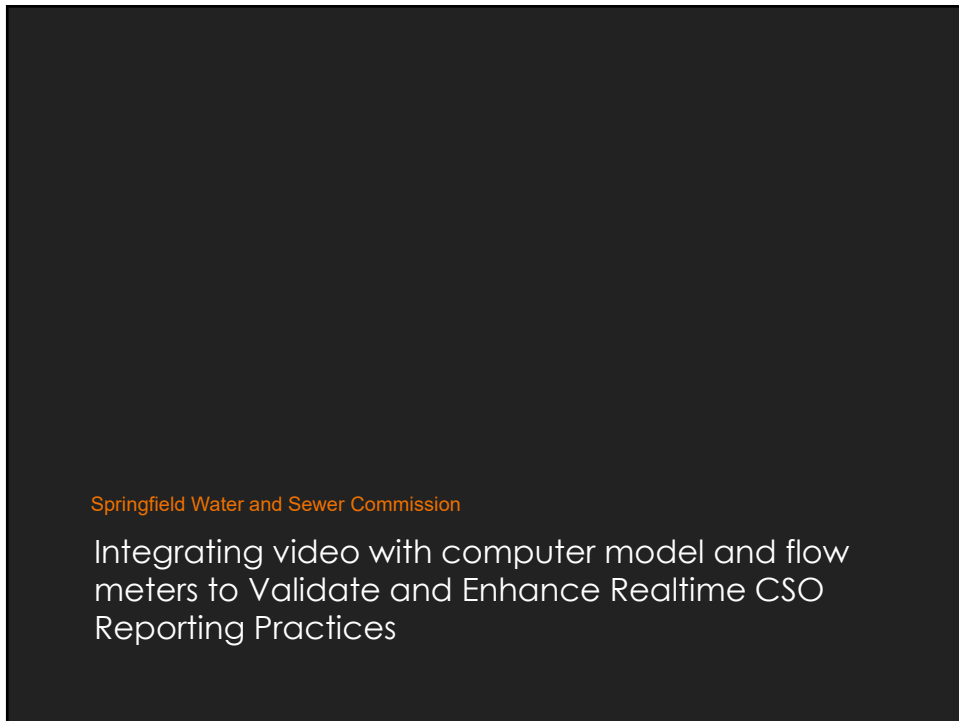


Springfield Water and
Sewer Commission

Lights, Camera,
Action!

1



Springfield Water and Sewer Commission

Integrating video with computer model and flow
meters to Validate and Enhance Realtime CSO
Reporting Practices

2



Agenda

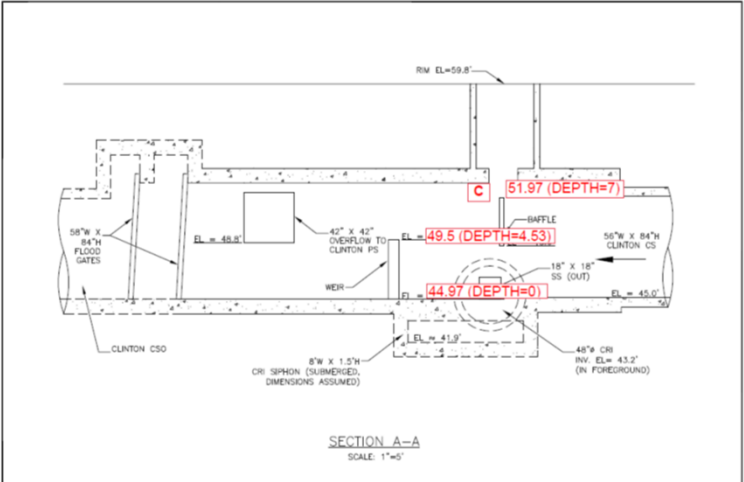
1. Camera installation
2. Camera results & sample video
3. Model Results compared to video data
4. Next Steps/Questions








3

Camera Installation

CSO 010 Camera Installed by ADS on May 30, 2019



SECTION A-A
SCALE: 1"=5'

SPRINGFIELD WATER AND SEWER COMMISSION

REGULATOR 10 (CLINTON)
REV. DATE: 1/28/2010

REF. NO. REG.10 SECA

4

Photos of Camera Installation

View of weir and measurement
visual from camera



View of camera mounted just
below manhole access. Baffle
visible below.



