

NEORSD USE OF MONITORING EQUIPMENT TO MANAGE WATERSHEDS

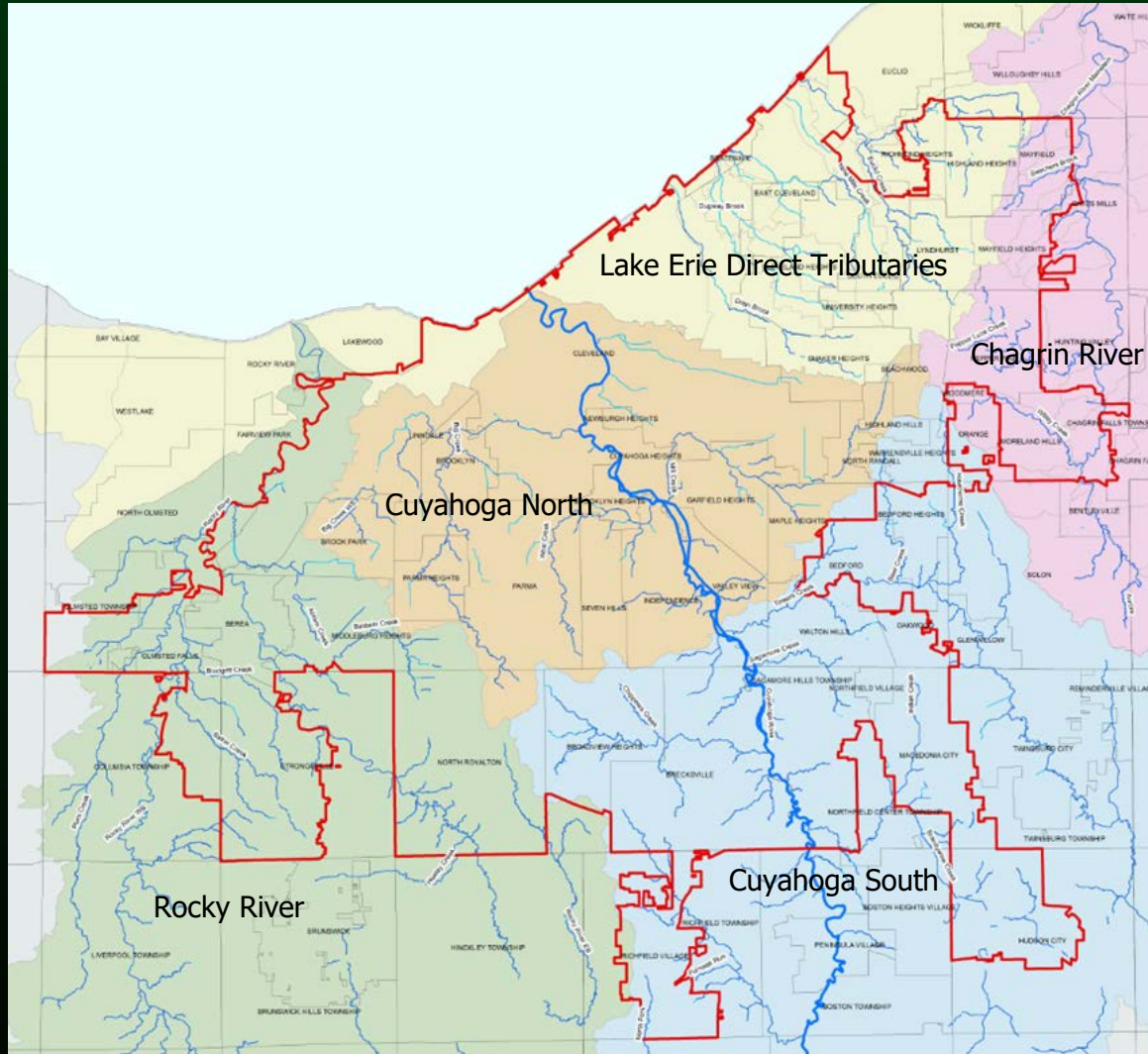
Smart Cities Council Webinar - December 2020



