



Building Communities.  
Improving Lives.

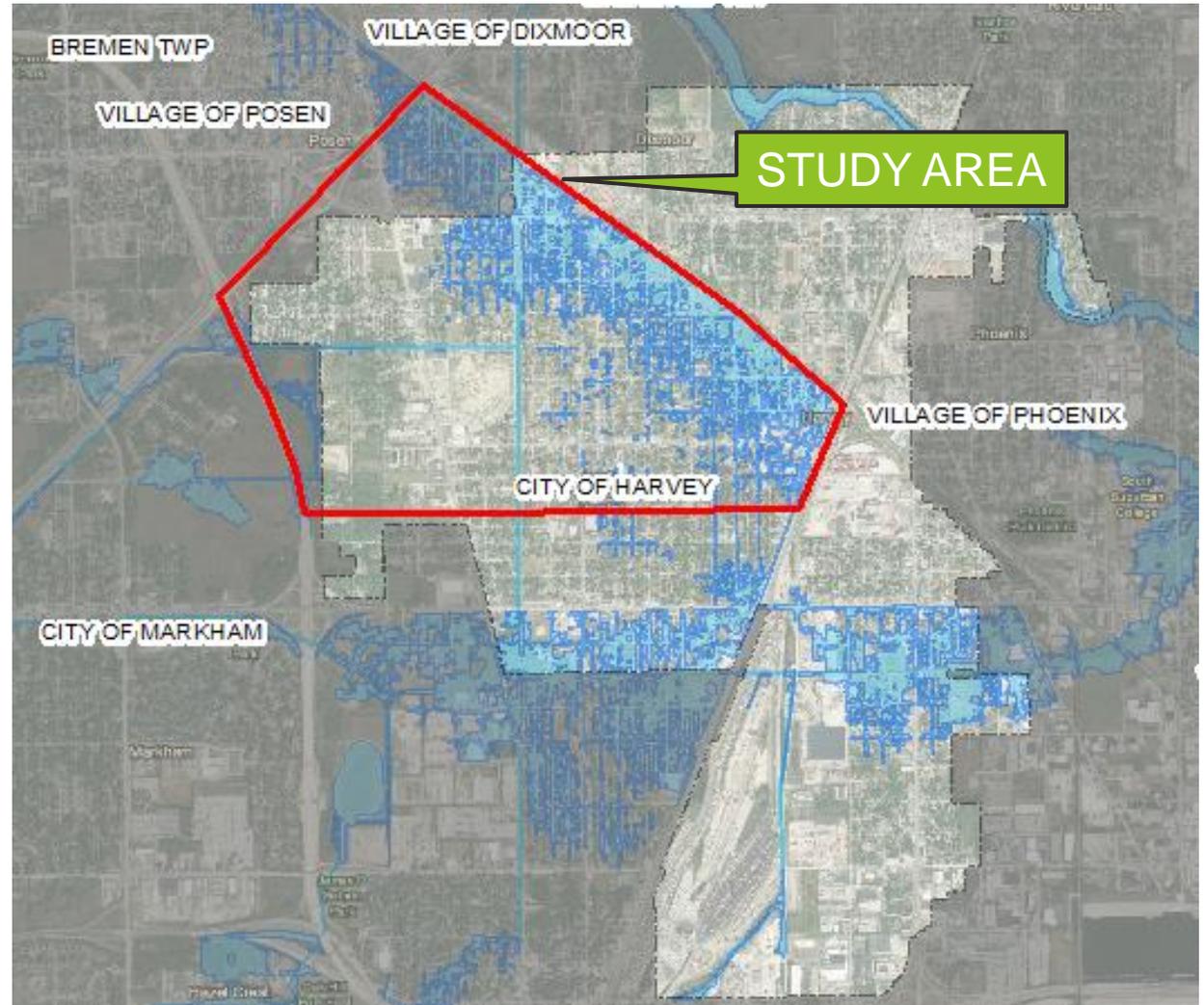
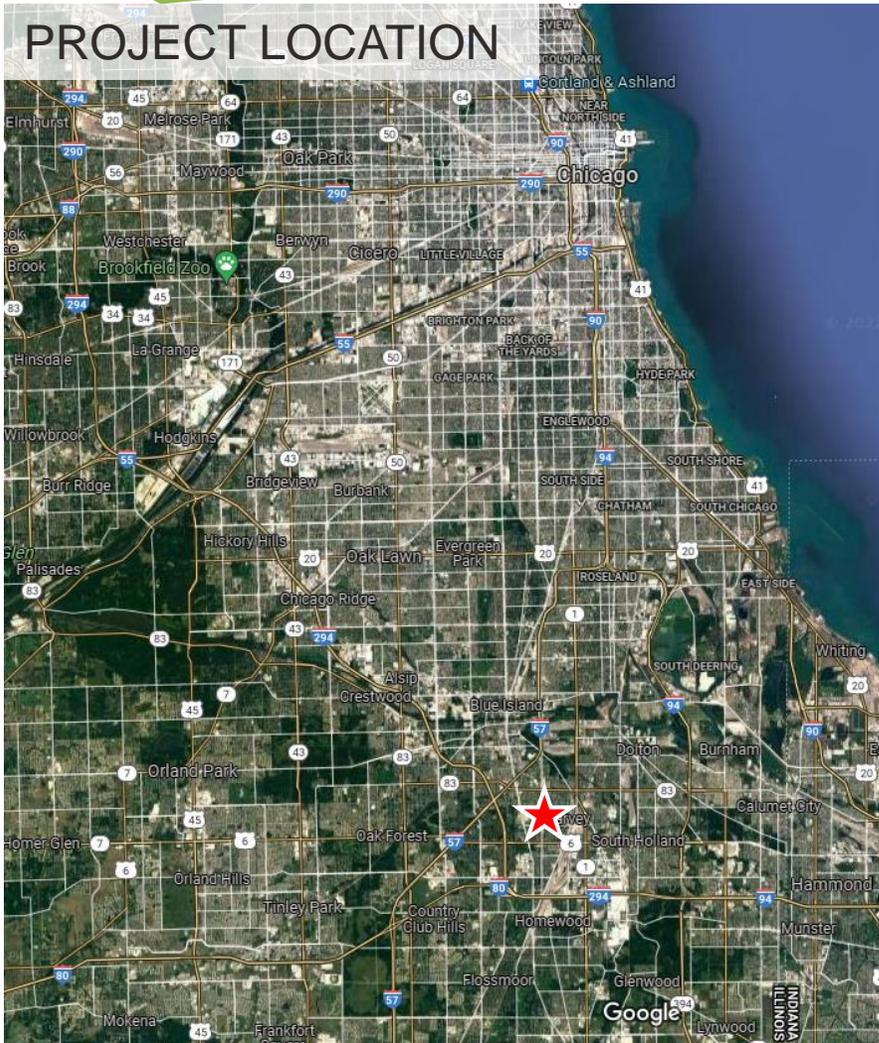