5

Springfield Water and Sewer Commission

Camera Results & Video Samples

6

CSO Events Captured

6/11/19

- start was before 7:10 when video started
- stop 7:27

6/16/19

- start was before 17:59 when video started
- stop 20:27

7/6/19

- start 16:45
- stop 20:15

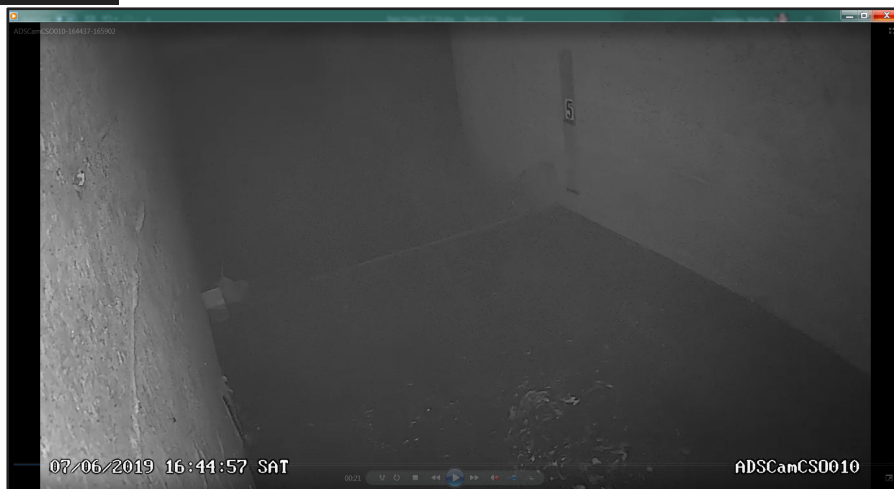
7/22/19 - 7/23/19

- start 17:25
