

Expansion of the Hydrologic Monitoring Networks

Viki Zoltay, State Hydrologist and Staff to the Commission
Water Resources Commission Meeting
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Networks Under Purview of WRC

	Sites	Data Collector
Streamflow	55	USGS
Groundwater	113	USGS
Tide gages	4	USGS
Precipitation	57	50 DCR, 7 USGS
Lakes & Impoundments	19	DCR

Uses of the Networks' Data

- Weather forecasting - NWS
- Flood forecasting - NWS
- Dam management - DCR Engineering
- Drought monitoring - WRC staff
- TMDL studies - MassDEP Watershed Program
- Wetlands Protection Act - MassDEP Wetlands Program
- WMA triggers for water conservation - MassDEP WMA Program
- Development of Regulations such as the WMA
- Septic design - MassDEP Drinking Water Program's Hydrogeology Group
- Studying the changing climate, land use, and water use
 - Statewide groundwater flooding assessment
 - Projection of future weather and flows
 - Factors contributing to lower low-flows during droughts
 - Coastal Flood Risk model
 - Statewide fluvial and pluvial flood mapping
 - Low flow statistics at gaged and ungaged sites
 - MassResilient Plan and website of tools and data

Additional FY25 ResilientMass Funding

- Historic opportunity to expand the network with +75%
 - \$1.10 million → \$1.93 million

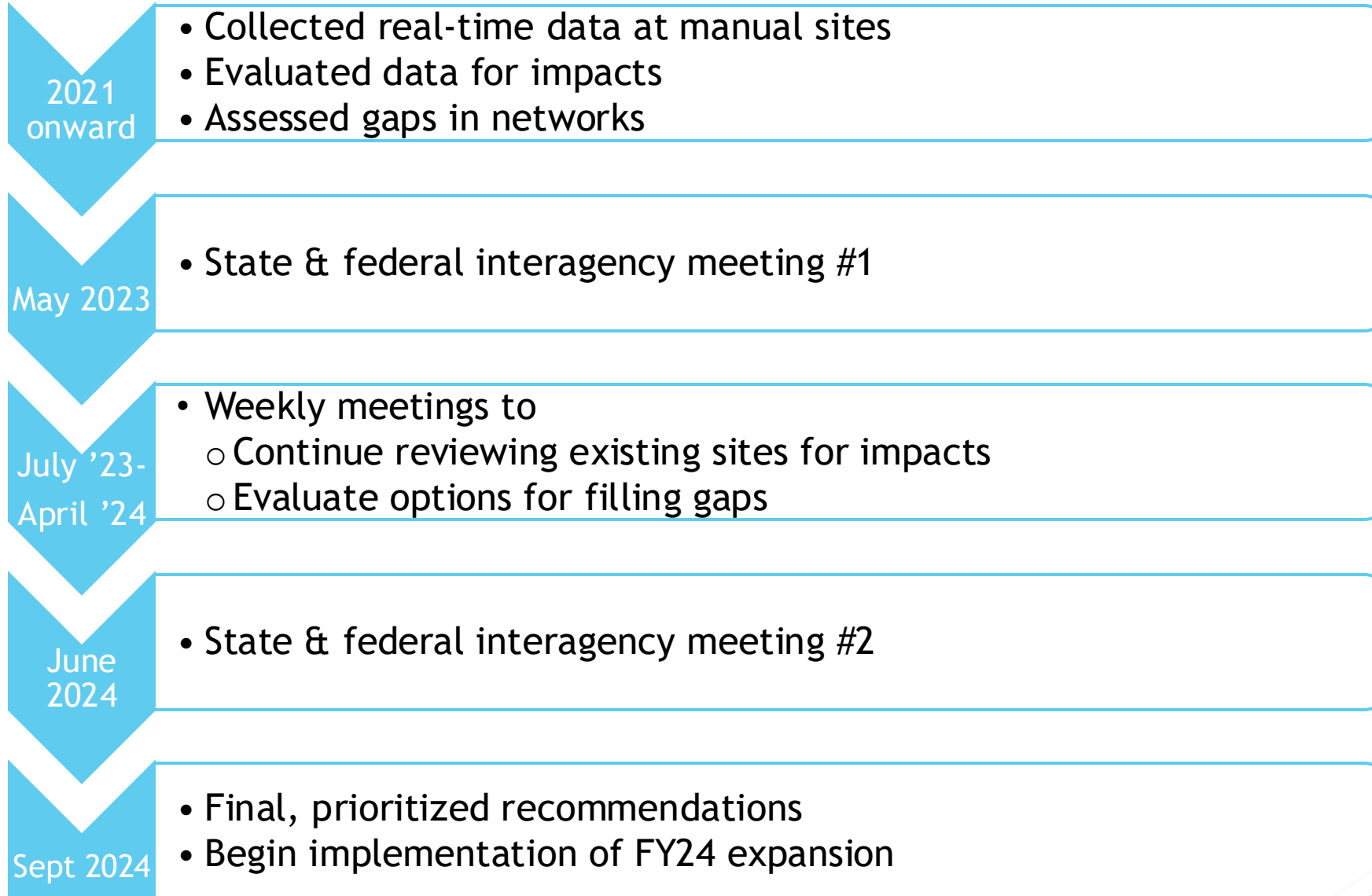
At start of FY 25	→	State	\$1.22 million
		+USGS	<u>\$0.29 million</u>
		Total	\$1.51 million

