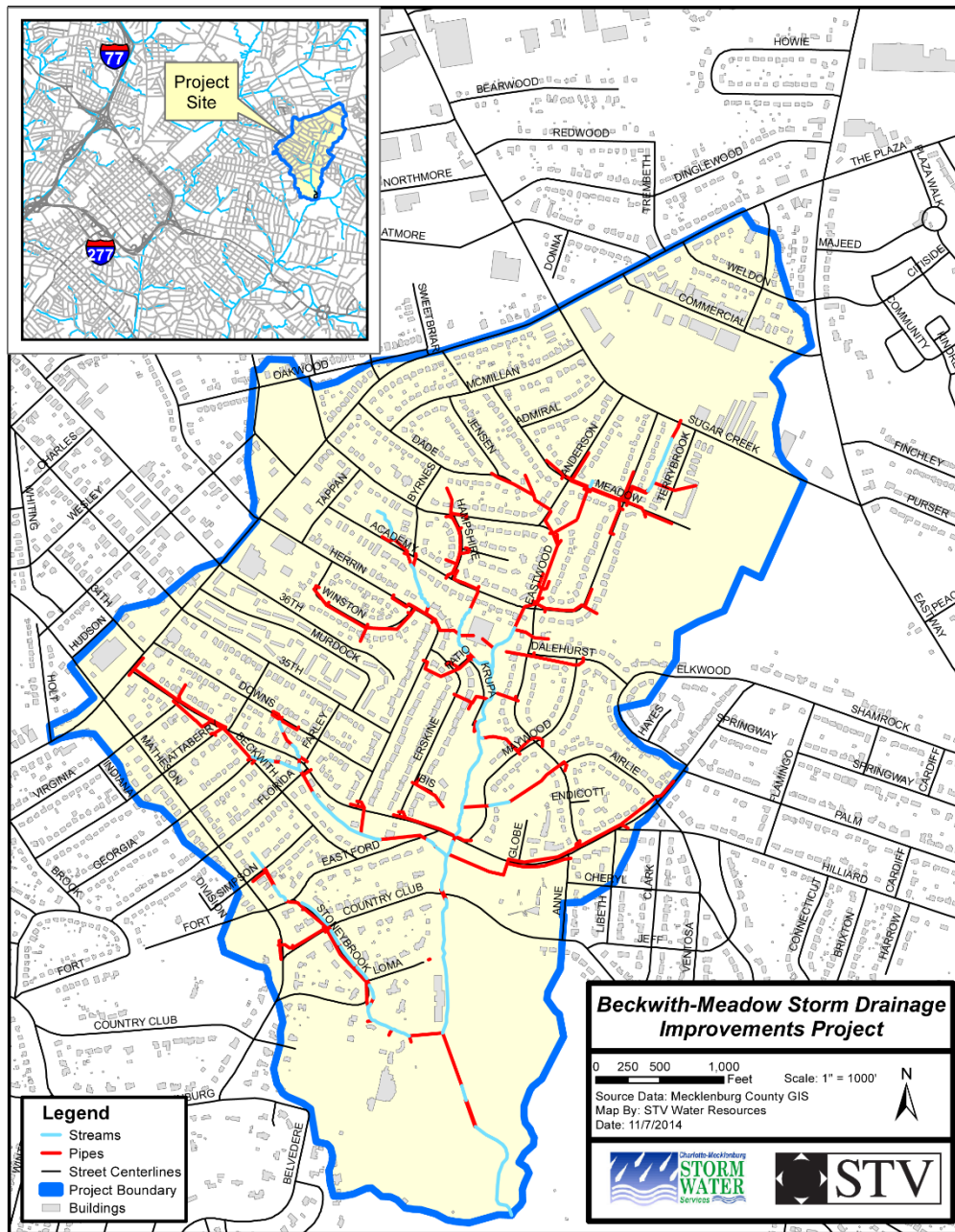
Why the Beckwith-Meadow Storm Drainage Improvements Project (SDIP) was chosen as an Engineering project

