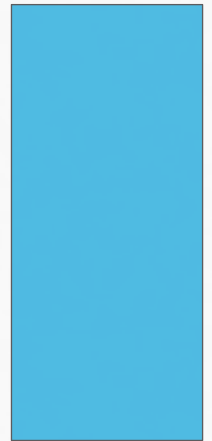


A WATERWORKS OVERVIEW

FRANKLIN DEPARTMENT OF PUBLIC WORKS

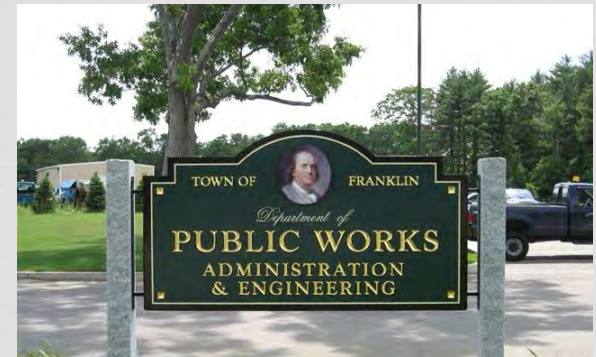
ROBERT "BRUTUS" CANTOREGGI, DPW DIRECTOR
LAURIE RUSZALA, WATER & SEWER SUPERINTENDENT



Franklin Town Council Meeting February 15th, 2017

FRANKLIN, AT A GLANCE

- Population: 33,850+/-
- 290 “lane-miles” of roadways
- Total Land: 27 square miles
 - 4 Square Miles of Impervious
- Drinking water supply from groundwater
- 160 miles of water works
- 148 miles of sewer works
- 128+ miles of drain pipe
 - 7,000+ Catch Basins
 - 600+ Outfalls
 - 200+ Treatment Basins



TRIADIC APPROACH

STORMWATER



WASTEWATER

DRINKING WATER

SEWER WORKS

SEWER WORKS ISSUES

- High I & I Rates
- Replacement of Beaver Street Interceptor
 - Cost = \$15 – 20 million
- Increase Cost Of Treatment Plant Operations Due To High Flow and Plant Improvements



SEWER I & I

- Inflow and Infiltration Occurs When Stormwater and Groundwater Enters the Sanitary Sewer System
- Increases the Unnecessary Treatment of Groundwater



IMPLEMENTATION

Lining and Sealing Program

- Lined 32+ Miles of Pipe
- Sealed 600+ Manholes
- 60+ Inflow Sources Identified and Removed
- Repaired Beaver Street Interceptor

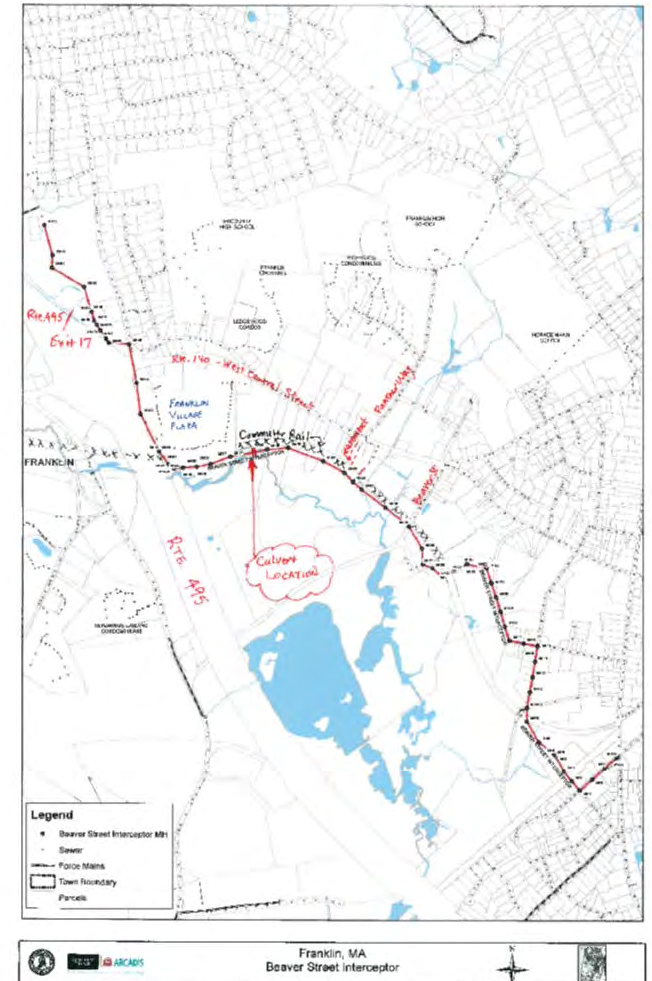
Improved SCADA System

- More effective management



BEAVER STREET INTERCEPTOR

- Location: Beaver St to Pond St
- Carries 70% of Town's Sewage
- On Average, 1.8 Million Gallons Per Day Travel Through Pipeline



BEAVER STREET INTERCEPTOR



BEAVER STREET INTERCEPTOR



BEAVER STREET INTERCEPTOR



RESULTS

- Decreased Daily Flow
- Decreased Infiltration Rate
- Beaver Street Interceptor Still In Use With Capacity
- Increased Sewer Cost



