



# Massachusetts Water Resources Authority

*Presentation to*

**MWRA Advisory Board**

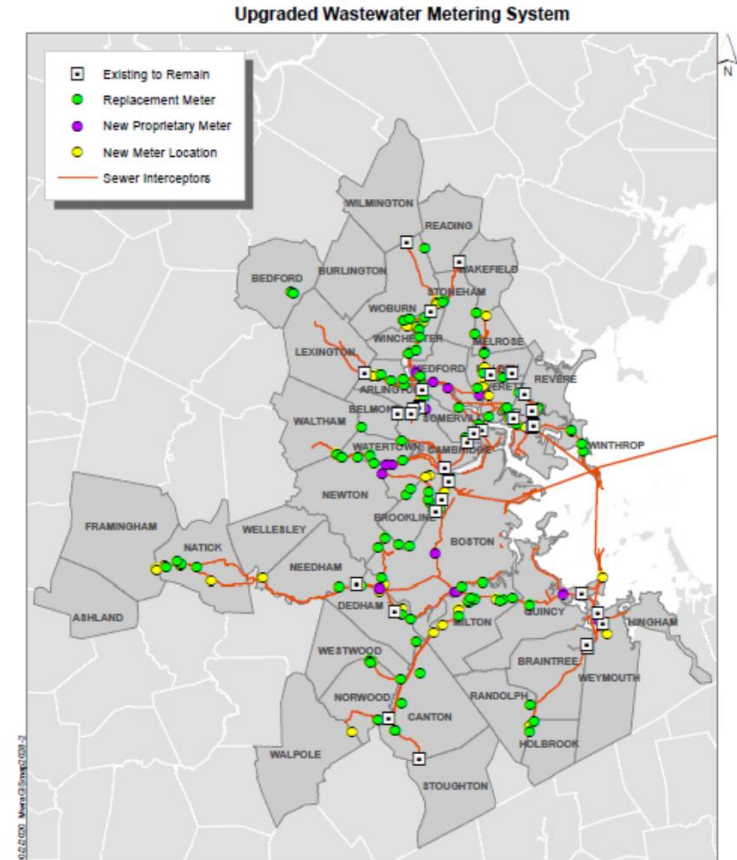
## ***Update of the New Wastewater Metering System***

July 27, 2022



# Wastewater Meter Contract

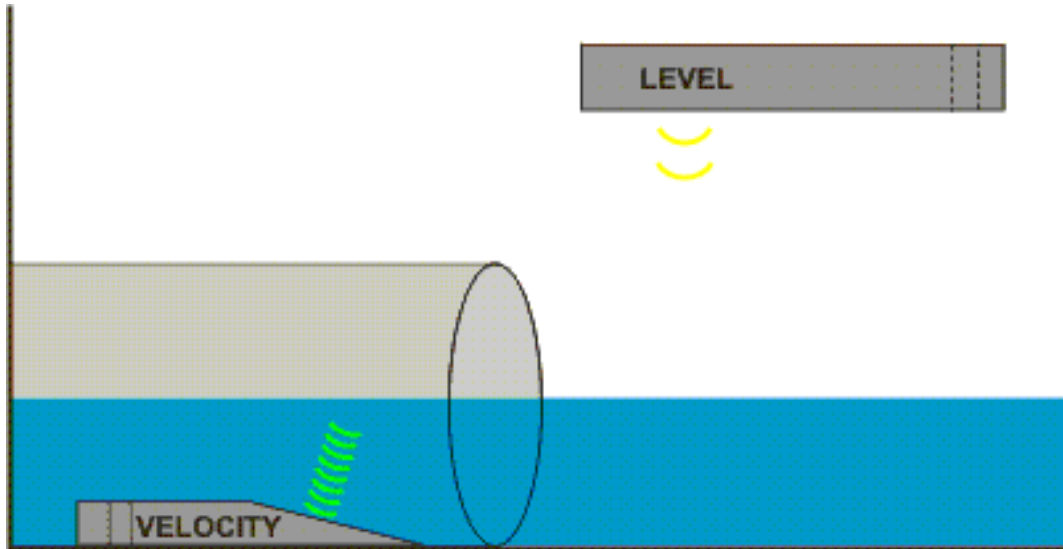
- 173 meters installed in 2021
- New meters used for billing starting Jan 1, 2022.
- Included a revamped Database structure for better and more advanced data analytics





