

# Hurricane Harvey Analysis



Presented to the Board of Directors  
September 26, 2017

- Assessment of Hurricane Harvey
  - Magnitude of Event
  - Flooding extents
- Observations
  - W140-01-00
  - W151-00-00
  - W153-00-00

- Record Event County Wide
  - 1-hour Max – 6.8" (1,500-year event)
  - 1-hour AVG – 4-5" (50-200-year event)
  
  - 24-hour Max – 28.6" (8,000-year event)
  - 24-hour AVG – 16-20" (200-1,000-year event)

- Record Event County Wide
  - 2-day Max – 35.2" (9,000-year event)
  - 2-day AVG – 27-33" (2,500-6,000-year event)
  
  - 4-day Max – 47.4" (40,000-year event)
  - 4-day AVG – 35-43" (500-20,000-year event)

- 4-Day, Specific Watersheds
  - Addicks/Barker: 34"
  - Clear Creek: 47"
  - TIRZ 17 area: 31"-36"

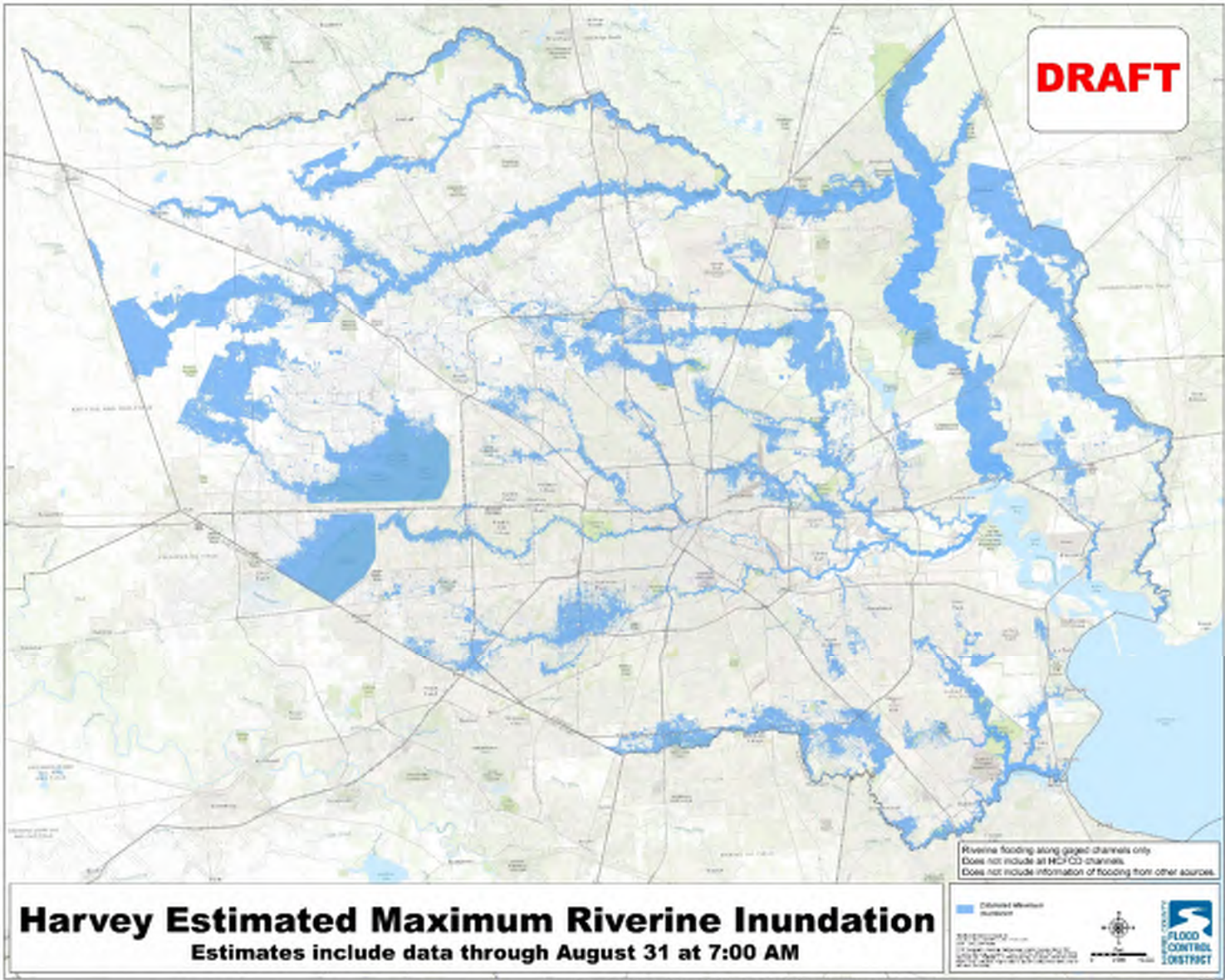


Image Courtesy of HCFCO

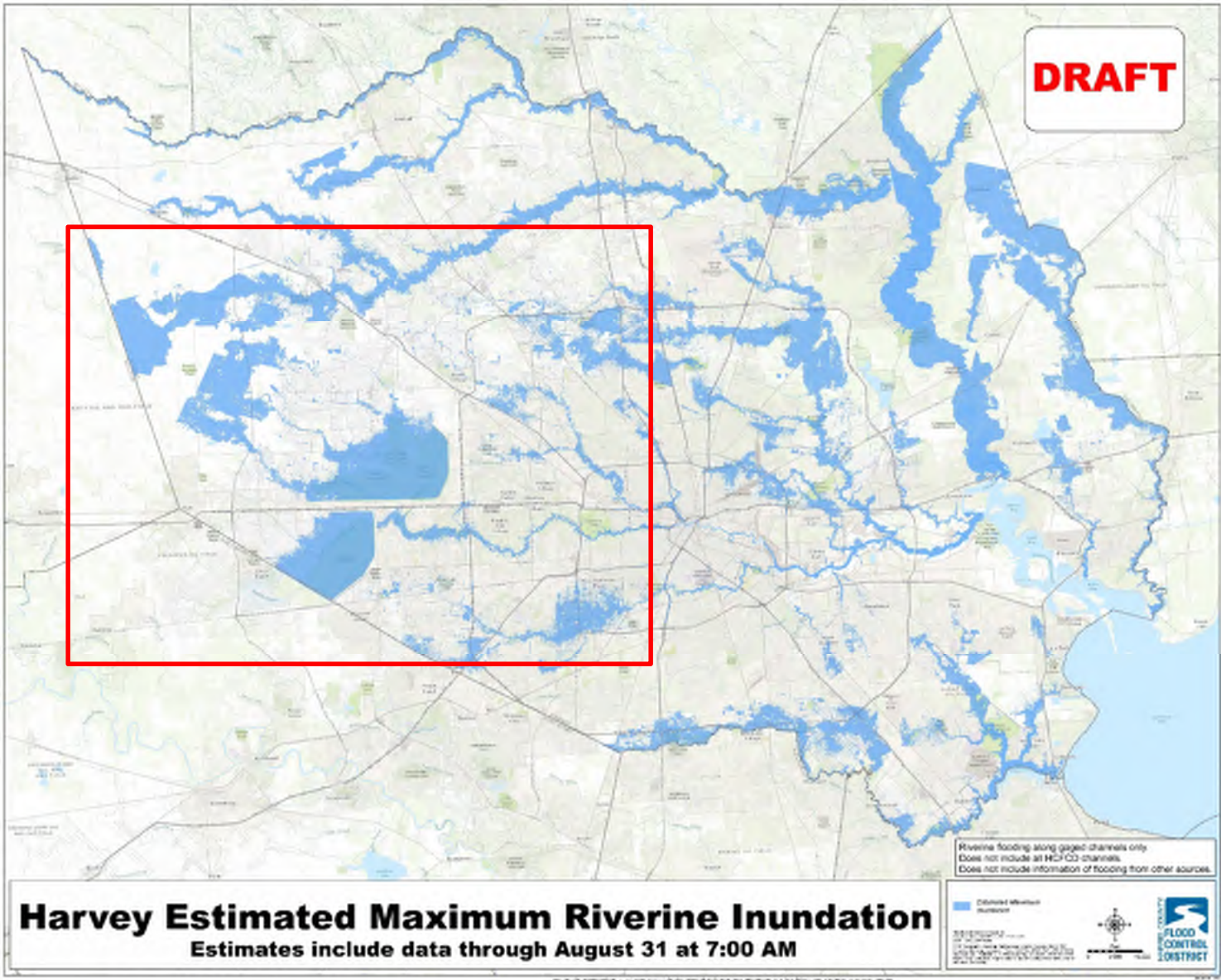


Image Courtesy of HCFCO









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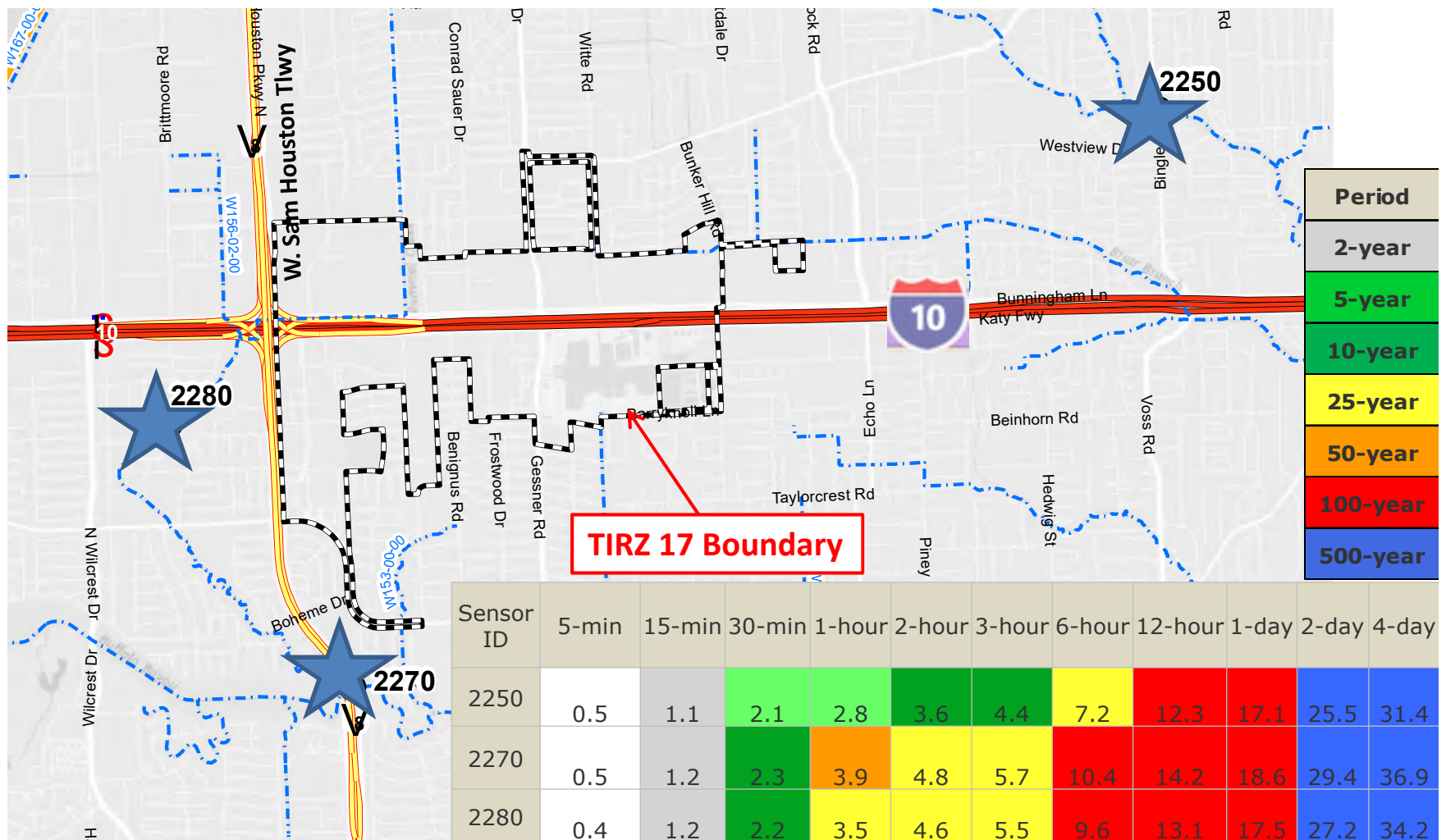
- Record Event County Wide
  - 50% of HWM's are new records
  - 136,000 flooded structures, 63,000 more than T.S.

