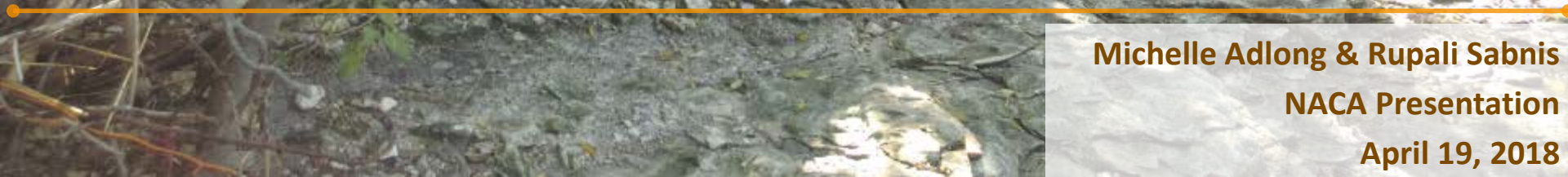




# Little Walnut Creek – Jamestown Tributary Stream Rehabilitation: 60% Design Update



Michelle Adlong & Rupali Sabnis

NACA Presentation

April 19, 2018

# WATERSHED PROTECTION DEPARTMENT MISSIONS



*improve*  
Water Quality



*reduce hazards of*  
Flooding



*reduce hazards of*  
Erosion

# WATERSHED PROTECTION DEPARTMENT MISSIONS

- Erosion and flooding locations tracked: neighbors call 311 or from city staff
- WPD builds projects where there are clusters of high priority problems



*reduce hazards of*  
**Flooding**



*reduce hazards of*  
**Erosion**

# PROJECT LOCATION



# PROBLEM SUMMARY

## Erosion

- 19 active erosion sites due to eroding banks
- Threatened resources are public and private infrastructure:
  - Multifamily buildings & parking lots
  - Yards, fences
  - Culverts, sidewalks
  - Utility poles, pipes



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# PROBLEM SUMMARY

## Flooding

- Known local flooding problems
- Some buildings in the floodplain
- Roadways that cross the creek are frequently flooded





# INTEGRATED PROJECT OBJECTIVES

- Stabilize an eroding 2,800 LF reach of the Jamestown Tributary between Thurmond St. and its confluence with Little Walnut Creek
- Reduce risk of flooding to residents along Jamestown Drive
- Reduce frequent roadway overtopping at Fairfield Drive
- Model the tributary's floodplain



# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION



Erosion protection will use:  
restoration with native  
plants and channel bank  
armoring with boulder walls  
and bank sloping

# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION

## Restoration with Native Plants

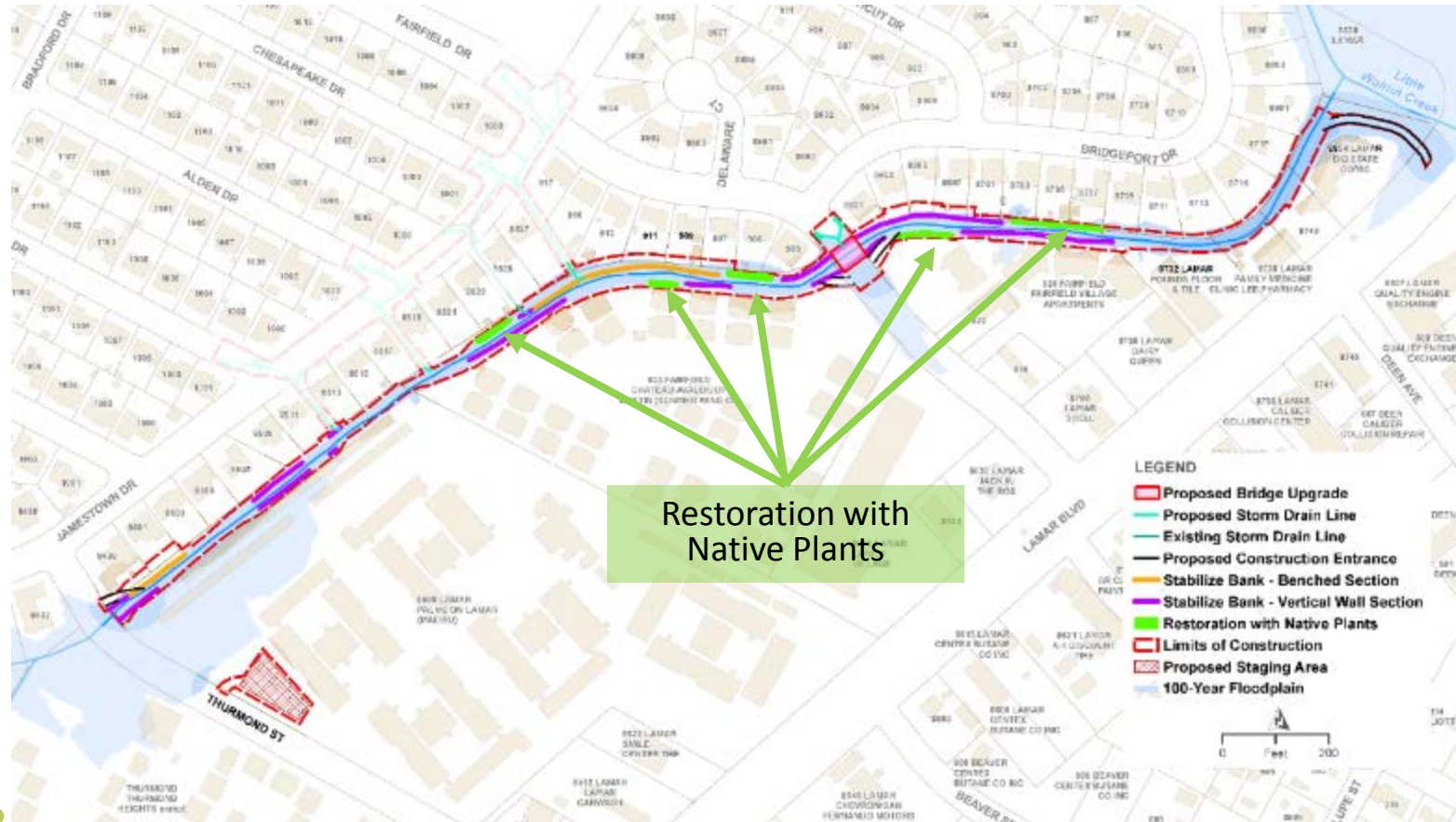


*Example project - before*



*Example project - after*

# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION



# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION

## Stabilization with vertical boulder wall

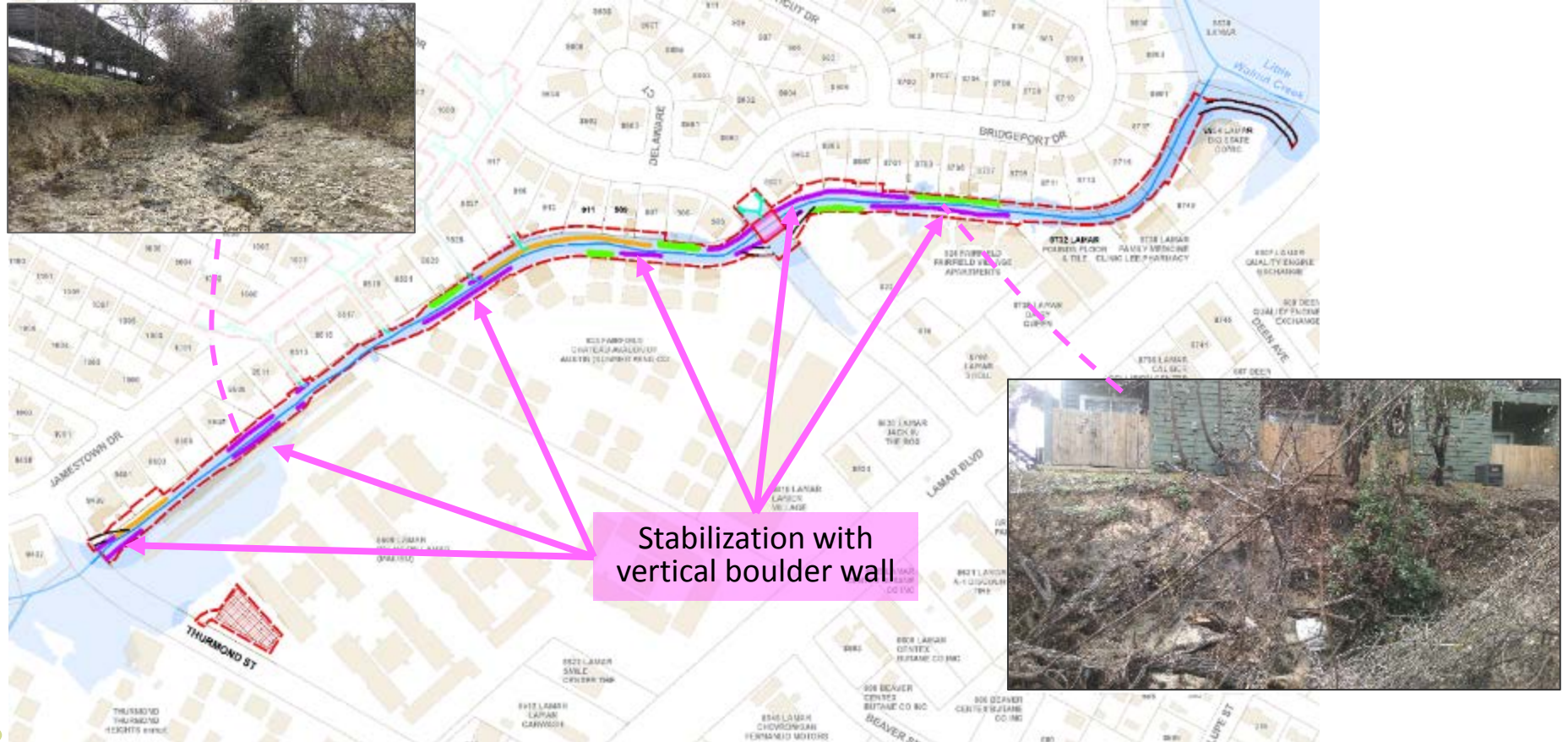


*Example project - before*



*Example project - after*

# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION



# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION

## Stabilization with bank benching



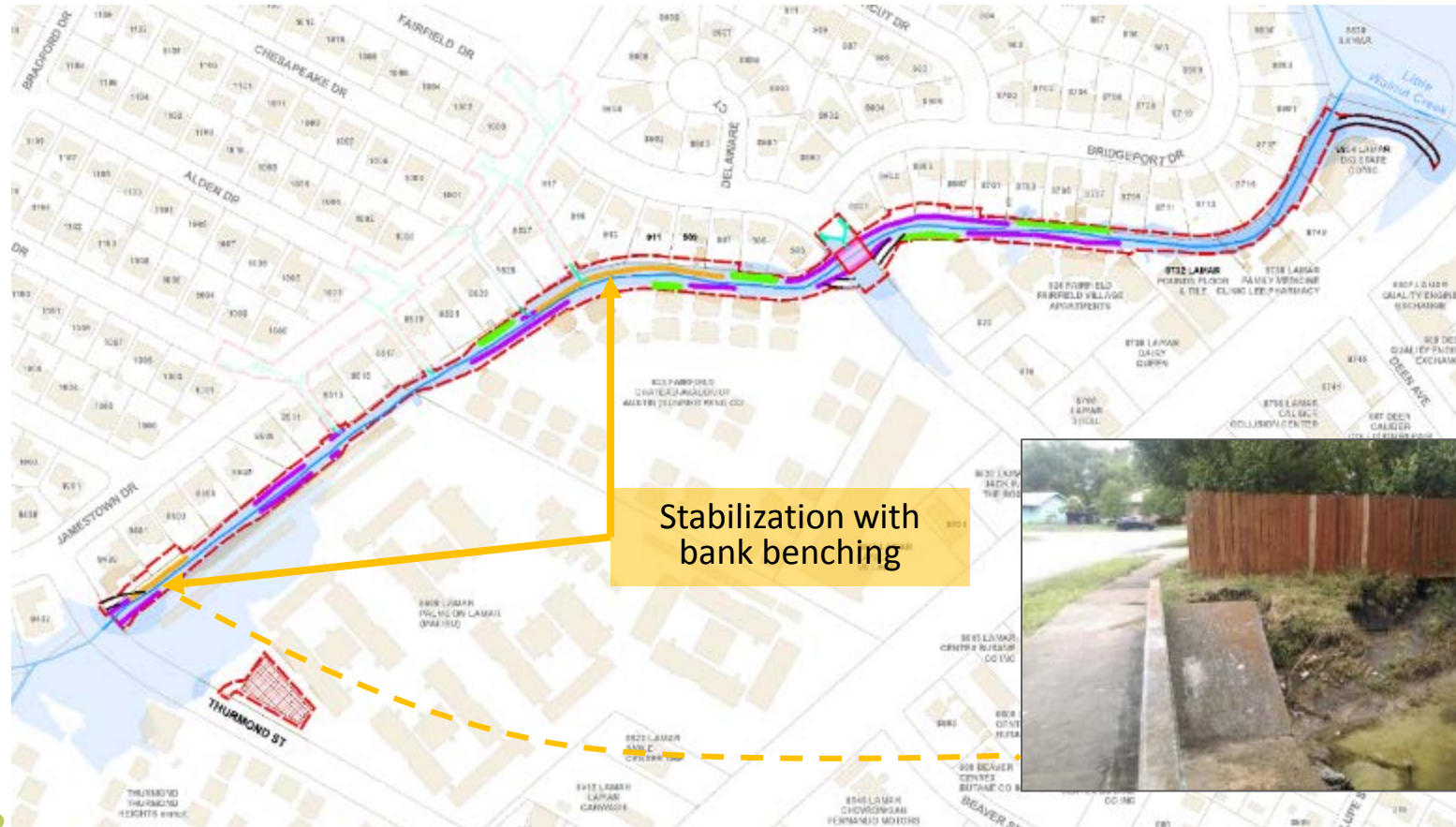
*Example project - before*



*Example project - after*

*t - after*

# PROPOSED PROJECT ELEMENTS: CHANNEL STABILIZATION





**Downstream of Fairfield Drive:  
Existing**



## Downstream of Fairfield Drive: Proposed (Photosimulation)



# PROPOSED PROJECT ELEMENTS – FAIRFIELD CROSSING

- Culvert will be replaced with 46' long bridge.
- Will reduce frequency and depth of flooding over Fairfield Drive
- Bridge will still be subject to flooding in major storms



