

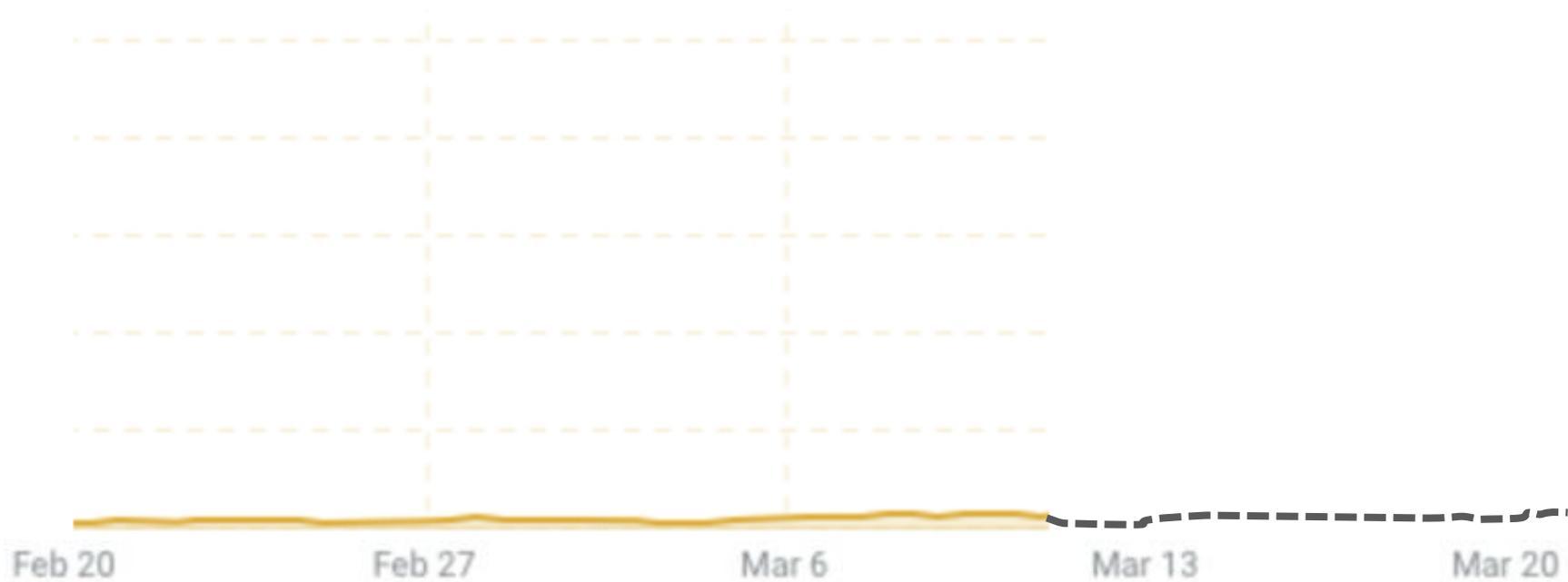


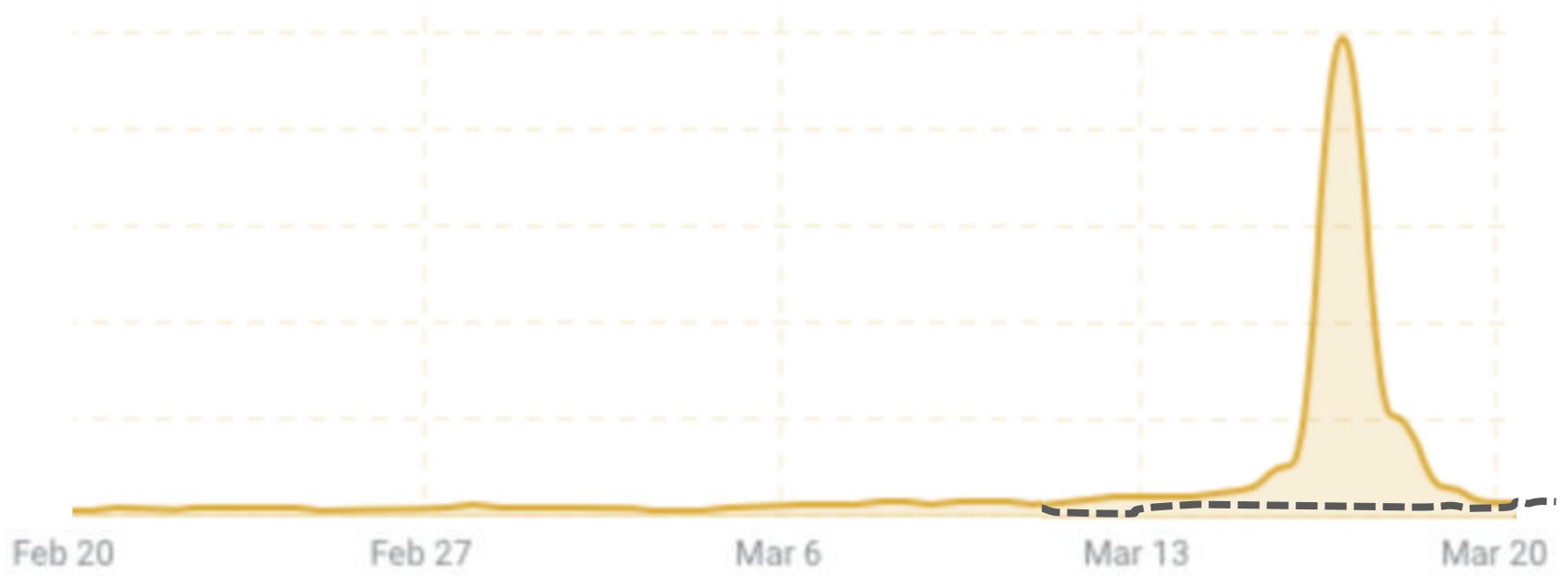
hyfi

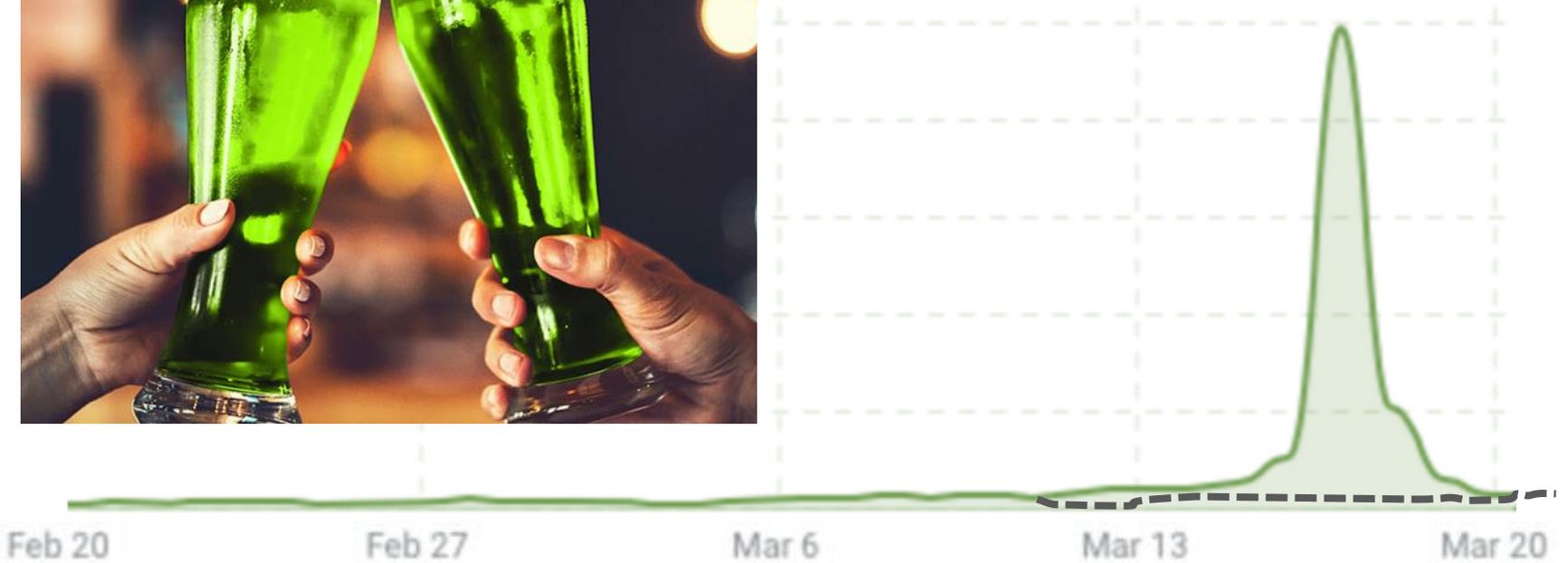
IAFSM Annual Conference
2024 March 12











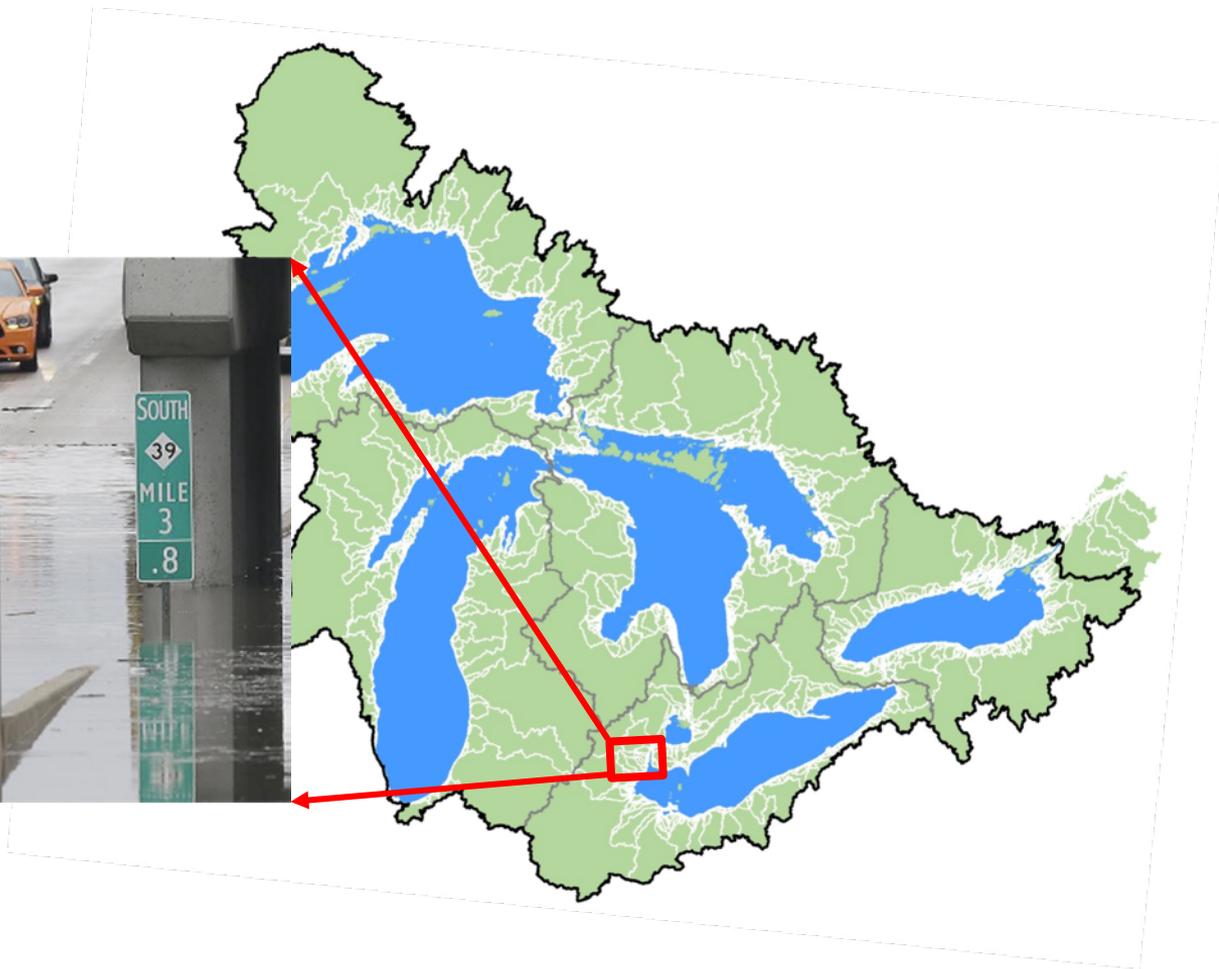


CLARK STREET

CHICAGO'S LEADING LADY

CHICAGO'S LEADING LADY





Dearborn, MI



MI NextCities

Proving Grounds Resources

NextEnergy is developing MiNextCities—

one smart city at a time

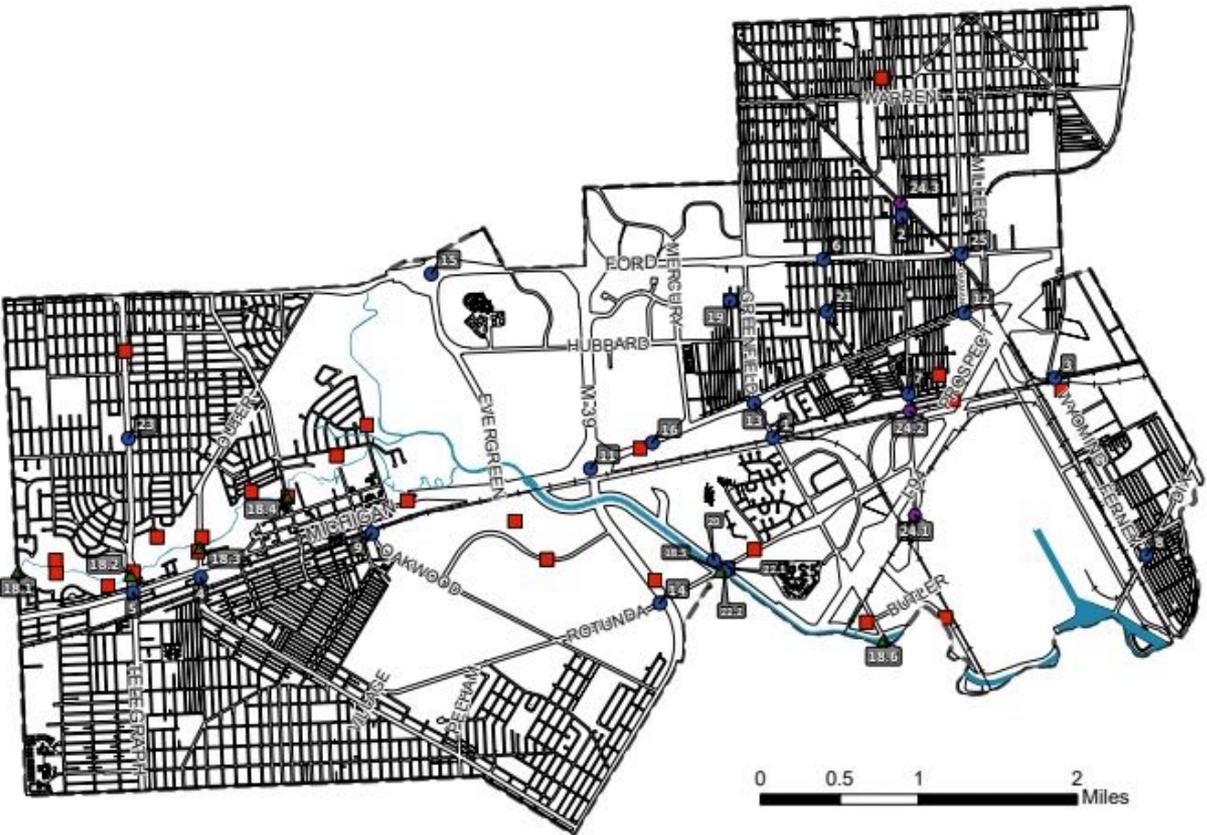
The banner features a blue background with a white and teal isometric illustration of a smart city. The city is built on a smartphone screen, with various buildings, trees, and a car. Several floating white cubes with teal icons represent smart city components like energy, water, and transportation. The text is in white and teal, with the main headline in large, bold white letters.