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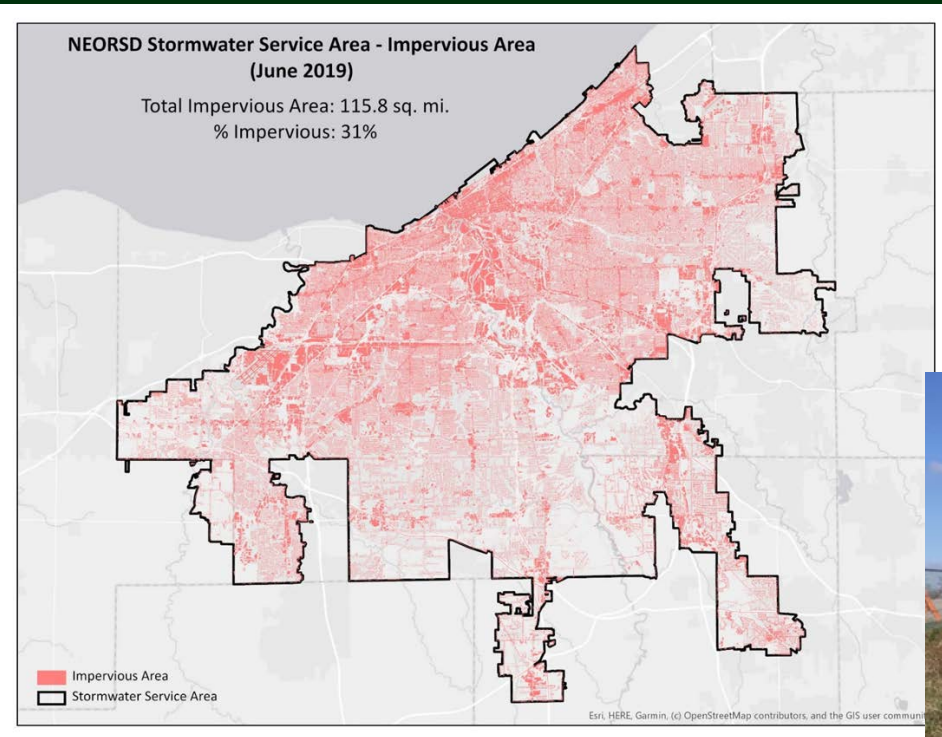
Regional Watersheds



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Watershed Challenges



Increasing Impervious Surfaces



Aging Conveyance Infrastructure



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Regional Stormwater Management Program Components...



Stormwater
Master
Plans



Inspect &
Maintain



Construct
Projects



Encourage
Good
Practices



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Regional Stormwater Fee

**2016 - 2021 Base Rate =
\$5.15 per ERU**



Residential Property



Non-Residential Property



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NEORSD WATERSHED MONITORING SYSTEMS