Looking downstream toward Fairfield Drive

# FAIRFIELD CROSSING – EXAMPLE BRIDGE



*Example project – similar type but longer bridge*



*Looking downstream toward Fairfield Drive*

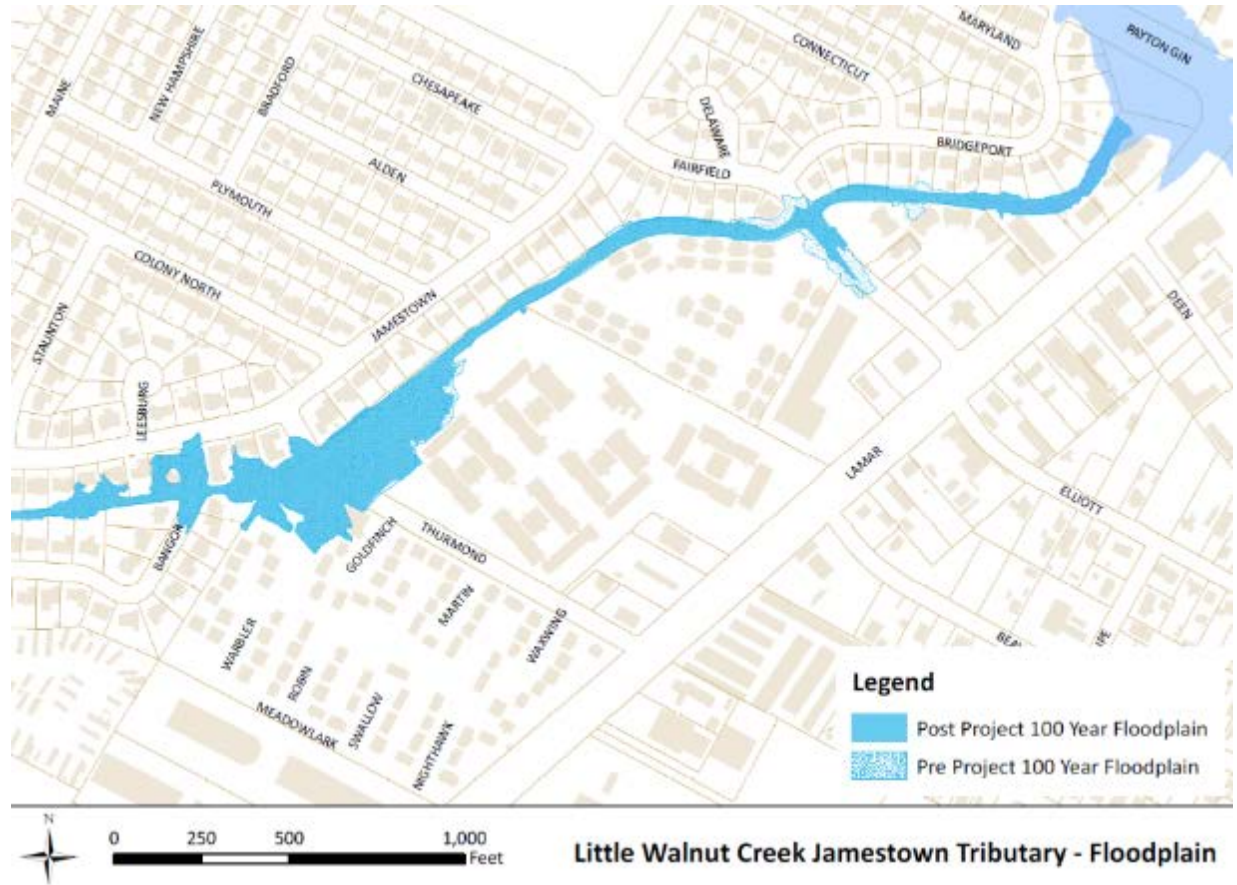
# FLOODPLAIN

- This project created an engineering model for the tributary. This better maps the existing floodplain.
- The anticipated post-project flood hazard is reduced, primarily around Fairfield Drive
- We recommend you consider flood insurance if you are near the floodplain or if you have flooded in the past