Allison – **Riverine only**

- Return Period and Probability

<b>Region 2--Brays, Buffalo, Greens, Hunting, Luce, West Fork San Jacinto, and White Oak</b>											
<b>Period</b>	5-min	15-min	30-min	1-hour	2-hour	3-hour	6-hour	12-hour	1-day	2-day	4-day
<b>2-year</b>	0.7	1.1	1.5	2.0	2.3	2.6	3.1	3.7	4.4	5.0	5.8
<b>5-year</b>	0.8	1.4	1.8	2.5	3.1	3.5	4.3	5.1	6.2	7.1	8.1
<b>10-year</b>	0.9	1.5	2.1	2.9	3.6	4.1	5.1	6.2	7.6	8.6	9.8
<b>25-year</b>	1.0	1.7	2.4	3.4	4.3	5.0	6.4	7.8	9.6	10.8	12.1
<b>50-year</b>	1.1	1.9	2.7	3.8	5.0	5.8	7.6	9.2	11.3	12.5	14.0
<b>100-year</b>	1.2	2.1	3.0	4.3	5.7	6.7	8.9	10.8	13.2	14.5	15.9
<b>500-year</b>	1.4	2.6	3.8	5.5	7.6	9.2	12.8	15.5	18.9	20.0	21.1

- Gauge Locations



# Event Comparison

# Hurricane Harvey

April 2016								
Gauge	5-min	15-min	30-min	1-hour	3-hour	6-hour	12-hour	1-day
2255 – Briar Branch at Campbell	0.72	1.52	2.84	4.08	6.16	6.88	7.48	8.28
2270 – Buffalo Bayou at BW8	0.8	1.74	2.92	4.44	7.64	8.32	8.8	9.84

