

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com



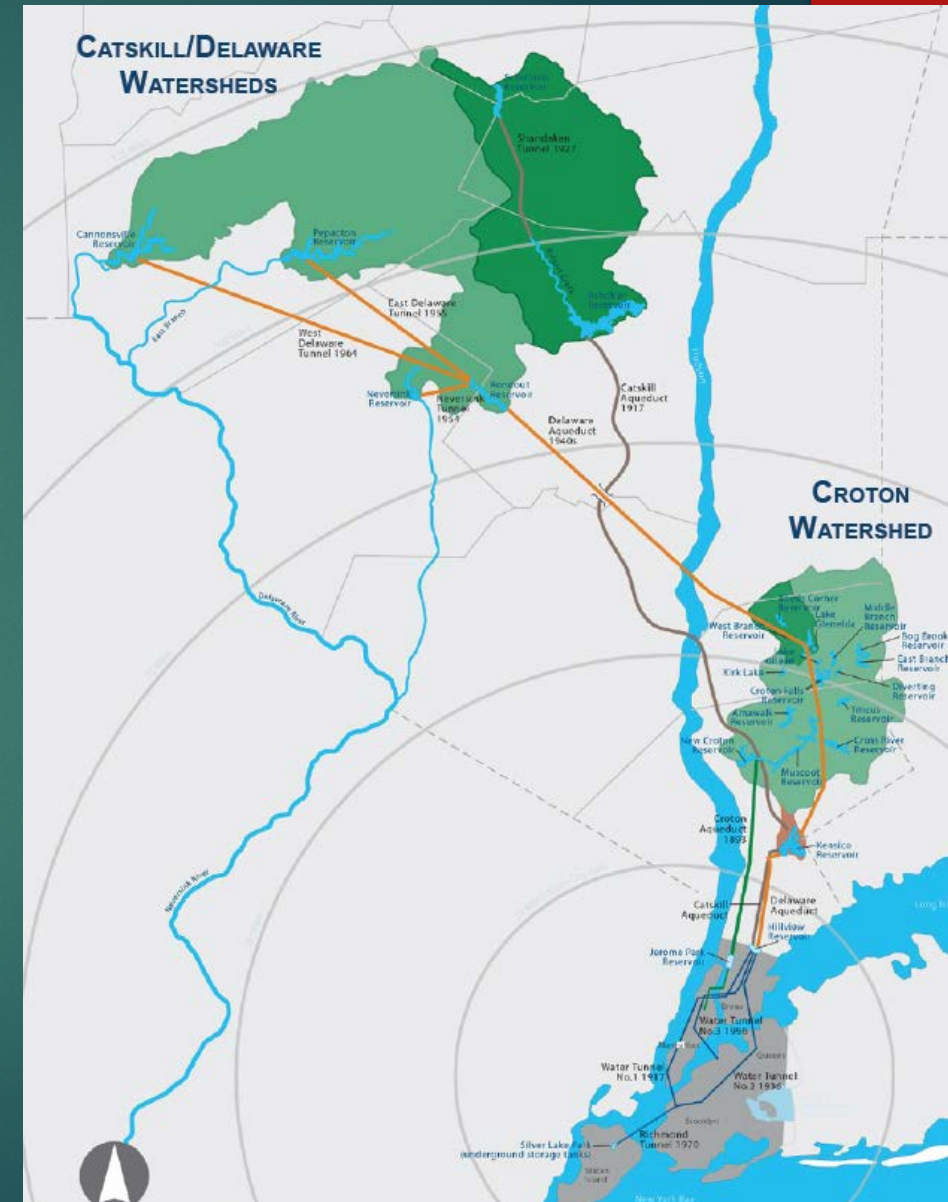
New York City's Upstate Customer Water Demand Management Program Targets Regional Reductions

PETER MAYER, P.E., WATERDM
BILL RICHARDSON, NYCDEP



Water Supply Planning, Essential Repairs

- ▶ NYC Water Supply System is preparing for essential repairs to the Catskill and Delaware Aqueduct system.
- ▶ DEP has set a goal of achieving **water demand reductions of 5%** across the System in anticipation of the reduced availability of supply associated with these repairs.