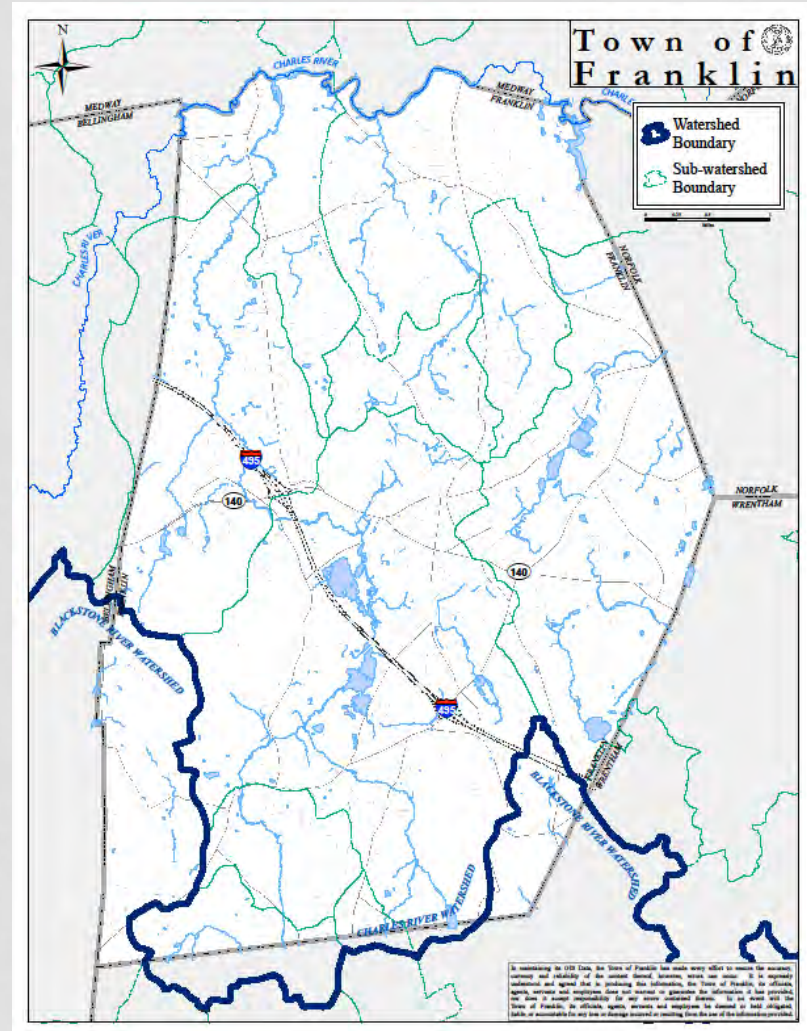
SEWER I & I

	2005	2013	% Change
Average Daily Flow	1,610,000	1,392,108	-14%
Average Infiltration Rate	930,000	672,479	-28%
Peak Inflow Rate	2,790,000	1,584,700	-43%

STORMWATER

STORMWATER

- Protection of Charles River Basin
- New MS4 Permit
- Phosphorous Loading
- Bacteria control
- TSS run-off



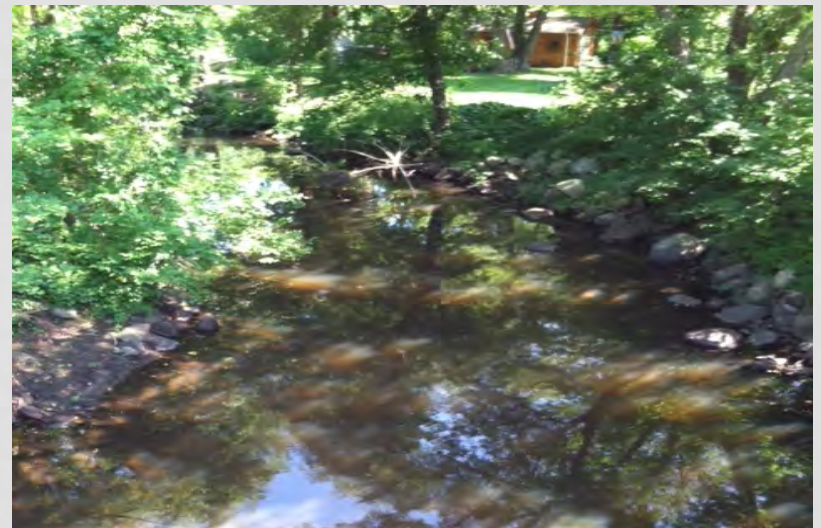
THE CHARLES RIVER

Boston



VS.

Franklin



IMPLEMENTATION

- Public Education
- Challenge New MS4 Permit
- Grants
- Working with Other Towns
- Working with Environmental Groups
- BMPs
- Reduce Impervious Surface
- Low Impact Development