Rain Gauge Network



Trail Camera Monitors

Flow/Water Level Monitors









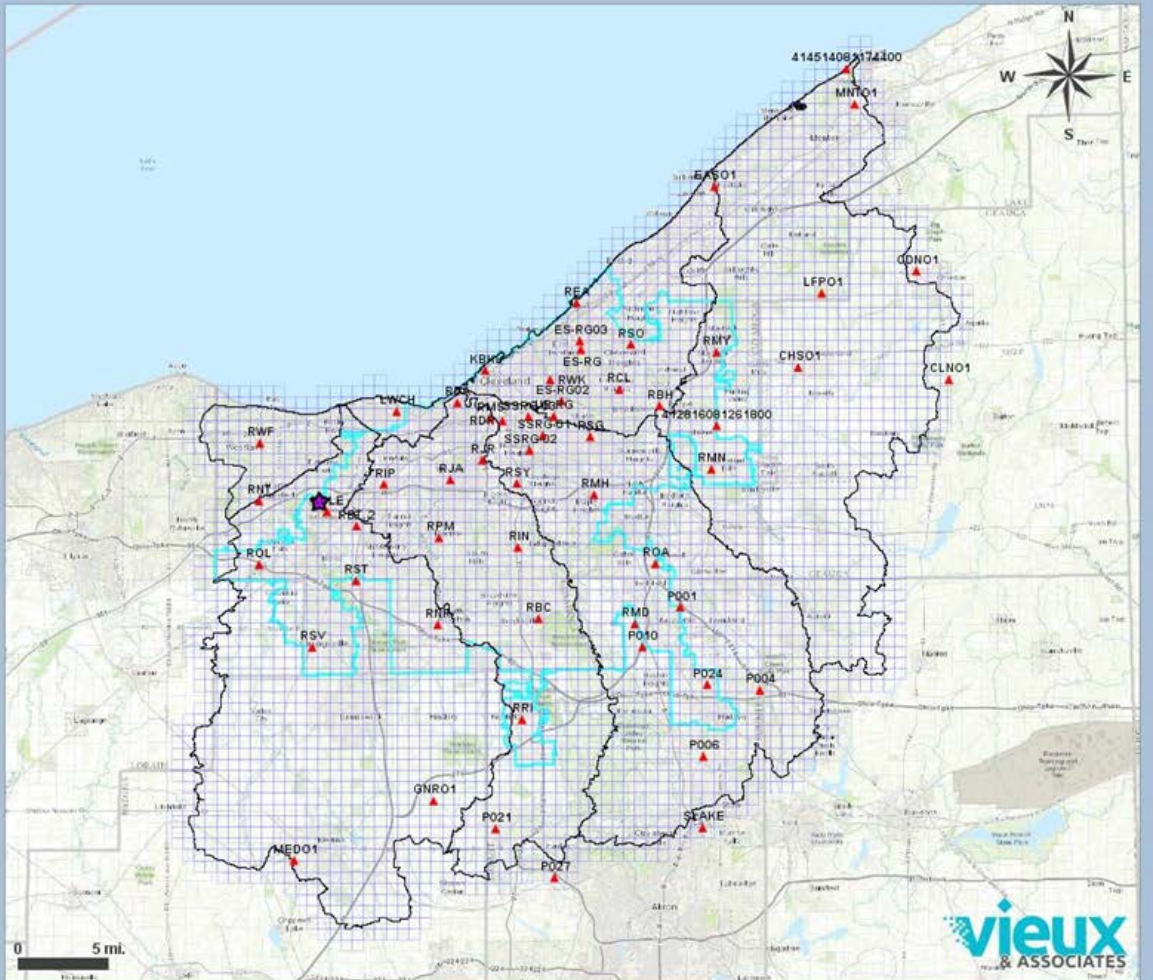
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NEORSD Rain Gauge Network Map

Features

-  Rain Gauges
-  KCLE NEVRAD
-  1-km Pixels
-  NEORSD Watersheds
-  NEORSD Service Area
-  Counties



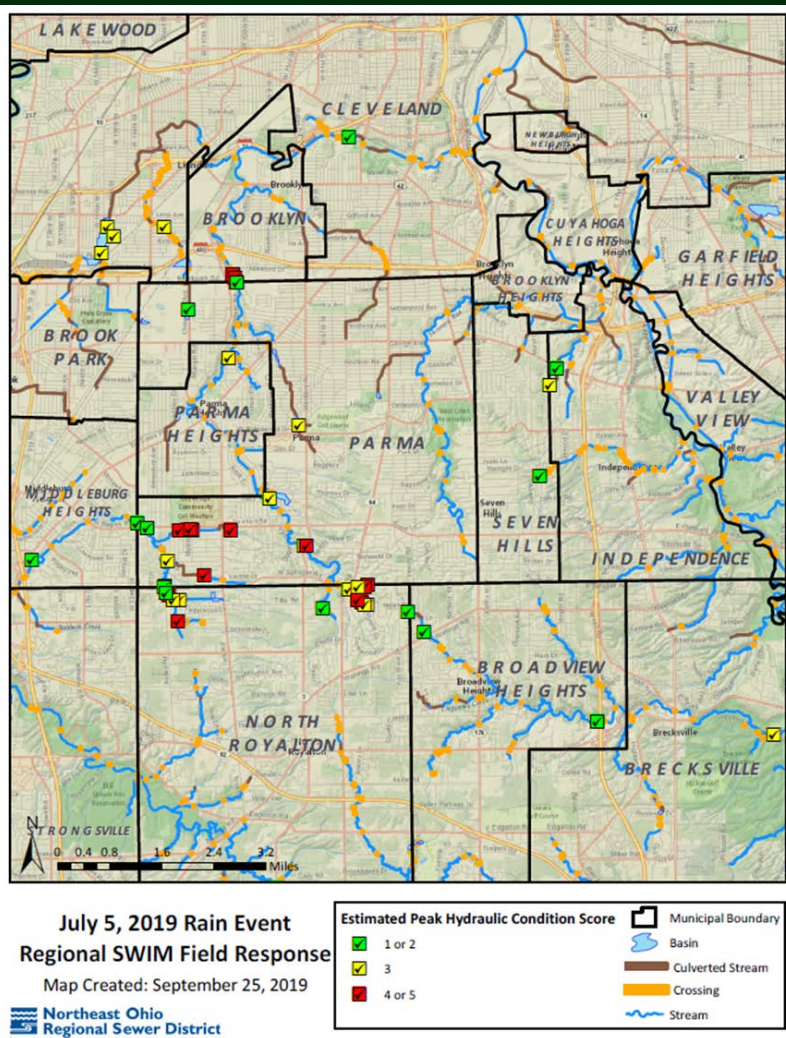
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NEORSD Rain Gauge Network Map

