Proposed Alternative Summary Meeting

Gaynor Storm Drainage Improvement Project

Trinity Presbyterian Church

December 13, 2010

Charlotte-Mecklenburg STORM WATER Services

Introduction of Staff

- **Charlotte-Mecklenburg Storm Water Services (CMSWS) Staff**
  - **Corky Botkin – Project Manager**
    - **Phone - 704-432-5536**
    - **E-mail - cbotkin@charlottenc.gov**
  - **Doug Lozner – Watershed Area Manager**

- **Armstrong Glen Staff**
  - **Josh Letourneau – Project Manager**
  - **Andy Litten – Project Engineer**

Housekeeping Items

- **Sign-In**
- **Customer Service Comment Cards**
- **Question and Answer period after presentation**

Meeting Purpose and Agenda

- Purpose
  - Provide a summary of the alternatives analysis and proposed improvements
  - Request input from property owners/residents on the proposed improvements
- Agenda
  - Charlotte-Mecklenburg Storm Water Services Summary
  - Project Selection and Citizen Involvement
  - Alternatives Analyzed
  - City Proposed Improvement
  - Future project milestones
  - General Questions and Comments
  - Small Group Discussions

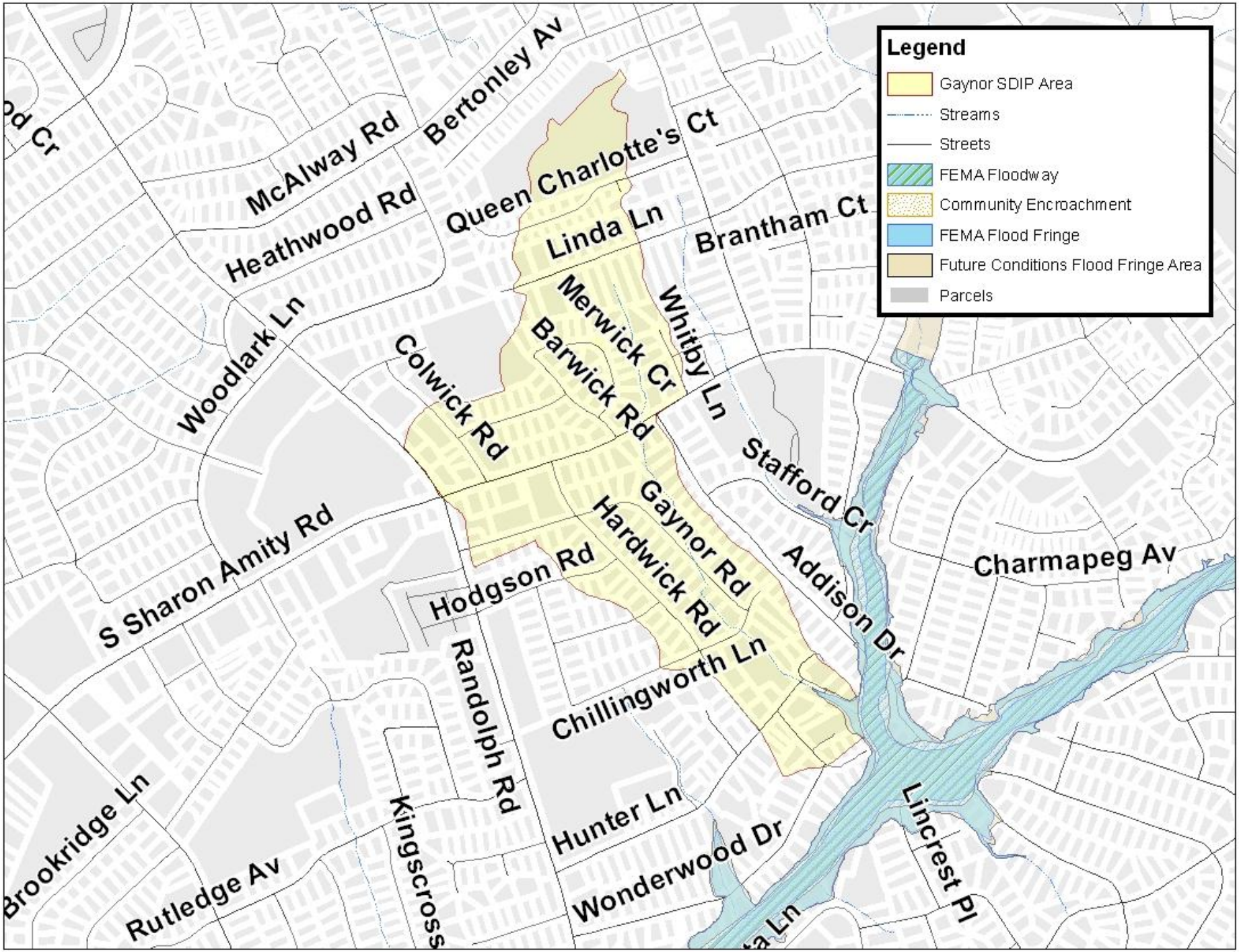
CMSWS Summary

Storm Water Program Roots:

- **1911 – Mecklenburg County Drainage Commission was 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***
- ***Maintenance***
- ***Engineering***