**City of Austin Floodplain Office**

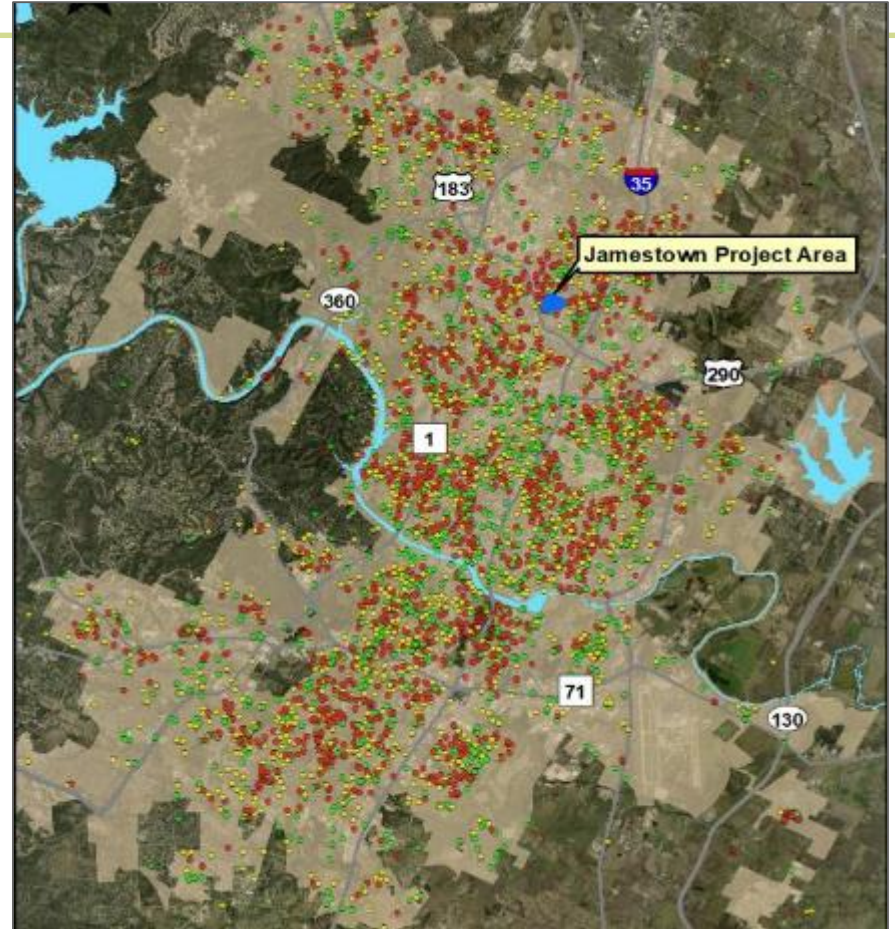
[floodpro@austintexas.gov](mailto:floodpro@austintexas.gov)

512-974-2843



# LOCALIZED FLOODING CITYWIDE

- What is localized flooding -  
FLOODING that occurs away from the creek due to insufficient or lack of storm drain system
- 5,884 Total complaints
  - 1,995 Buildings
  - 2,409 Yards
  - 1,480 Streets
- No quick or easy solution



# PROPOSED PROJECT – LOCALIZED FLOODING

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- Known local flooding problem in the area
  - Historical complaints
  - Feedback during last meeting
  - Postcard feedback
- Adding on already proposed erosion project
- Lays ground work for future projects
- Addresses some of the local flooding issues in the area, but not all

# WHAT IS A STORM DRAIN SYSTEM?

- System of streets, ditches, pipes and culverts
- Drains rainfall from streets to nearby creek
- Inlets are placed along curb to catch rainfall
- Streets should drain in most storms.