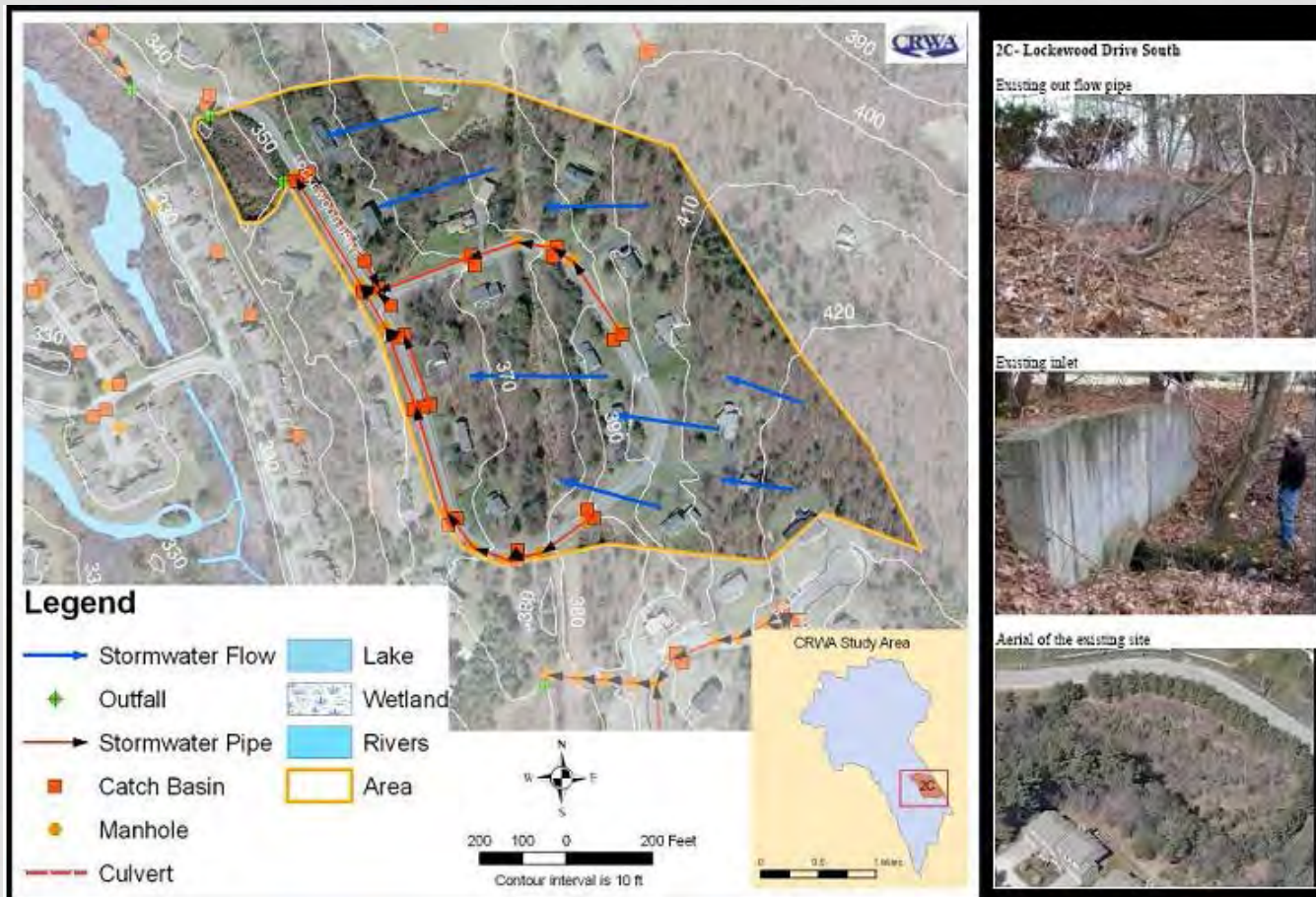


REALIZATION OF RAIN GARDENS !



RECONSTRUCTION OF RETENTION PONDS

- Lockwood Drive



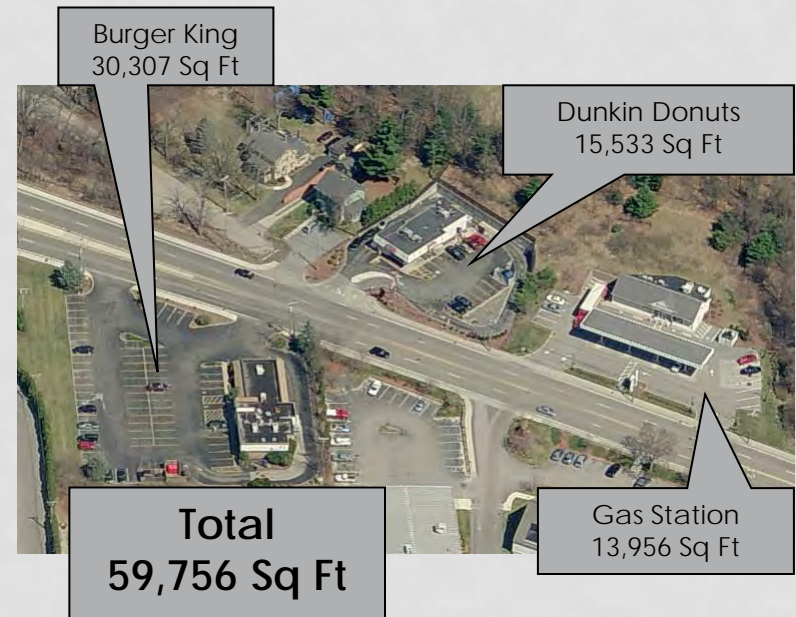
RESULTS / SOLUTION

- Lockewood Drive: 319 Grant



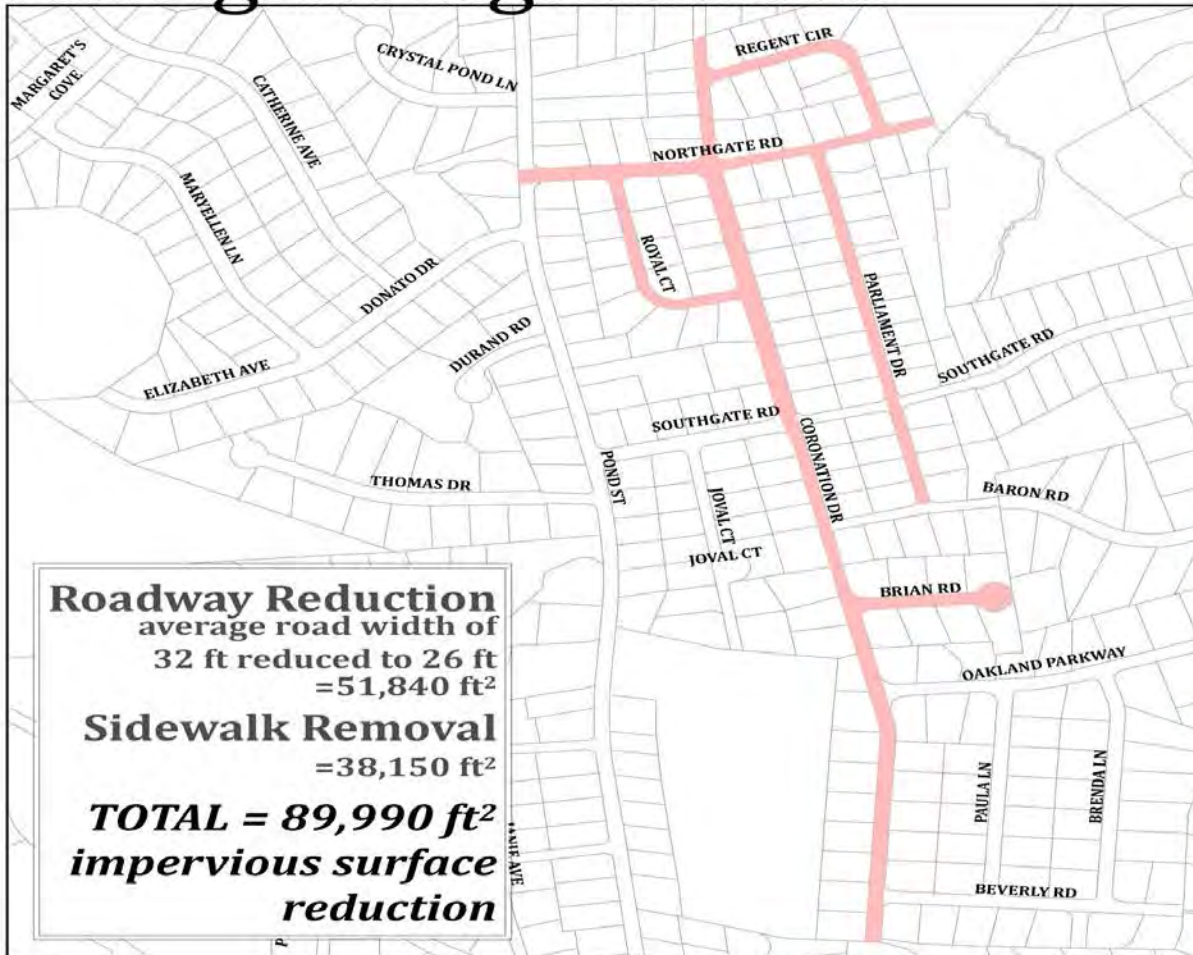
ROADWAY RECONSTRUCTION / BENEFITS'