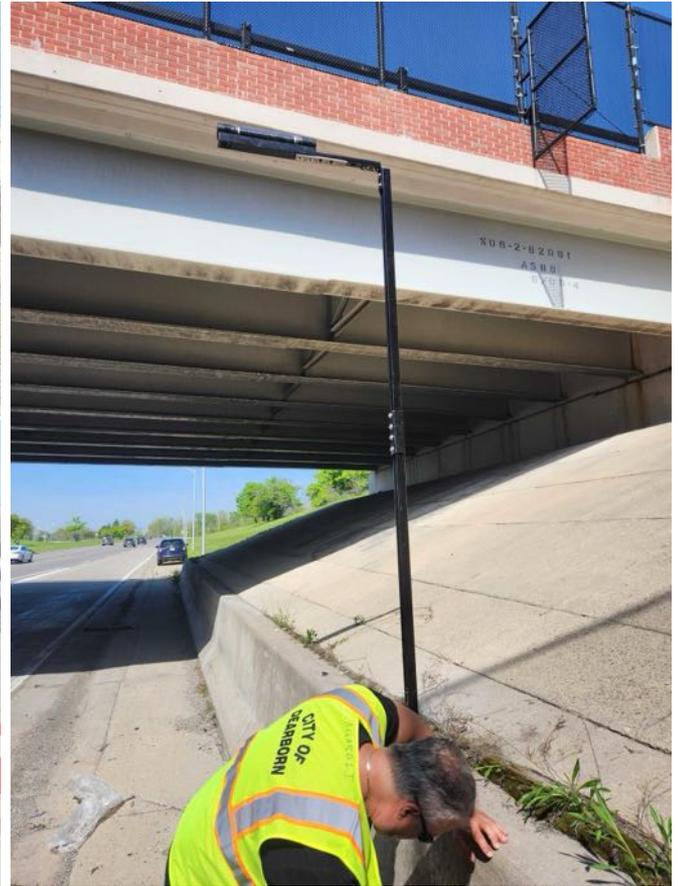










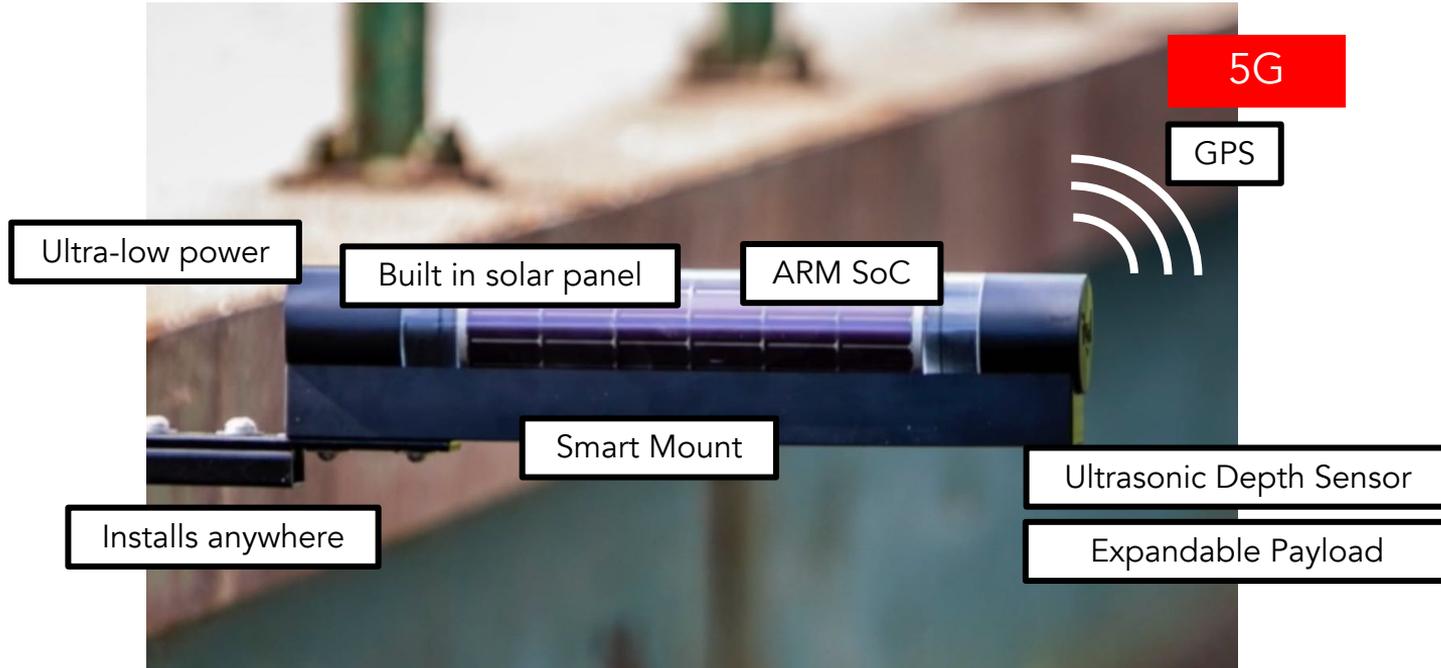


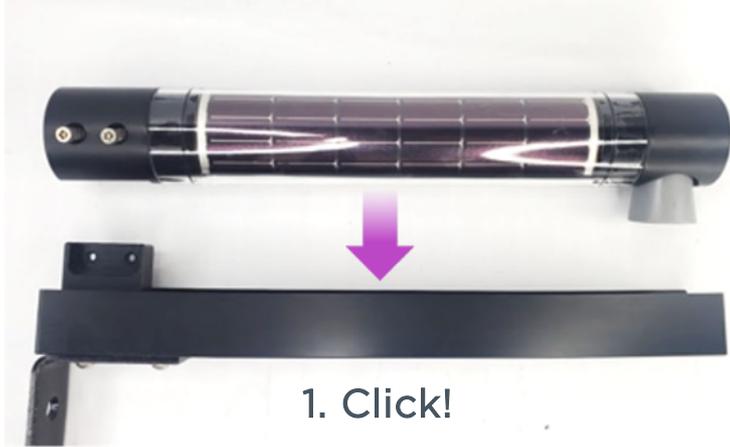
IAFSM

hyfi.io



Water levels *anywhere*





1. Click!



2. Twist!



3. Ready





Bolt



Strap

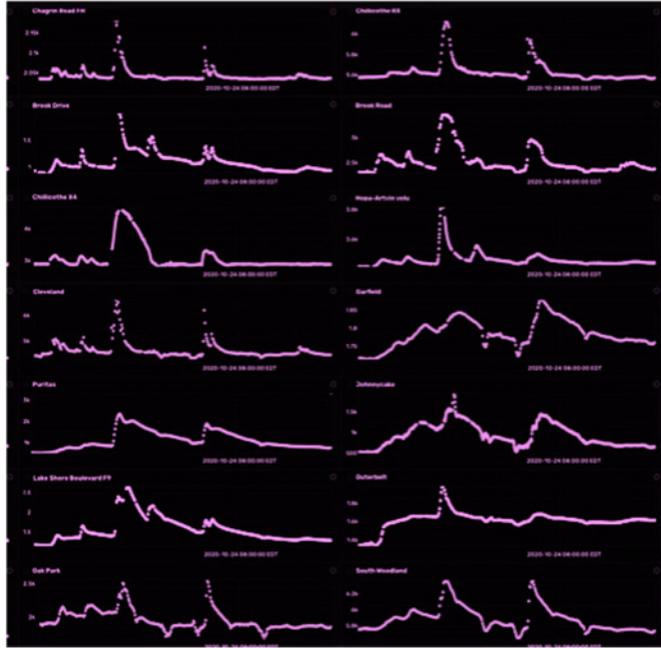


Clamp

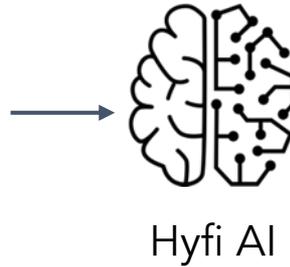
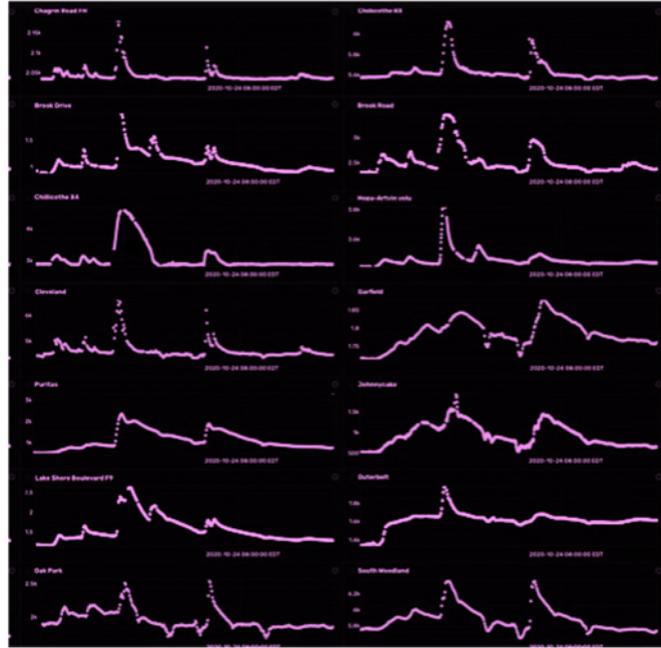


Post

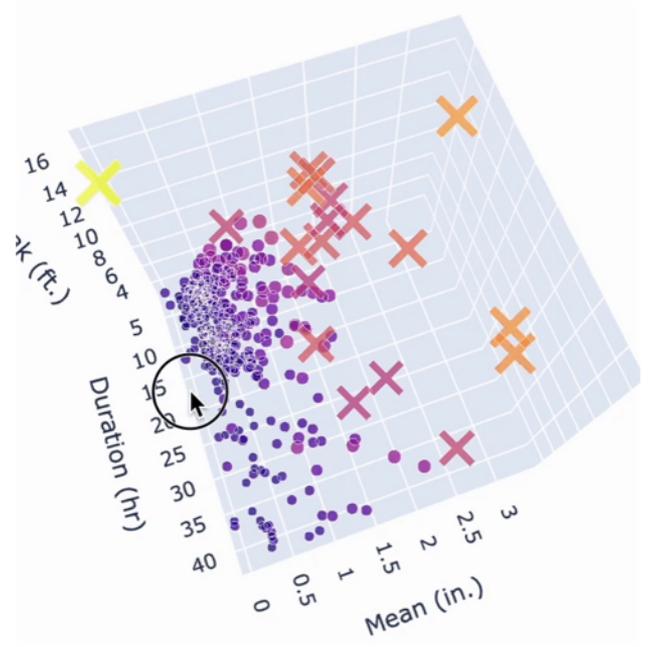
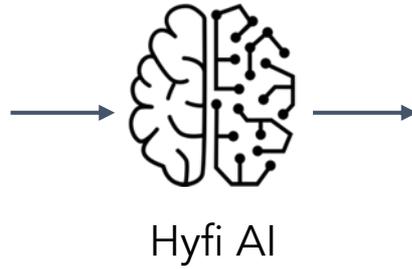
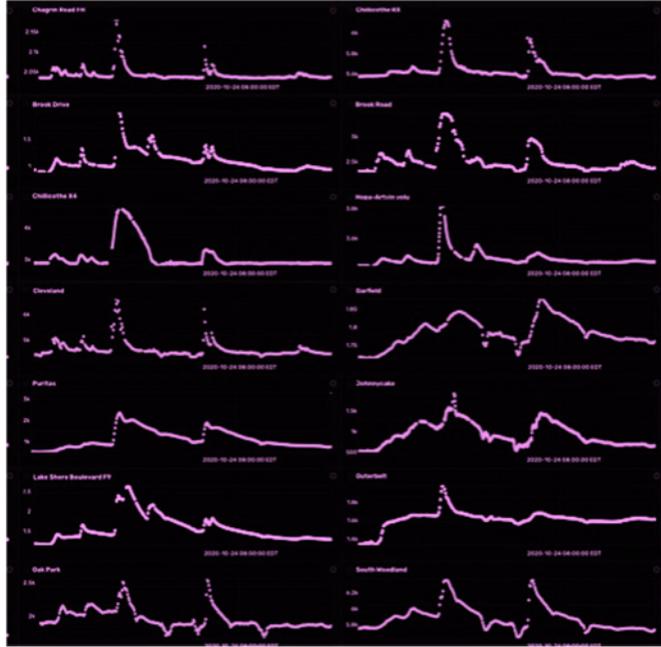
Data