Upstate Demand is Significant

- ▶ The water consumption of wholesale customers represents 10% of the NYC System's typical demand.
- ▶ All users of NYC's System must contribute water savings to achieve the 5% reduction goal.
- ▶ DEP is offering financial support for implementation of certain demand management measures.



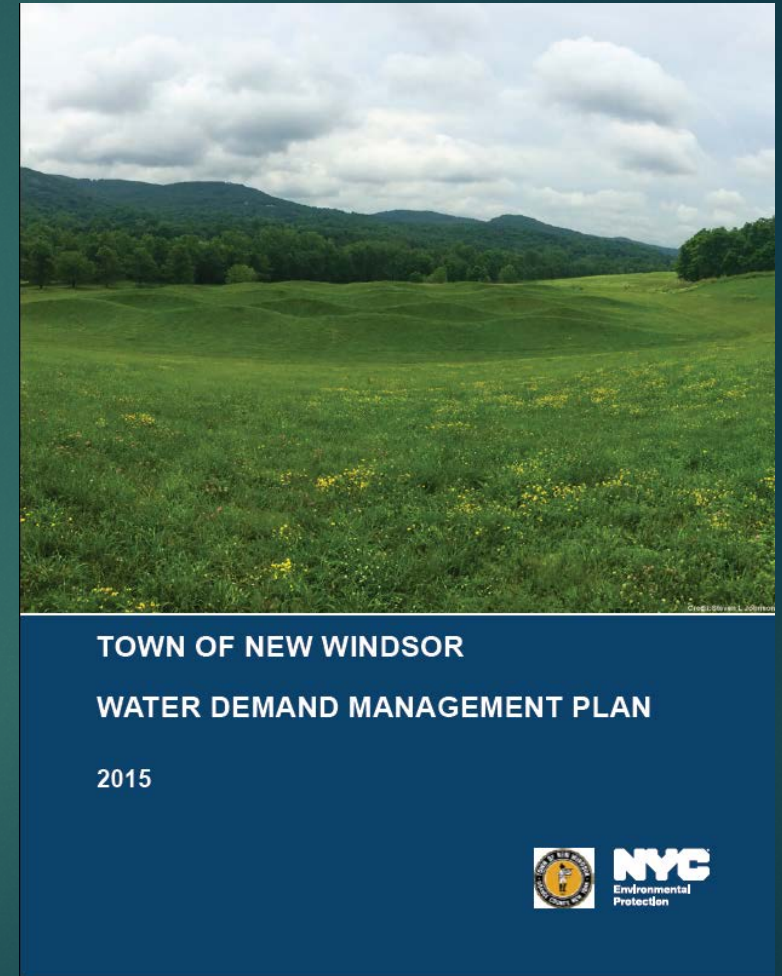
Participating Water Providers (so far!)

- ▶ Town of New Windsor
- ▶ Westchester Joint Water Works
- ▶ City of Mount Vernon
- ▶ Village of Scarsdale
- ▶ Town of Greenburgh
- ▶ Suez Westchester
- ▶ Village of Ossining
- ▶ Village of New Paltz
- ▶ Village of Tarrytown