- **Bright Hill Estates**
- Before:
 - Developed Early 1980s
 - Road Width: 32 feet/Sidewalks Both Sides
- After:
 - Reduced Pavement Width to 28 ft and Removed One Sidewalk
 - 70,000 Square Foot Reduction In Impervious Surface



ROADWAY RECONSTRUCTION/BENEFITS

Northgate Neighborhood



Area of Improvement
Parcel Line





\$195,000.00 SAVINGS

89,990 SQFT @ 4 INCHES = 2,173 TONS ASPHALT @ \$90.00 PER TON

RESULTS / BENEFITS

- 319 Grant Paired With Town Park = Public Education



WATER WORKS



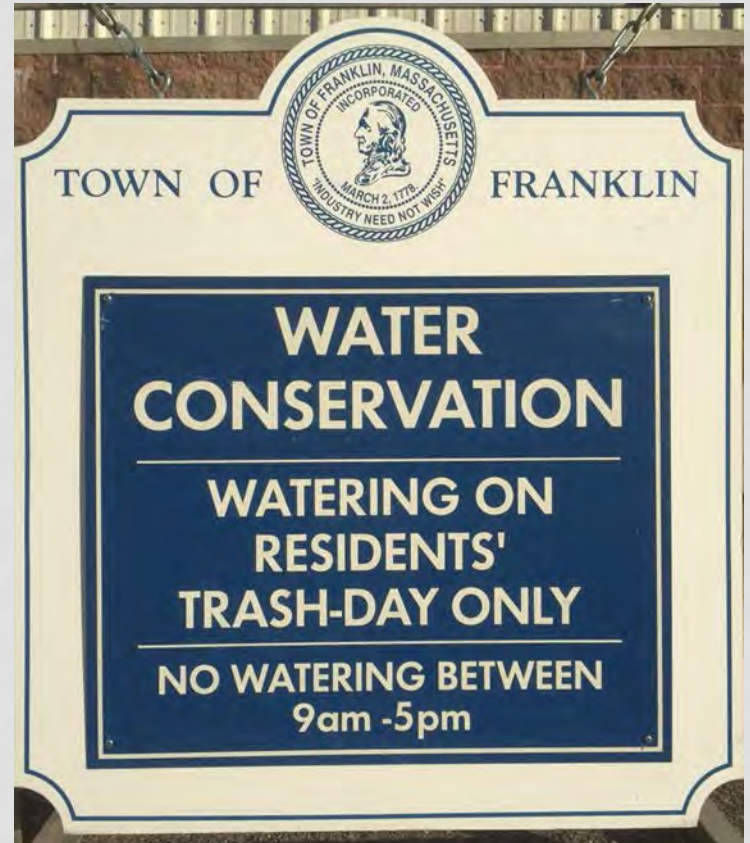
WATER: REGULATORY ISSUES

- Permit Requirements:
 - Average of 65 Gallons Per Resident Per Day (Or Less)
 - Less than 10% Unaccounted-for Water
- Could Not Meet Demand: Fire, Emergencies, and Development
- Conservation / Use



IMPLEMENTATION

- Public Education
- Water Conservation Program
- Repair Distribution System
- New Waterline / New Road Program
- Leak Detection Program
- Meter Replacement and Calibration Program



IMPLEMENTATION

- Conducted Annual Leak Detection Program
 - Exceed Permitted Standards of Once Every Three Years
 - Since 2001, over 750 Leaks Have Been Detected and Repaired
 - Tighter System, Reduction in Unaccounted-For Water, Improved System Management = Reduces Pumping & Treatment