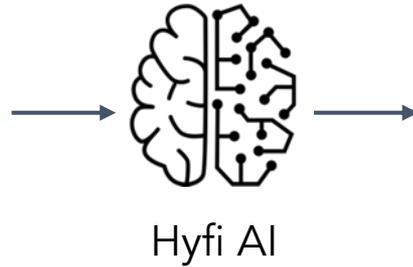
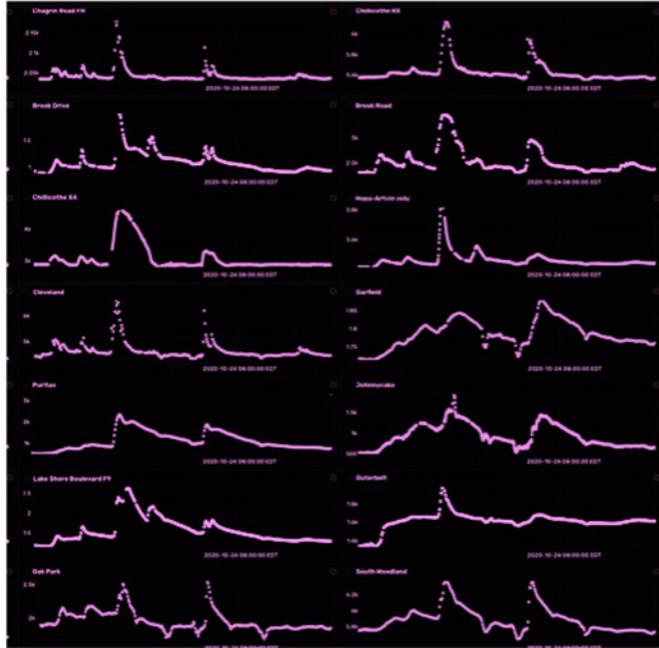
Data + Analytics



Data + Analytics



Data + Analytics



Quality Control

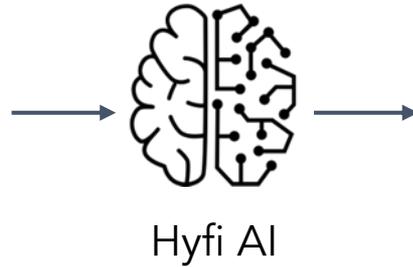
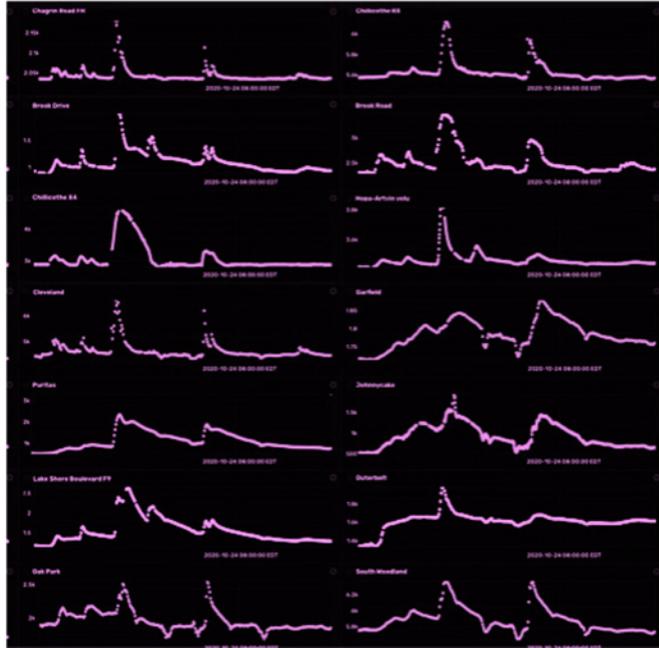
Event Detection