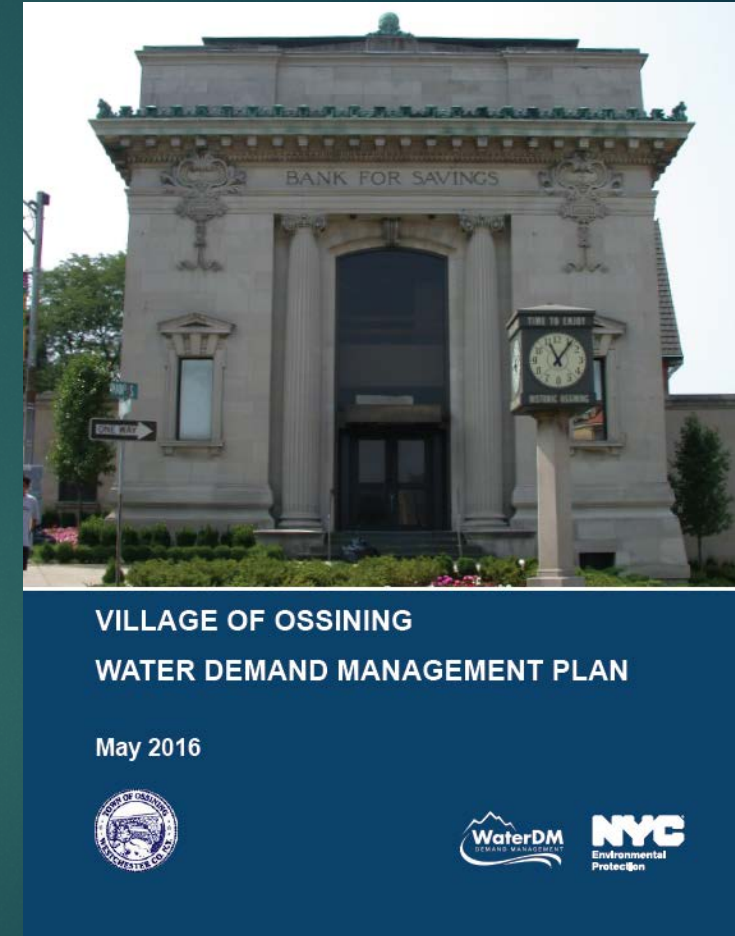
Water Demand Management Plans

- NYC DEP is preparing individual water demand management plans for the largest upstate users on the System.
- Team approach – DEP + Consultants
- Water demand management plans include:
 - Water system profile
 - Water demand analysis
 - Analysis of water demand management options



Planning Process

- ▶ Identify largest upstate water providers (by volume).
- ▶ Planning agreement executed – DEP + Water Provider
- ▶ Water system profile and demand analysis.
 - ▶ Kickoff meeting
 - ▶ Data request
 - ▶ Analysis
 - ▶ Q&A
- ▶ Analysis of water demand management options.
- ▶ Plan prepared.
- ▶ Implementation agreement executed – DEP + Water Provider