# How Area Velocity Meters work

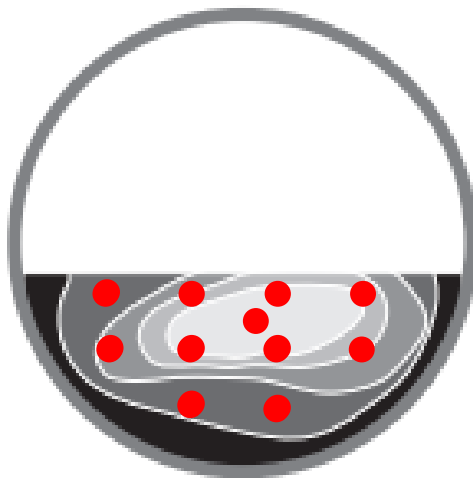
- Measure Depth and Velocity, then calculate Flow
- Depth measurement very accurate, velocity more challenging





# V-Gain Calculations

- $Q = \text{Area} * \text{Av Velocity}$
- Velocity sensors measure PEAK velocity
- V Gain = ratio of Peak-Average Velocity
- Developed by many frequent field measurements
- Can change over time
  - System Hydraulics
  - Blockages
  - Silt



Higher  
velocity

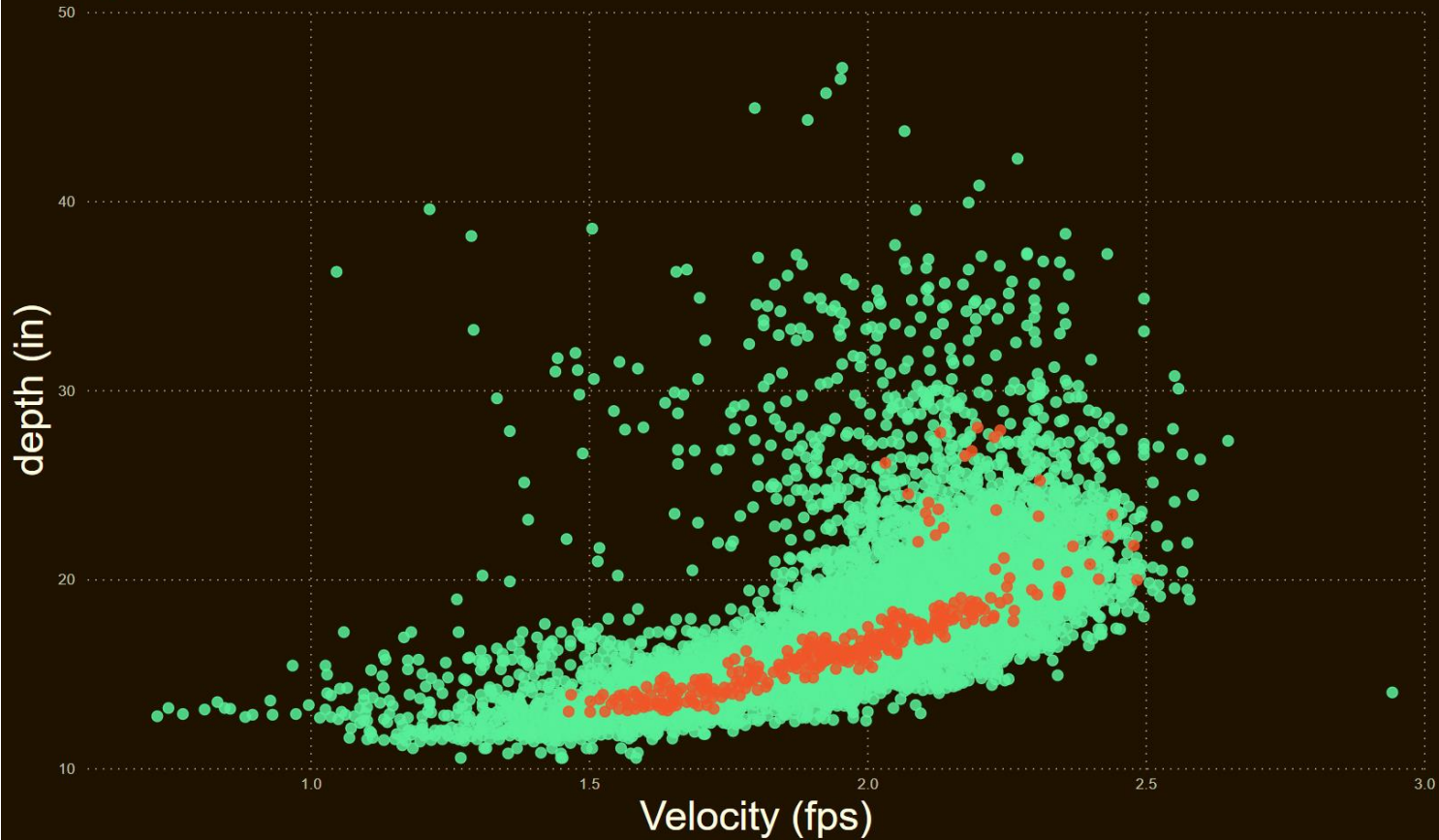