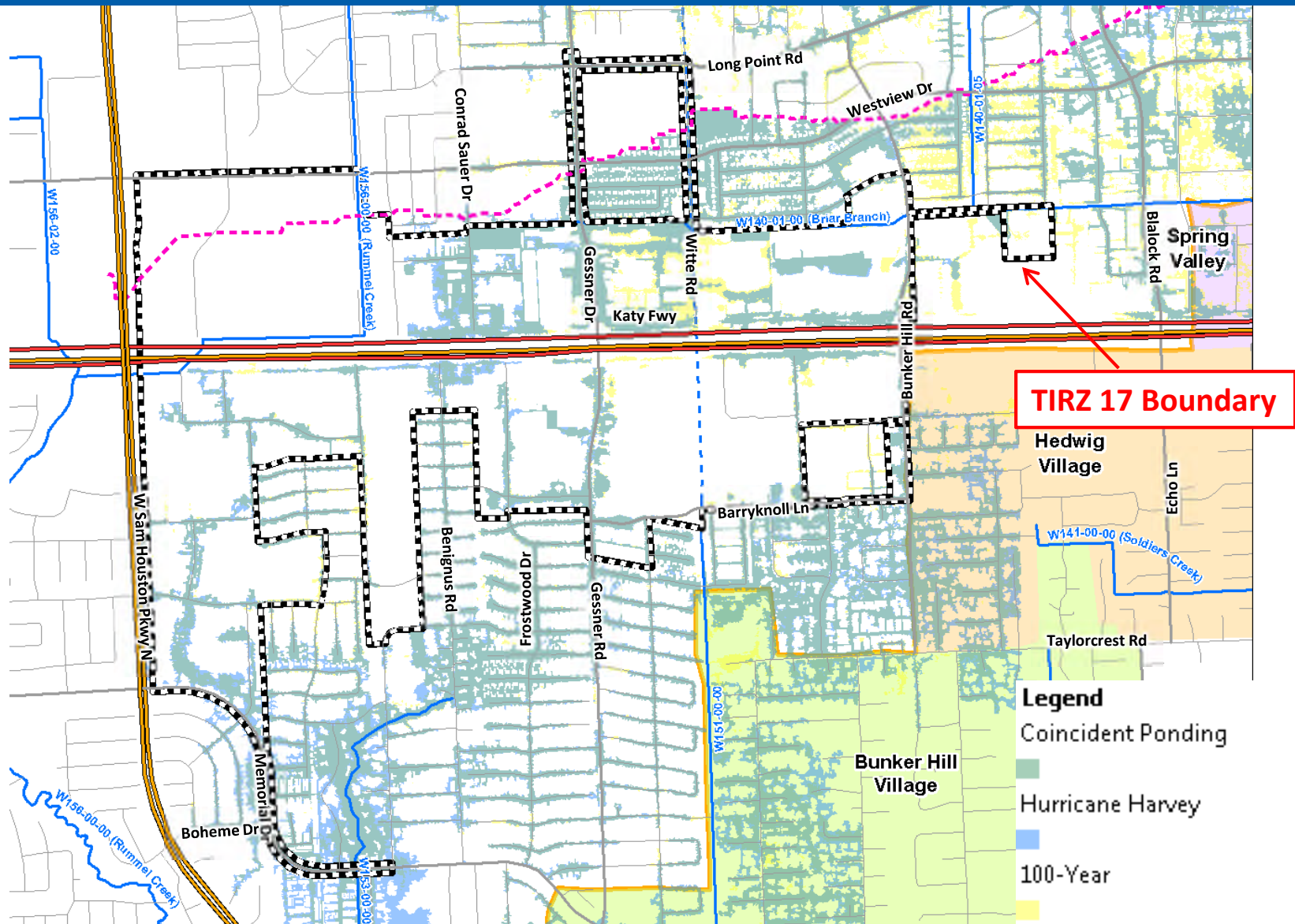
May 2015								
Gauge	5-min	15-min	30-min	1-hour	3-hour	6-hour	12-hour	1-day
2255 – Briar Branch at Campbell	0.6	1.2	2.0	3.8	6.4	7.8	7.8	9.0
2270 – Buffalo Bayou at BW8	0.6	1.4	2.4	4.3	8.3	10.1	10.2	11.5

April 2009								
Gauge	5-min	15-min	30-min	1-hour	3-hour	6-hour	12-hour	1-day
2255 – Briar Branch at Campbell	0.0	0.1	1.1	3.2	5.0	5.0	7.7	8.2
2270 – Buffalo Bayou at BW8	0.0	0.5	2.0	4.04	7.0	7.2	9.0	9.5