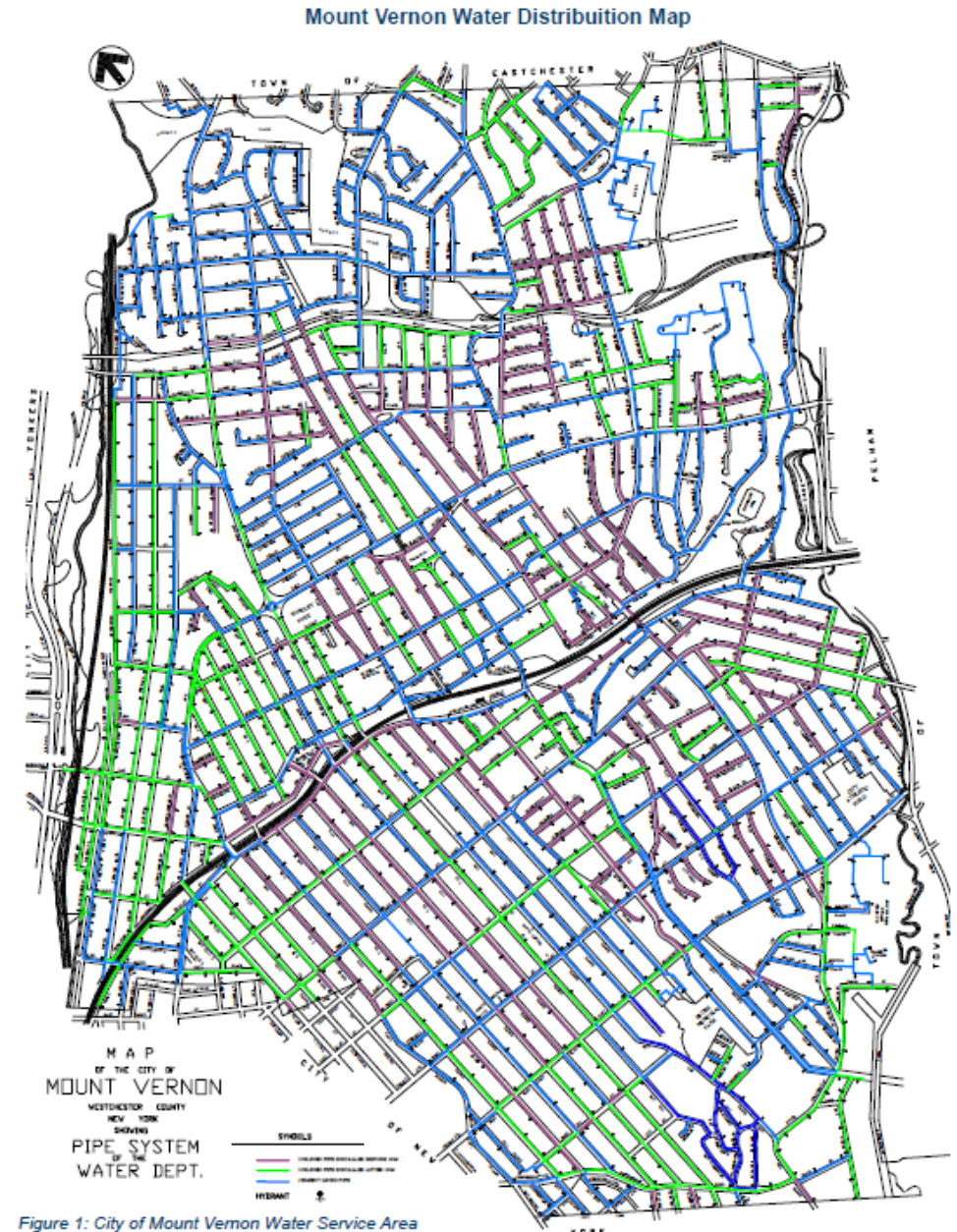
Water Savings Goal for All Plans

5% reduction from 2013 purchases
from NYC System.