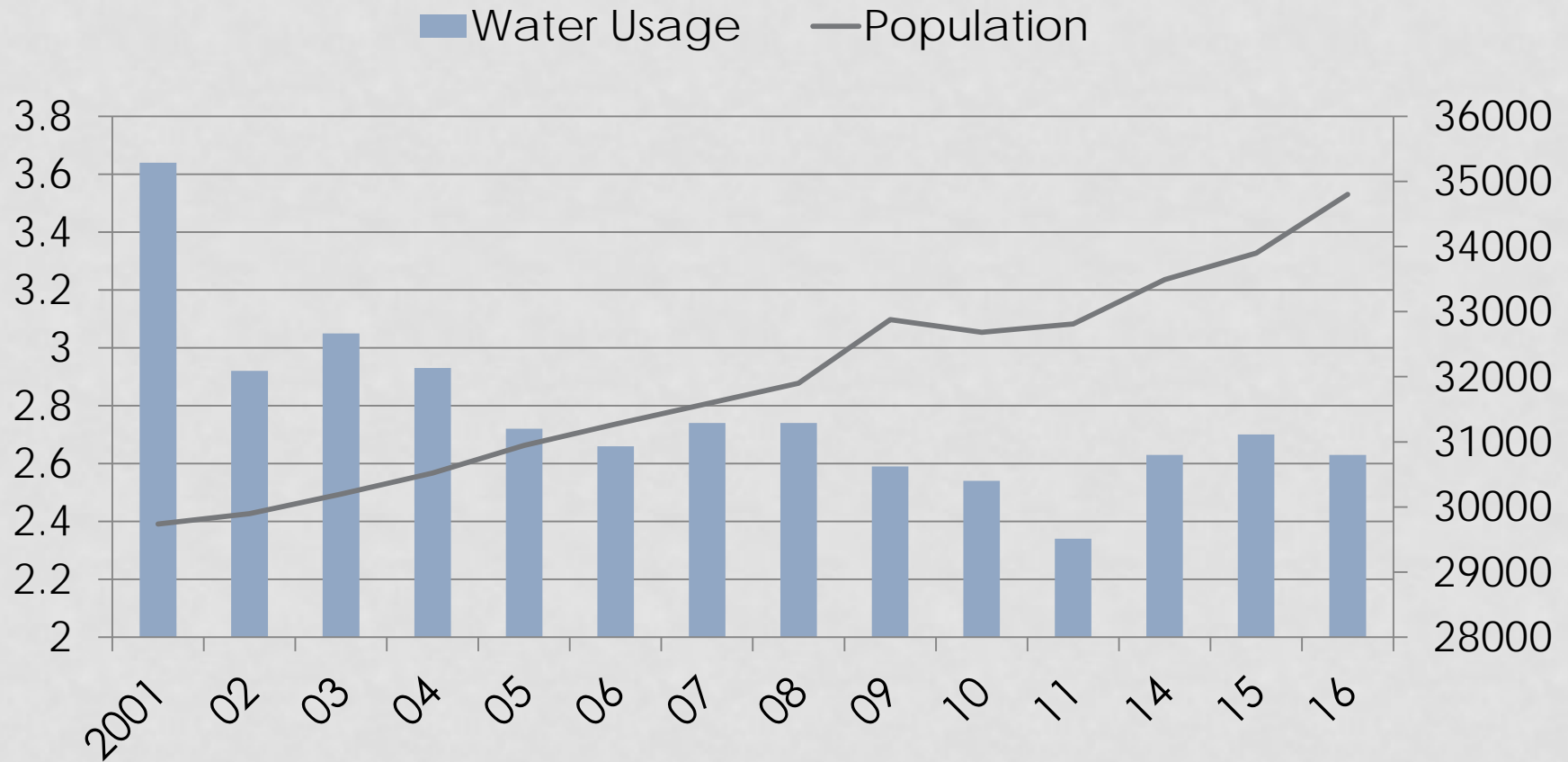


RESULTS

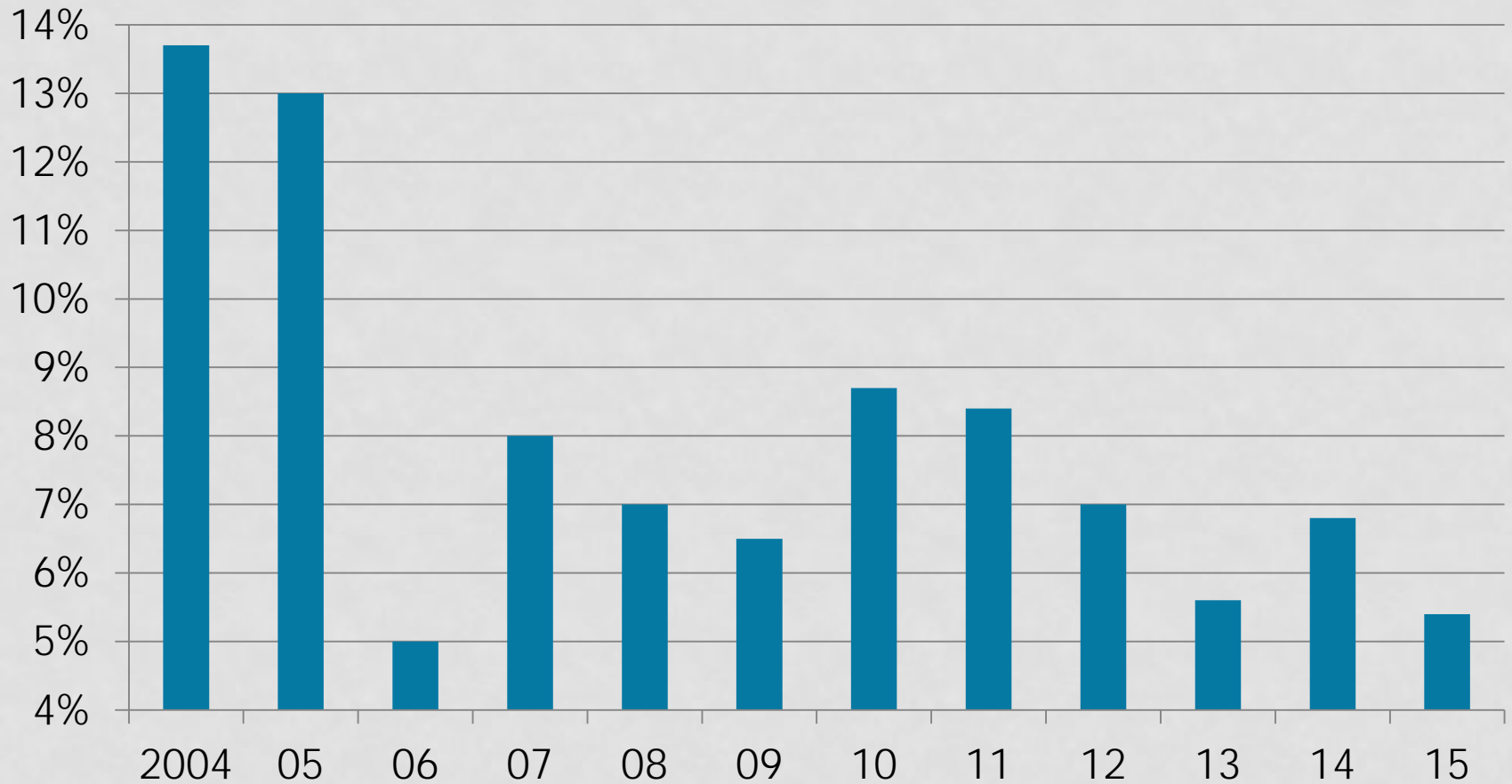
- Water Main Replacement Program Underway
 - Goal: Replace Entire System Within 80 Years
- Residents Happy With New Roads
- Strong Support From Town Council
 - \$5 Million Every 3 Years
- 2008 & 2013 MassDEP Public Water System Award
- Increase In Water Cost