# COMPONENTS OF A STORM DRAIN SYSTEM

## 1. Inlets and curbs capture rain water



## 2. Underground pipes carry the water

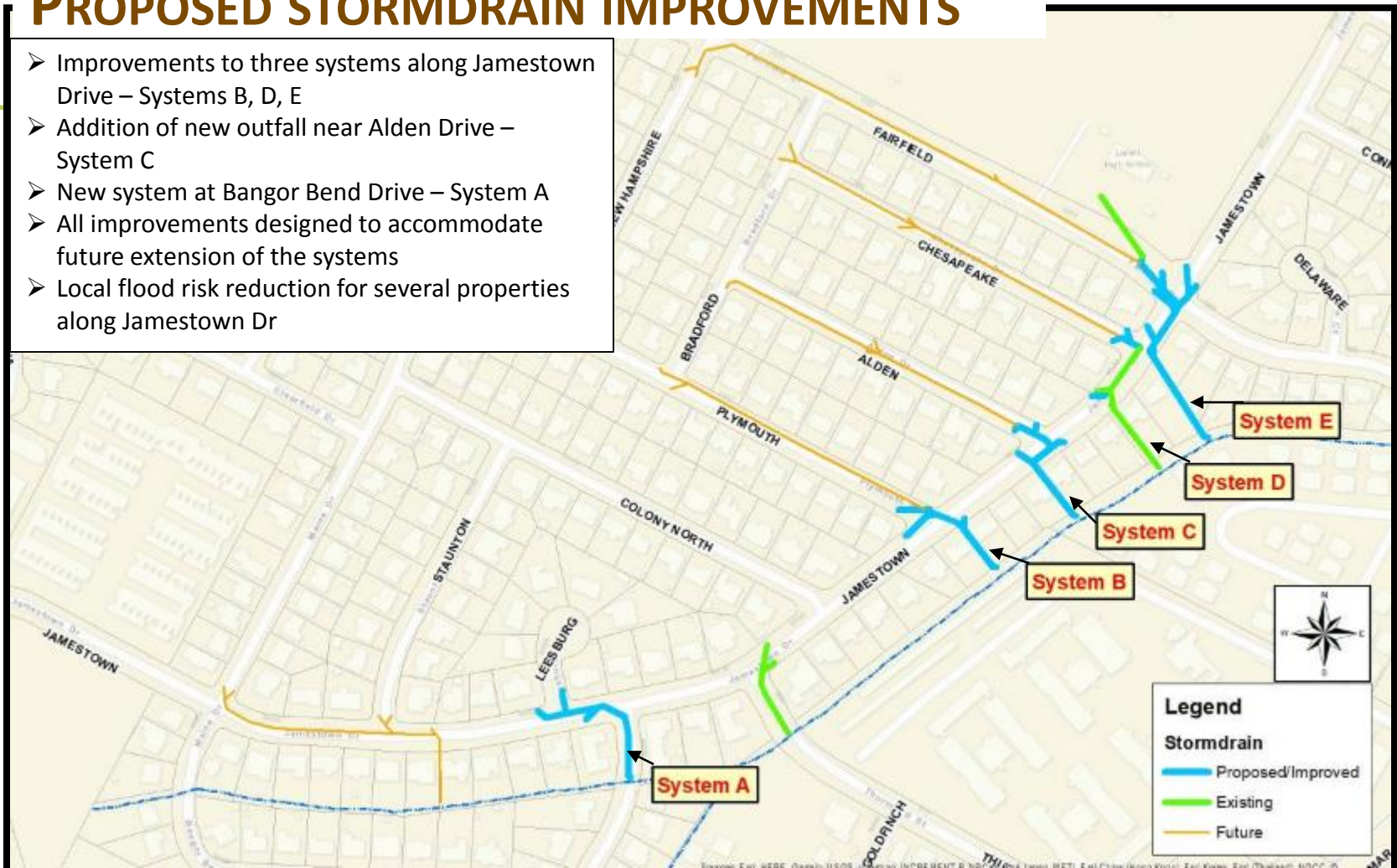


## 3. Rain water is released into a creek at the outfall. Sometimes it goes to a water quality or detention pond first

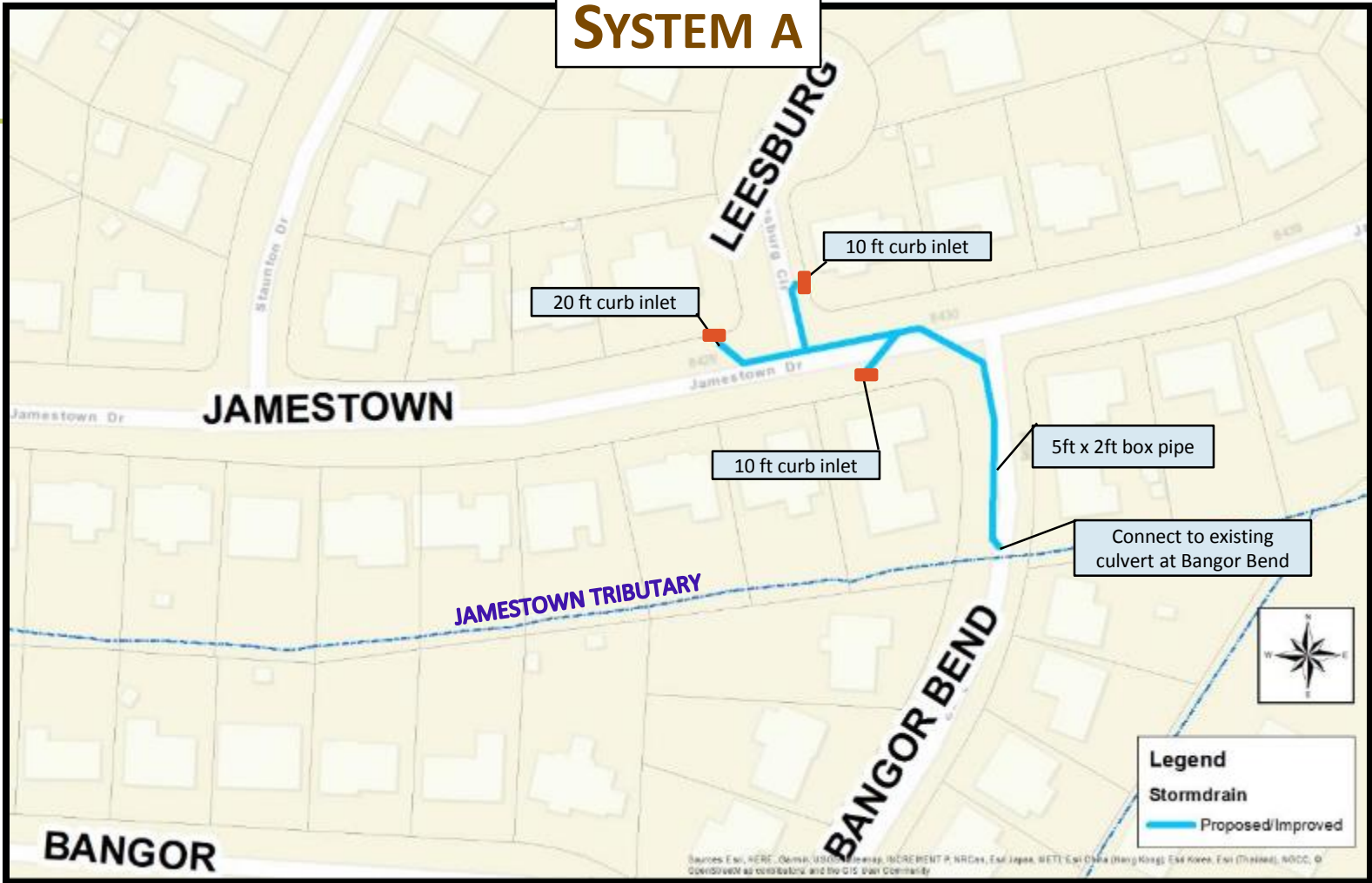


# PROPOSED STORMDRAIN IMPROVEMENTS

- Improvements to three systems along Jamestown Drive – Systems B, D, E
- Addition of new outfall near Alden Drive – System C
- New system at Bangor Bend Drive – System A
- All improvements designed to accommodate future extension of the systems
- Local flood risk reduction for several properties along Jamestown Dr