Flood Mapping

Alerts & Reports



Data + Analytics



Quality Control

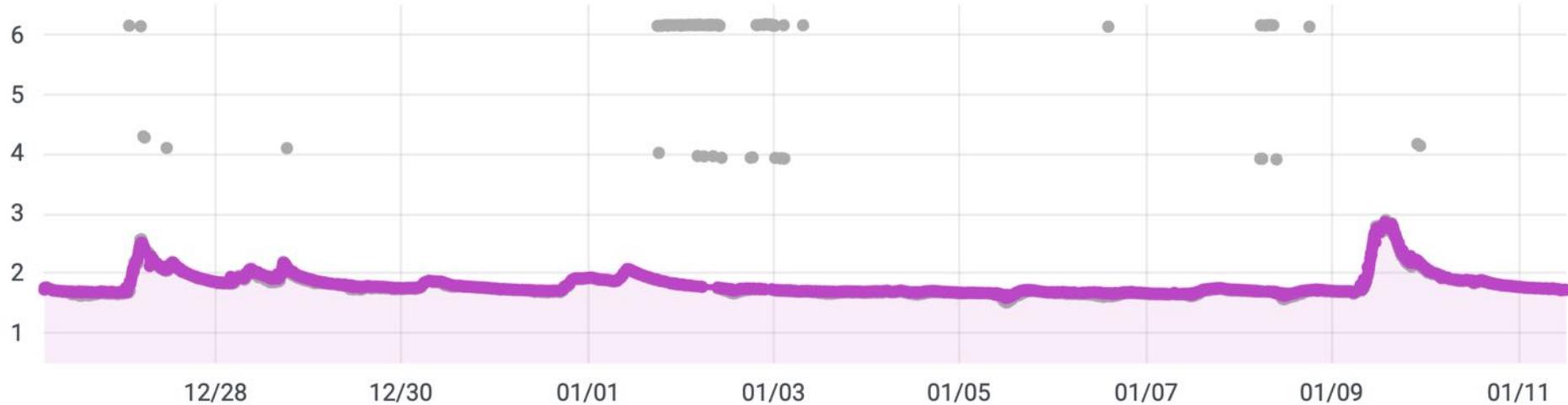
Event Detection

Flood Mapping

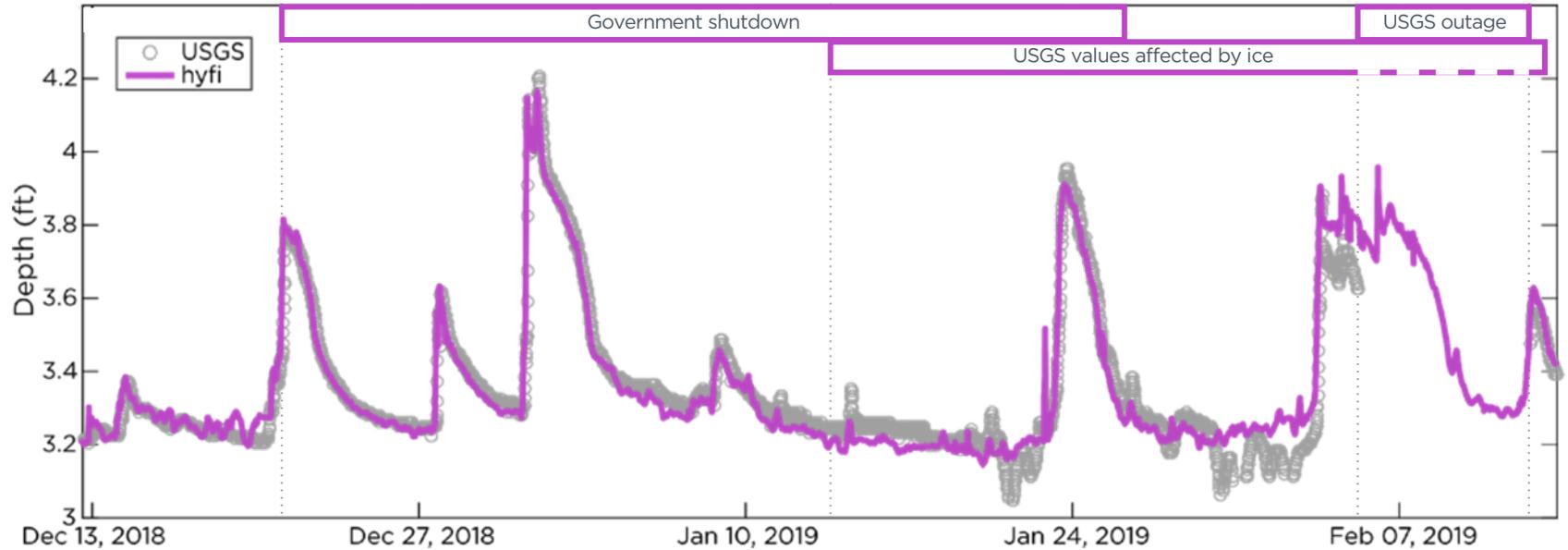
Alerts & Reports



Quality Control



Quality Control – USGS Comparison





© Mapbox © OpenStreetMap Improve this map



IAFSM

hyfi.io

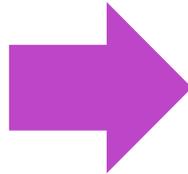


© Mapbox © OpenStreetMap Improve this map



IAFSM

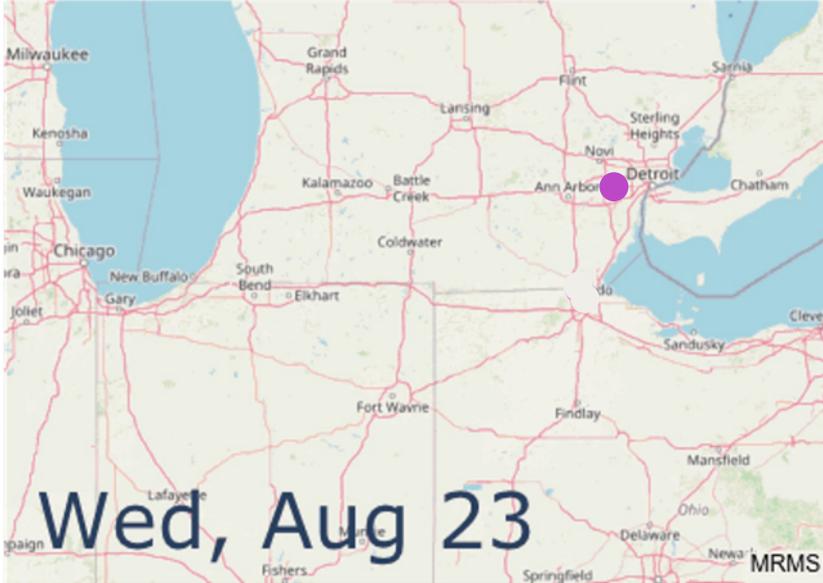
hyfi.io



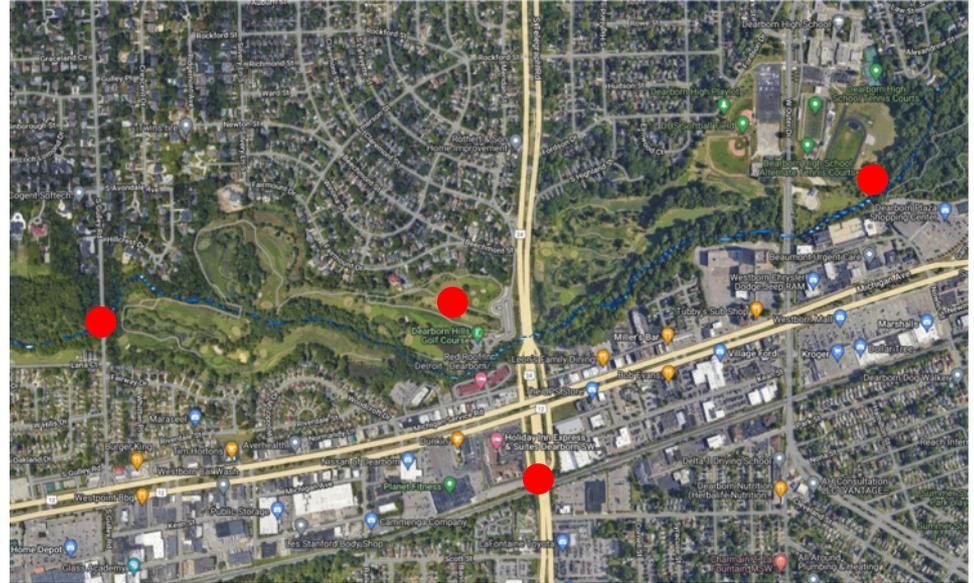




Dearborn, August 25



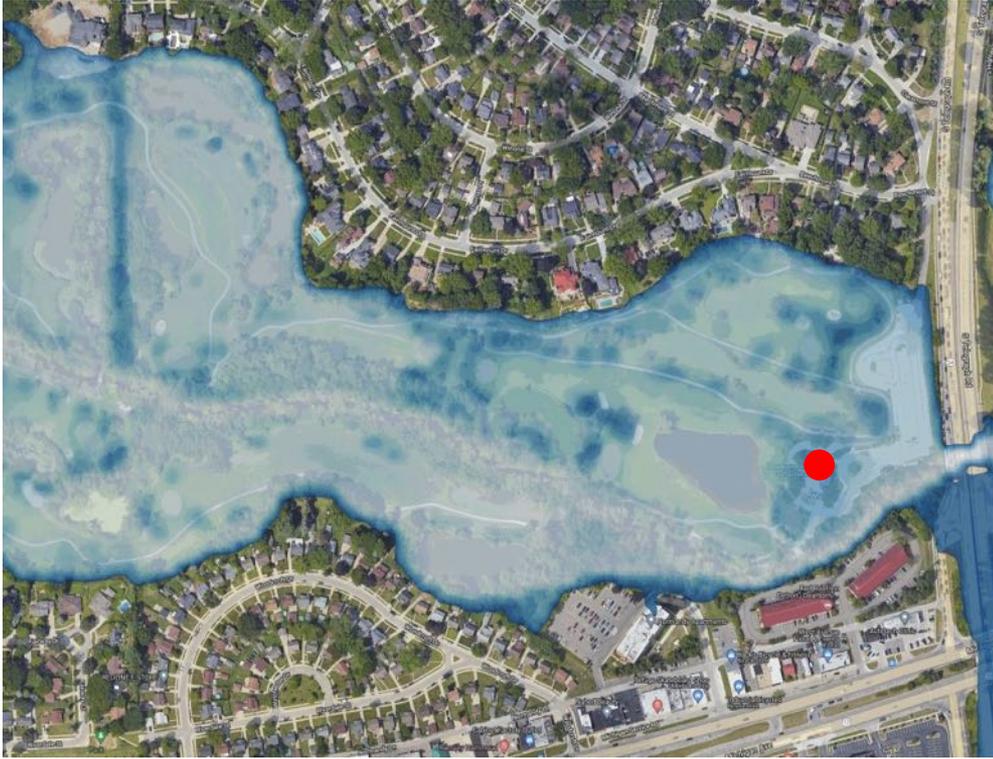
200-yr storm
3-5" rain in 6 hr



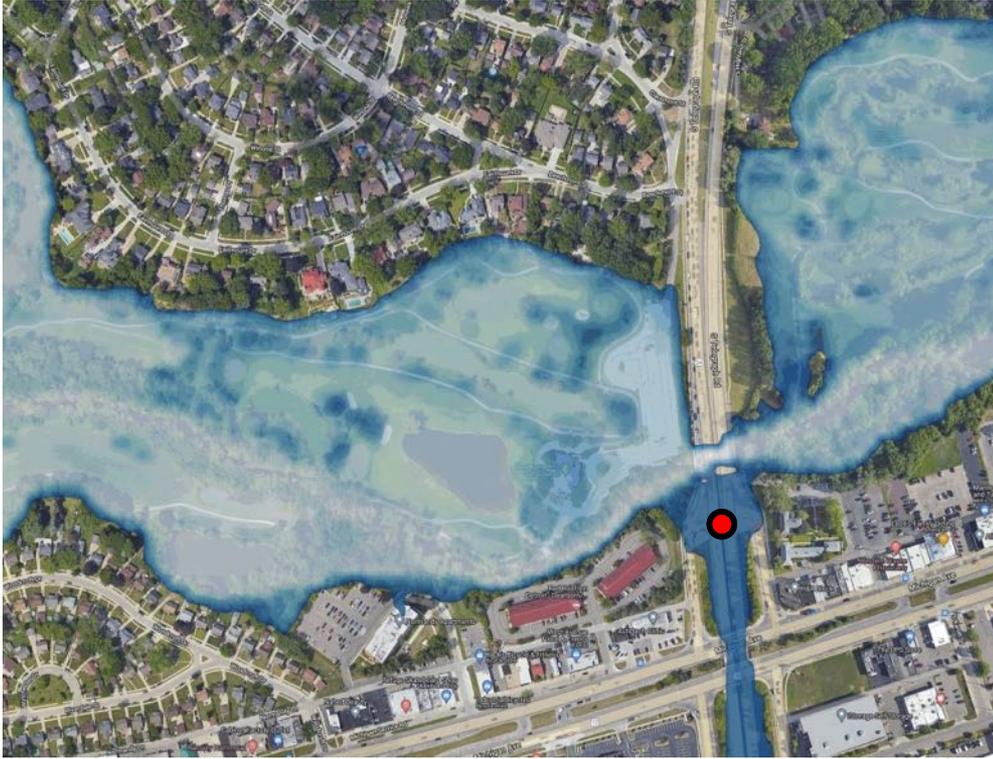
Dearborn, MI
City-wide flooding



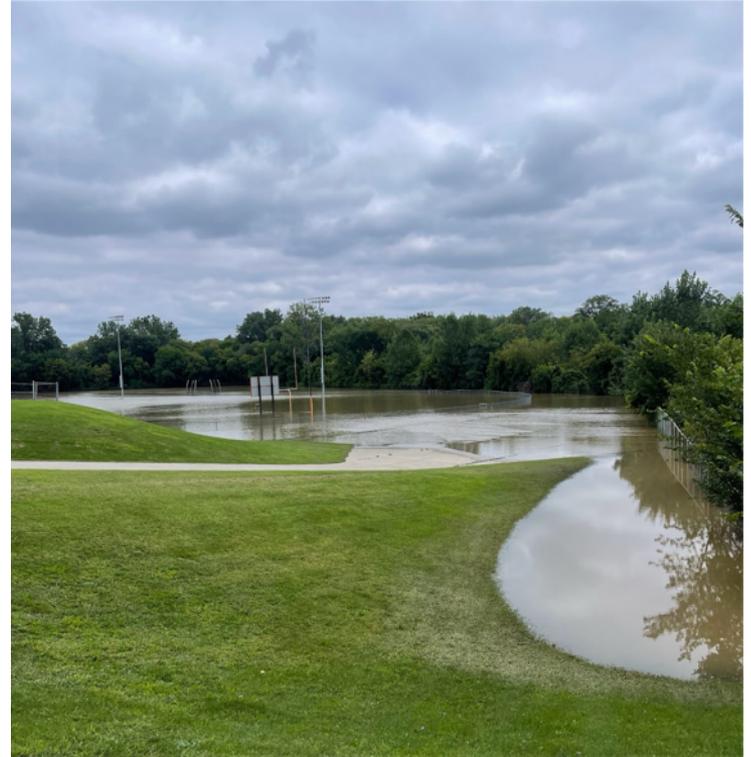
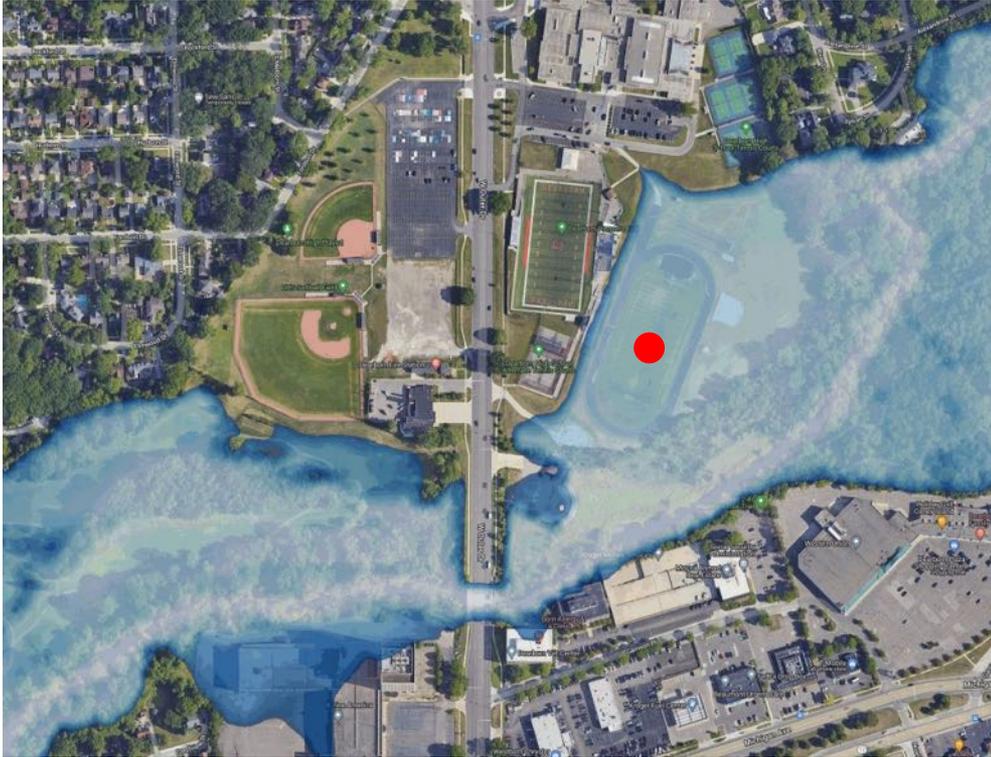
Dearborn Hills Golf Course



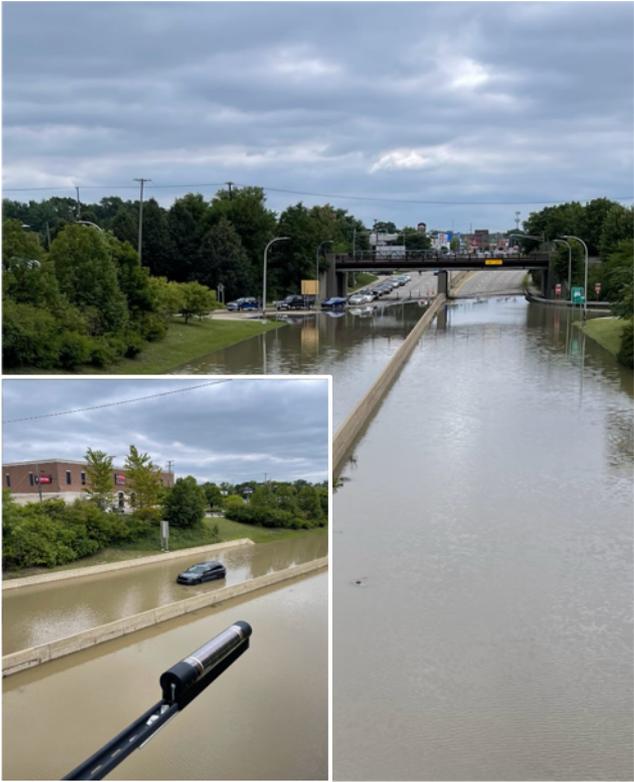
Dearborn Hills Golf Course



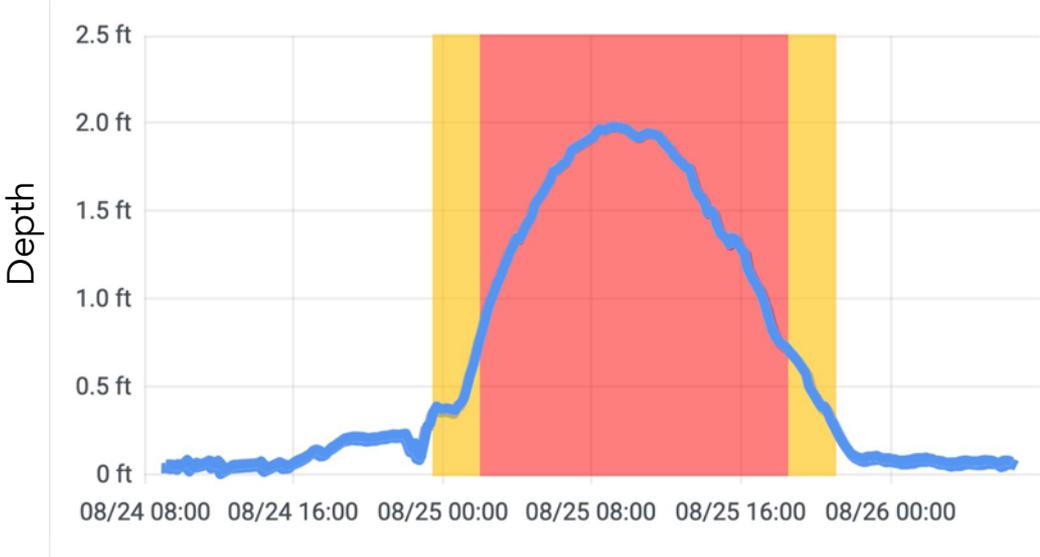
Dearborn High



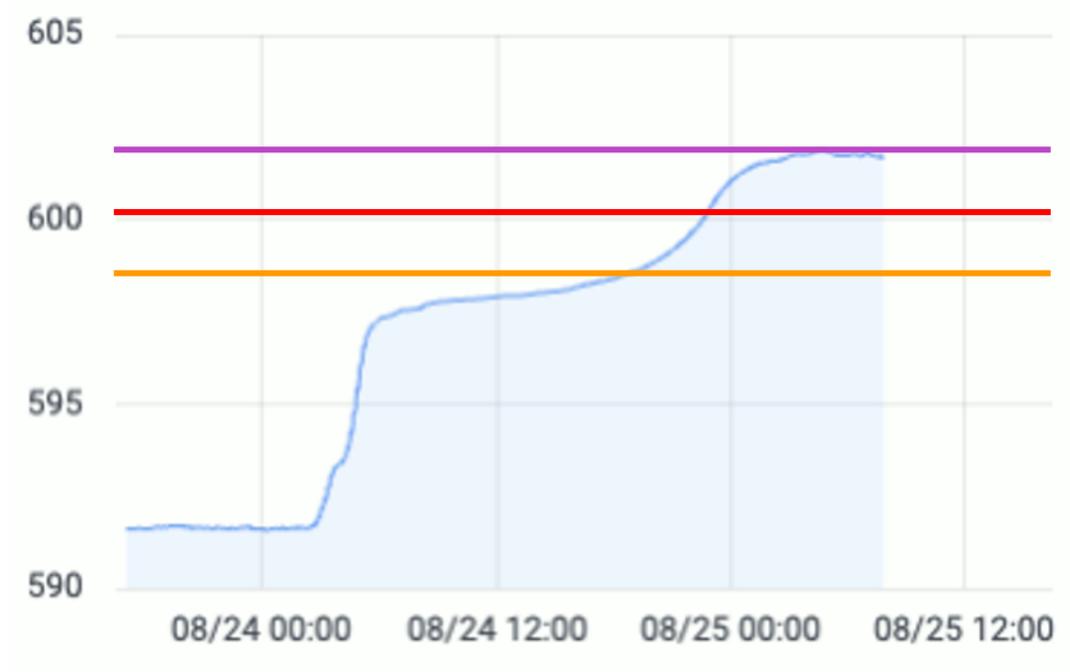
Telegraph & Michigan



Over 8 inches for 17 hrs



State Official: "Close the bridge!"

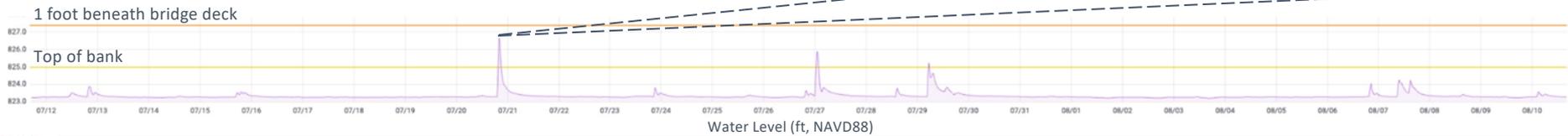


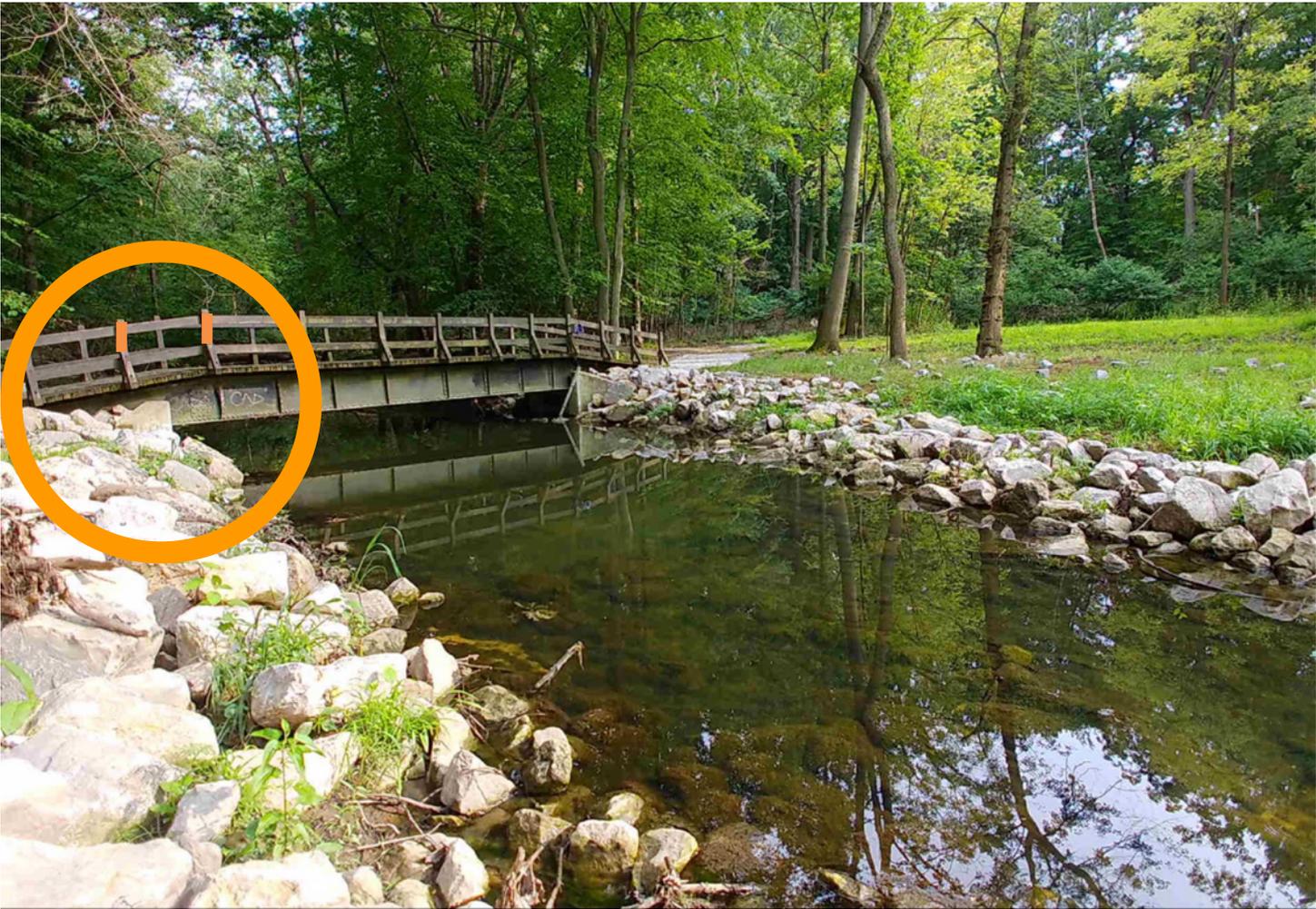


“I was raving about you to the mayor's office. It would have been such an inconvenience to the public if I had to shut down this bridge.