Legend
Gaynor SDIP Area
Streams
Streets
FEMA Floodway
Community Encroachment
FEMA Flood Fringe
Future Conditions Flood Fringe Area
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McAlway Rd
Heathwood Rd
Queen Charlotte's Ct
Linda Ln
Brantham Ct
Merwick Cr
Barwick Rd
Whitby Ln
Woodlark Ln
Colwick Rd
Stafford Cr
Gaynor Rd
Hardwick Rd
S Sharon Amity Rd
Hodgson Rd
Addison Dr
Charmapeg Av
Randolph Rd
Chillingworth Ln
Brookridge Ln
Rutledge Av
Hunter Ln
Wonderwood Dr
Lincrest Pl

Why the Gaynor SDIP was chosen as an Engineering project

- Requests for Service from Property Owners (57 - 311 requests within watershed)
  - Inadequate Infrastructure
    - Road flooding
    - House flooding
  - 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 proposed alternative
- Additional information on drainage related concerns (previously 56 questionnaires were returned)
- Support for the project's future phases

Planning Phase

- Survey, Public Input & Questionnaires
- Existing Conditions Analysis
  - Public Meeting
- City Design Standards Alternative
- Additional Alternatives
- Preliminary Alternatives Cost Estimates
- Recommended Alternative
  - Public Meeting

Gaynor Storm Drainage Improvement Project

Existing Conditions Analysis and Alternates Analysis Summary

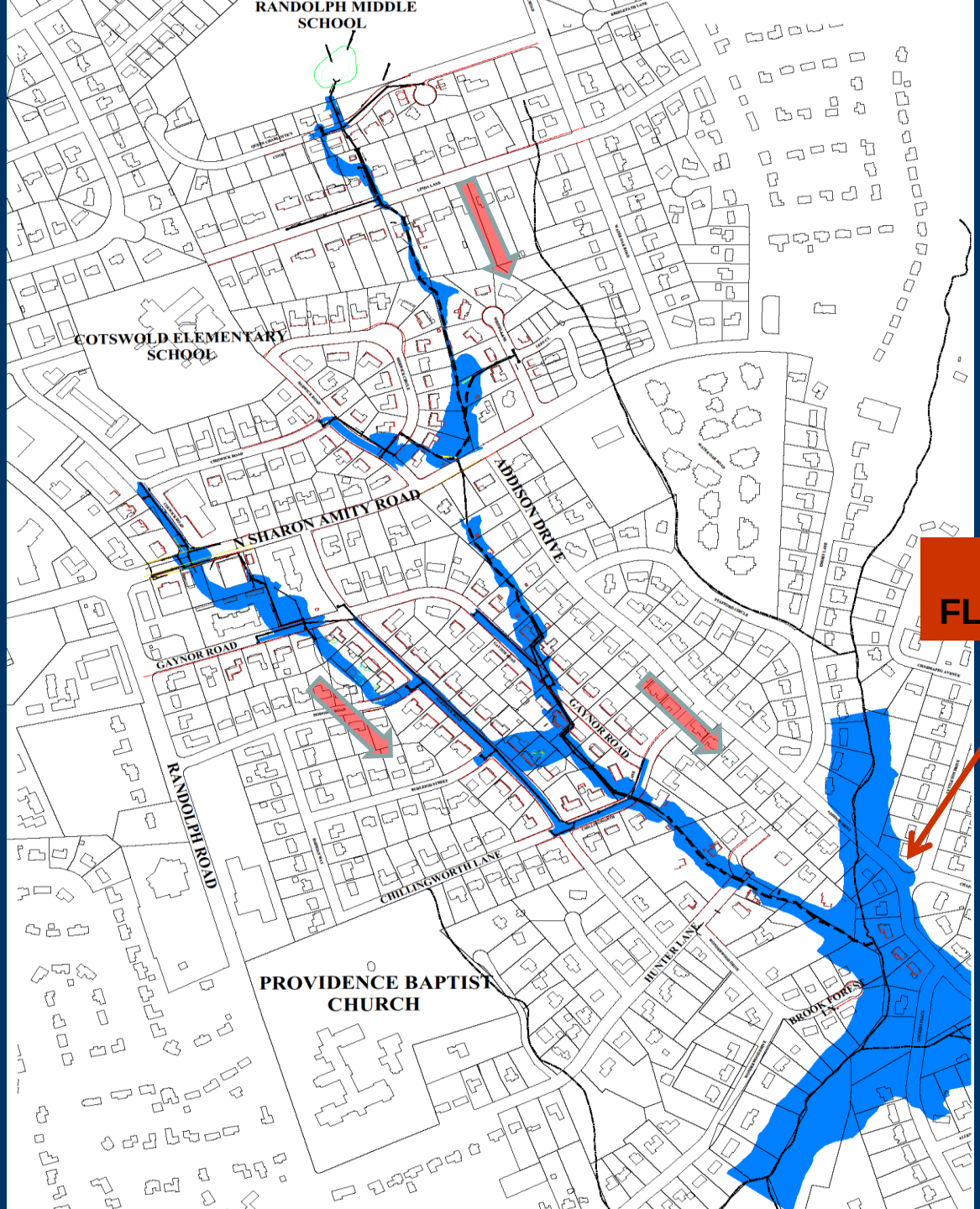
Presented by:

Armstrong Glen, P.C.