Slower  
velocity



# Scattergraph Analysis

Velocity (fps) vs. Depth (in) Scatterplot

This\_Year? ● False ● True

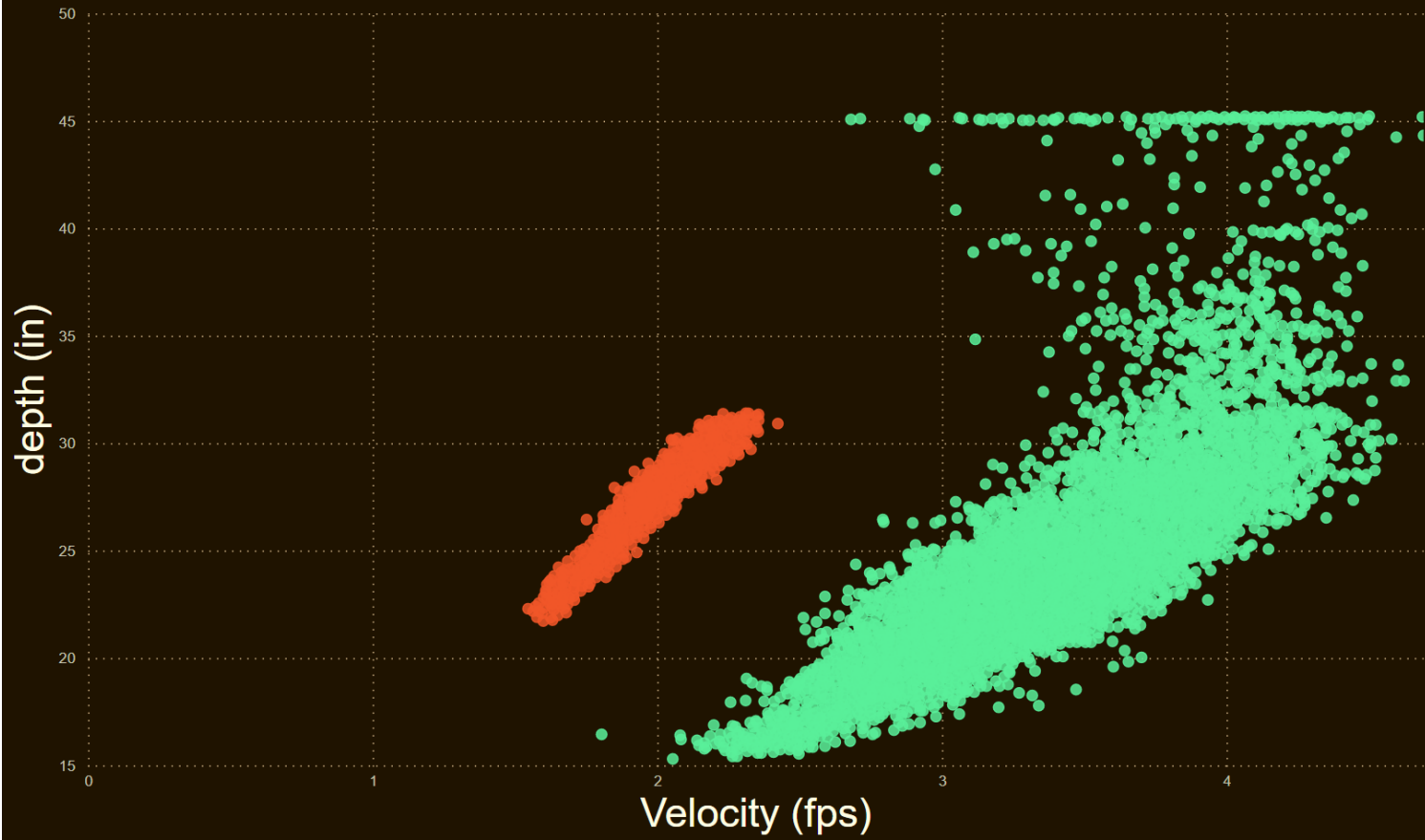




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Velocity (fps) vs. Depth (in) Scatterplot

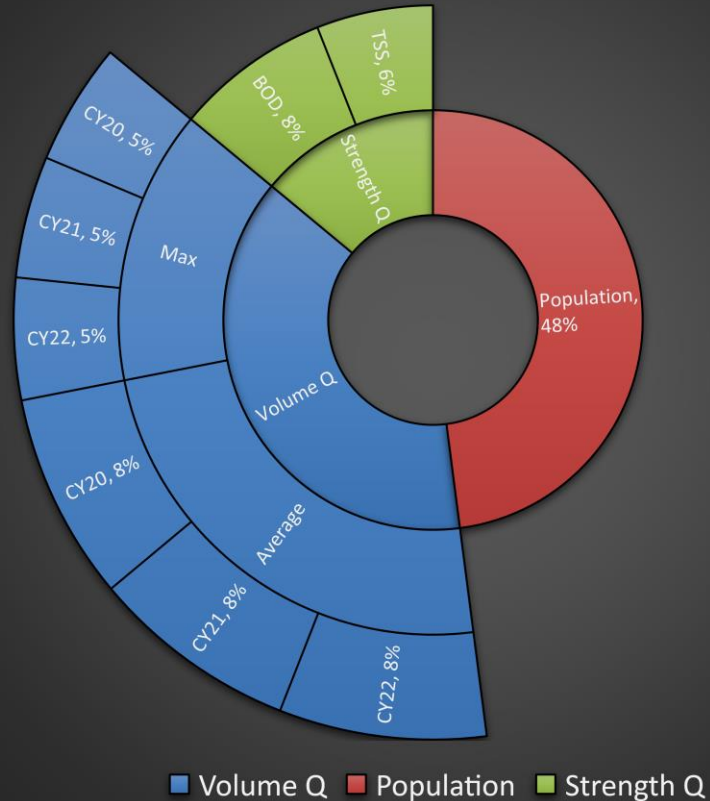
This\_Year? ● False ● True





# Water Vs Wastewater Assessment

- Water Assessment
  - 100% based on CY22 flow volume
- Wastewater Assessments
  - Population ~ 50%
  - Volume of Flow ~ 35%
  - Strength of Flow ~ 15%





## Flow Assessment - Results

	Single Year Change	3 Year Average Change (FLOW)	Assessment Change
Minimum	-24.7%	-9.3%	-6.8%
Maximum	+38%	+14.2%	+6.0%
<b>BWSC</b>	-14.5%	-6.1%	-2.3%

- Decrease in BWSC Share
  - Slight increase to share in all other communities
- Any communities with a more than **20% increase or 10% decrease** in Single year flow share have been contacted by MWRA.





# Questions

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