- stop between 10:30 and 10:38



7


Water Level At Weir




8

Camera Results/
Sample Video

Water Level 1.25 ft Above Weir




07/06/2019 16:45:49 SAT ADSCamCS0010

Stantec 

9

Camera Results/
Sample Video

Camera Surcharged



07/06/2019 16:47:30 SAT ADSCamCS0010

Stantec 

10

Camera
Results/
Sample
Video

7/6/19 Video of overflow

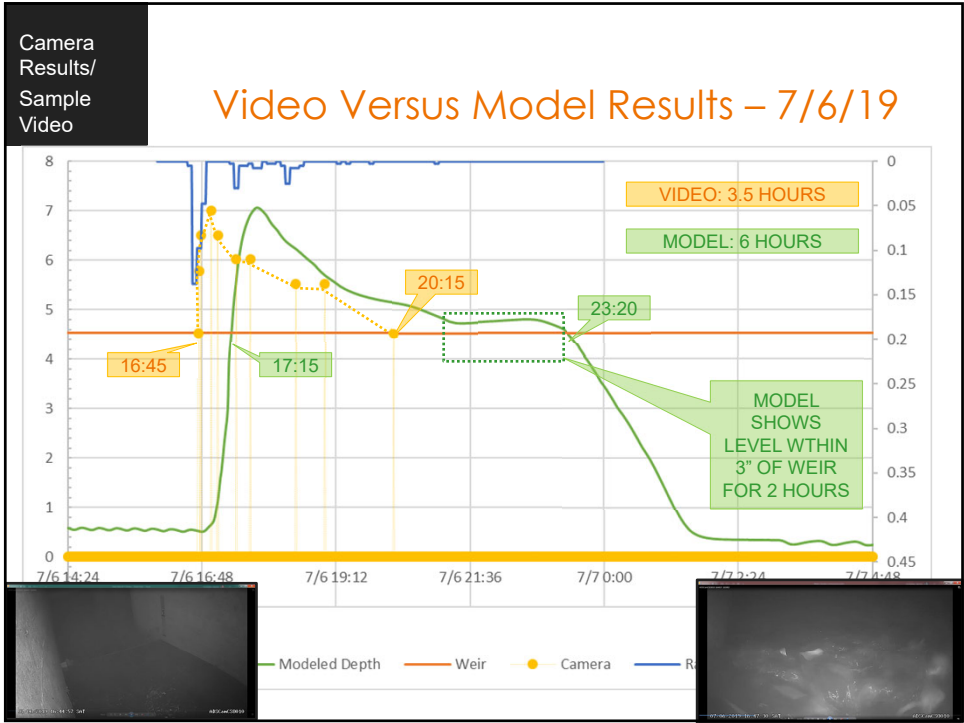


11

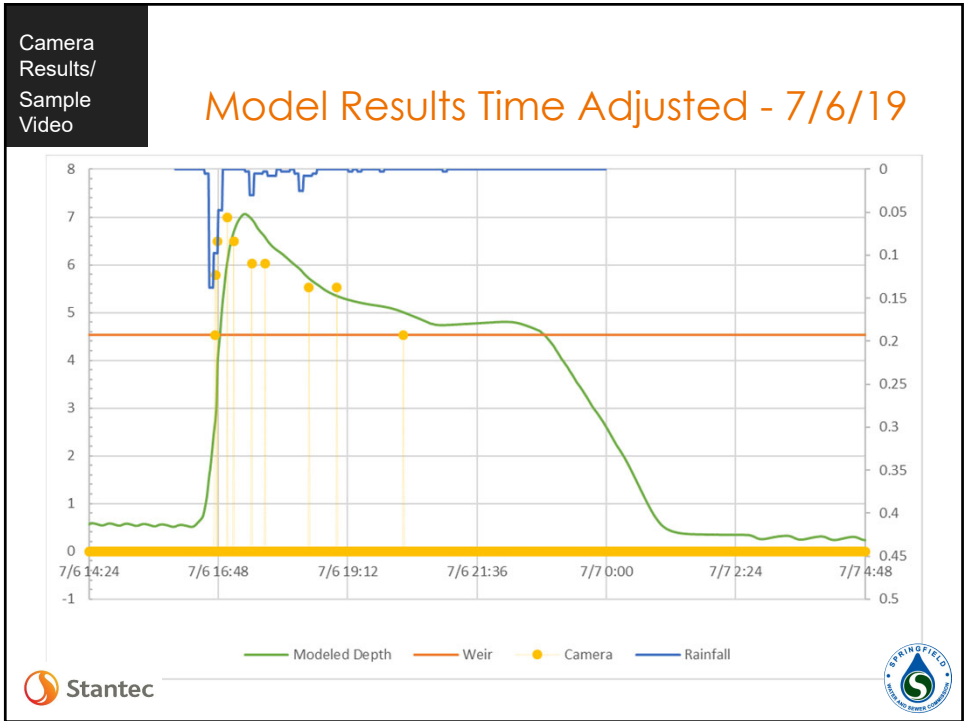
Springfield Water and Sewer Commission

Model Results Compared to Video Data

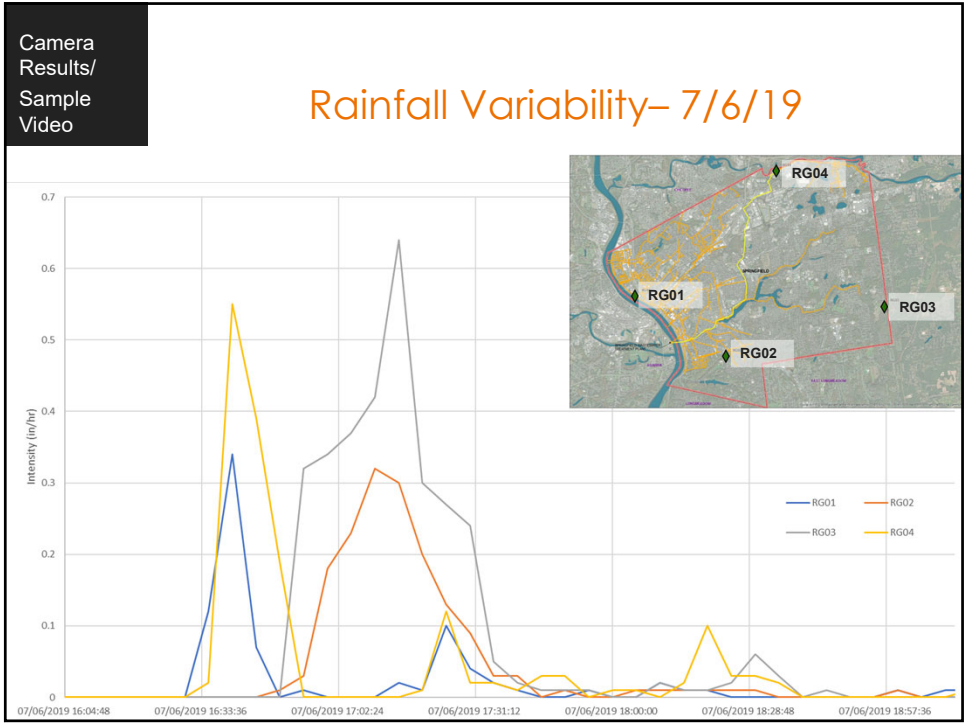
12



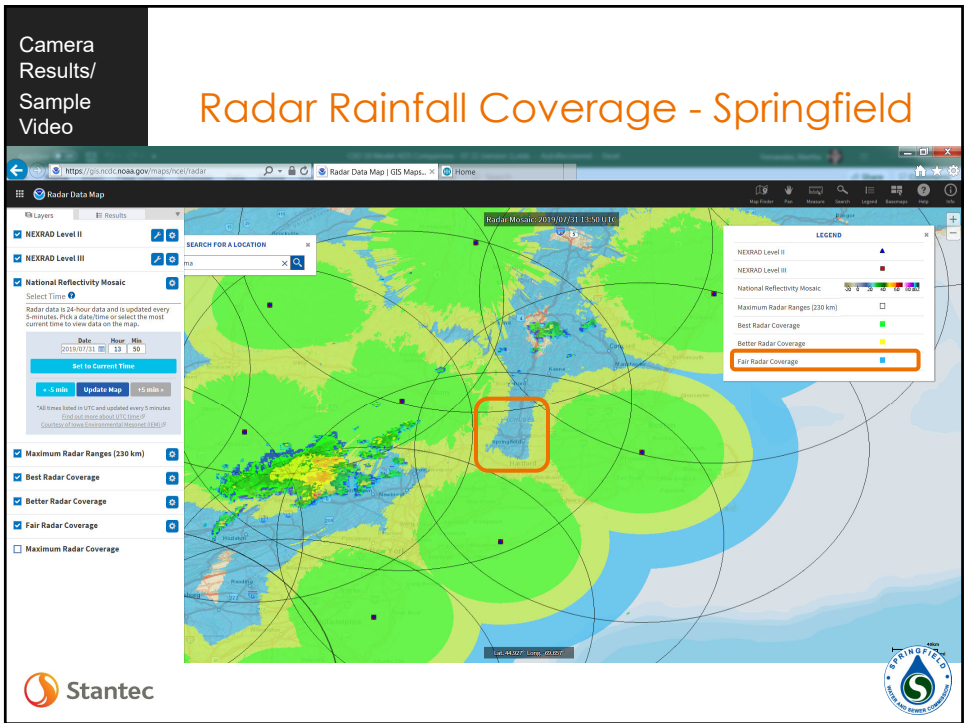
13



14



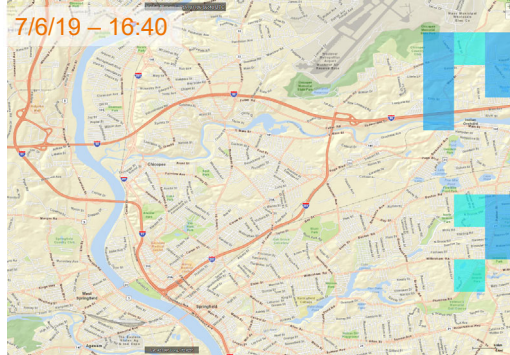
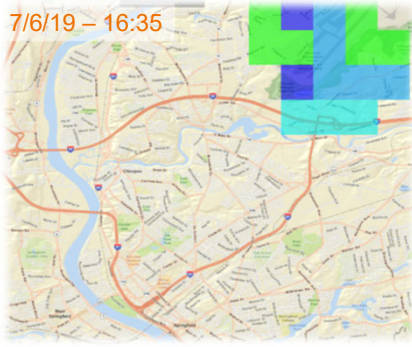
15