# Leveraging Opportunities in an Urban Flood Control Master Plan, Case Study of an MWRD funded project in Harvey, IL

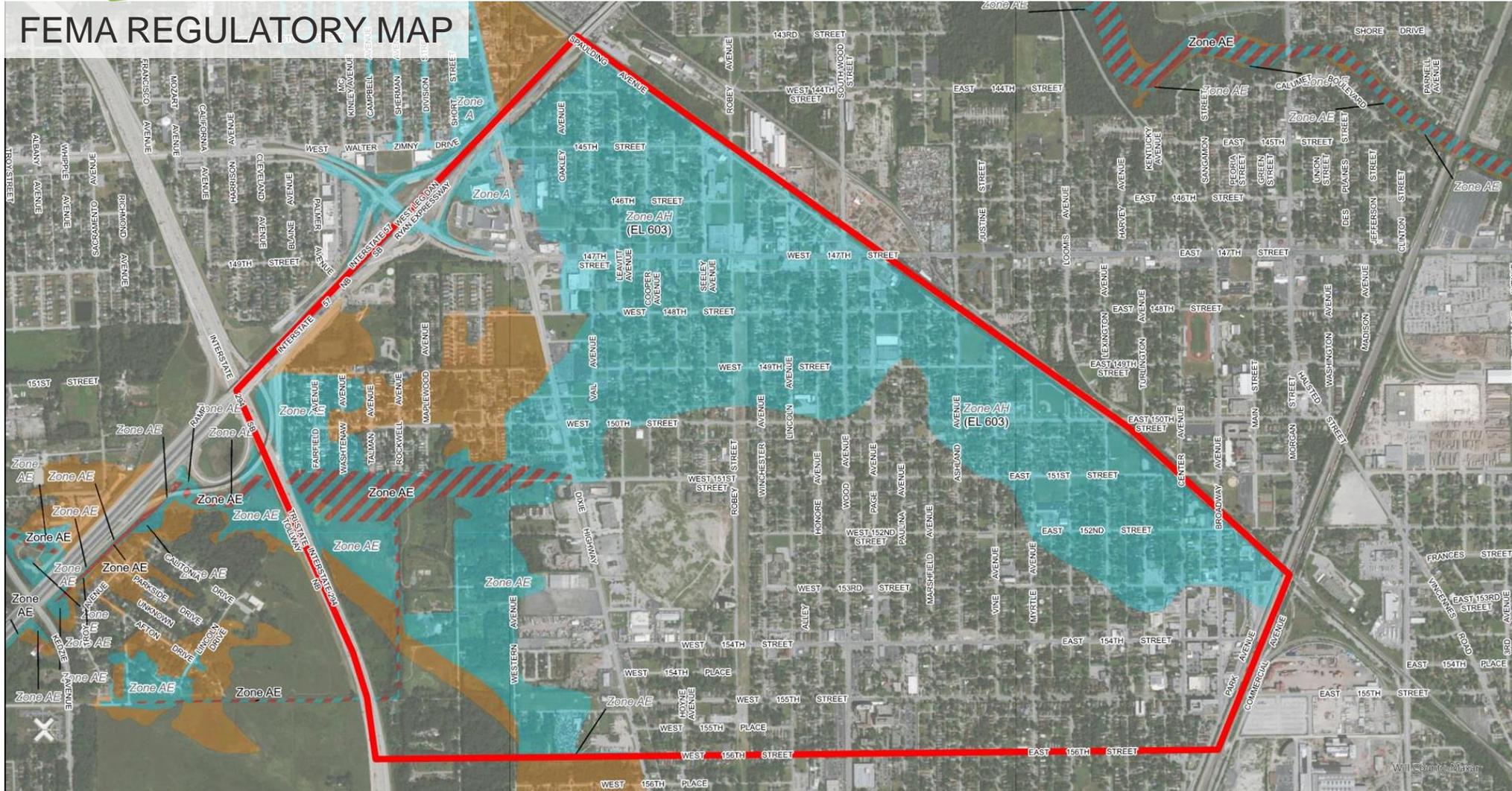
**IAFSM Presentation  
March 8, 2022**

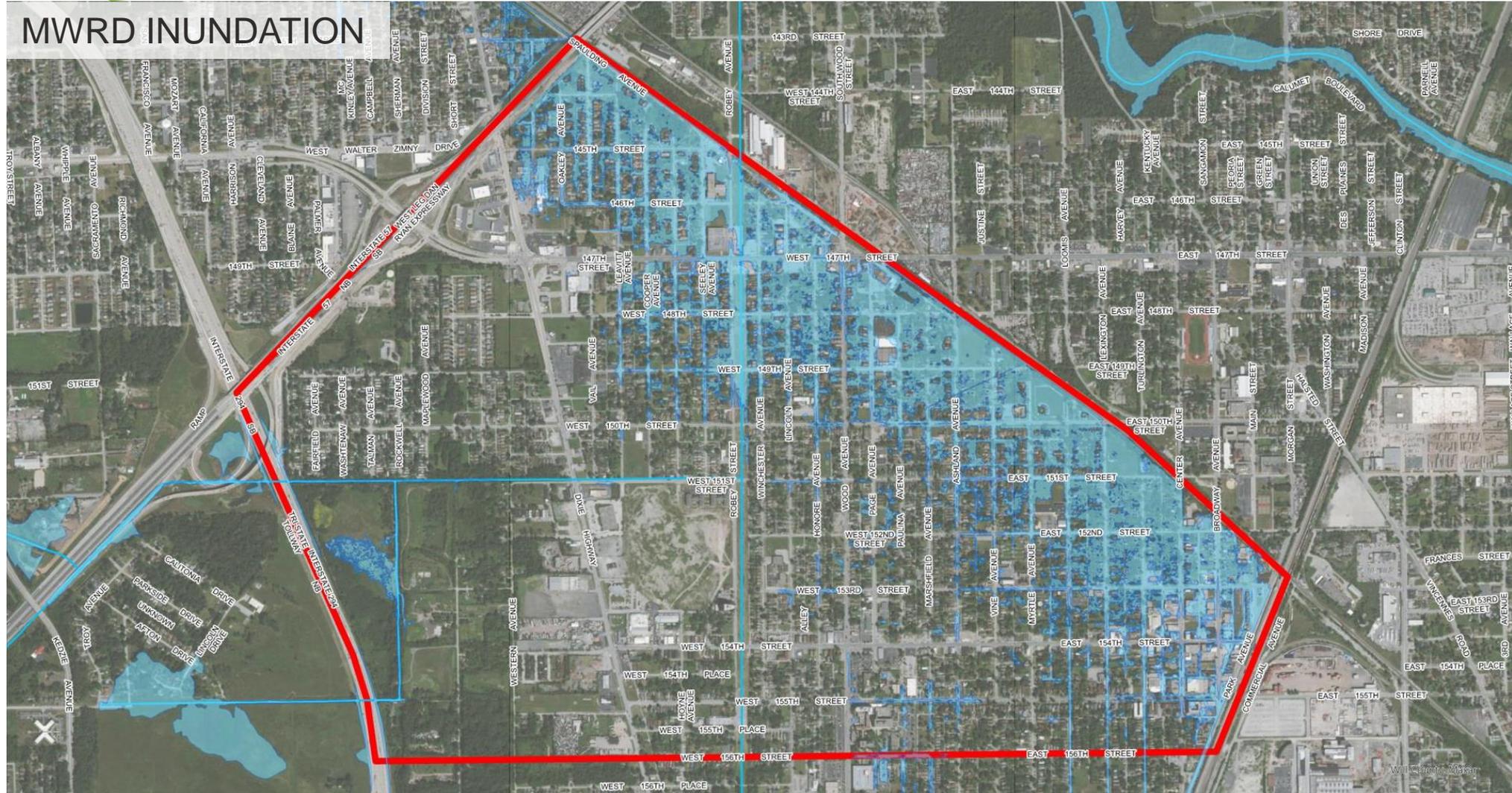
# PRESENTATION OUTLINE

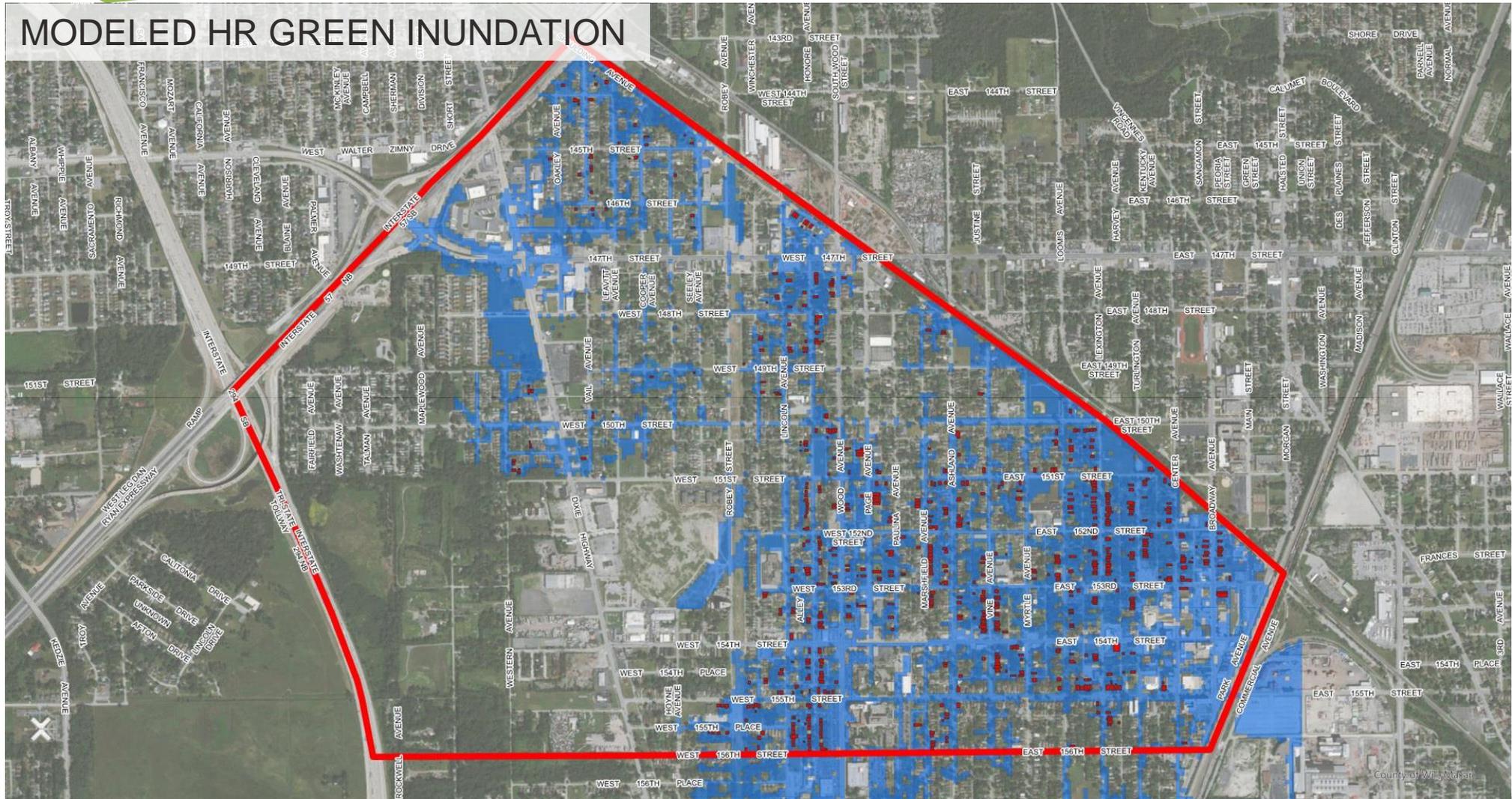
- Project Background & Location
- Purpose and Need
- Technical Approach
- Project Outcomes



# FEMA REGULATORY MAP







## PURPOSE AND NEED

- Combined Sewer Area – Basement Backups, Health and Safety
- Widespread Flooding – Impact to Structures, Roads, Critical Facilities
- Survey - 66% survey response noted flooding of some type