July 5th Storm Response Inspection Summary

- 51 Sites field visited
- 22 sites flooded
- Hardest hit areas were near RGs with peak rainfall



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Trail Camera Maintenance/Compliance Monitoring



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Monitoring Landcaster Bridge

Feb 2016



Flow/High Water Monitoring of RSMP Watersheds



Commercial Flow/Water Level Monitor

USGS Stream Monitors



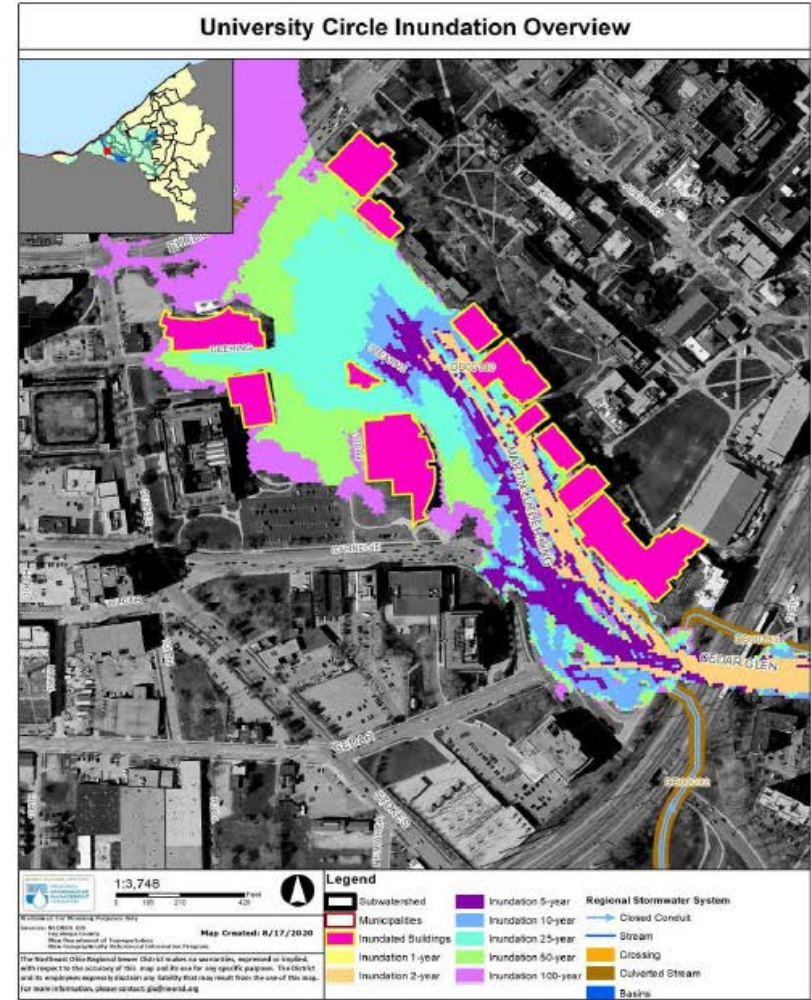
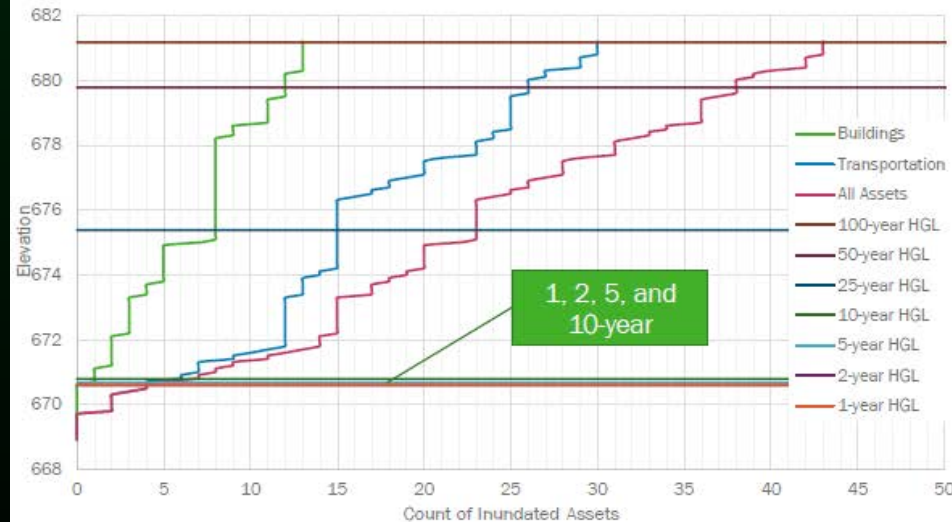
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Doan Brook Culvert Interim Culvert Monitoring