16

Camera Results/
Sample Video

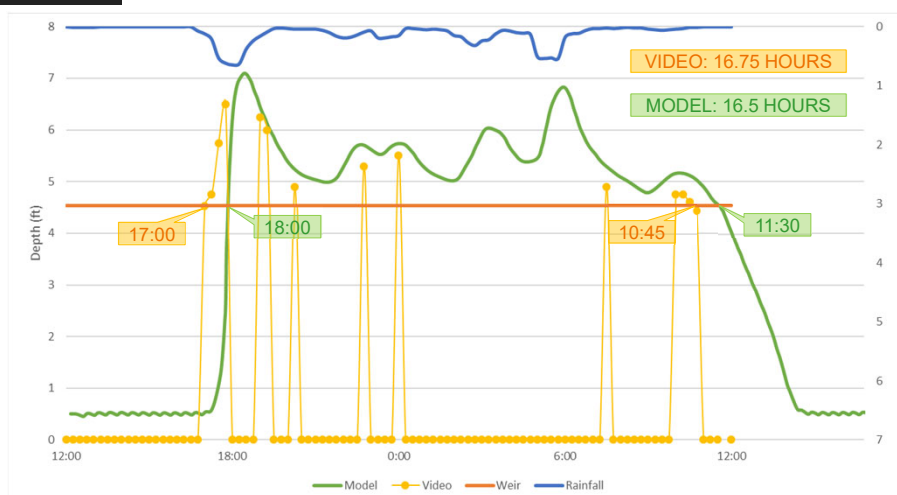
Radar Rainfall – 7/6/19



17

Camera Results/
Sample Video

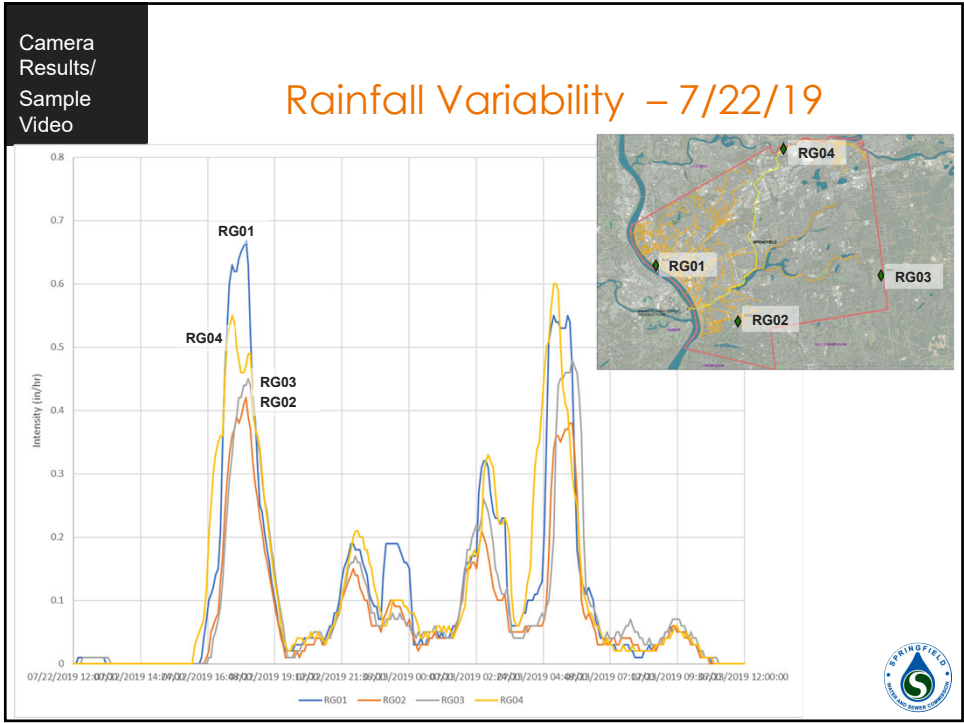
Video Versus Model Results – 7/22/19



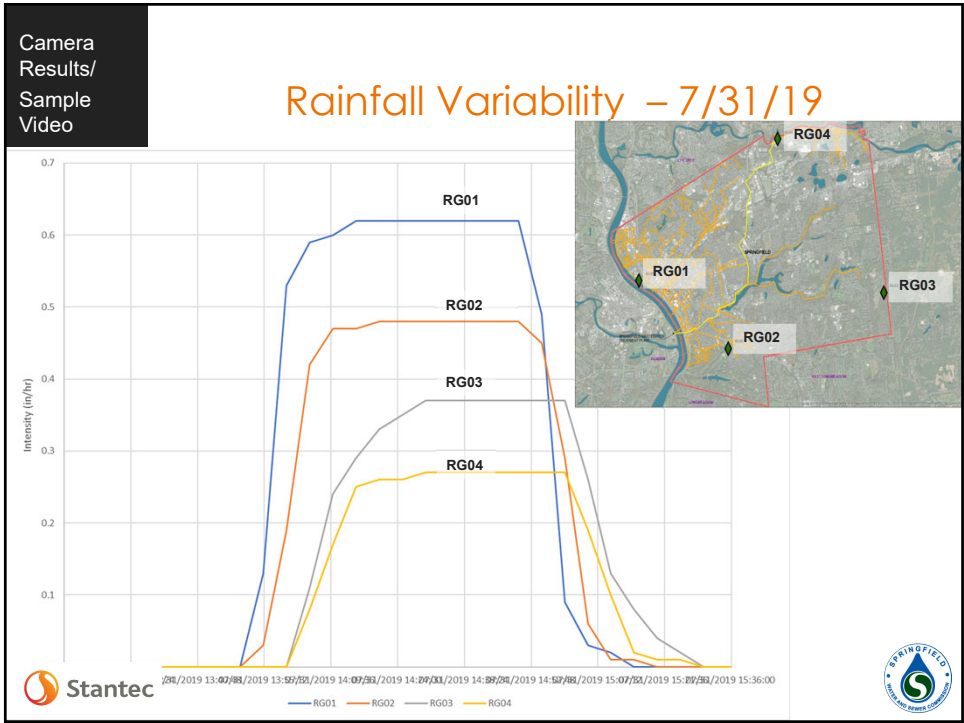