- Regulatory Floodplain – Flood Insurance
- Social, Economic and Environmental Impacts

# EXISTING CONDITION STRUCTURE IMPACTS

Storm Event	Total Structures Impacted*
10-Yr	177
25-Yr	623
50-Yr	1,051
100-Yr	1,494
FEMA 100-Yr	1,825
MWRD 100-Yr	1,036

*\*There are a total of 4,147 primary structures in the study area.*

# GOALS AND OBJECTIVES

- Reduce flooding
- Address Community Needs
- Create Adaptive Programs

# GUIDING PRINCIPLES

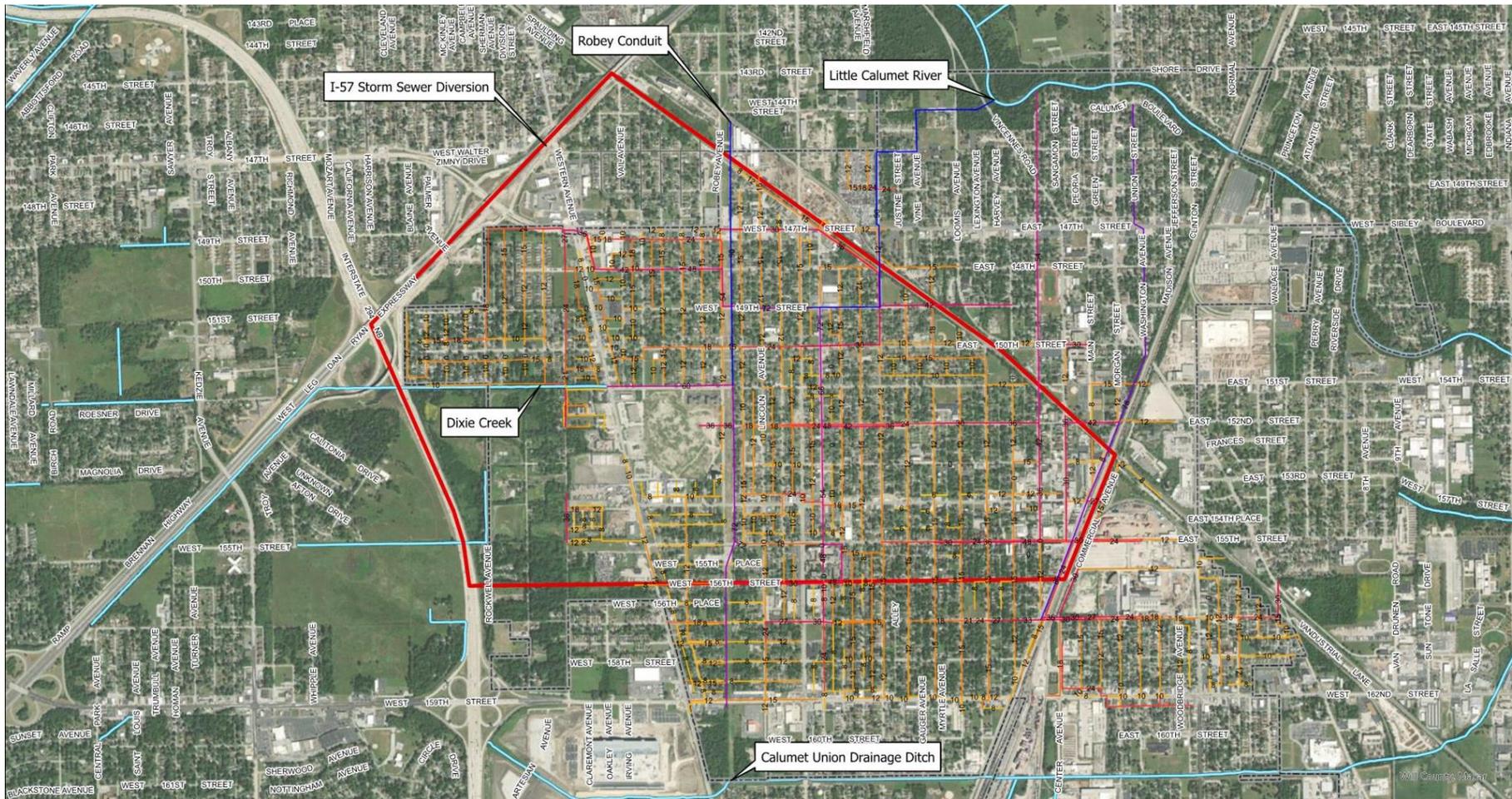
- Leverage prior work
- Holistic and innovative solutions
- Constructible and maintainable
- Achieves benefit/cost
- Identify partnership opportunities
- Identify local, state and federal funding