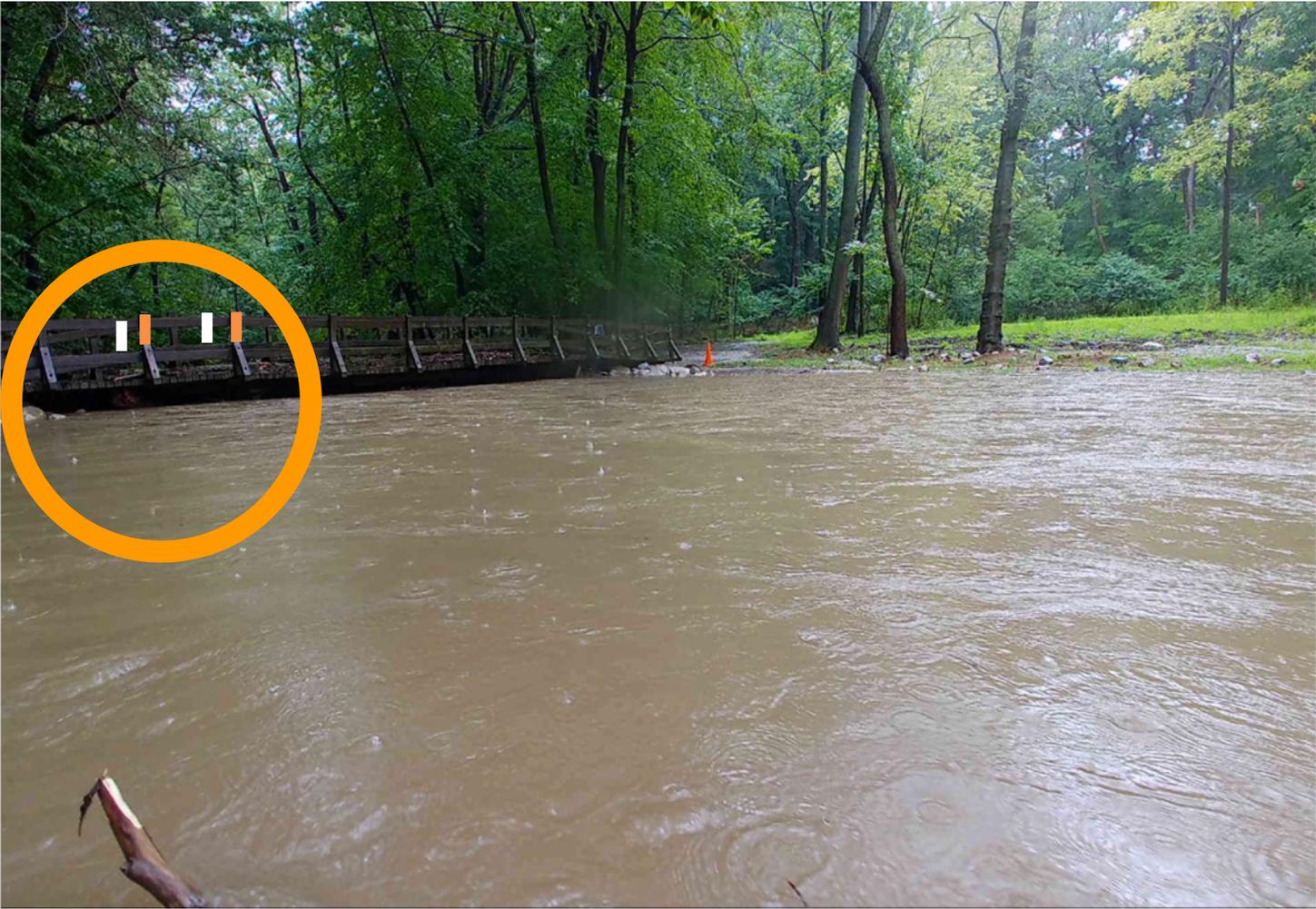
As a testament to what the service can do, you avoided the closure, because I had data that could prove it to the state.”



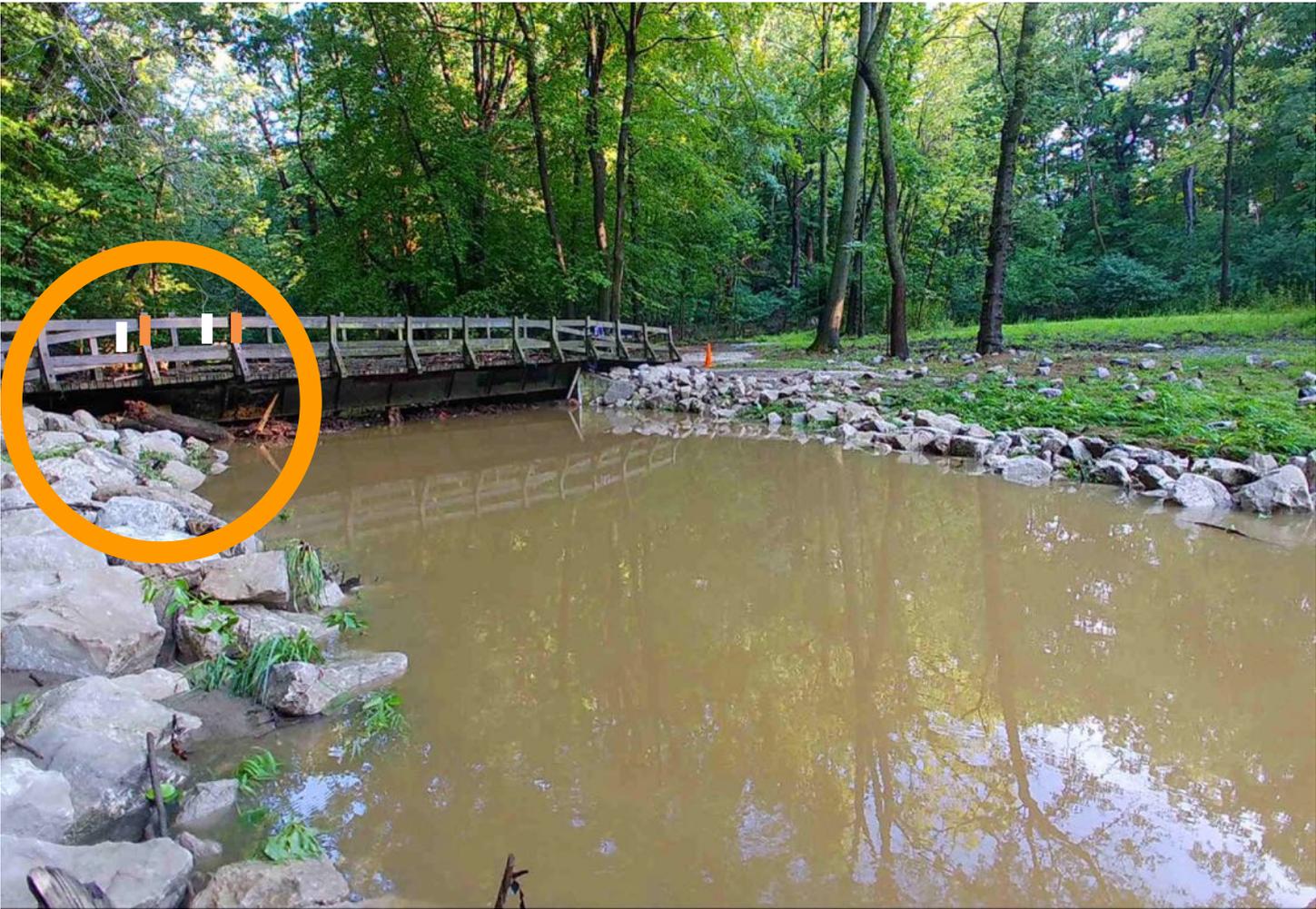


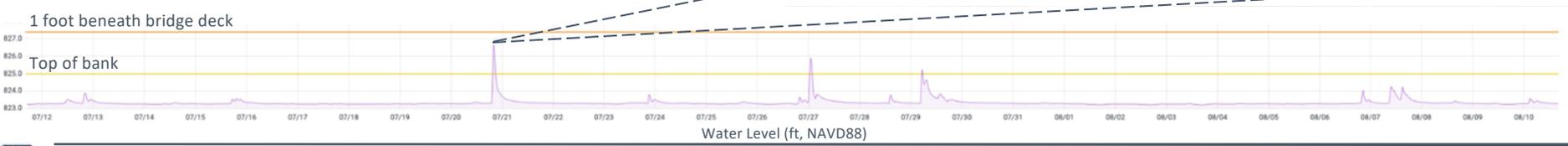
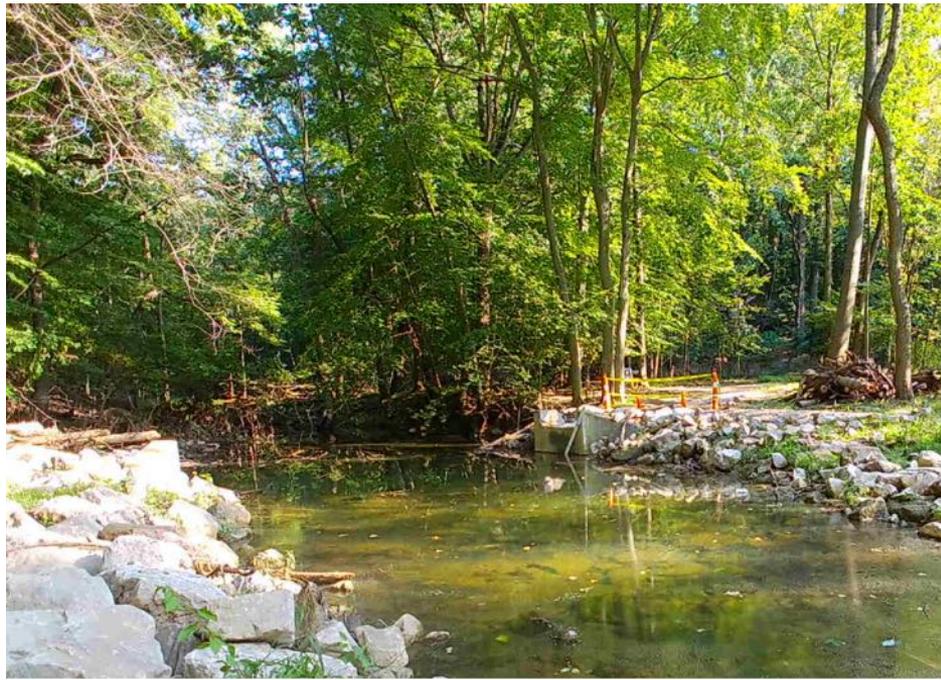














Search...