Civil Engineers

Existing Conditions Floodplain Map

- **Illustrates Predicted Extent of Flooding**
- **100-Year Storm Event**
  - **1 percent chance of storm occurring in any given year**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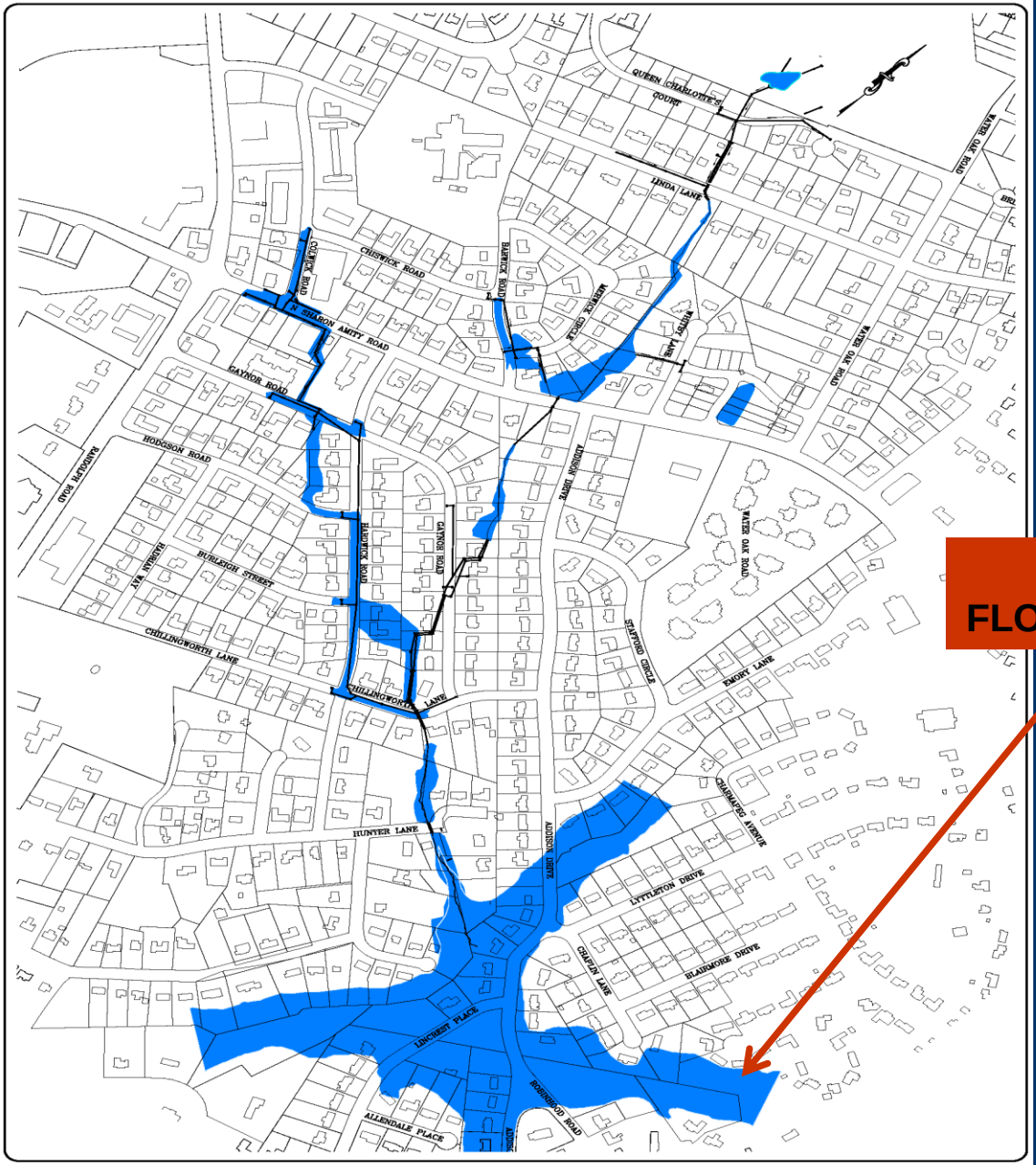
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ADDISON CIRCLE
STAFFORD CIRCLE
EMORY LANE
CHARMAINE AVENUE
LYTTLETON DRIVE
BLAIRMORE DRIVE
GRAHAM LANE
LINCREST PLACE
ROBINHOOD ROAD
ALLENDALE PLACE