AVERAGE DAILY PUMPAGE (MGD)



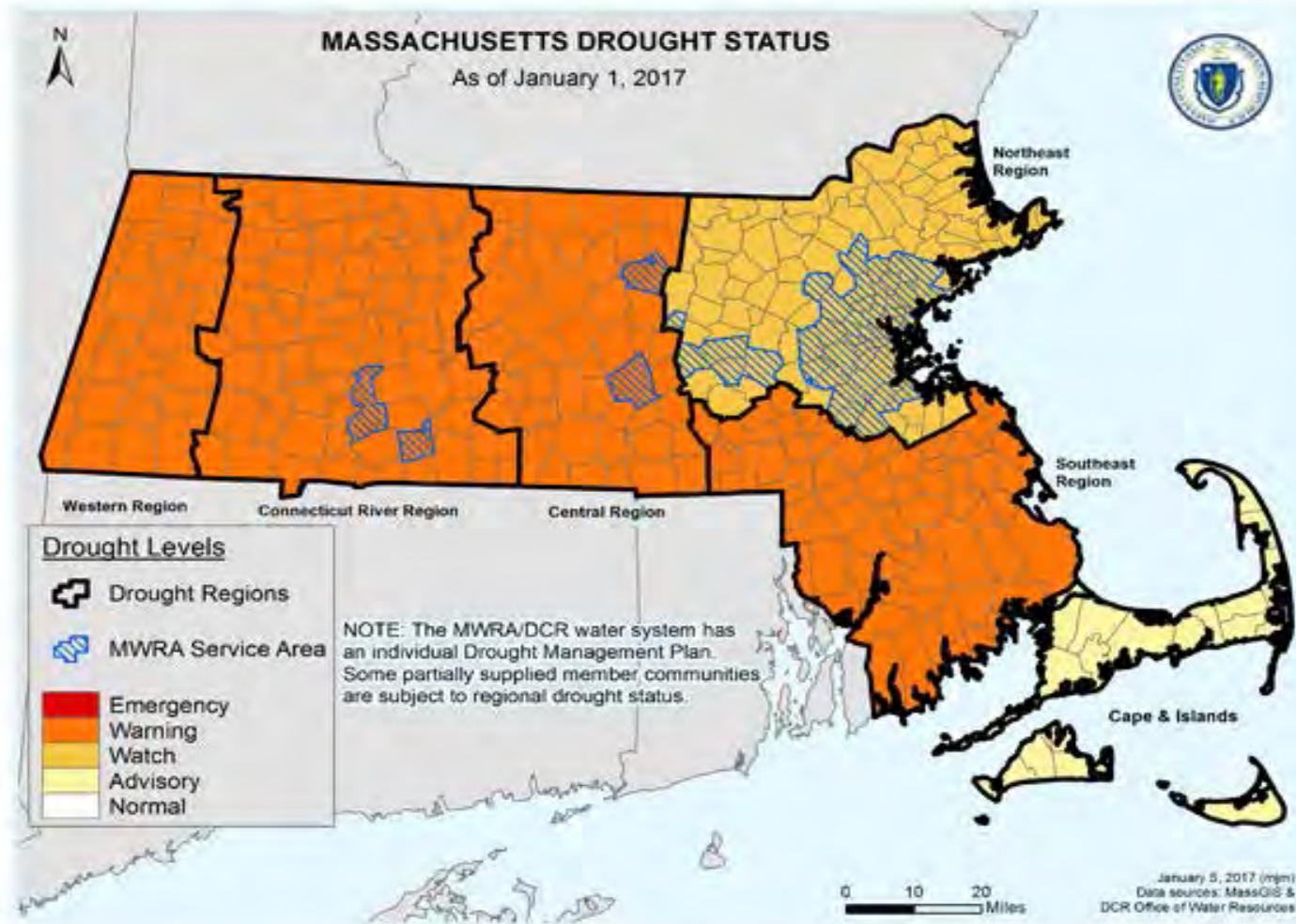
UNACCOUNTED-FOR WATER



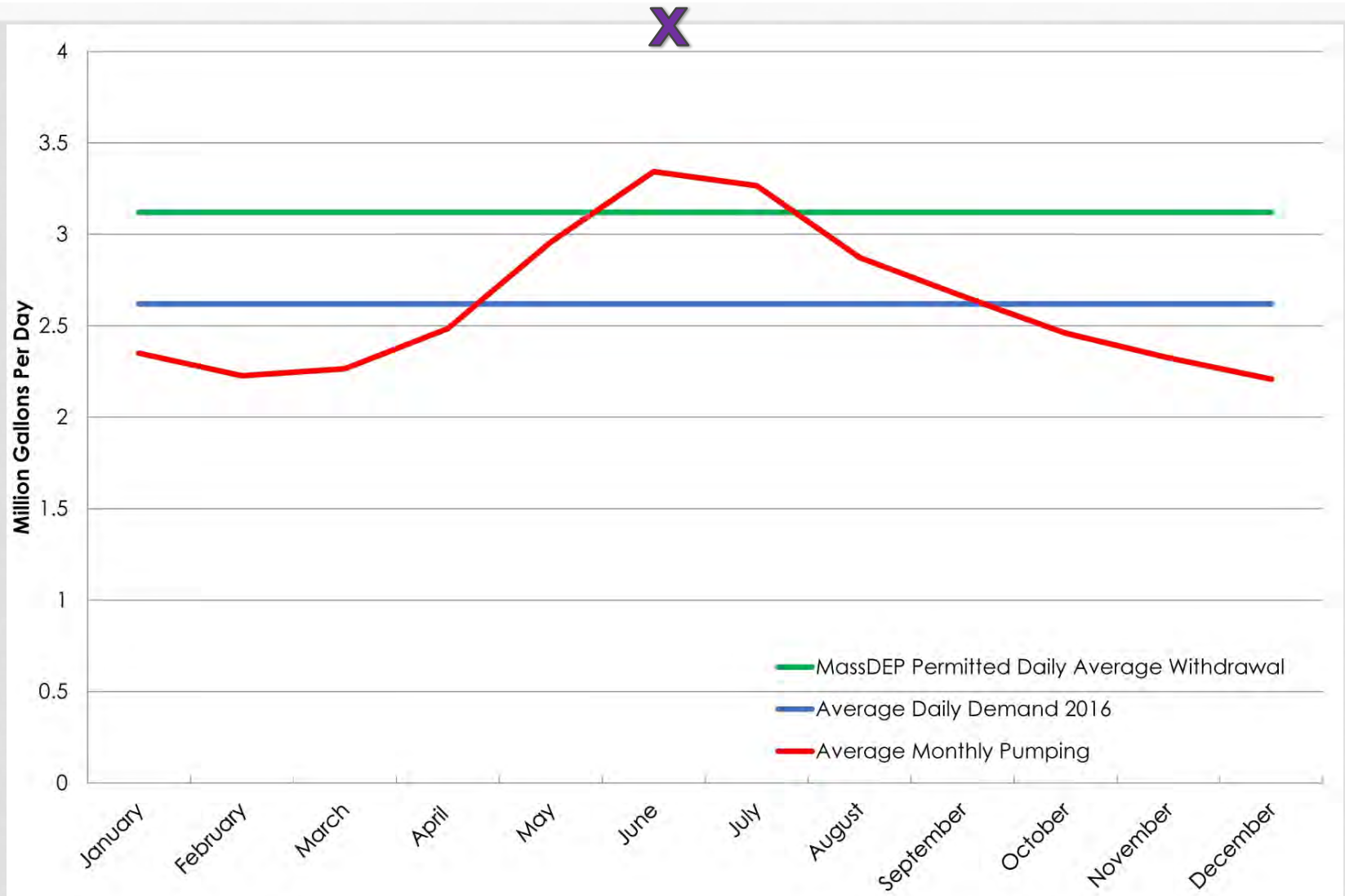
WATER WORKS

FUTURE CONCERNS

DROUGHTY CONDITIONS



WATER USE 2016



IRON & MANGANESE ISSUES



IRON & MANGANESE ISSUES



NEW TREATMENT PLANT FOR WELLS 3 & 6



NEW GROWTH

800 UNITS APPROVED, PLANNED & PROPOSED

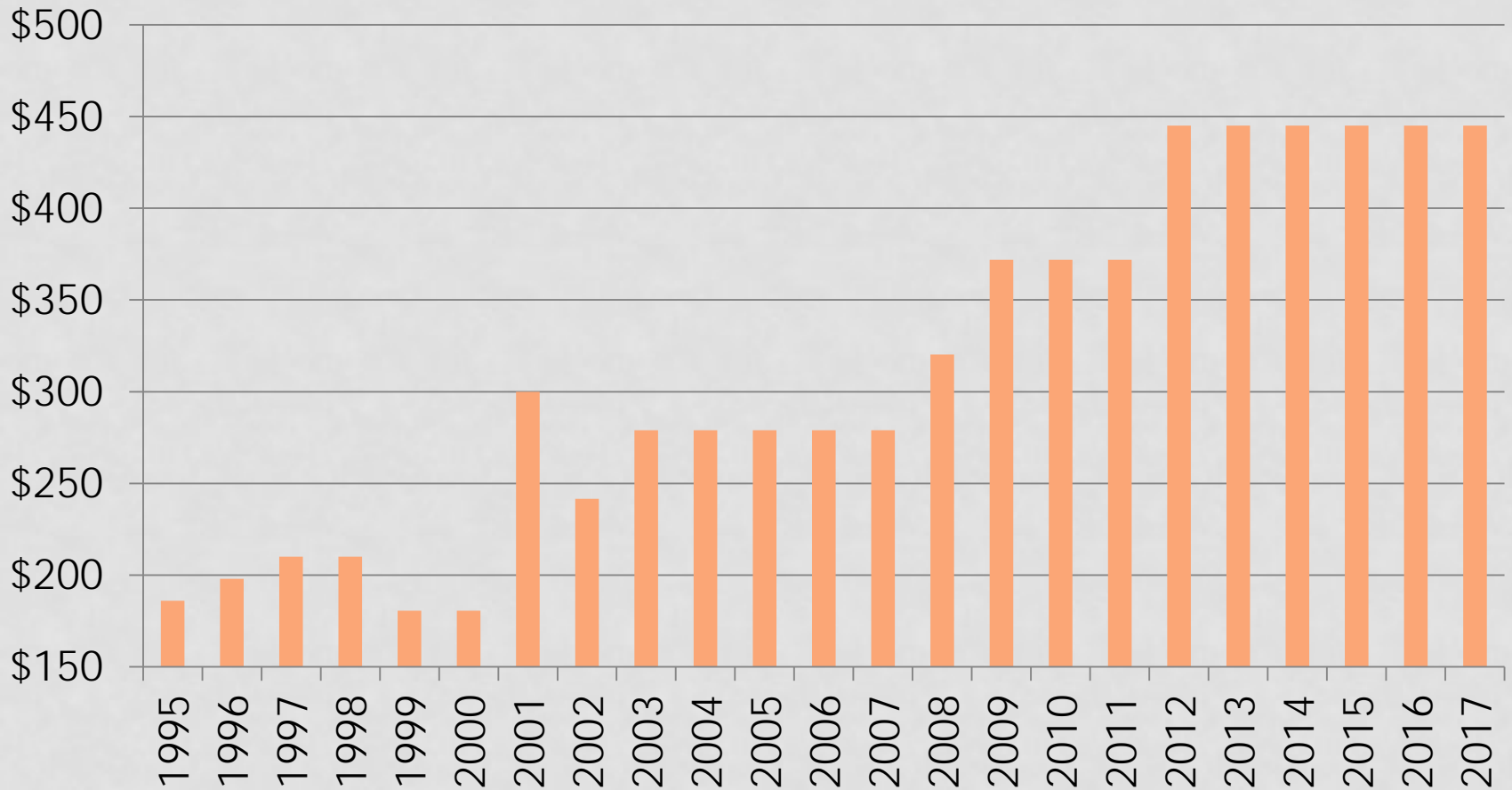


NEW GROWTH

800 UNITS APPROVED, PLANNED & PROPOSED

- Potential new demand for residential growth on water system would be 176,000 gallons per day.
- Unknown new demands and expansion of desirable industrial, commercial and other non- residential ventures.
- Increase “wear and tear” on drinking water and sewer systems.