MODEL IS 1 HOUR DELAYED AFTER VIDEO, HOWEVER VIDEO SHOWS WEIR OVERTOPPED WELL BEFORE PEAK RAINFALL



18



19



20

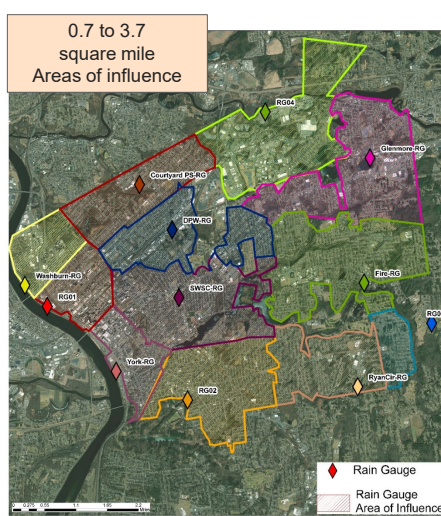
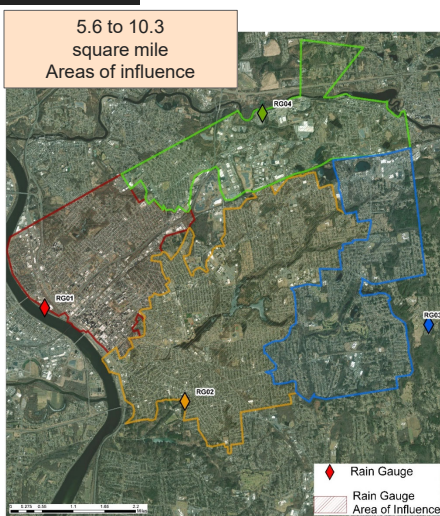
Springfield Water and Sewer Commission