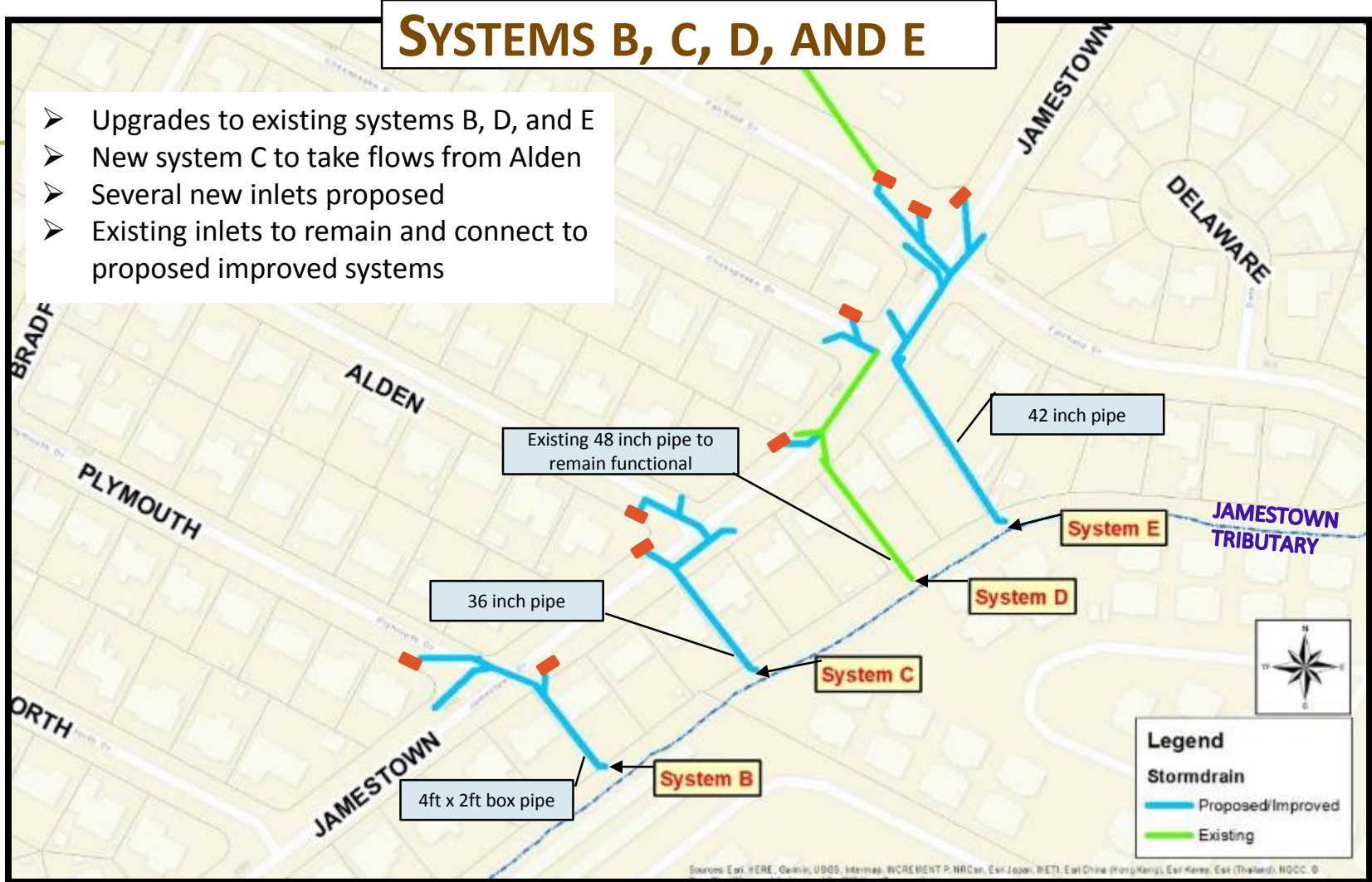
# SYSTEM A



Sources: Esri, HERE, DeLorme, USGS, Airmap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), SWCC, © OpenStreetMap contributors, and the GIS User Community

# SYSTEMS B, C, D, AND E

- Upgrades to existing systems B, D, and E
- New system C to take flows from Alden
- Several new inlets proposed
- Existing inlets to remain and connect to proposed improved systems



# EASEMENTS

- An easement is a part of a property where the City has limited rights of access and/or use. Land is still owned by owner.
- Drainage easement purpose - For the flow of storm water and to access and maintain drainage infrastructure.
- Easements should be maintained as grass or flowers
- Both permanent **drainage easements** and temporary **work space easements** will be needed in order to construct the project.
- Owners will be notified by mail and will work with Office of Real Estate Services.

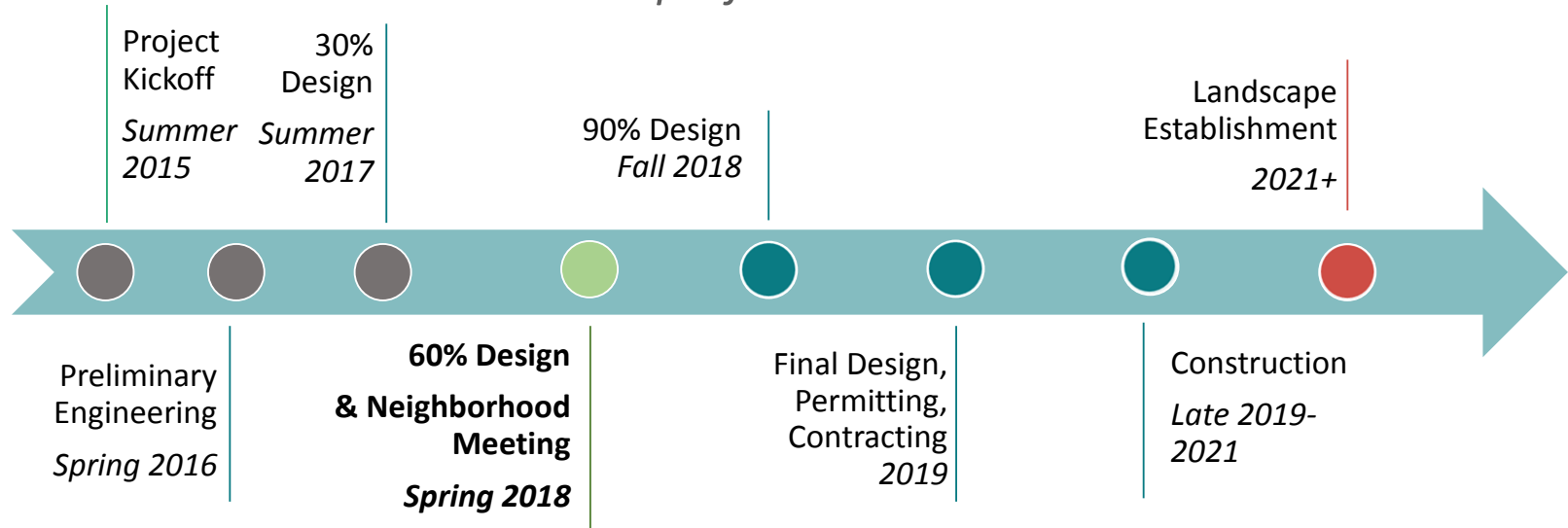


*Example  
Drainage  
Easements*



# MOVING FORWARD

## *Estimated project schedule*



- There will be another neighborhood meeting before construction

# SUMMARY AND CONCLUSION

- These proposed improvements will:
  - Protect property from eroding sections of streambank along the Jamestown Tributary between Thurmond St. and Payton Gin Pocket Park
  - Reduce risk of localized flooding along Jamestown Drive
  - Reduce frequent roadway overtopping at Fairfield Drive
- **Total estimated project cost – \$8 million**
- Anticipated start of construction early 2020



**THANK YOU!**

**Questions?**

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