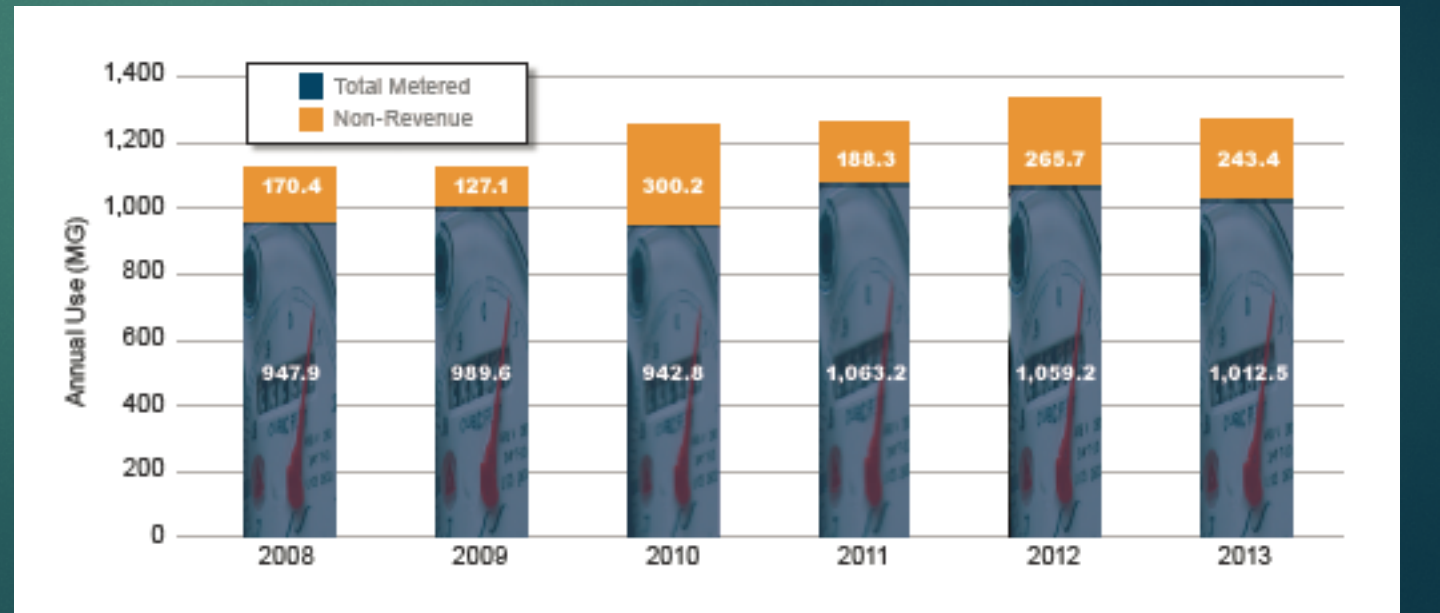
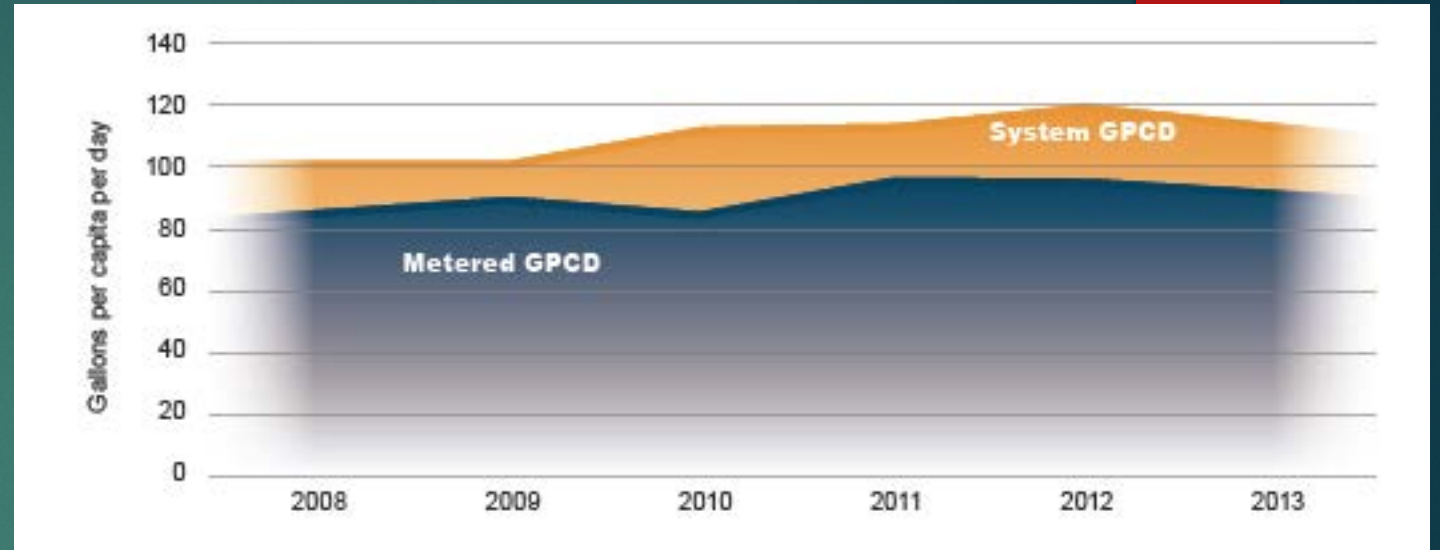
Water System Profile

- ▶ Supply system capacity
- ▶ Water treatment system
- ▶ Water distribution system
- ▶ Service area characteristics
 - ▶ Population
 - ▶ Water customers
 - ▶ Water consumption by customer category