EVALUATING ALTERNATIVES

Coming up with the "BEST" solutions

1. Public Safety

2. Private Property Impact

3. Public Cost

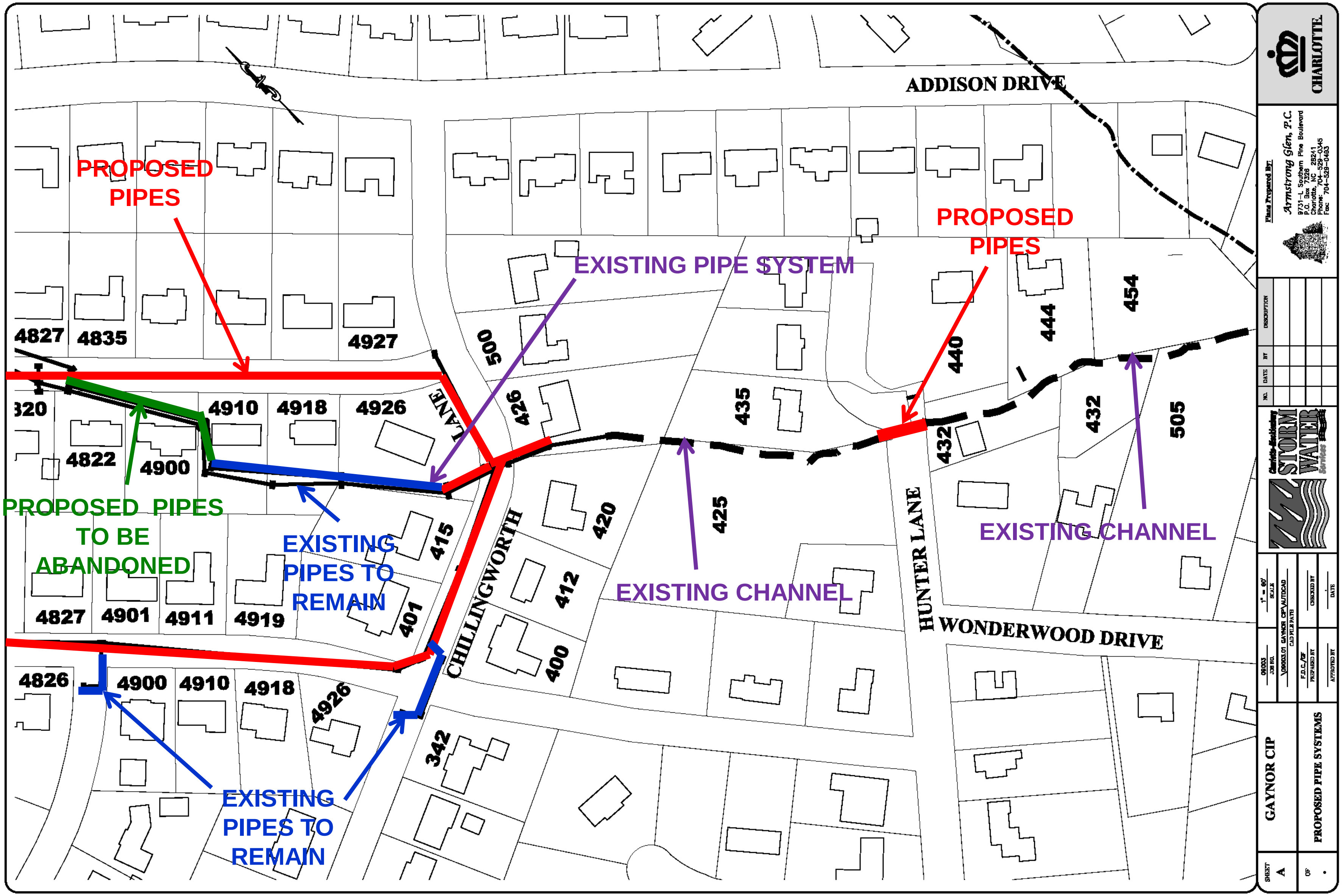
EVALUATING ALTERNATIVES
Types of Alternatives Considered

- 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

Alternates Analysis

Design Goals

- Prevent 100 year finished floor flooding
- Prevent 100 year crawl space flooding
- Allow Lowest Adjacent Grade Flooding
- Minimize impacts to properties
- Minimize existing pipe replacement