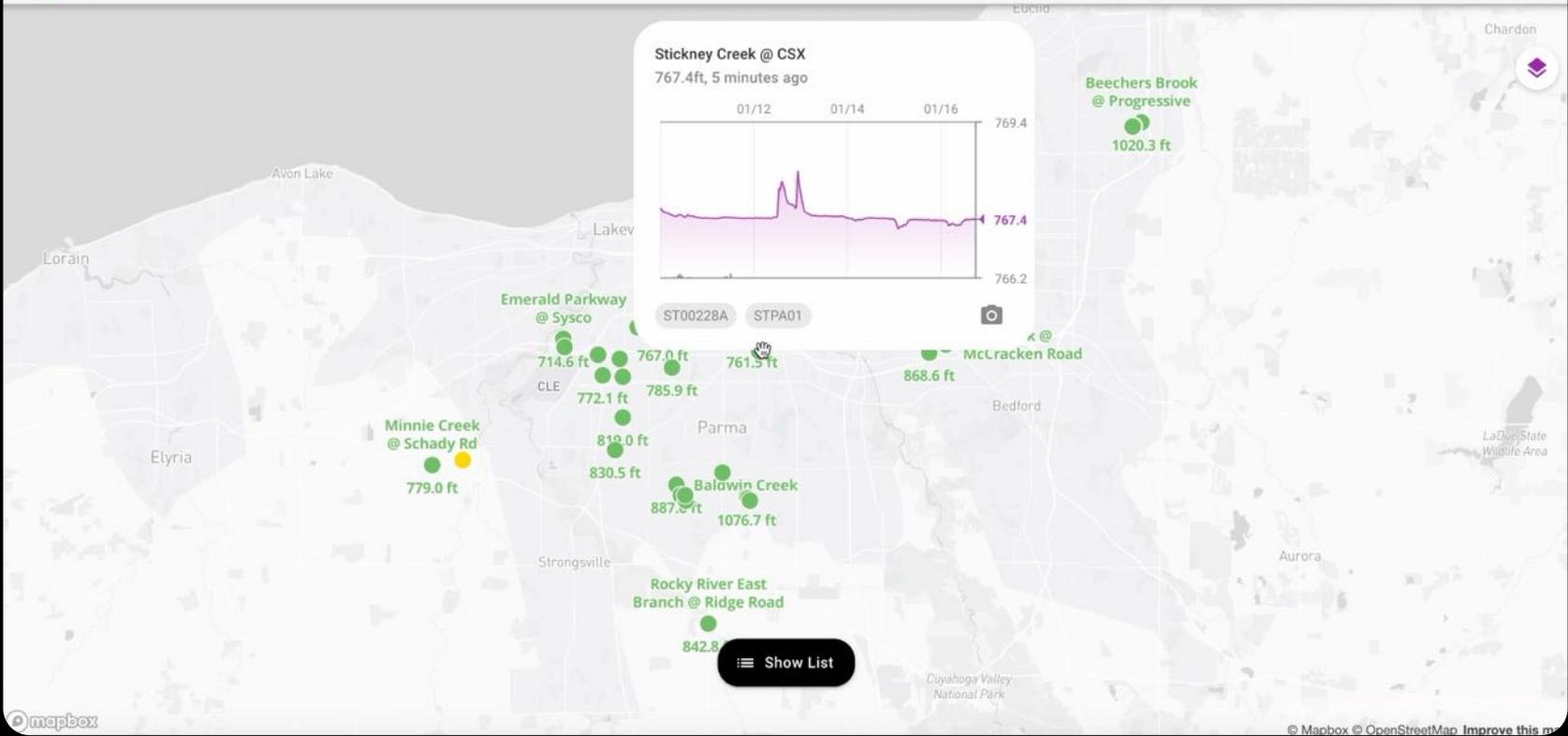


Stickney Creek @ CSX

767.4ft, 5 minutes ago



ST00228A STPA01



Show List



API



```
GET \  
--header 'X_API-KEY: API_KEY' \  
'https://api.hyfi.io/getData?site_code=86HW8QJ3+2VH9'
```

```
_time,depth,stage,site  
2021-01-26T14:00:00Z,4.501,1148.103,86HW8QJ3+2VH9  
2021-01-26T14:10:00Z,4.507,1148.110,86HW8QJ3+2VH9  
2021-01-26T14:20:00Z,4.504,1148.107,86HW8QJ3+2VH9  
2021-01-26T14:30:00Z,4.501,1148.104,86HW8QJ3+2VH9  
2021-01-26T14:40:00Z,4.504,1148.107,86HW8QJ3+2VH9  
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...
```



Text and email alerts, road closures



Paddling and boating reports, community outreach



Custom dashboards and embeddable website widgets



Work order and workflow integration

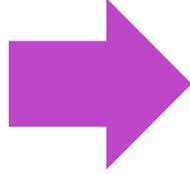


Model calibration and asset performance reports





2023



2024





AMF Brookgate Lanes

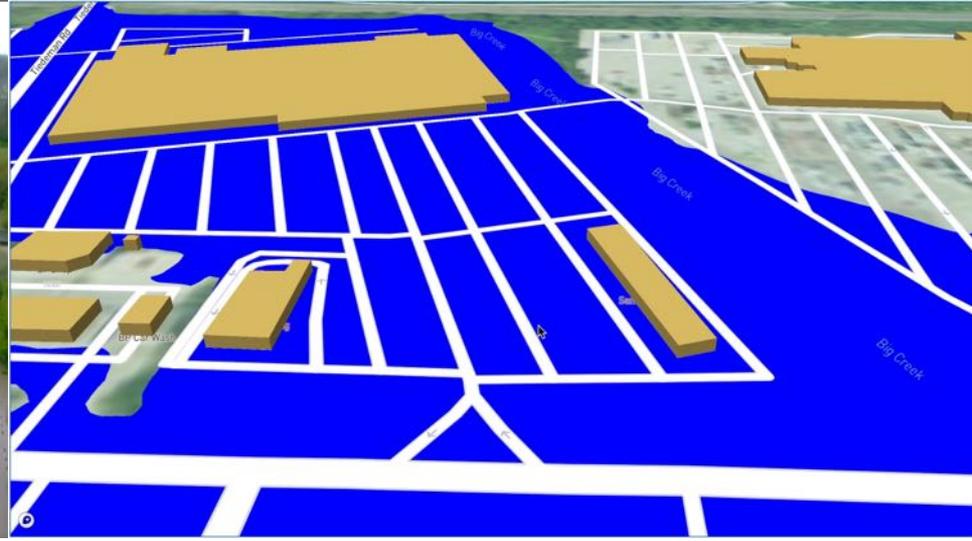
Affordable Dentures
& Implants

Planet Fitness

Severe Flood
Major Flood

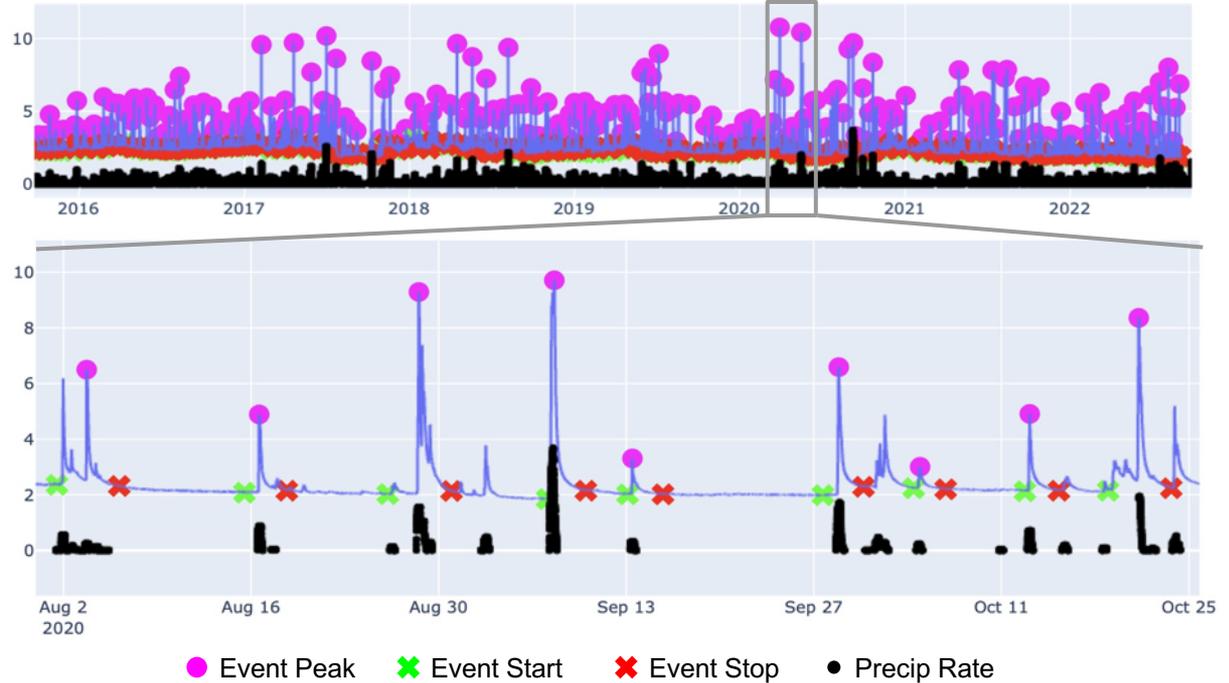
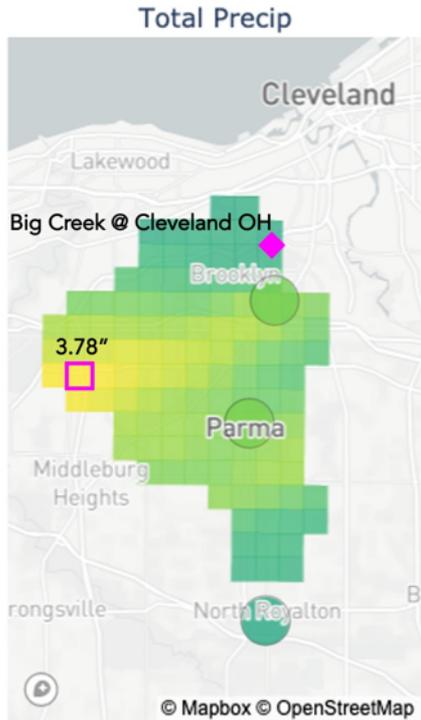
Minor Flood

Sam's Club, 2020



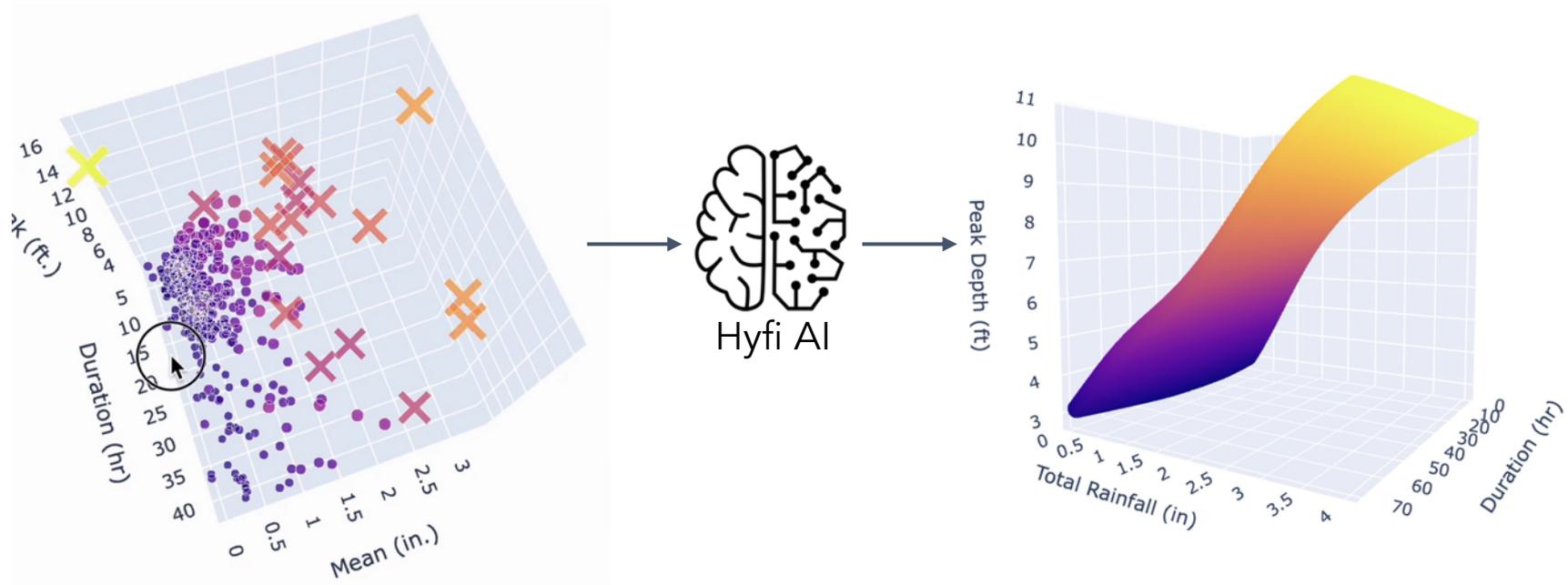
Events identified from hydrograph peaks

350+ storm events identified @ Big Creek at Cleveland.



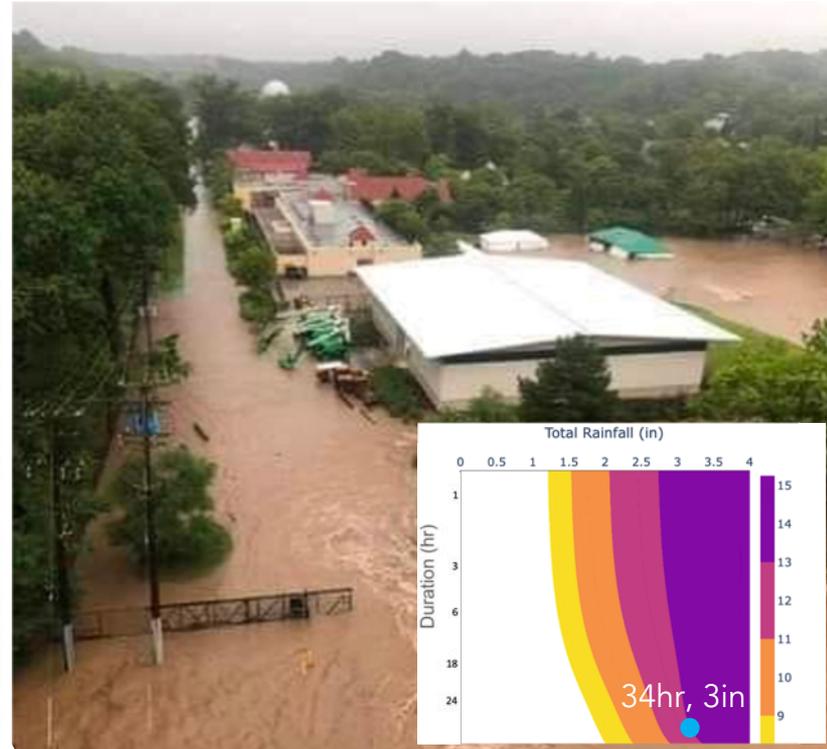
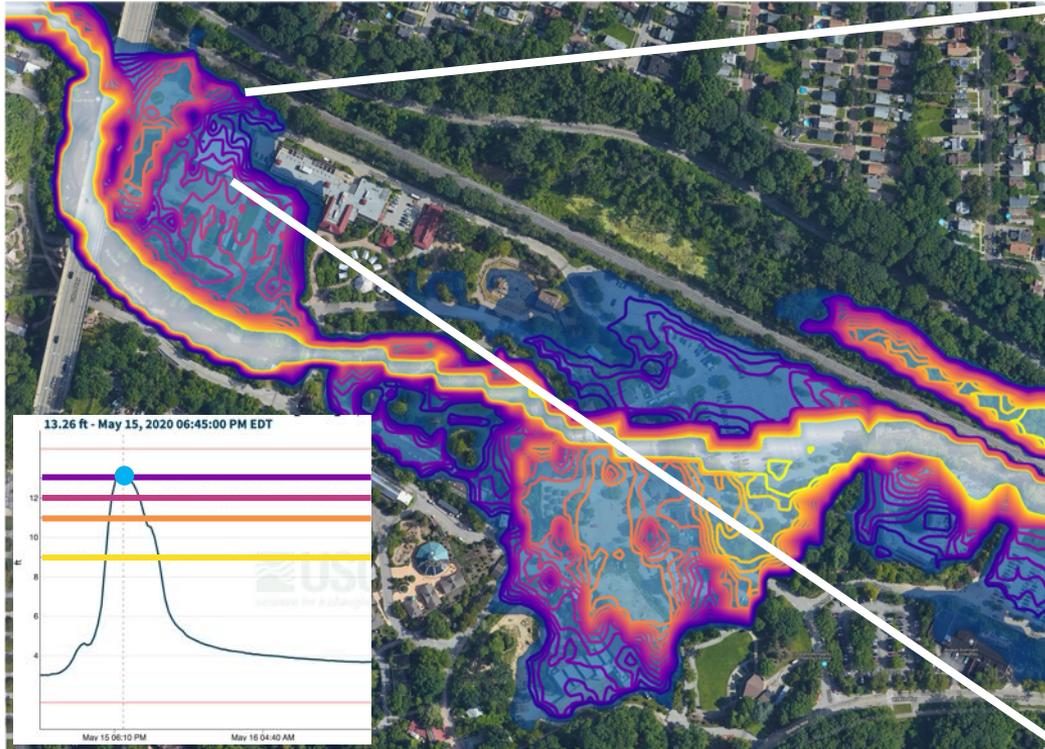
Data-driven model