Increase Problem Area Understanding for Range of Conditions

- Minor flooding starts at 2-year
 - Limited to ~5 Transportation Assets
- Major change in count of inundated assets between 10-year and 25-year
 - Roadways impassable and CWRU Buildings inundated



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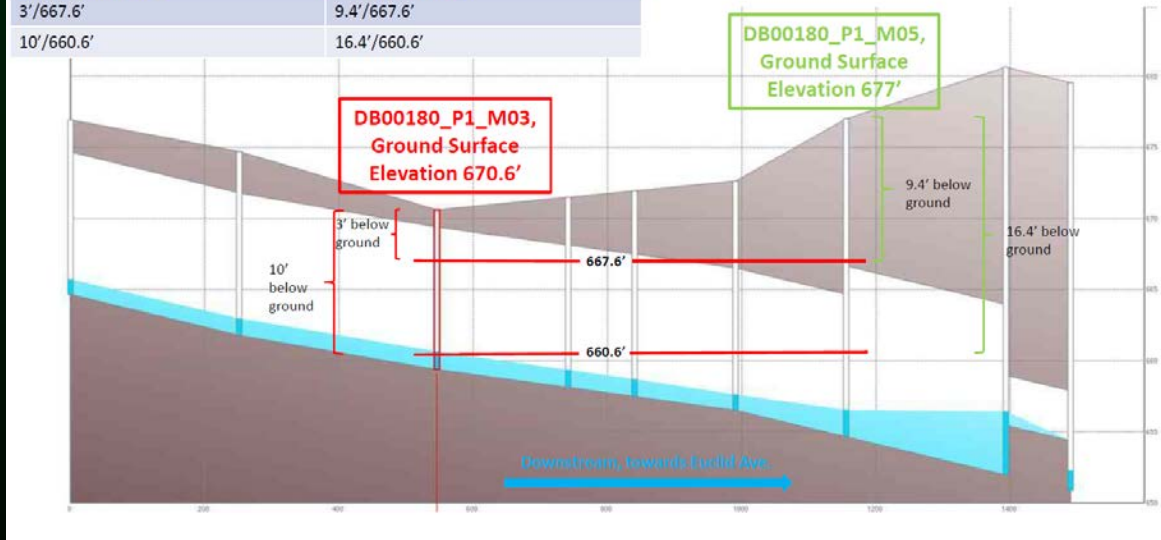


Doan Brook Culvert Update

Interim Culvert Monitoring



Depth Below Ground Surface/WSE at DB00180_P1_M03 (with ground elevation of 670.6')	Depth Below Ground Surface/WSE at DB00180_P1_M05 (with ground elevation of 677')
3' / 667.6'	9.4' / 667.6'
10' / 660.6'	16.4' / 660.6'



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Maintenance Monitoring September 7th Storm Event



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Maintenance Monitoring September 7, 2020 Storm Event