## EARLY CHALLENGES

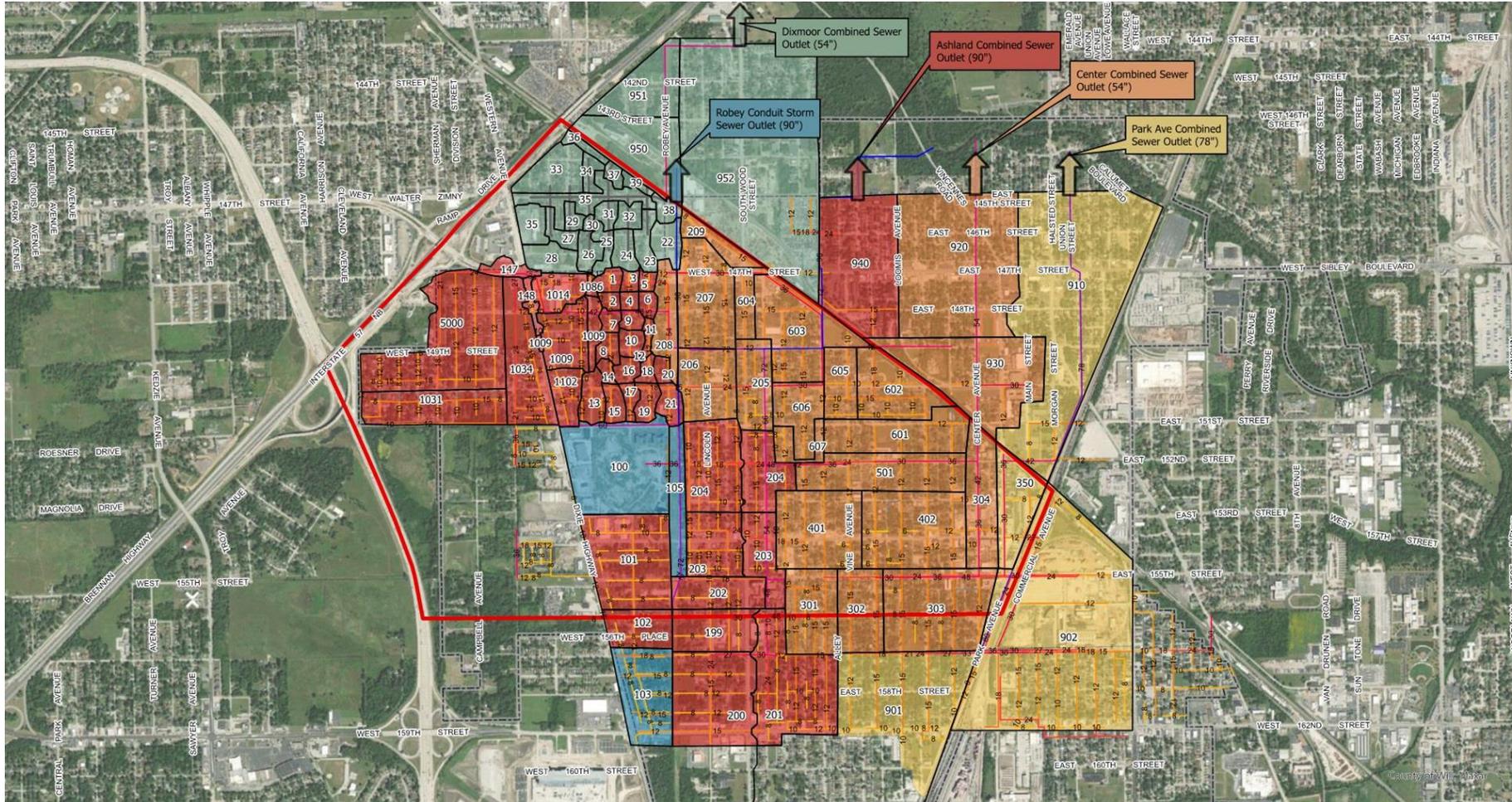
- Lack of sewer atlas information
- Paper copies were made available only at the City
- No rims and invert were available on paper copies



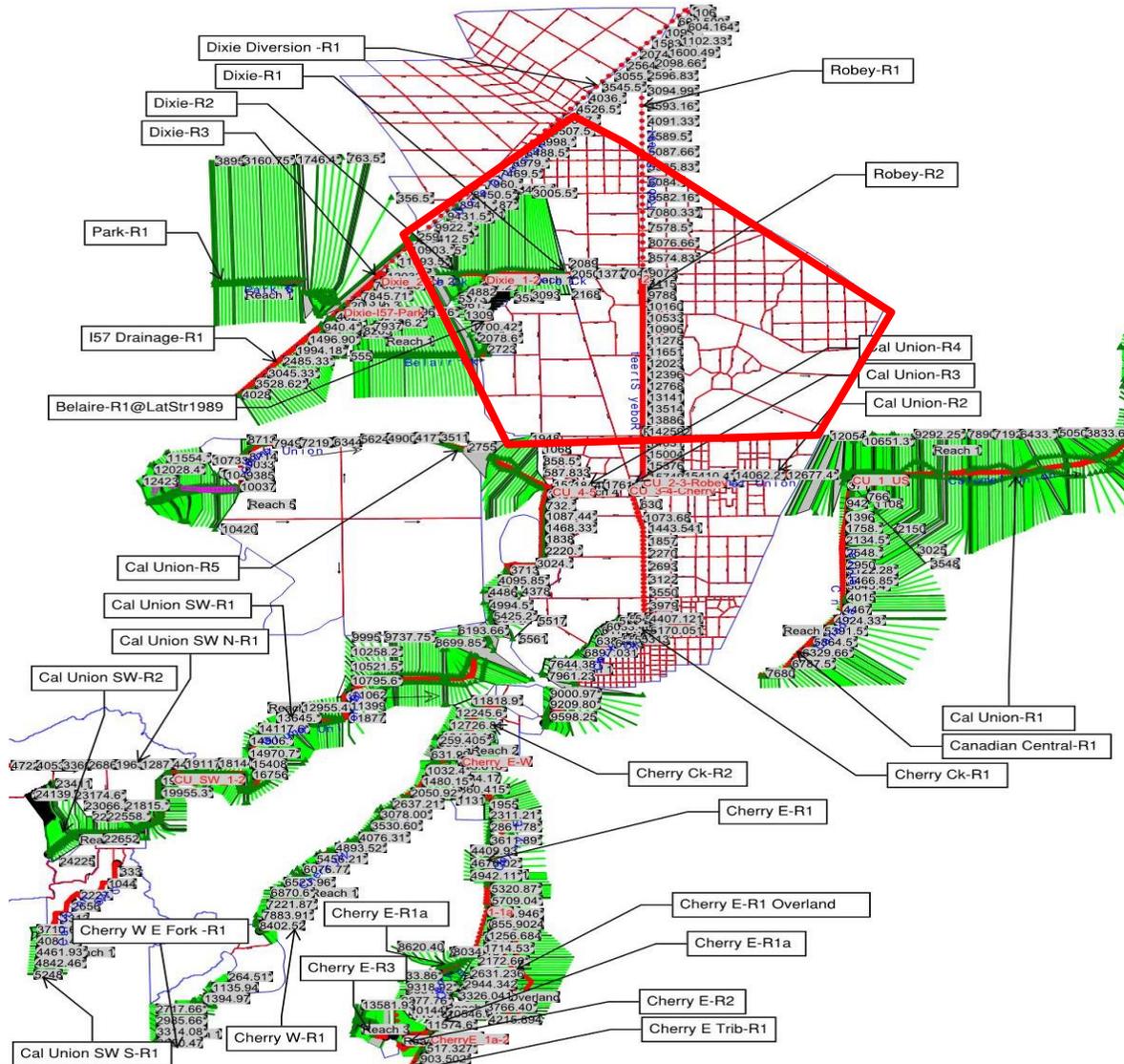
# DEVELOPED SURVEY SCOPE TO SURVEY TRUNK LINES



