## **CITY OF BRYAN**

## BRISTOL STREET & ESTHER BOULEVARD

#### DRAINAGE IMPROVEMENTS Neighborhood Meeting

July 8, 2020









## WELCOME







#### Agenda for Tonight's Neighborhood Meeting

- 1. Purpose for Tonight's Neighborhood Meeting
- 2. Understanding the Problem(s)
- 3. Engineering Analysis of Current Flooding Conditions
- 4. Validation of Analyses with "Real World" Evidence
- 5. Citizen's Input
- 6. Next Steps

#### Purpose

- This meeting is to discuss the drainage and flooding conditions that exist in the Bristol and Esther neighborhood.
- The City of Bryan has retained the consulting team of Walker Partners and Torres & Associates to analyze the flooding conditions within this neighborhood and make recommendations for street and drainage improvement alternatives to alleviate or minimize flooding.



### Understanding the Problem(s)



### Understanding the Problem(s)

- 1. Historical complaints of homes flooding along Bristol Street and Esther Boulevard.
- 2. Historical complaints that stormwater runoff in the streets and streets rights-of-way of Bristol Street and Esther Boulevard overtop the curb and flow uncontrolled through private properties.
- 3. Drainage criteria and drainage design guidelines in the 1960s were not as sophisticated as modern standards.

### **Project Area**







# ENGINEERING ANALYSIS OF CURRENT FLOODING CONDITIONS

#### **Anatomy of a Neighborhood Storm Drain System**

#### Secondary Drainage System

- Inlets
- Storm drain piping



#### **Conveyance Pathway**

- Street rights-of-way
- Channels

- Primary Drainage System
  - Major watercourses (e.g. Burton Creek)

### **Design Storm Frequency Myths**

- 10-Year Storm ≠ A Storm so Large that it only occurs every 10 Years
- 100-Year Storm ≠ A Storm so Large that it only occurs every 100 Years

# -- RATHER --

- A **10-Year Storm** has a 10% chance of occurring in any given year:  $10\% = 0.10 = \frac{1}{10}$ ; hence, **10-Year Storm**
- A **100-Year Storm** has a 1% chance of occurring in any given year:  $1\% = 0.01 = \frac{1}{100}$ ; hence, **100-Year Storm**<sub>1</sub>

# ANALYSIS of BRISTOL ST. & ESTHER BLVD.'S

# SECONDARY Drainage System

# **Computer Modeling** (2 Year = $\frac{1}{2} = \frac{50}{100} = 50\%$ )



# **Computer Modeling** (2 Year = $\frac{1}{2} = \frac{50}{100} = 50\%$ )



#### **Results of Existing Conditions Analysis (2-Year)**



## **Computer Modeling** (10 Year = $\frac{1}{10} = \frac{10}{100} = 10\%$ )



## **Computer Modeling** (10 Year = $\frac{1}{10} = \frac{10}{100} = 10\%$ )



#### **Results of Existing Conditions Analysis (10-Year)**



#### **Results of Existing Conditions Analysis (100-Year)**



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#### **Results of Existing Conditions Analysis (100-Year)**





#### Validate Analyses with "Real World" Evidence

Computer modeling validates that the existing system capacity is **overwhelmed** at the **2-year** storm event



### Conclusions

- Existing Storm Drain Systems' Level of Service is functional for an event less than the 2-Year Storm
  - Storm drain capacity is grossly inadequate
  - Inlet system is grossly inadequate
  - Street conveyance capacity is grossly inadequate
  - Inadequate conveyance pathway to the Primary Drainage System for any storm event > 2-Year



 Existing storm drain system does not meet the current BCS <u>Unified Stormwater</u>

Management Guidelines (2012) Homes along Bristol St. are floodprone during storm events > 2-Year

Homes along Esther Blvd. are floodprone during storm events > 5-Year

# CITIZEN'S INPUT

- First-hand accounts of flooding
- Photos or videos of actual flooding
- High water marks (known depths of flooding)

#### Bristol St./Esther Blvd. Project website:

https://www.bryantx.gov/capital-improvement-projects/drainage-projects/#bristol

# NEXT STEPS

- Analysis of Alternative Solutions
- Recommendations
- Neighborhood Meeting to Present Alternative Solutions and Recommendations (Fall of 2020)



## CLOSING REMARKS







# HELPFUL LINKS

#### Bristol St./Esther Blvd. Project website:

https://www.bryantx.gov/capital-improvement-projects/drainage-projects/#bristol

To report drainage issues in the City:

https://weblink.bryantx.gov/Forms/BkrER

#### Drainage related FAQs:

https://bryantx.gov/engineering-services/

(scroll down on the web page until you get to Drainage Related FAQs)