- Attempts to modify the existing MassDEP groundwater withdrawal permit would be time consuming, expensive, and may not produce the desired results.

ANNUAL COST PER RESIDENT



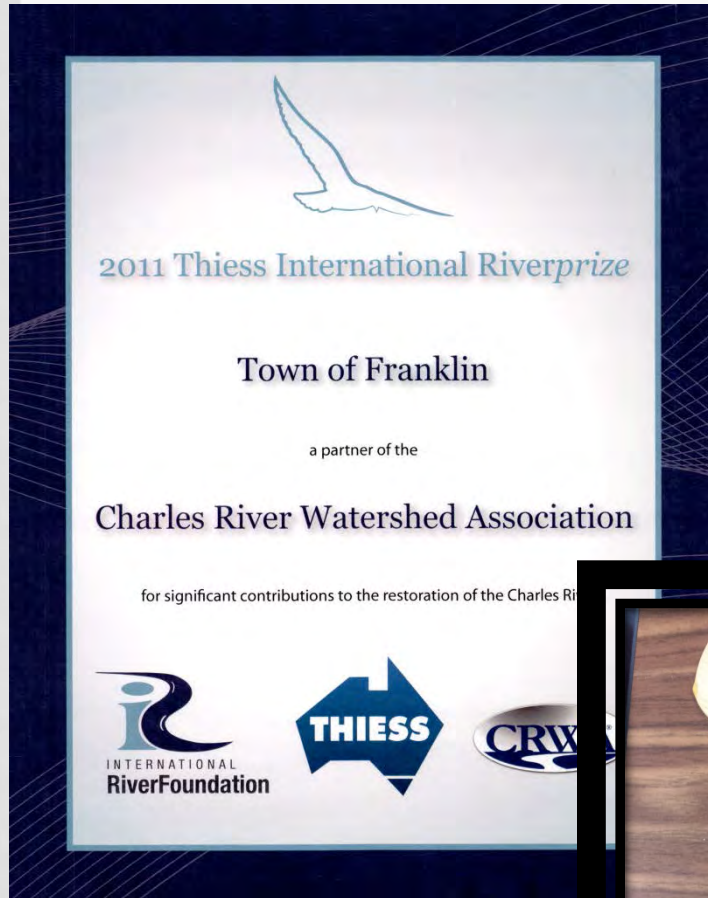
GRANTS

- March 2015 – (\$120,000) Sustainable Water Management Initiative (SWMI) Grant Awarded for “Design & Construction of Stormwater Infiltration Systems”
- September 2014 – (\$117,650) 319 Grant Awarded for “Phase II of Stormwater BMP Retrofits”
- March 2014 – (\$120,000) SWMI Grant Awarded for “Regional Evaluation of Water Management Alternatives to Reduce Streamflow Impacts In the Upper Charles River Watershed”
- March 2013 – (\$85,000) SWMI Grant Awarded for “Well Pumping and Recharge Strategies for Streamflow Augmentation”

GRANTS

- July 2012 – (\$50,000) US EPA Grant Awarded for a Town-Wide “Green Stormwater Infrastructure (GSI) Implementation Strategy”
- 2011 – (\$300,000) US EPA Pilot Study for “Sustainable Stormwater Funding Evaluation for the Upper Charles River Communities of Bellingham, Franklin and Milford, MA”
- 2010 – (\$131,000) Construction of s319 Grant for Phase I of Stormwater BMP Retrofits: 3 Detention Basin Retrofits
- 2010 – (\$40,000) “Building Blue in Franklin” Project by CRWA to Develop A Sub-Watershed Management Plan
- 2007 – (\$42,000) Coastal Zone Management Grant for a Stormwater Utility Feasibility Study

RESULTS / RECENT ACCOLADES



QUESTIONS?