- **Requests for Service from Property Owners (411 total - 311 requests within watershed, 47 are currently open and 364 are closed)**
 - **Inadequate Infrastructure**
 - Road flooding
 - Structure flooding (House, buildings, sheds, etc.)
 - **Deteriorating Infrastructure**
 - Old culverts, pipes, inlets
 - Sink holes
 - Erosion, blockages in streams
- **CMSWS watershed ranking**
- **Larger watershed-wide issues that cannot be managed by spot repairs or without potentially impacting downstream properties**

What we need from you

- **Feedback on our consultant's modeled results**
- **Additional information on drainage related concerns (previously 111 questionnaires were returned)**
- **Support for the project's future phases**

Figure S-1 : Site Vicinity Map



Beckwith-Meadow Storm Drainage Improvements Project

Existing Conditions Analysis Results



Existing Conditions Floodplain Map

- Illustrates Predicted Extent of Flooding
- 3 hydrologic scenarios analyzed
- Analyzed 5 storm events for each scenario
- 100-Year Storm Event for buildings
 - 1 percent chance of storm occurring in any given year

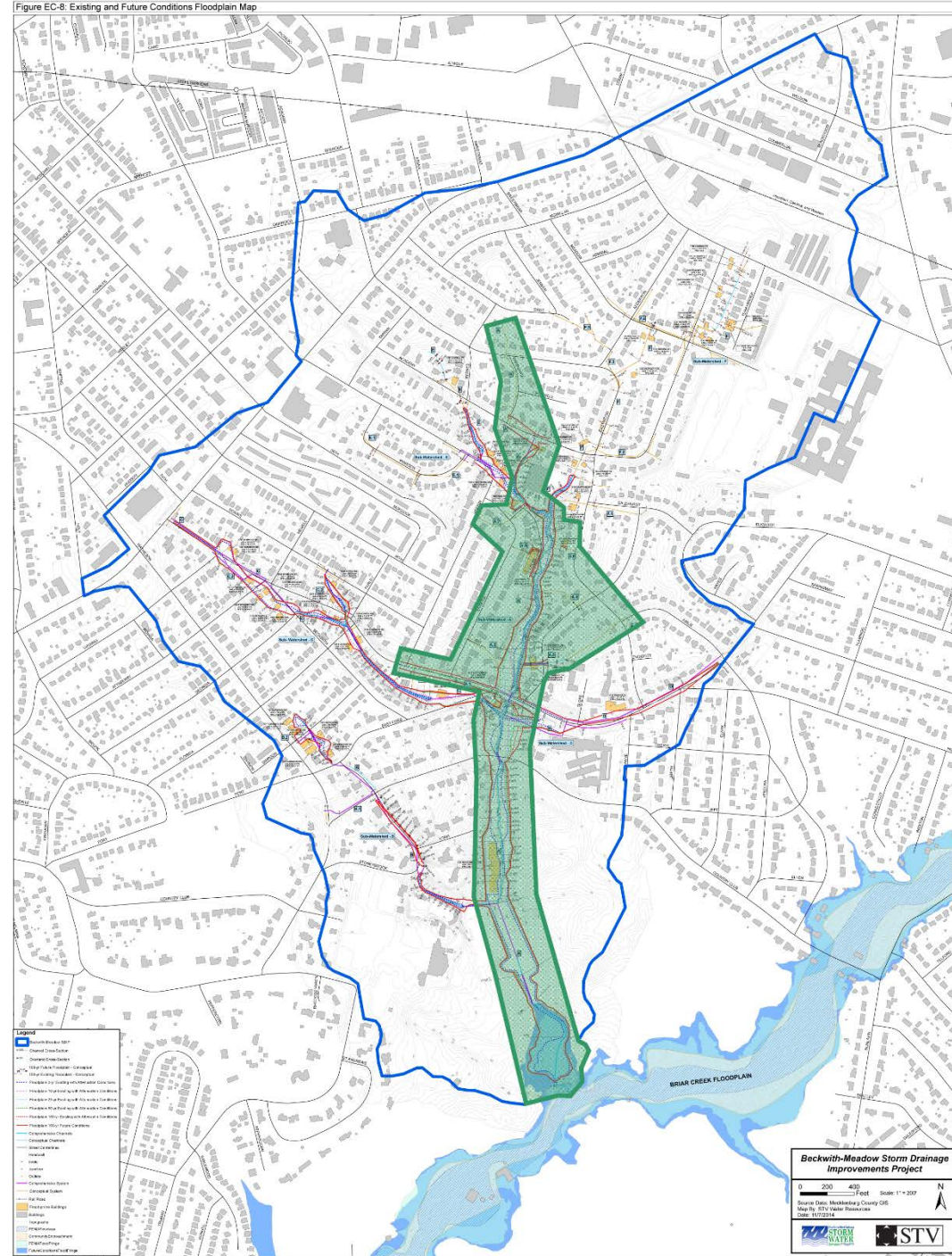
Existing Conditions Results:

- 13 out of 18 culverts/cross-drains show overtopping/flooding impacts beyond the standard design storm**
- Existing Conditions with Attenuation Model shows flooding for 51 buildings (not including storage buildings) that includes Lowest Adjacent Grade (LAG), Crawl Space, HVAC, or FFE**
- Model shows Finished Floor Elevation (FFE) flooding for 7 buildings**

Existing Conditions Results

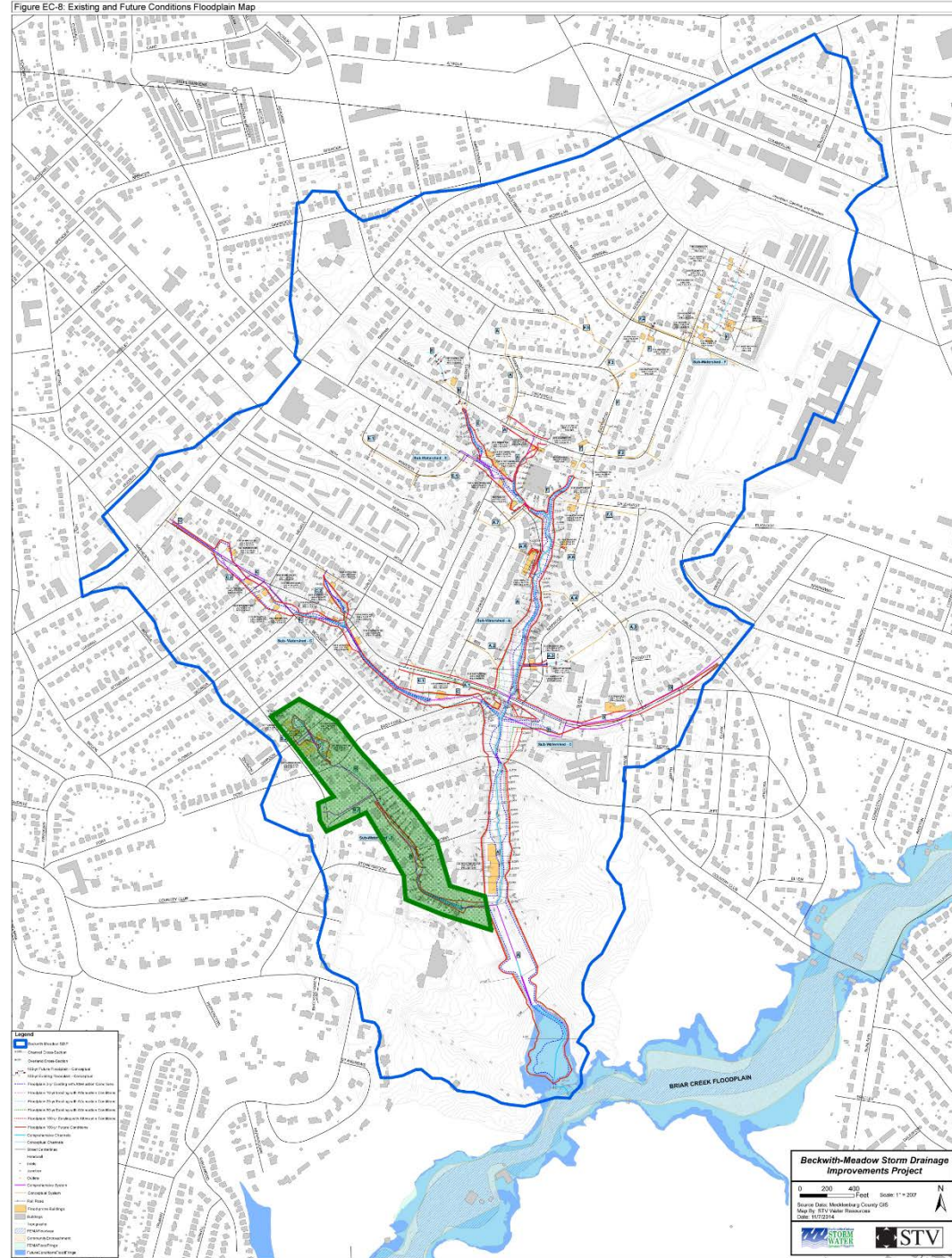
Sub-Watershed A:

- Academy Street (10-yr), Maywood Drive (10-yr), Shamrock Drive (50-yr), and Country Club Drive (10-yr); Model shows flooding in less than the appropriate design storm event due to overtopping culvert crossings and pipe system surcharges as they are today (Existing Conditions - With Attenuation Model)
- Model shows flooding for Seven (7) buildings; Three (3) buildings with FFE flooding



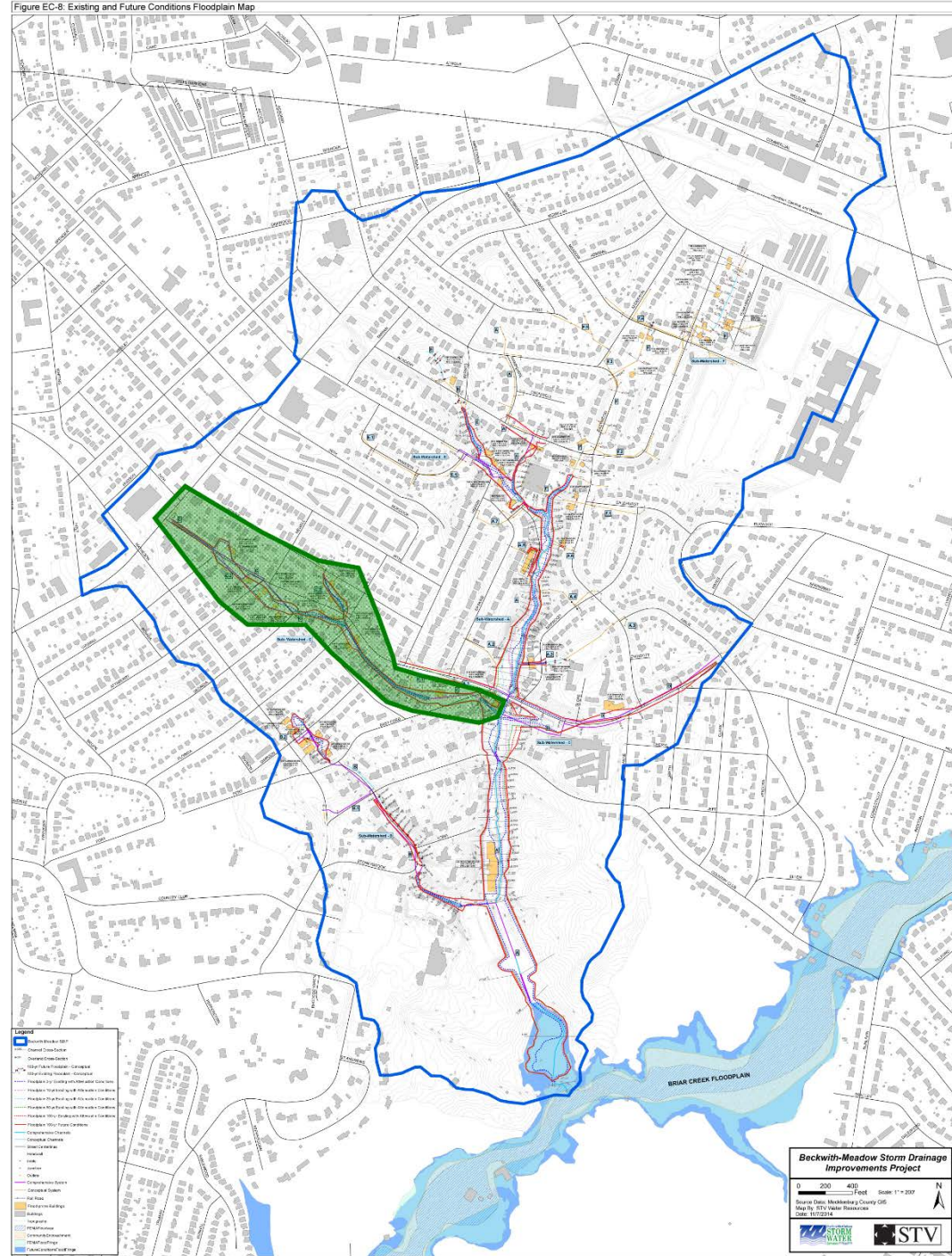
Sub-Watershed B:

- **Simpson Drive (2-yr); Model shows flooding in less than the appropriate design storm event due to pipe system surcharges as they are today (Existing Conditions - With Attenuation Model)**
- **Model shows flooding for Six (6) buildings; One (1) building with FFE flooding**



Sub-Watershed C:

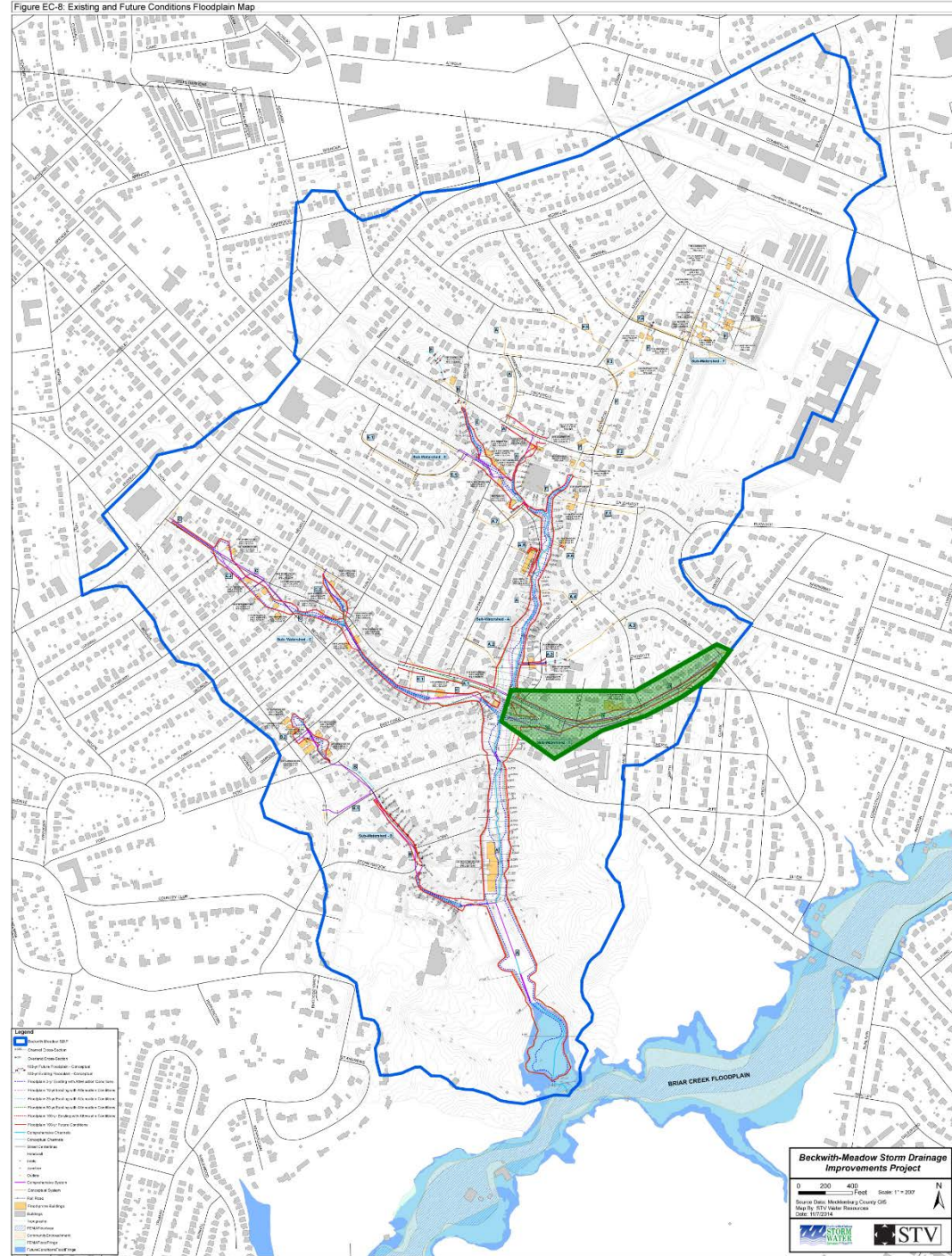
- **Model shows flooding for Fifteen (15) buildings; Two (2) buildings with FFE flooding**