Water Demand Analysis

- ▶ Water produced
- ▶ Metered consumption
- ▶ Water loss
- ▶ Use by customer category (where available)
- ▶ Seasonal and non-seasonal demand
- ▶ Top 100 highest water users



AWWA M36 Water Loss Audit

- ▶ Desktop M36 water loss audit prepared for each plan.
- ▶ Economic evaluation of water loss.
- ▶ Non-revenue water
- ▶ Standard performance indicators
 - ▶ Non-revenue water as a % of volume supplied.
 - ▶ Real losses per service connection per day.
 - ▶ Current Real Annual Losses (CARL)
 - ▶ Infrastructure Leakage Index (ILI)



Village of Ossining Water Loss Audit Summary

Water Supplied (MG)	
Volume from own sources	335.750
Water purchased from NYC	920.090
Water exported (included with Billed Metered)	
Water Supplied	1,255.840
Authorized Consumption (MG)	
Billed metered	1,012.500
Billed unmetered	
Unbilled metered	
Unbilled unmetered	15.698
Authorized Consumption	1,028.198
Water Losses (Water Supplied - Authorized Consumption)	227.642
Apparent Losses (MG)	
Unauthorized consumption	3.140
Customer metering inaccuracies	20.663
Systematic data handling errors	2.531
Apparent Losses	26.334
Real Losses = Water Losses - Apparent Losses	201.308
Water Losses	227.642

Current Water Demand Management

- ▶ Assessment of on-going water demand management
 - ▶ Rate structure
 - ▶ Billing practices and frequency
 - ▶ Education and outreach
 - ▶ Drought response plan
 - ▶ Meter infrastructure
 - ▶ Meter testing practices
 - ▶ Leak detection and water loss control
 - ▶ Local ordinances and regulations
 - ▶ Customer incentive programs (rebates, etc.)



Water Demand Management Options

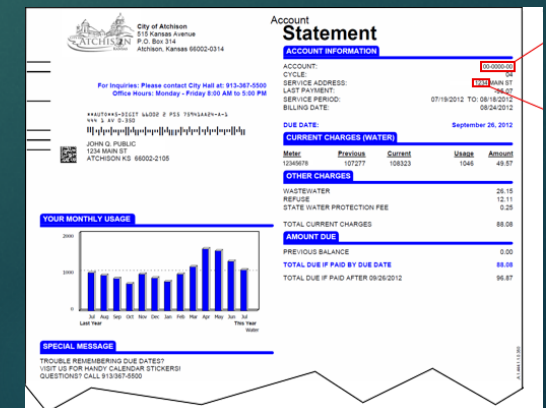
- ▶ Wide variety of options available.
- ▶ Not all offer reliable water savings that will count towards the 5% goal.
- ▶ Not all are cost effective.
- ▶ Options considered include:
 - ▶ **Water loss control** (leak detection, line repair, pressure management)
 - ▶ Water treatment and system efficiency improvements
 - ▶ **Monthly billing**
 - ▶ **AMI water loss and high usage alerts**
 - ▶ Customer engagement and home water reports
 - ▶ Irrigation efficiency improvements
 - ▶ Residential retrofits
 - ▶ Commercial and institutional efficiency
 - ▶ Focus of the Top 100 customers
 - ▶ **Source water substitution**