Major Flood Stage:

- Big Creek @ Cleveland,

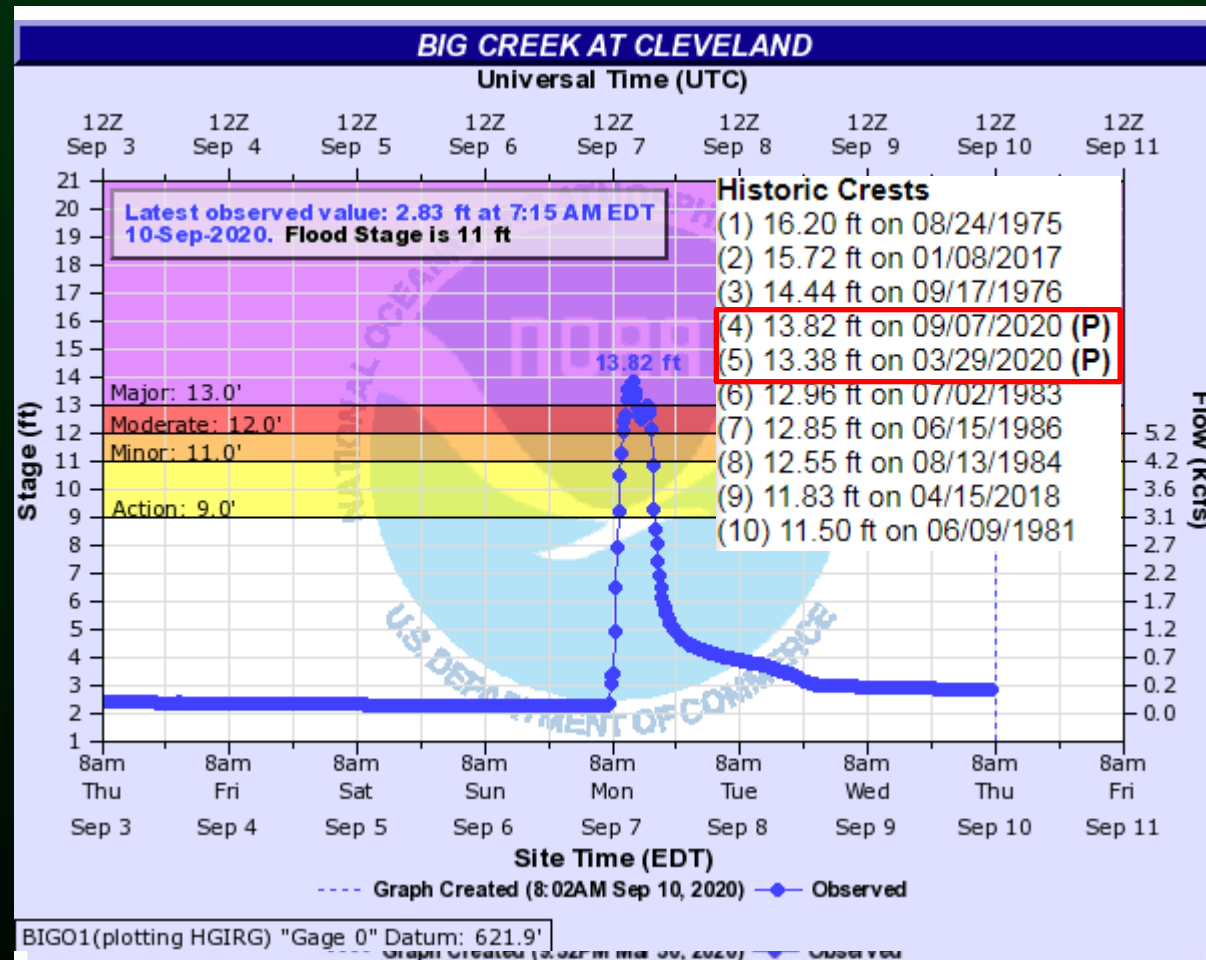
Moderate Flood Stage:

- Cuyahoga River @ Independence
- Mill Creek @ Garfield Parkway

Minor Flood Stage:

- None

9/7/20 was the fourth highest recorded event



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Developing a High-Water Monitoring System within the RSMP Watersheds



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HyFi Pilot Study Underway



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Questions?

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