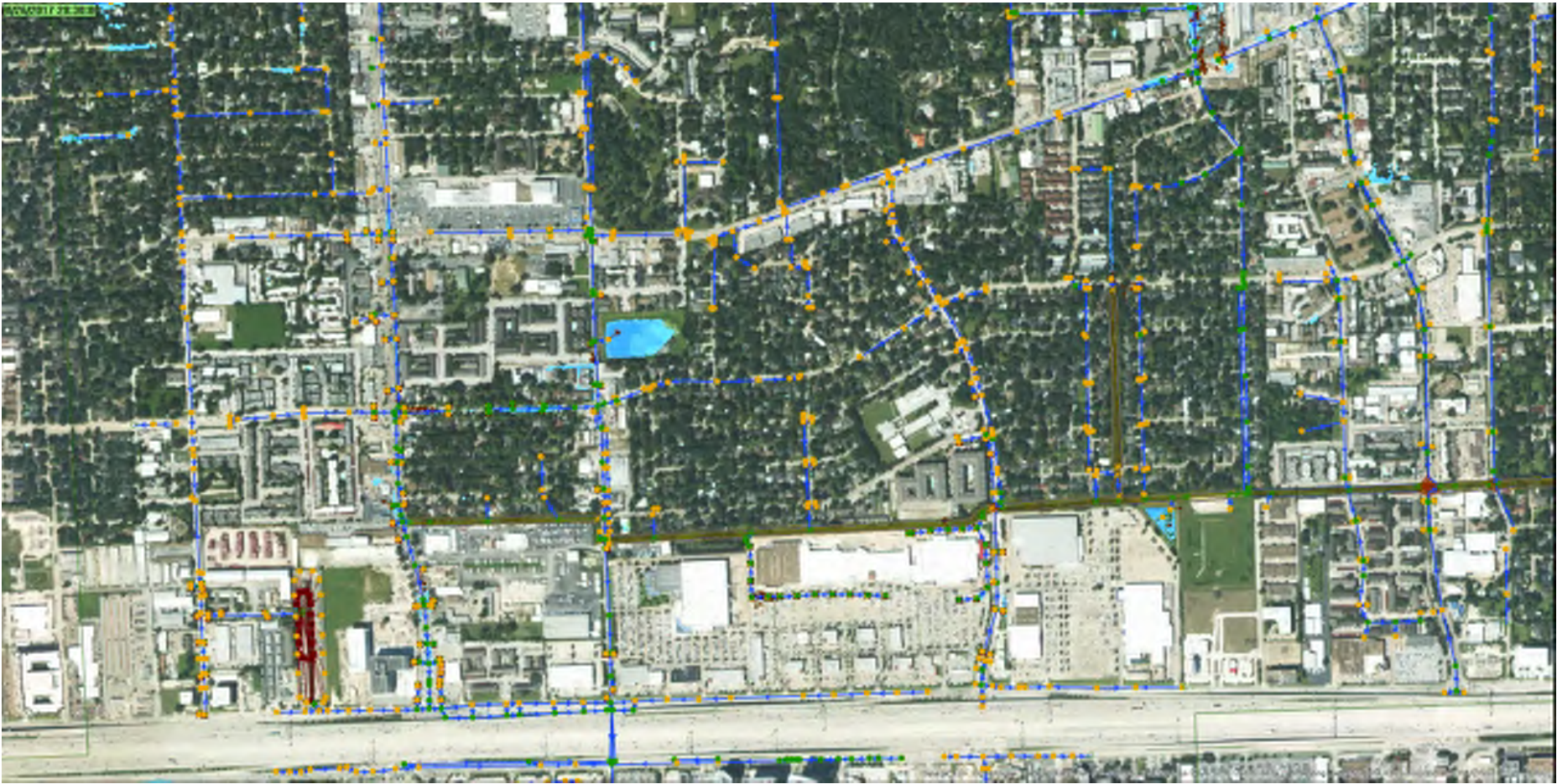
Hurricane Harvey										
Gauge	5-min	15-min	30-min	1-hour	3-hour	6-hour	12-hour	1-day	2-day	4-day
2255 – Briar Branch at Campbell	0.4	1.1	2.0	2.8	4.1	6.8	11.7	16.5	24.8	30.4
2270 – Buffalo Bayou at BW8	0.5	1.2	2.3	3.9	5.7	10.4	14.2	18.6	29.4	36.9