- Remaining for expansion = **\$0.71 million**
- Coincident with completion of network analyses for streamflow & groundwater

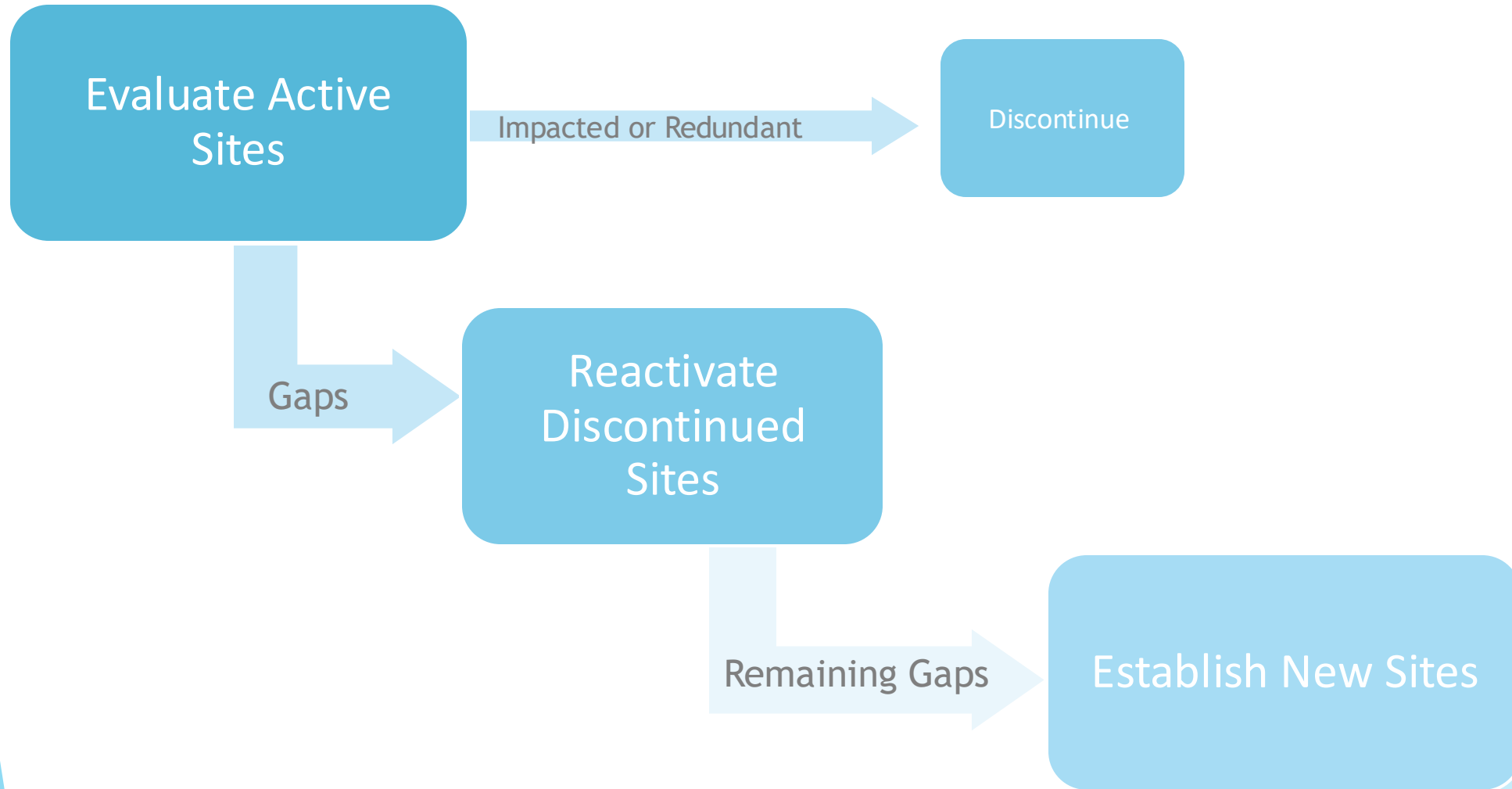
Goals of Network Analyses

- Review existing streamflow and groundwater networks for meeting state, federal and other public needs
- Identify gaps in these networks
 - Spatial gaps within drought regions & major basins
 - Headwater streams, aquifer material
- Recommend and prioritize stations for expanding the networks
- Engage with state and federal stakeholders on needs & priorities