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CHARLOTTE
Plans Prepared By: Armstrong Glen, P.C.
STORM WATER Services
GAYNOR CIP
PROPOSED PIPE SYSTEMS
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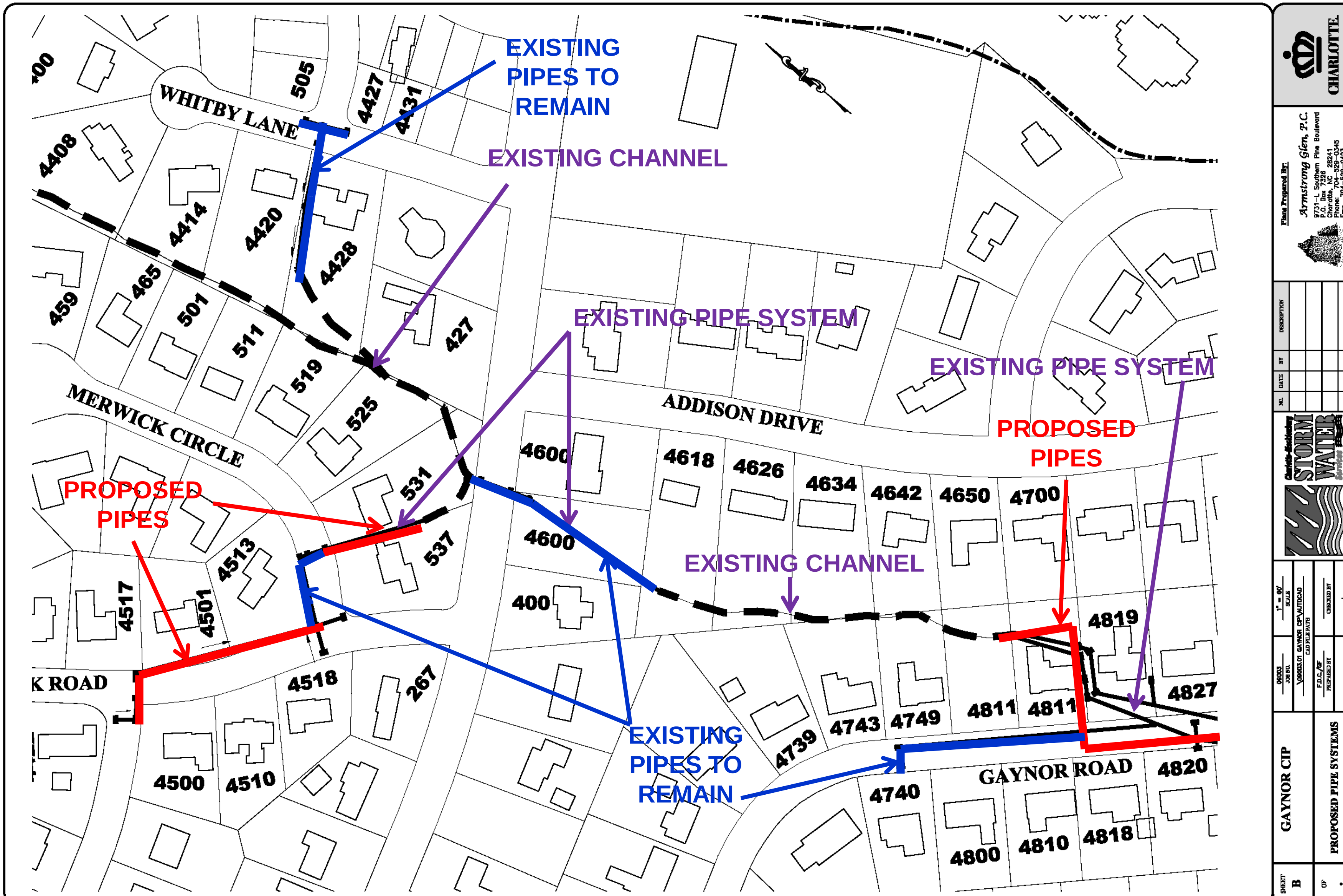
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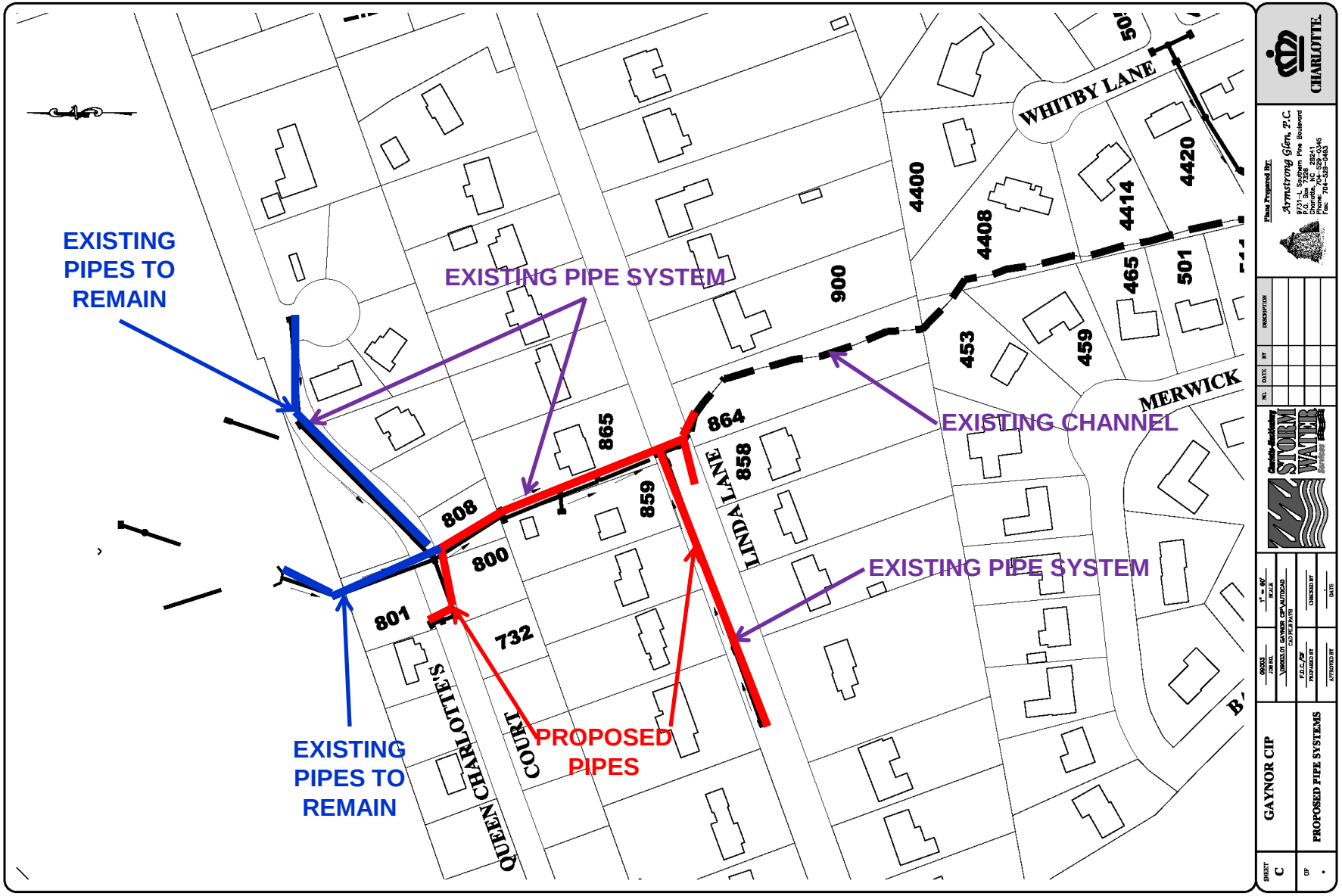
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CHARLOTTE.