Existing Conditions Results

Sub-Watershed D:

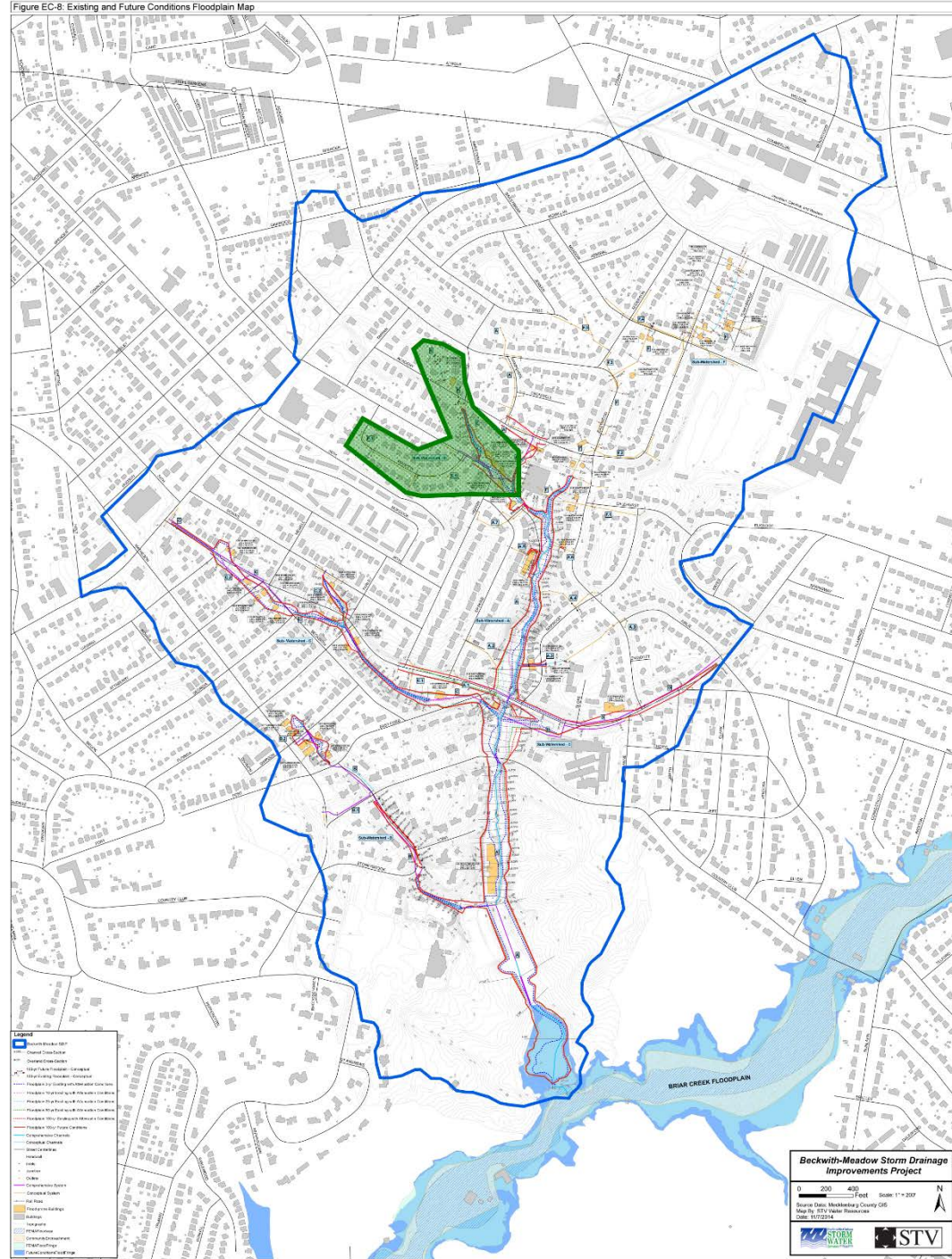
- Shamrock Drive (2-yr); Model shows flooding in less than the appropriate design storm event due to overtopping culvert crossings and pipe system surcharges as they are today (Existing Conditions - With Attenuation Model)
- Model shows flooding for One (1) building; One (1) with FFE flooding