Next Steps

21

Next Steps
and
Questions

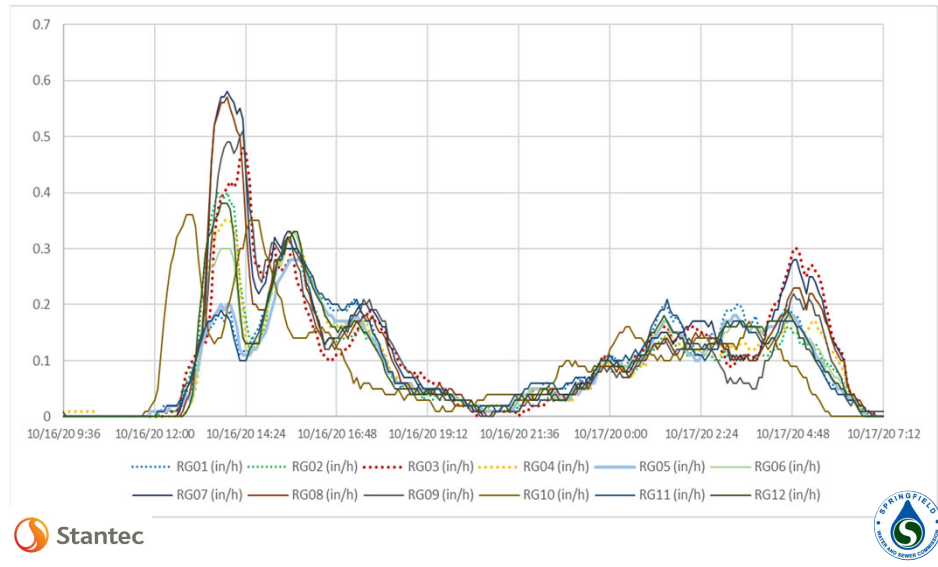
Area of Influence – 4 vs. 12 Gauges



22

Next Steps
and
Questions

October 17, 2020 – Rainfall Hydrographs



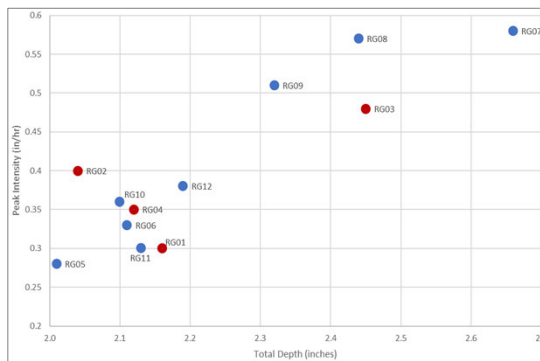
23

Next Steps
and
Questions

Overflow Volume Simulations

CSO	4 RG Simulation	12 RG Simulation
CSO 007	0.35	0.41
CSO 008A	1.98	2.12
CSO 010	8.19	7.64
CSO 012	10.91	8.89
CSO 013	2.14	0.50
CSO 014	2.27	1.39
CSO 015A	1.94	1.08
CSO 015B	0.07	0.01
CSO 016	5.32	3.21
CSO 017	0.02	0.01
CSO 019	0.00	0.06
CSO 024	0.01	0.00
CSO 025	0.05	0.05
CSO 034	0.37	0.14
CSO 035	0.02	0.00
CSO 045	0.02	0.01
CSO 049	0.10	0.06
Total Volume (MG)	33.76	25.60

Volume Reduction:
8.2 MG (24%)

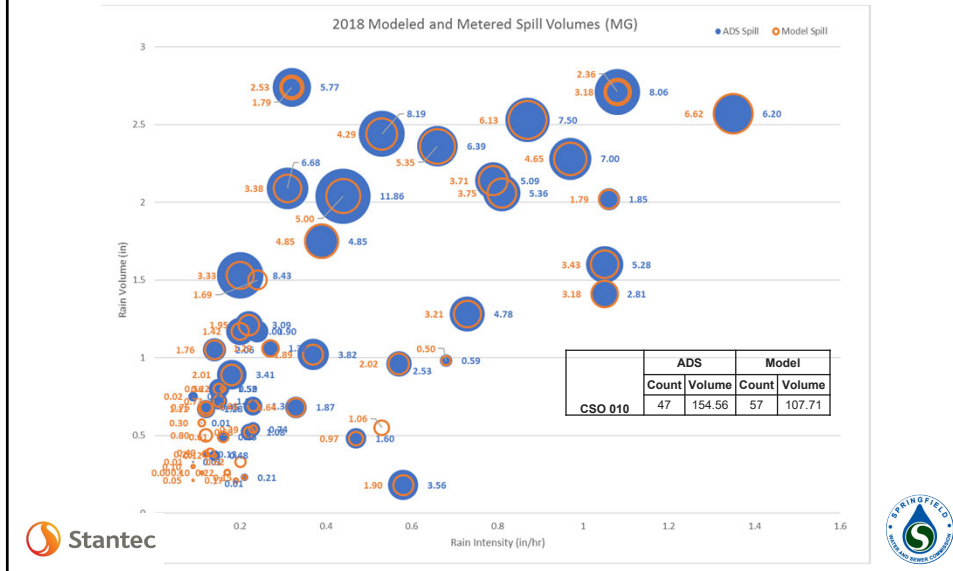


Stantec



24

Model vs. Meter CSO Spill Tracking



25

Springfield Water and Sewer Commission

Questions

26