Plans Prepared By:
Armstrong Glen, P.C.
8733-L Southern Pine Boulevard
P.O. Box 7328
Charlotte, NC 28241-7328
Phone: 704-588-0445
Fax: 704-588-0483
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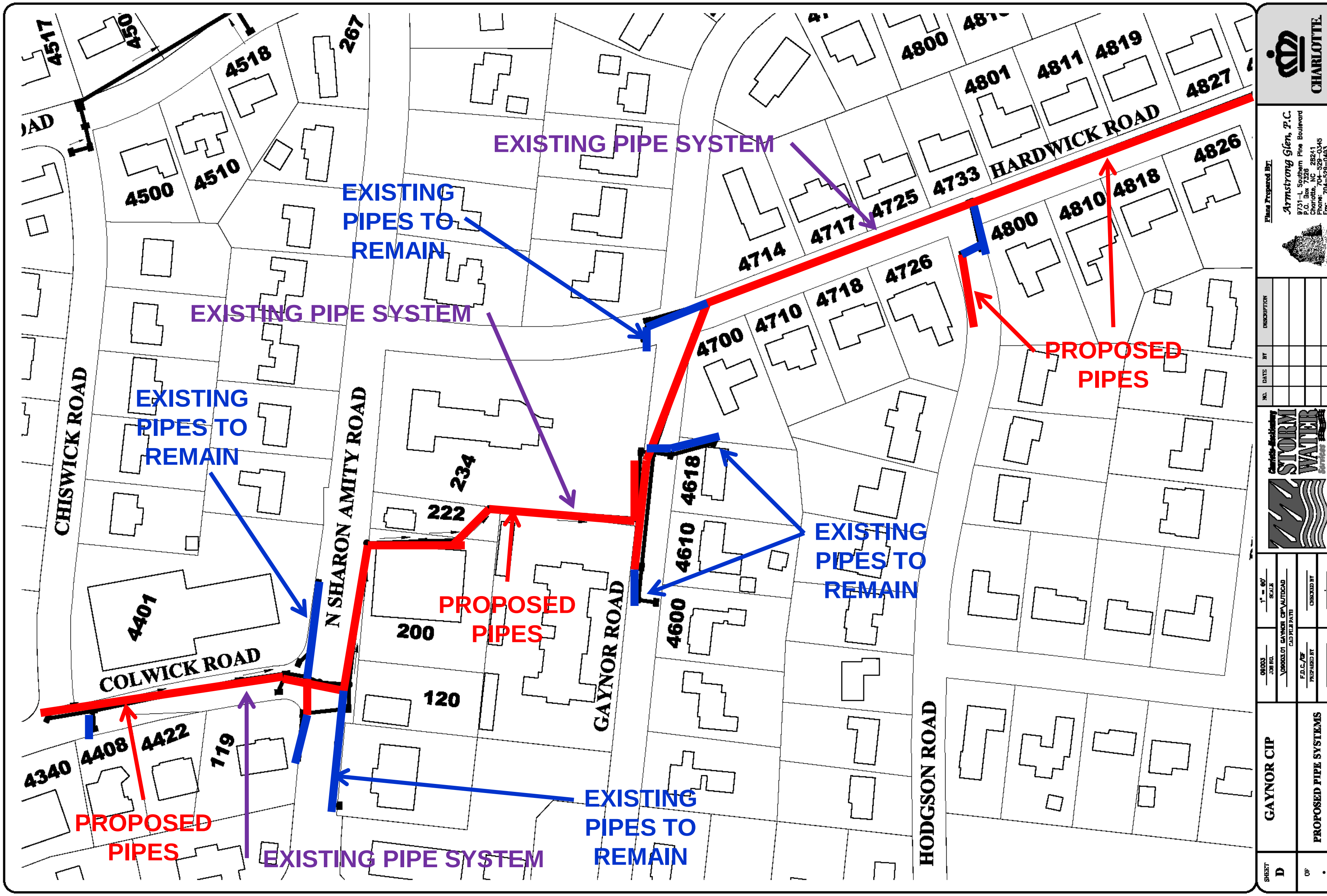
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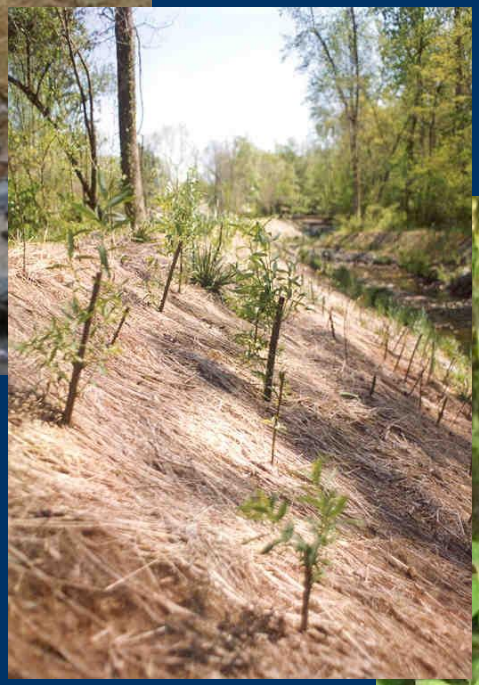
PROPOSED PIPE SYSTEMS