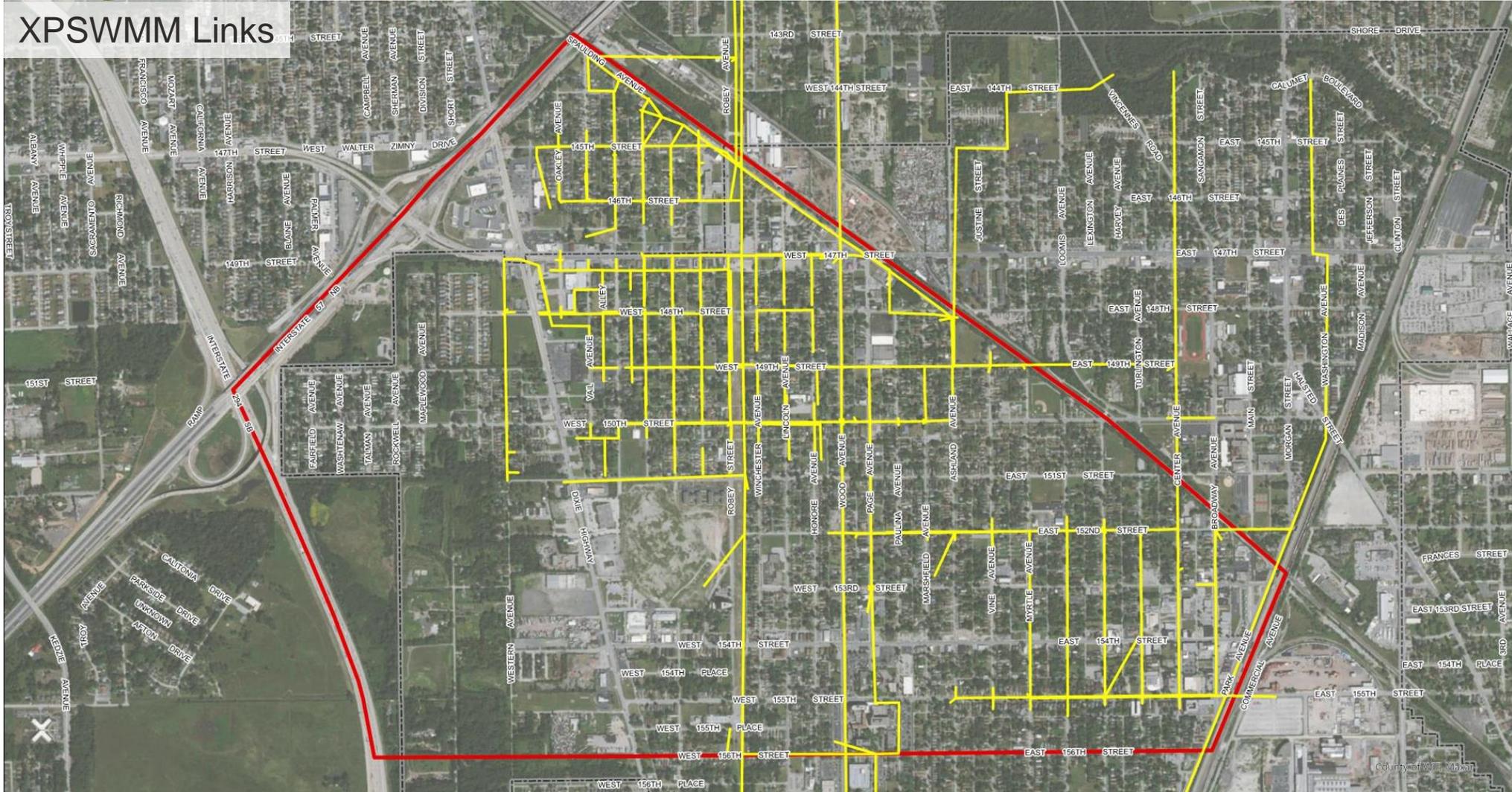
# CONFIRM SEWERSHEDS TO VARIOUS OUTFALLS