# Flooding Extents – Harvey vs 100yr

# Hurricane Harvey

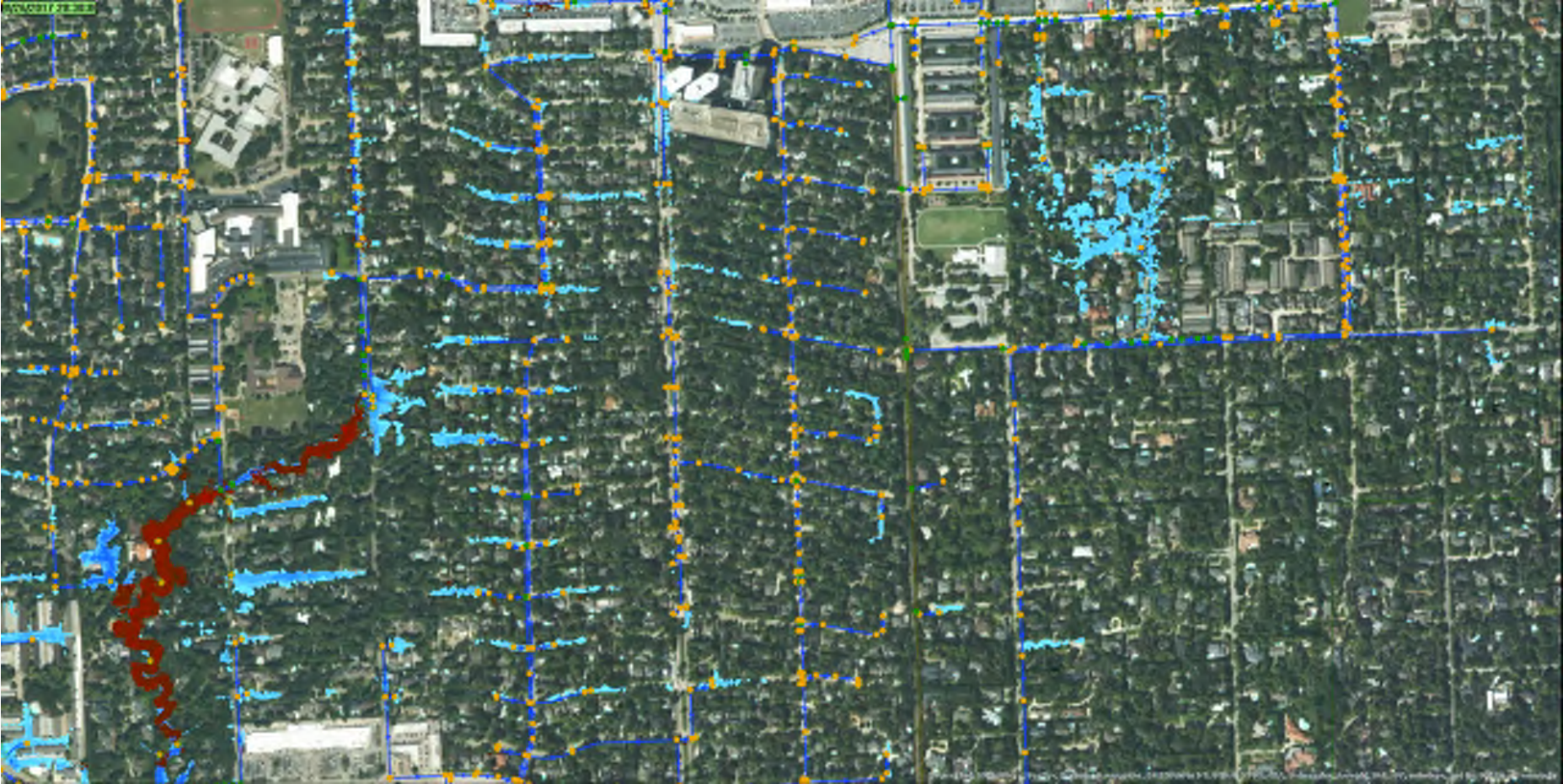


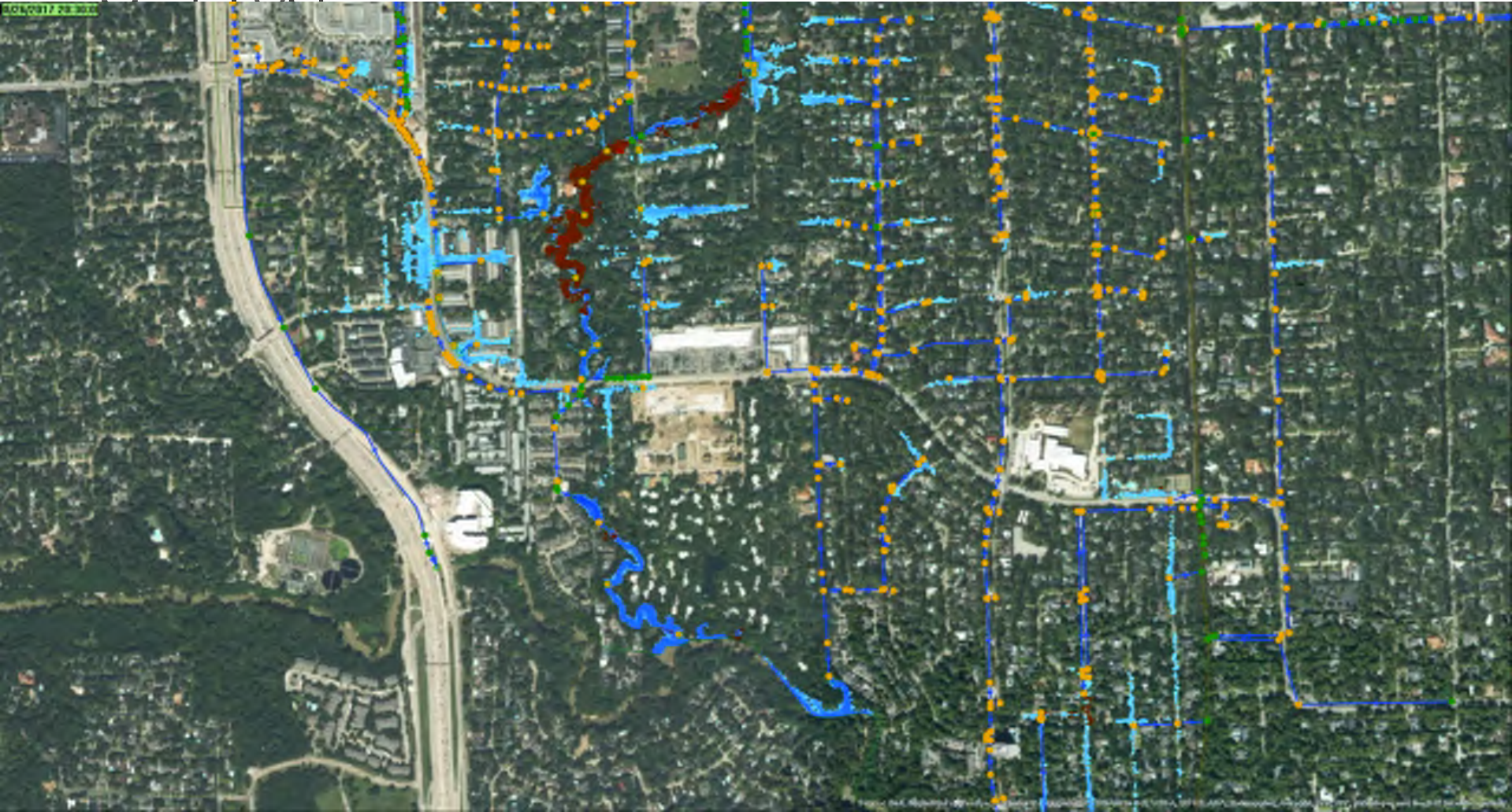
- Model Video





- Model Video





- Hurricane Harvey Summary
  - Rain Event of Record
  - Greater in Magnitude and Impact Regionally than Tropical Storm Allison
  - Cause of Flooding in TIRZ 17 Region Different From Prior 3 Events

# Questions