Existing Conditions Results

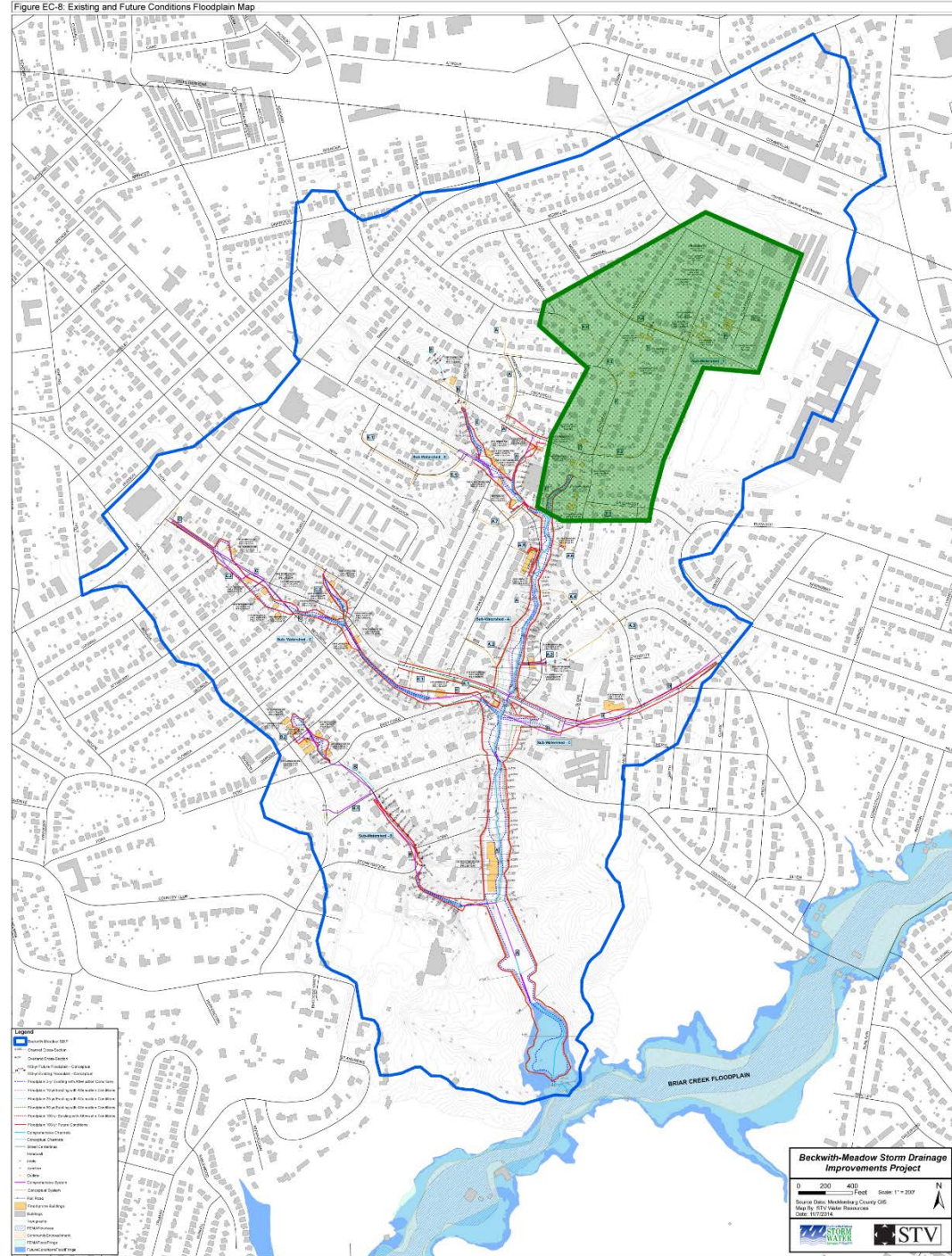
Sub-Watershed E:

- Herrin Avenue (2-yr) and Winston Drive (2-yr); Model shows flooding in less than the appropriate design storm event due to overtopping culvert crossings and pipe system surcharges as they are today (Existing Conditions - With Attenuation Model)
- Model shows flooding for Five (5) buildings; No buildings with FFE flooding



Existing Conditions Results:
Sub-Watershed F:

- East Sugar Creek Road (2-yr), Academy Street (10-yr), Meadow Lane (10-yr), and Eastwood Drive (10-yr); Model shows flooding in less than the appropriate design storm event due to overtopping culvert crossings and pipe system surcharges as they are today (Existing Conditions - With Attenuation Model)
- Model shows flooding for Seventeen (17) buildings; No buildings with FFE flooding



Storm Drainage Improvements Project Phases

PLANNING (Typically 16 to 23 months)

- **Existing Conditions Analysis – Finding the Problems (Started mid 2014)**
- **Alternative Analysis – Finding the Solutions**

DESIGN (Typically 21 to 34 months)

– *Designing the Solutions*

PERMITTING (Typically 3 to 9 months, but usually overlaps the design phase)

EASEMENT ACQUISITION (Typically 12 months, overlaps with the design phase)

BID (Typically 4 to 5 months)

CONSTRUCTION (3 months to over 2 years)

EVALUATING ALTERNATIVES

Coming up with the “BEST” solutions

1. Public Safety

2. Private Property Impact

3. Public Cost



EVALUATING ALTERNATIVES

Types of Alternatives Considered

- **Replacement of failing pipes**
- **Different culvert and pipe sizes**
- **Different culvert/pipe shapes and materials**
- **Additional pipes and inlets**
- **New Alignments**
- **Detaining Water to Reduce Flow**
- **Stream Stabilization**
- **Changing stream profiles**

Path Forward

- Additional information obtained during this meeting will be considered and incorporated into the existing conditions analysis, where applicable.
- Alternatives will be evaluated, and a recommended alternative will be developed.
- CMSWS will then hold a second public meeting to present and obtain feedback on the recommended alternative.

Wrapping Up

- Please remember to sign-in and fill out a customer service card
- The City and our consultant will stay here to answer any specific questions you may have
- General Discussion
- Thank you for coming to the meeting!