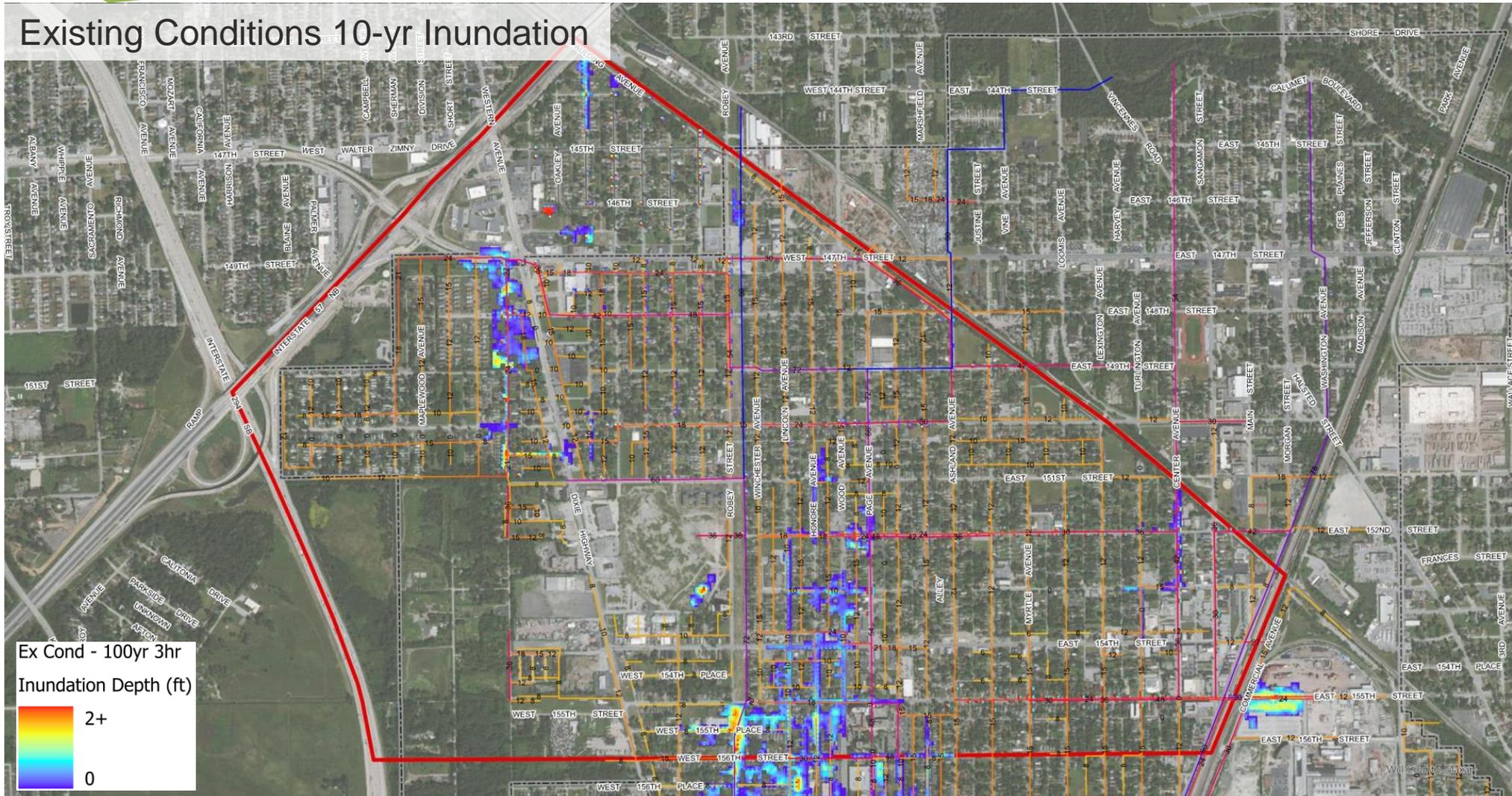
## Existing Upstream/ Offsite H&H Modeling