Analysis of Water Savings and Costs

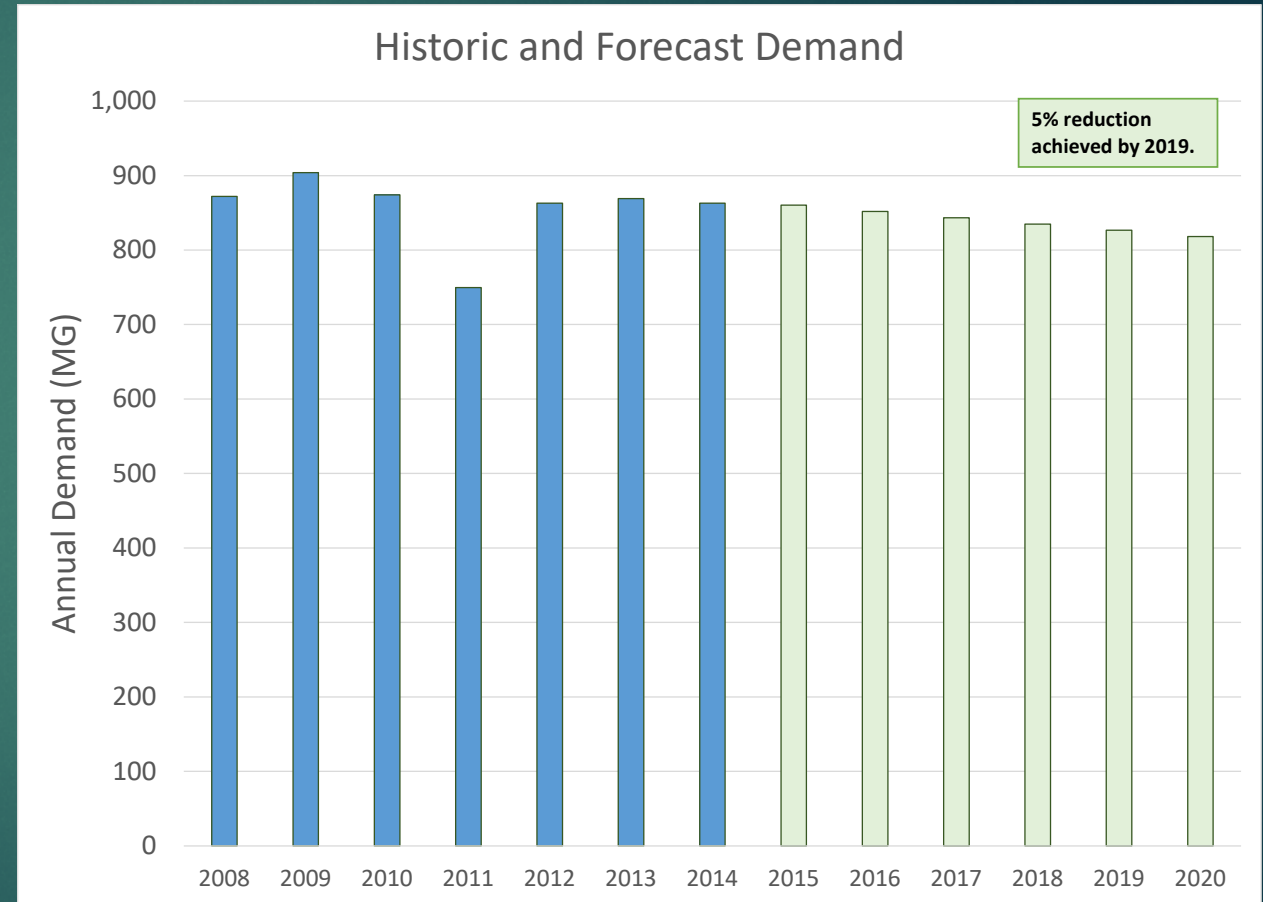
- ▶ Each measure evaluated independently.
 - ▶ Implementation level
 - ▶ Estimated water savings
 - ▶ Estimated implementation cost
 - ▶ Estimated 1 year cost per gallon/day saved
 - ▶ Net annual revenue loss/gain from implementation





Monitoring and Evaluation of Impacts

- ▶ NYCDEP is seeking real, consistent demand reductions of 5% across the system.
- ▶ Regular reporting of consumption is essential.
- ▶ Monitoring and evaluation of demand. Weather impacts considered.
- ▶ Program adjustments – as needed.



Thank You. Questions?

- ▶ Peter Mayer, P.E., Principal, WaterDM, peter.mayer@waterdm.com
- ▶ Vlada Kenniff, Managing Director of Demand Management + Resiliency at NYCDEP, VladaS@dep.nyc.gov
- ▶ Bill Richardson, Water Quality Manager at NYCDEP, BRichardson@dep.nyc.gov