Localized Stream Stabilization



- Identified erosion
- Proposed Improvements

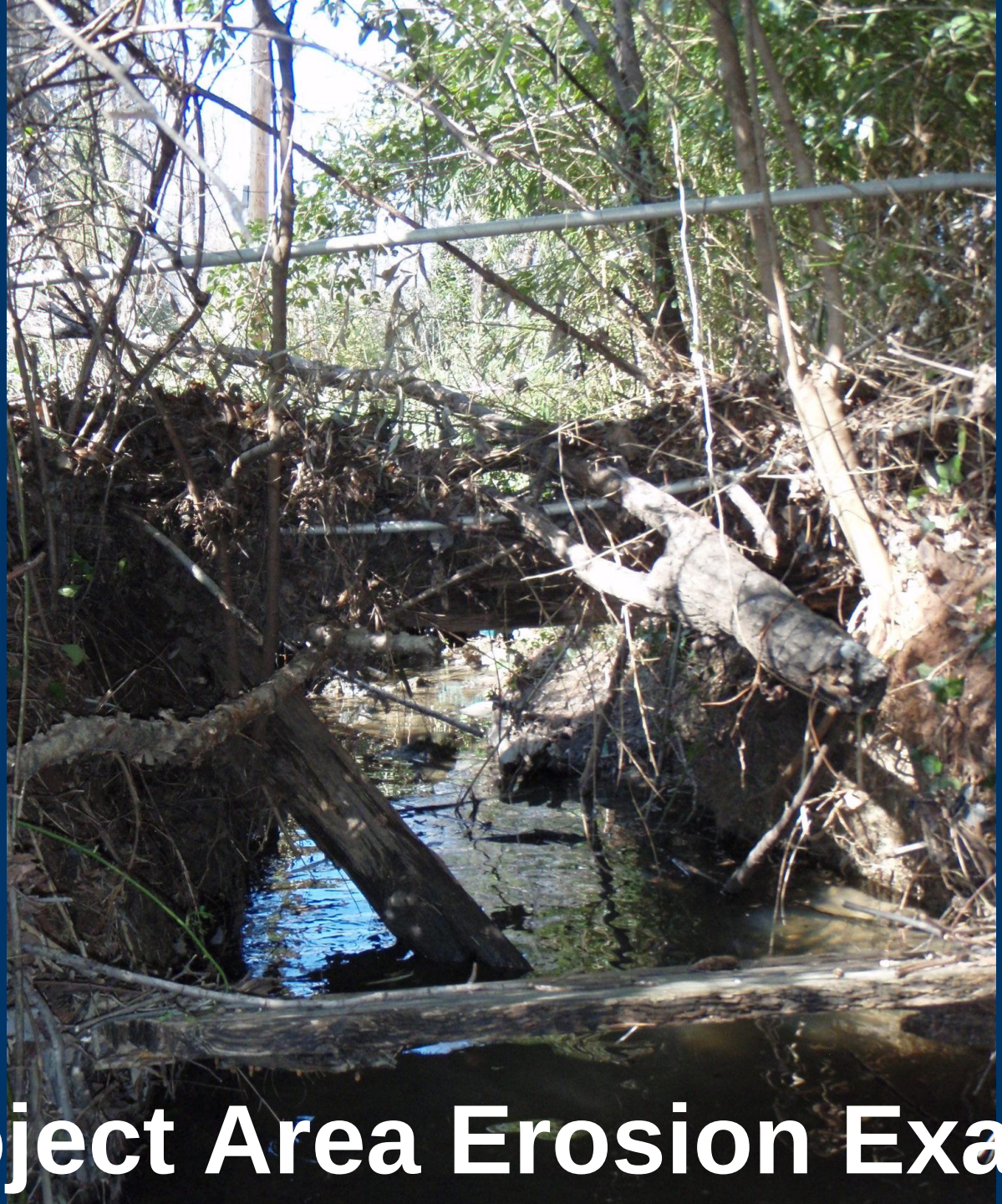

Severe Erosion Example
Not in Project Area


Severe Erosion Example
Not in Project Area

Project Area Blockage Example

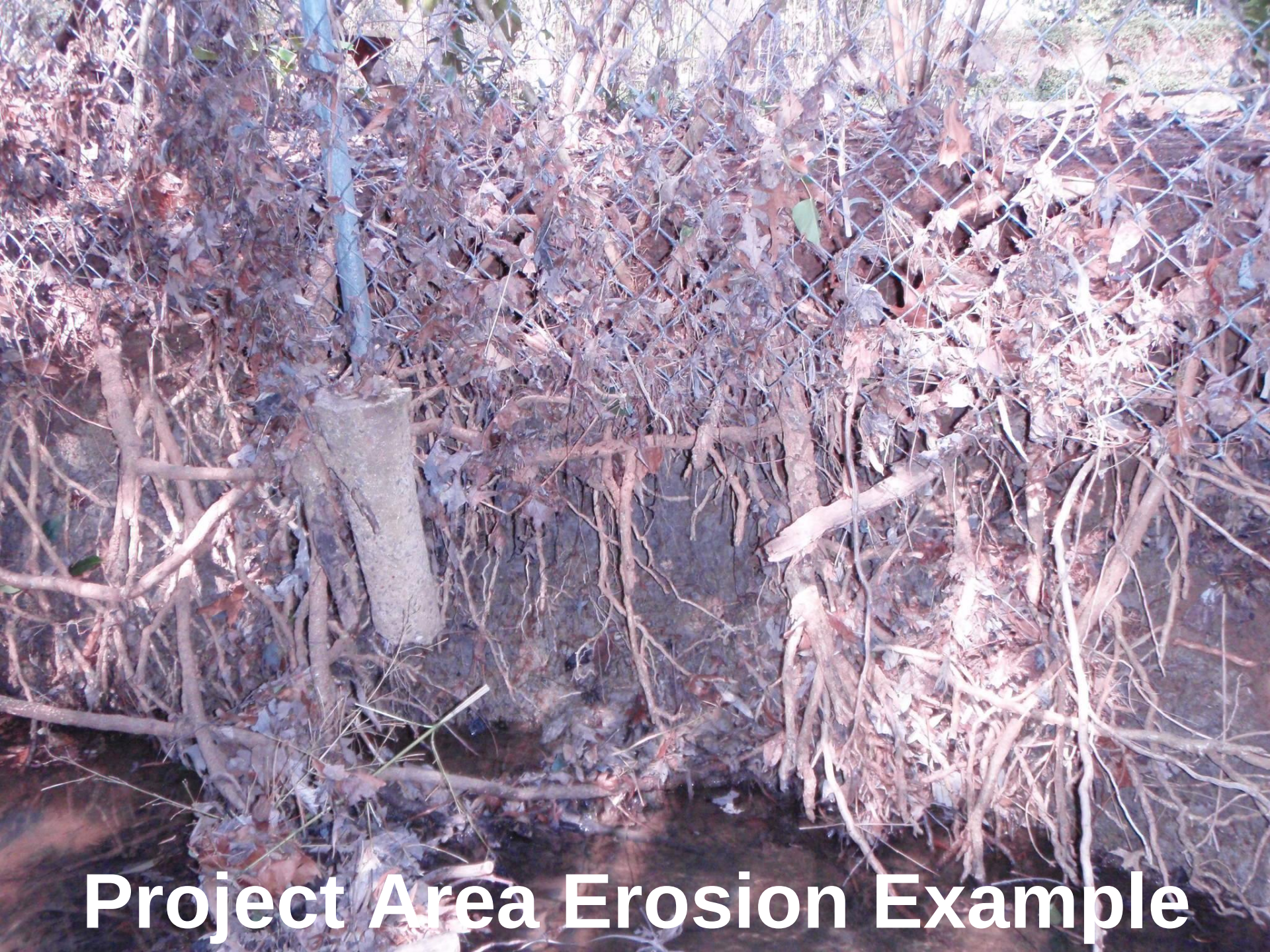
Project Area Erosion Example

Project Area Erosion Example



Project Area Erosion Example


Project Area Erosion Example



Project Area Erosion Example

Project Area Erosion Example

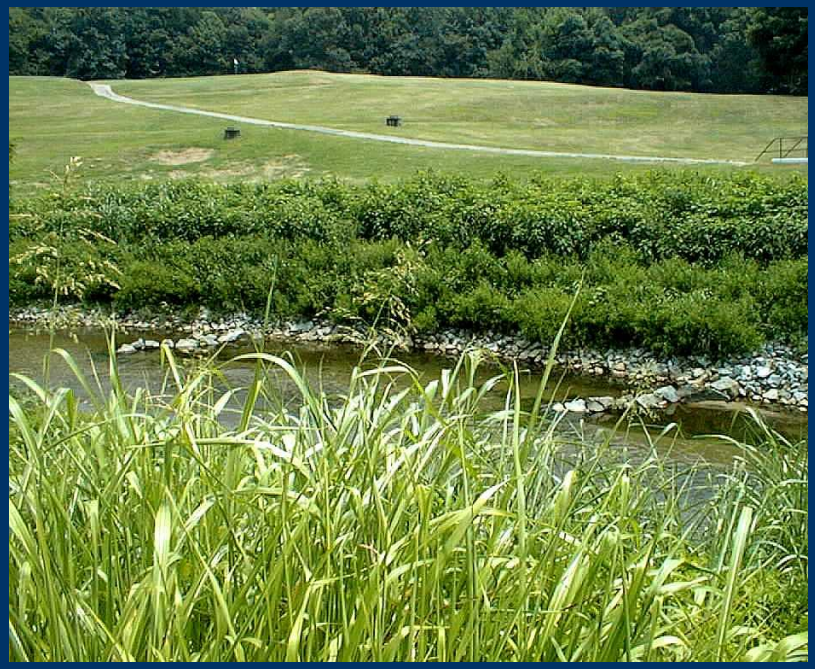
Project Area Erosion Example


Project Area Erosion Example

Project Area Erosion Example

“Hard” Bank Stabilization Methods

Shift in Design Philosophy



Until mid-1990's SWS' work characterized by:

Full rip rap, removal of vegetation

Since mid-1990's SWS' work characterized by:

Rip rap minimization, preservation/replacement of vegetation


11 12'94

Tree Preservation

In-Stream Structures

Storm Drainage Improvement Project Phases

PLANNING (Typically 12 to 27 months)

- ***Existing Conditions Analysis – Finding the Problems (Started in late October of 2009)***
- **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 8 to 12 months)

BID (Typically 4 to 5 months)

CONSTRUCTION (3 months to over 2 years)

Design Phase

- Preliminary Design
- Permitting
- Easement Acquisition
- Final Design

Design Phase

- Preliminary Design
  - Drainage system layout & location
  - Additional field survey
  - Utility coordination & design
  - Geotechnical investigations
  - Traffic control plans
  - Erosion control plans
  - Permits
  - Easement acquisition
  - Public meeting

Path Forward

- Additional information obtained during this meeting will be considered and incorporated into the proposed alternatives, where applicable.
- The alternative will be finalized
- Design phase will begin
- Another public meeting will be held once the City has produced plans that are approximately 70% complete

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
- Small Group Discussions

- Thank you for coming to the meeting!