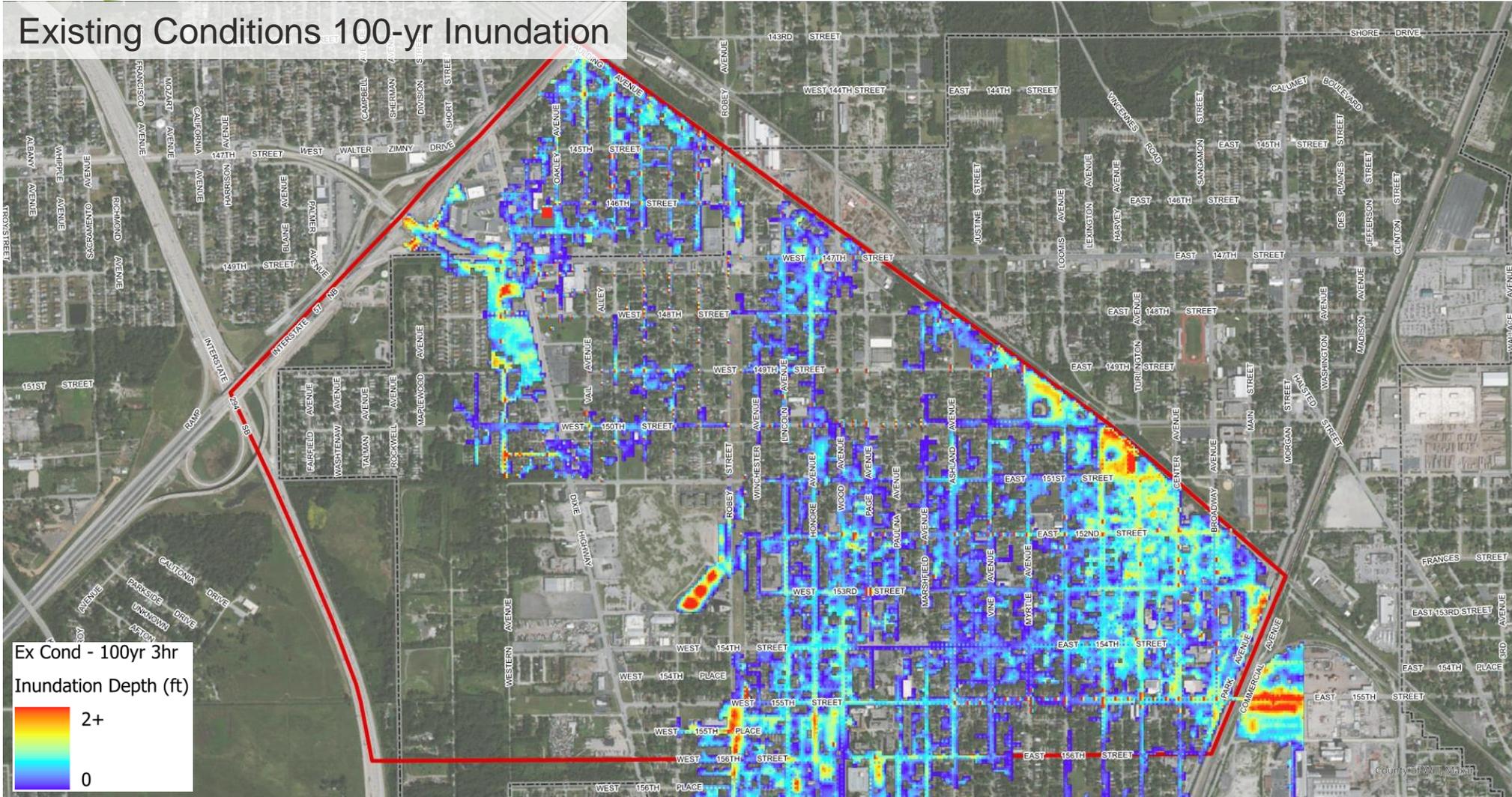
### XPSWMM Links



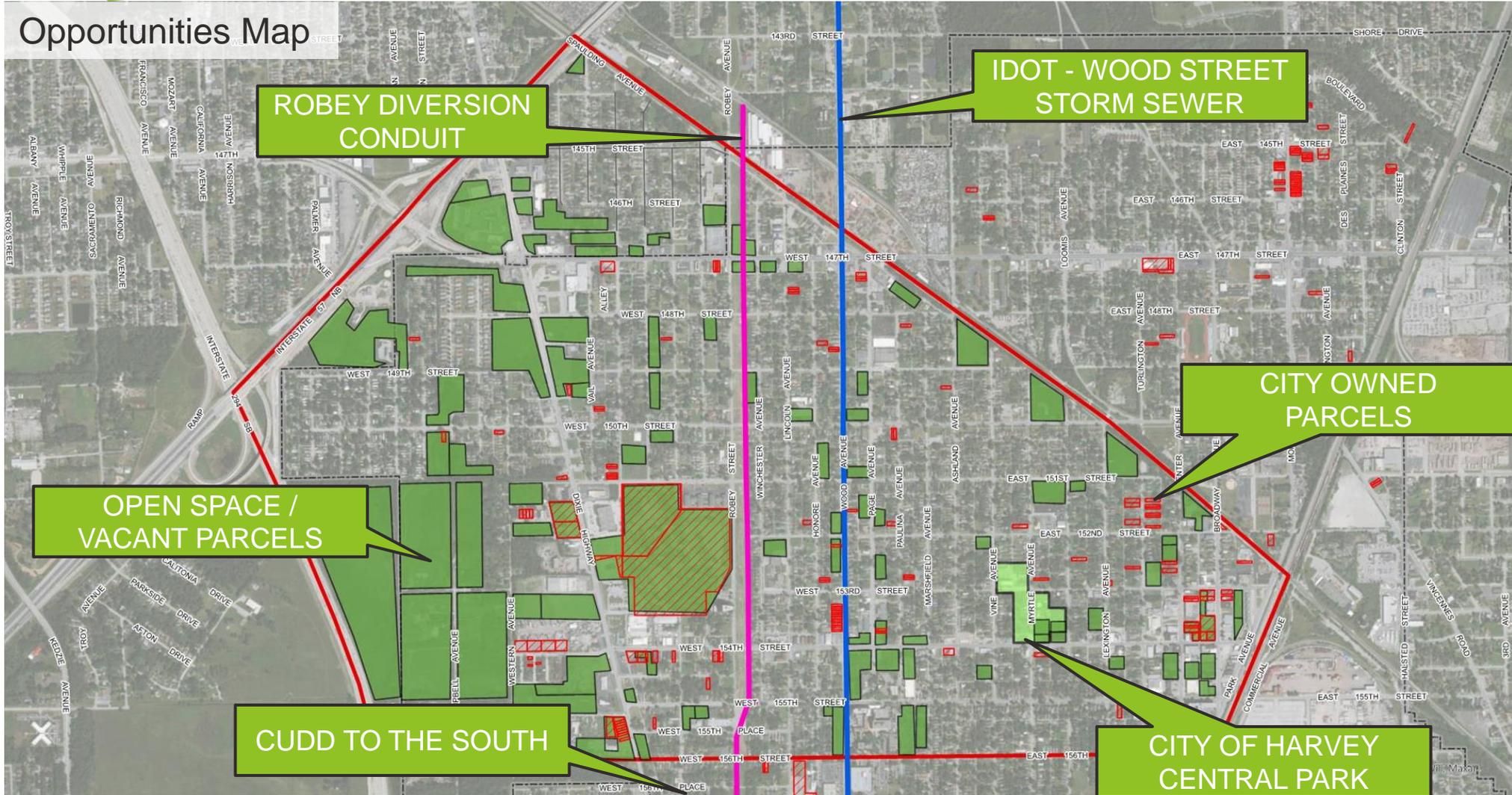
### Existing Conditions 10-yr Inundation