Storm analysis using Machine Learning/Artificial Intelligence



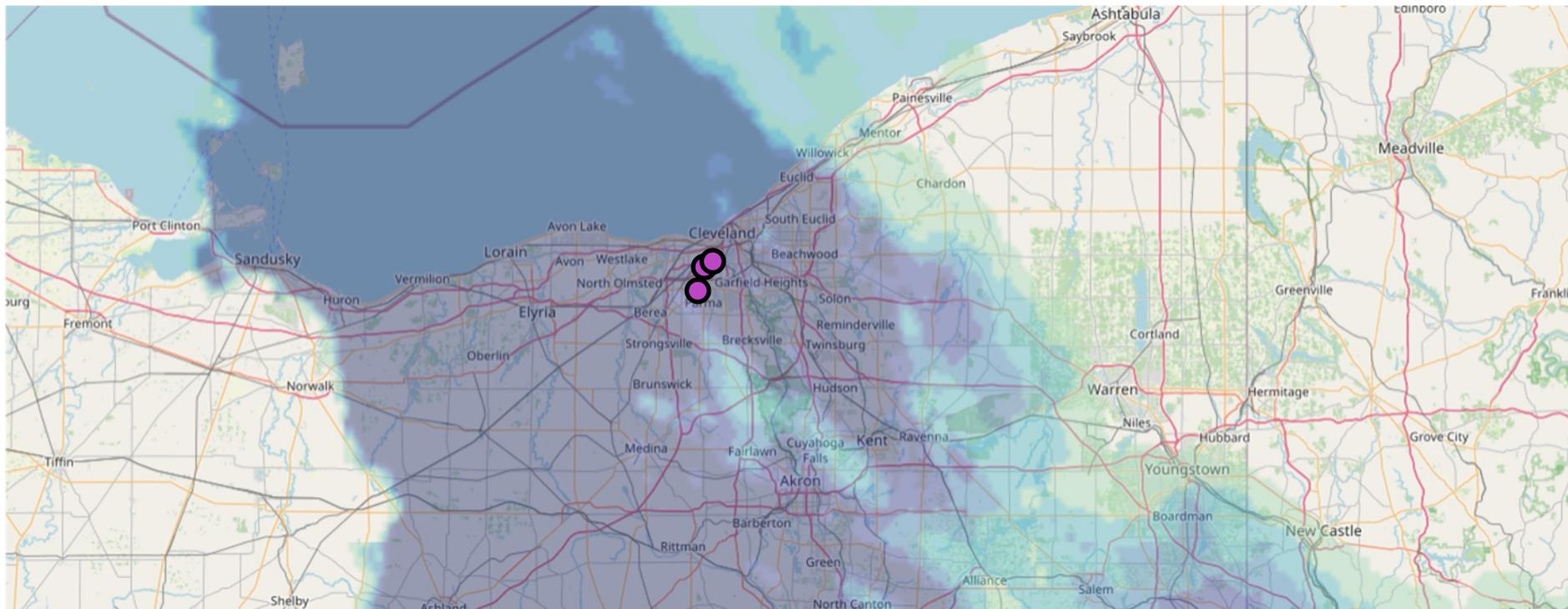
Test Example – Cleveland, 2020

USGS reported 13.26 ft (Operating limit 14.5 ft)



August 23, 2023

2.4" – 2.8" inches of rain over 9 hours leading up to peak water levels.



Results – Sam's Club

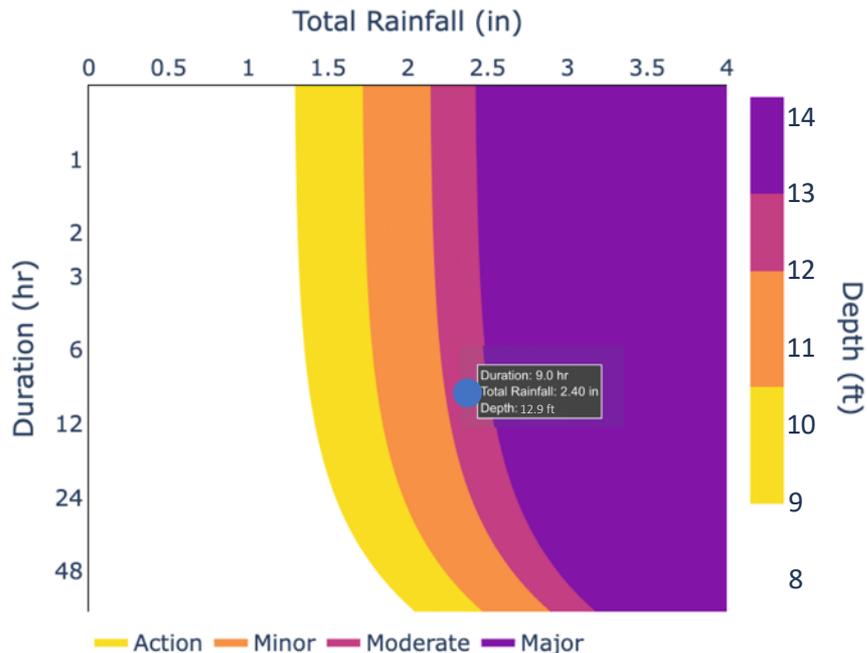
2.4" inches of rain over 9 hours

Big Creek Near Brooklyn OH - 042085017

August 23, 2023 - August 24, 2023

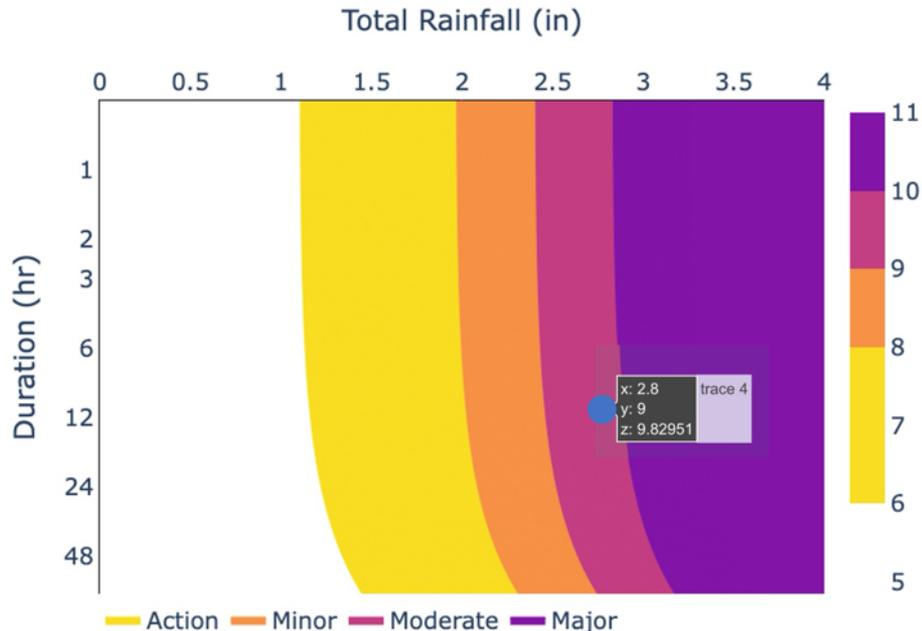
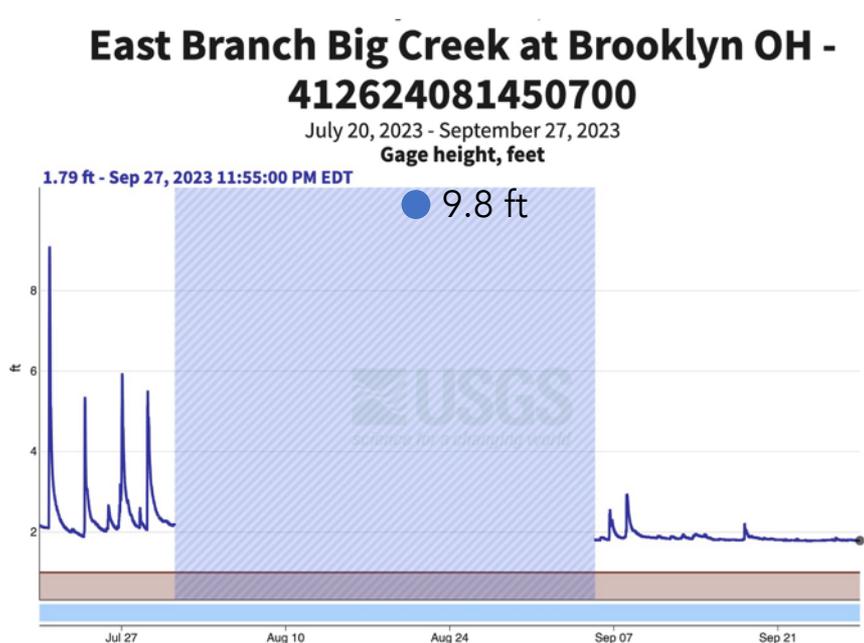
Gage height, feet

12.66 ft - Aug 23, 2023 10:45:00 PM EDT



Results – East Branch Big Creek

2.8” of rain over 9 hours. USGS station was offline.



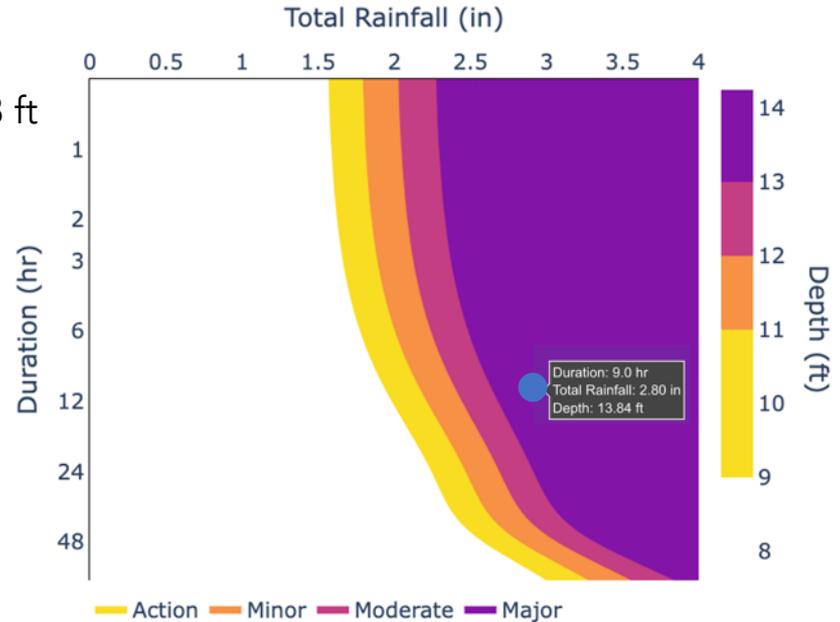
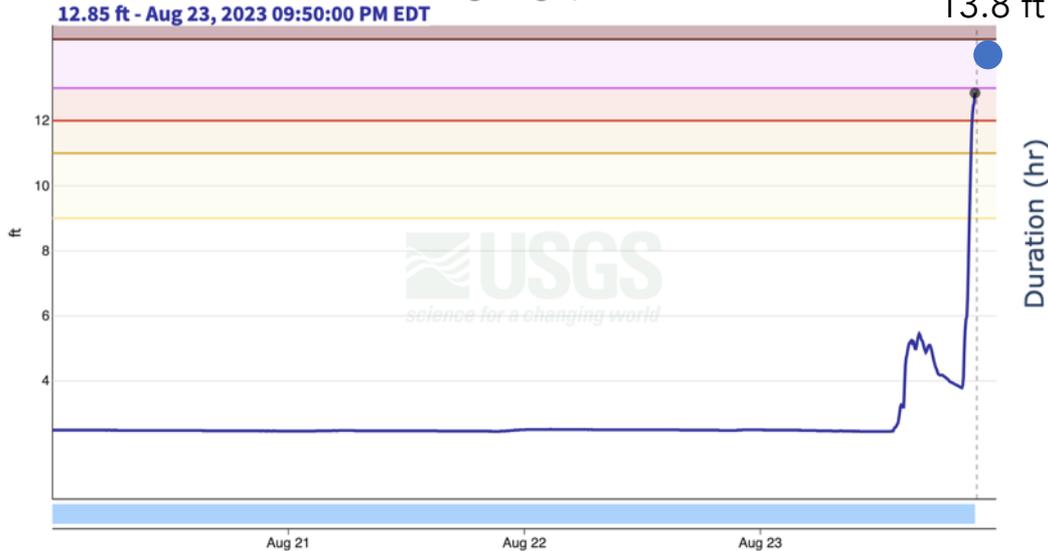
Results – Cleveland Zoo

2.8” of rain over 9 hours. USGS station went offline.

Big Creek at Cleveland OH - 04208502

August 20, 2023 - August 23, 2023

Gage height, feet



Results + USGS Estimated Flow

2.8" of rain over 9 hours.