Timeline of Network Analyses

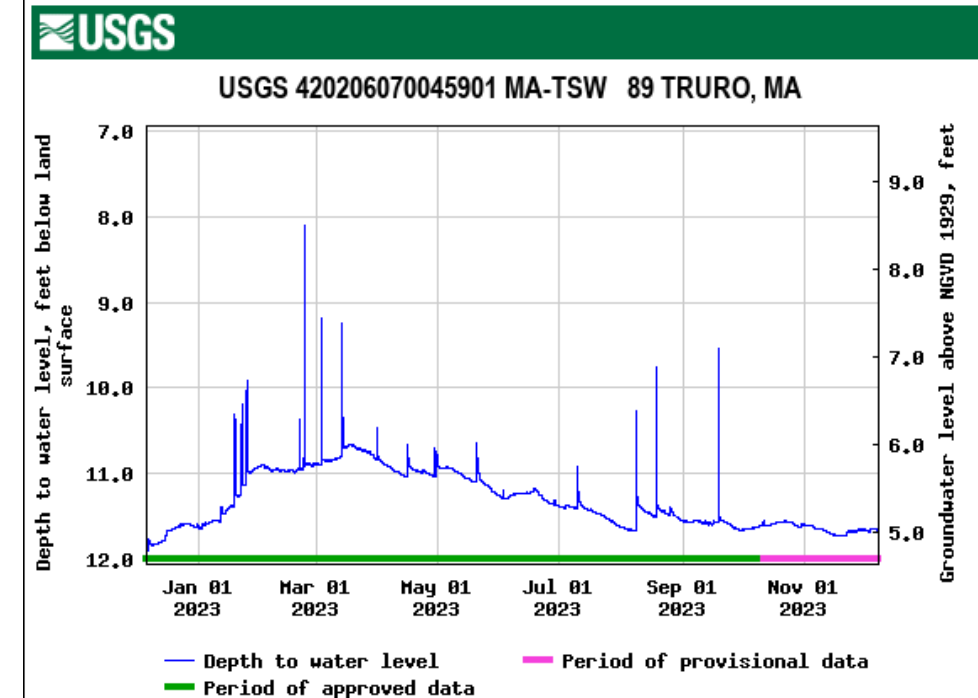
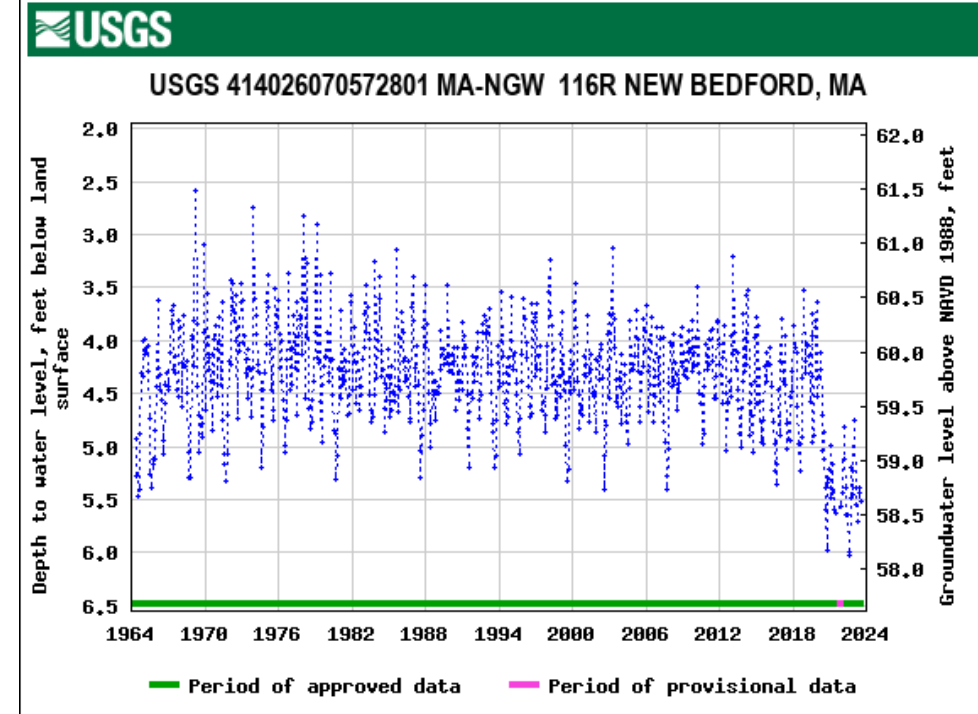