### Existing Conditions 100-yr Inundation

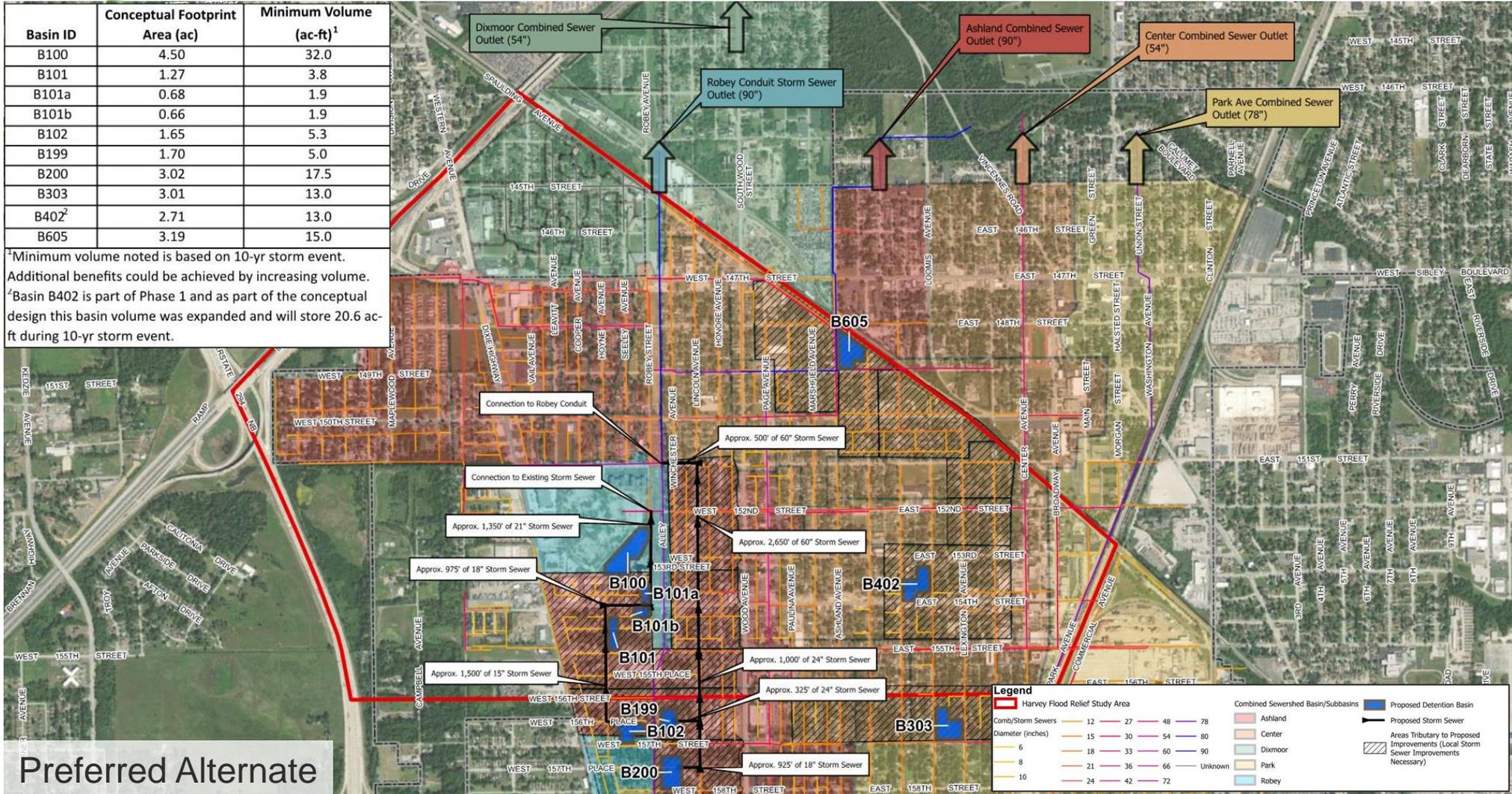


### Opportunities Map



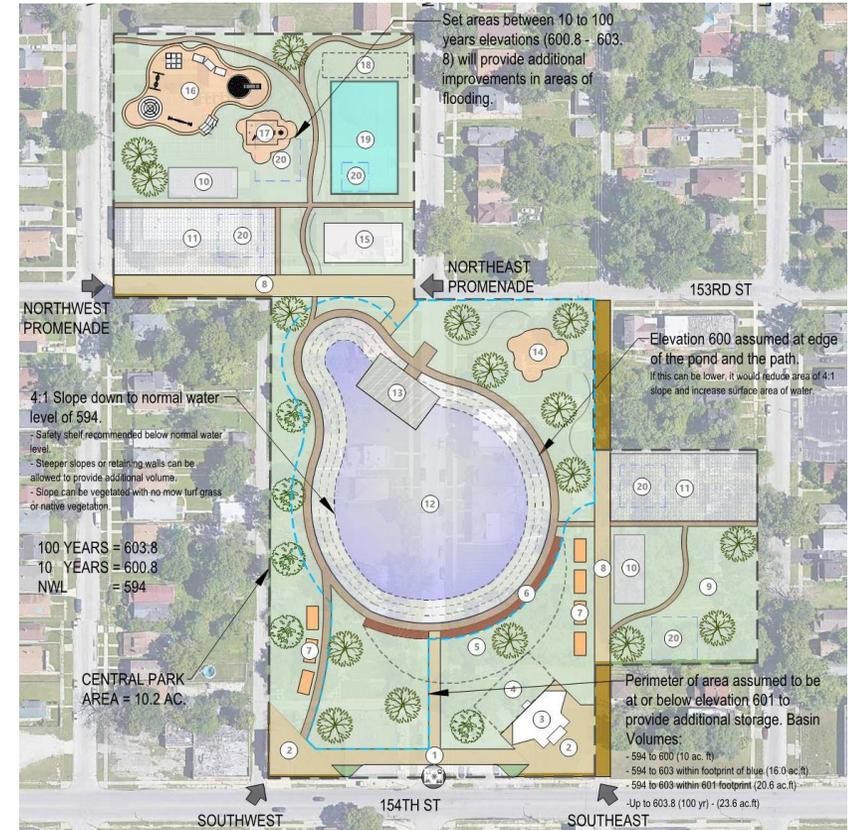
# ALTERNATIVE ANALYSIS

- Conveyance Only Option
- Storage Only Option
- Hybrid Conveyance and Storage
  - Preferred Alternative
  - Utilizes opportunities to tie into IDOT system
  - Utilizes City owned parcels
  - Achieves City's vision for a central park
  - Flexible to phase and utilize future opportunities of storage projects



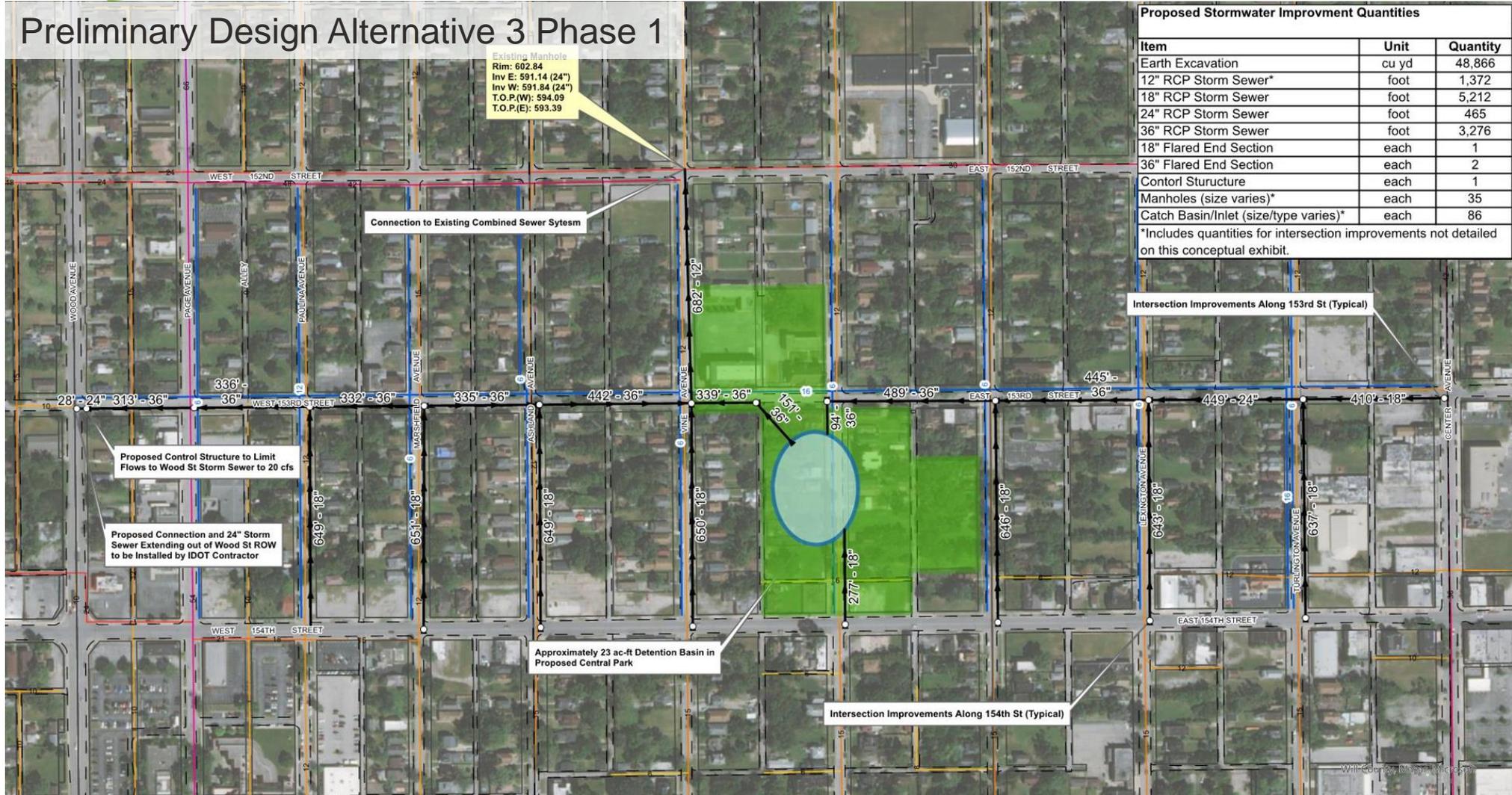


# Central Park/Detention Basin Design Concept Progression



Central Park exhibits courtesy of Antero Group

## Preliminary Design Alternative 3 Phase 1



Proposed Stormwater Improvement Quantities		
Item	Unit	Quantity
Earth Excavation	cu yd	48,866
12" RCP Storm Sewer*	foot	1,372
18" RCP Storm Sewer	foot	5,212
24" RCP Storm Sewer	foot	465
36" RCP Storm Sewer	foot	3,276
18" Flared End Section	each	1
36" Flared End Section	each	2
Control Structure	each	1
Manholes (size varies)*	each	35
Catch Basin/Inlet (size/type varies)*	each	86

\*Includes quantities for intersection improvements not detailed on this conceptual exhibit.

# PROPOSED CONDITION STRUCTURE IMPACTS

Storm Event	Existing Conditions Impacted	Proposed Alt 3 Overall		Proposed Alt 3 Phase 1	
		Impacted	Benefitted	Impacted	Benefitted
10-Yr	177	78	99	173	4
25-Yr	623	184	439	505	118
50-Yr	1,051	409	642	889	162
100-Yr	1,494	741	753	1285	209

# PROJECT BENEFICIAL OUTCOMES

- Overcame data challenges with a re-scoped strategy
- Leveraged partnerships (MWRD, IDOT and City)
- Reduced conveyance only where needed
- Maximized local storage opportunities (current and future)
- Achieves City's goal for a central park
- Reduces flooding (structure impacts, duration and extent)
- Wet Bottom basin serves dual purpose – storm water detention and park amenity
- Reduction in treatment of storm water for MWRD
- Leaves capacity in Robey for future beneficial use
- Holistic and innovative solutions
- Constructible and maintainable
- Achieves benefit/cost to allow application for FEMA BRIC funding

# PROJECT STATUS

- Submitted project for BRIC Funding
- Phase 1 currently in final design
- Coordinating detention basin with City of Harvey
- Coordinating basin outfall to Wood Street with IDOT
- Leverage City future projects
- Leverage other available funding

# Questions?

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