Big Creek at Cleveland OH - 04208502

August 20, 2023 - August 23, 2023

Gage height, feet

Aug 23, 2023 09:50:00 PM EDT

13.8 ft

ft³/s



Aug 21

Aug 22

Aug 23

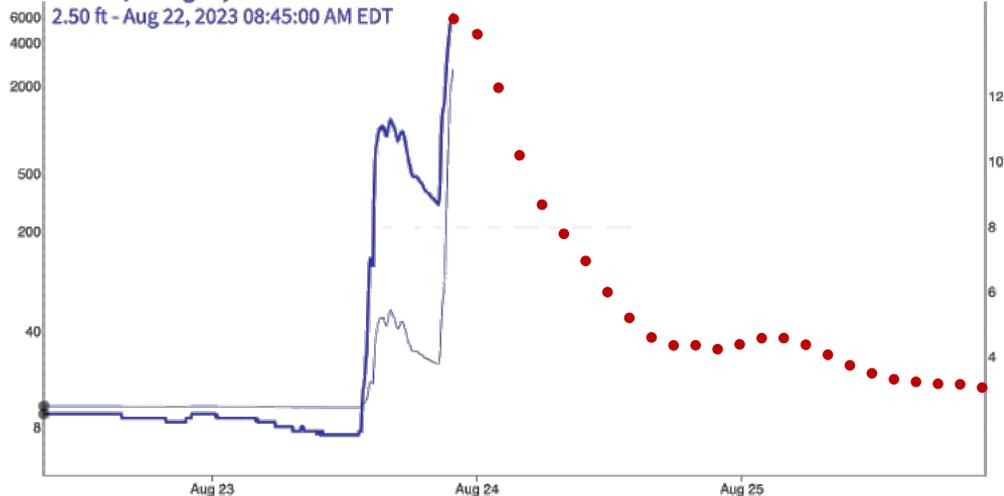
Big Creek at Cleveland OH - 04208502

Discharge, cubic feet per second

Gage height, feet

10.2 ft³/s - Aug 22, 2023 08:45:00 AM EDT

2.50 ft - Aug 22, 2023 08:45:00 AM EDT



Aug 23

Aug 24

Aug 25

Results + USGS Estimated Flow

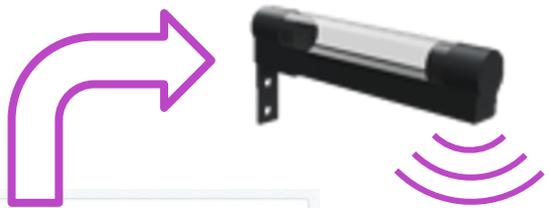
2.8" of rain over 9 hours

Big Creek at Cleveland OH - 04208502

August 20, 2023 - August 29, 2023

Discharge, cubic feet per second
Gage height, feet

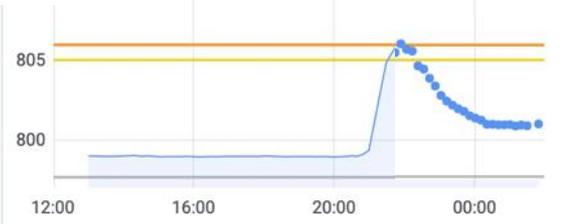




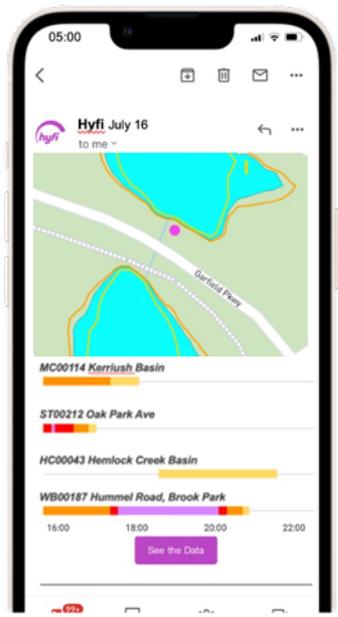
Forecast Rainfall (in/hr)

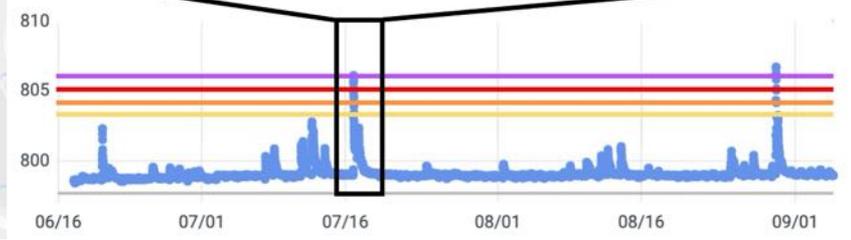
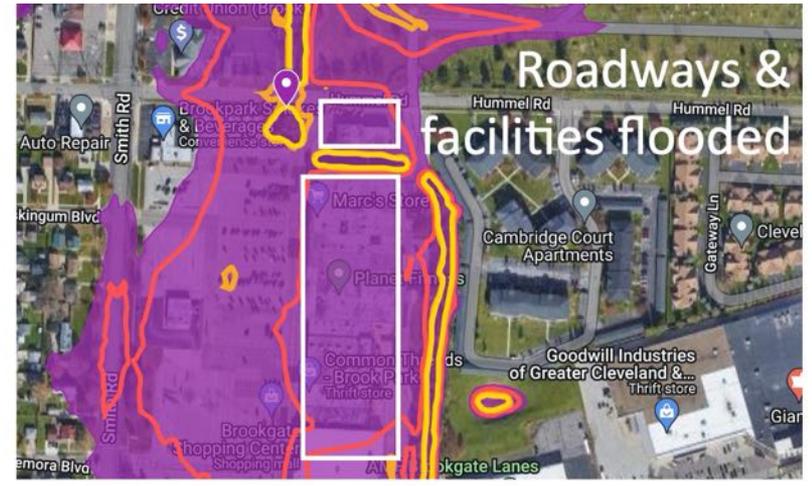
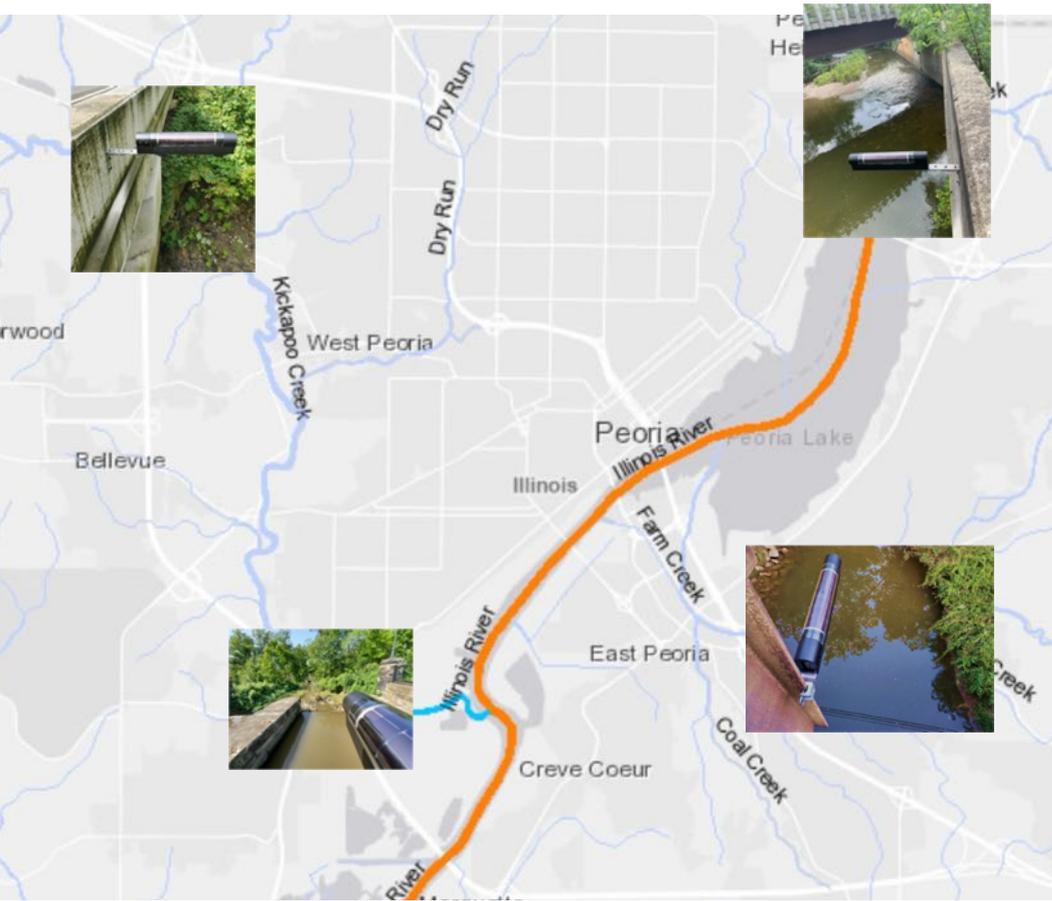


Forecast Flow (cfs)



AI





Team



Verizon Climate
Resilience Prize

WINNER



verizon GreenBiz group

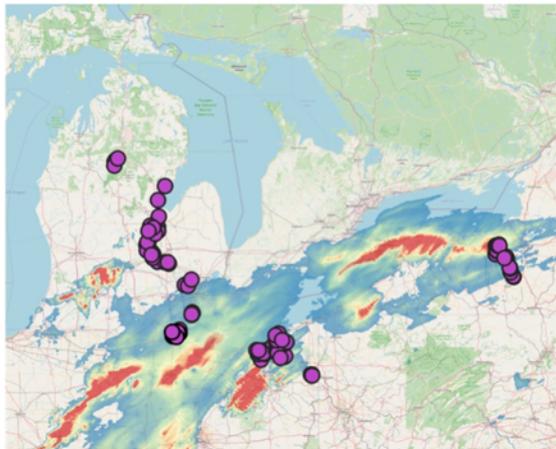


IAFSM

hyfi.io



Department of Environmental Conservation



hyfi





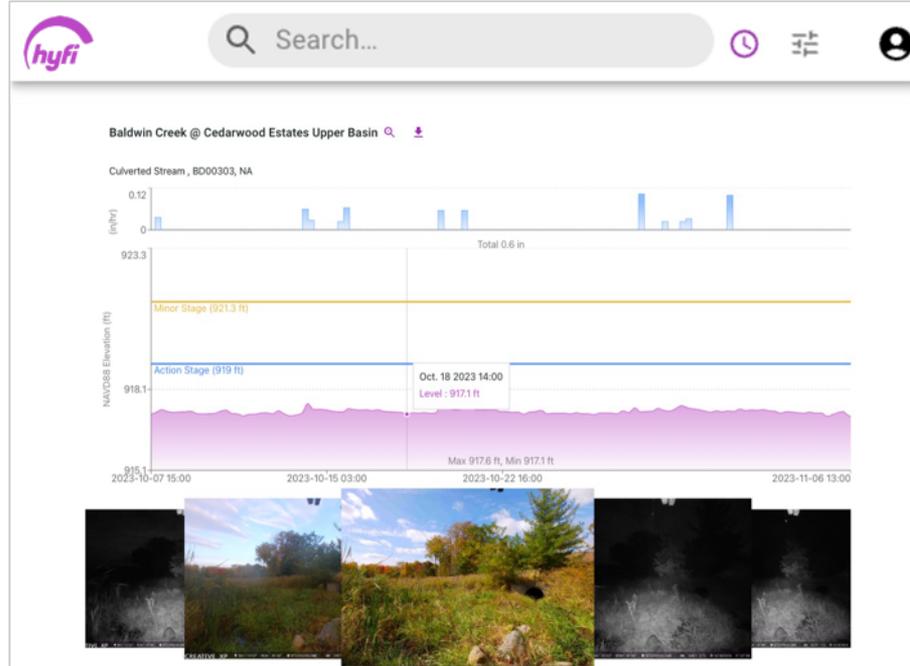
brandon@hyfi.io



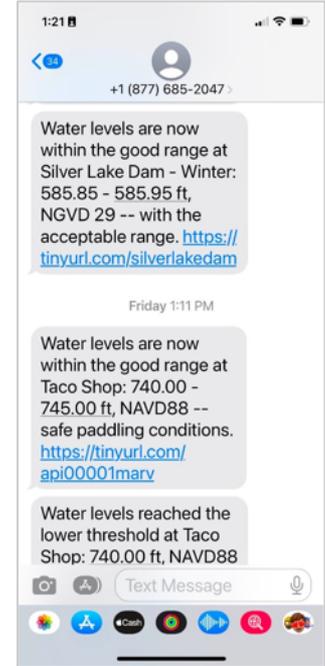
Our Solution



Monitors



Apps



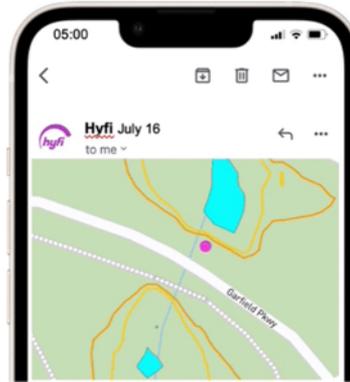
Alerts



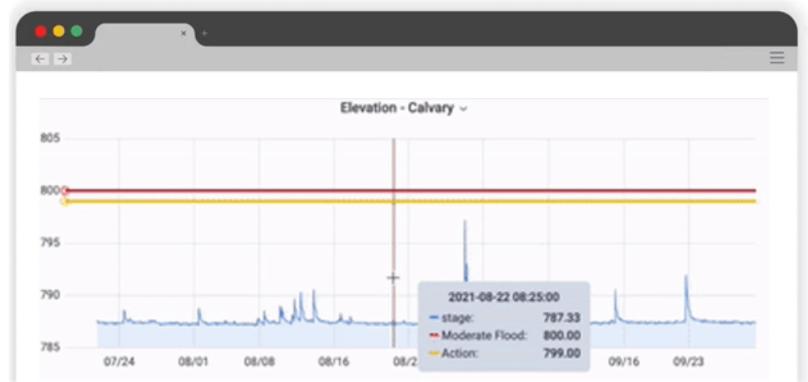
Monitoring Services - \$1495/site per year



Water Level & Rainfall Monitoring



Emails & Alerts



QAQC & Web Interface

<u>Data-only Plan</u>	<u>Units</u>	<u>QTY</u>	<u>Total Cost</u>
Leased sensor, water level monitoring, rainfall monitoring, data cleaning and quality control, data transmission plans, data hosting, web dashboard, configurable alerts, embed data on your website, custom storm summaries via email, API access. DIY sensor swaps and upgrades.	Per year	1	\$1495.00
Subtotal			\$ 1495.00

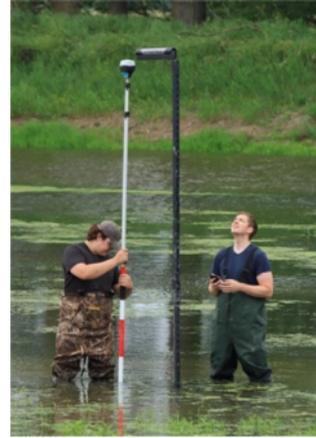
Monitoring plus Field Services – \$3495/site per year



+ Site Inspection & Planning



+ Permitting & Installation



+ Precision Surveying & Maintenance



Full Service Plan	Units	QTY	Total Cost
Leased sensor, water level monitoring, rainfall monitoring, data cleaning and quality control, data transmission plans, data hosting, web dashboard, configurable alerts, embed data on your website, custom storm summaries via email, API access.	Per year	1	\$1495.00
Site inspection, deployment planning, permitting, sensor installation, precision surveying, and maintenance to keep sensors online.	Per year	1	\$2000.00
Subtotal			\$ 3495.00