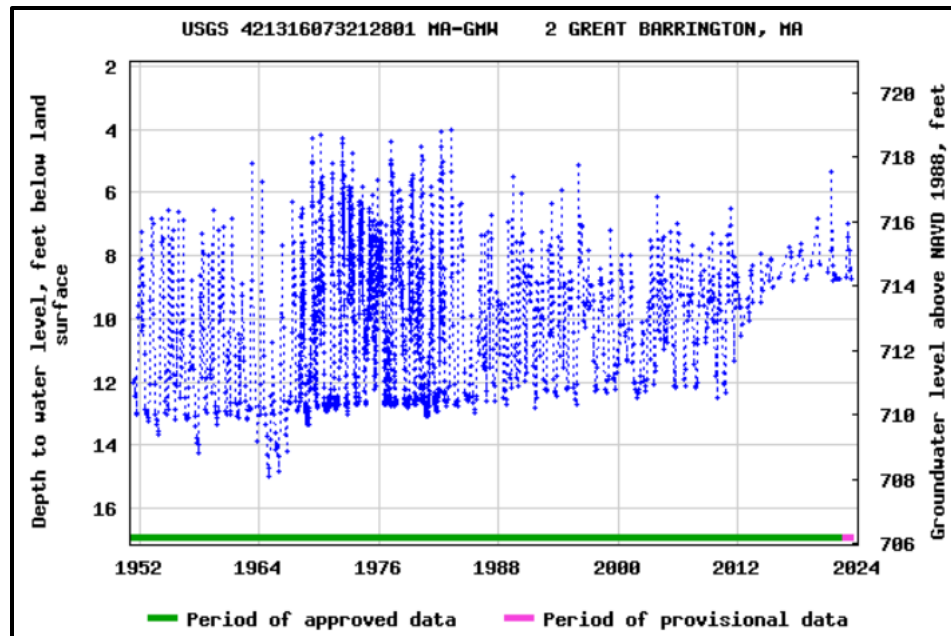


Process



Discontinued Sites

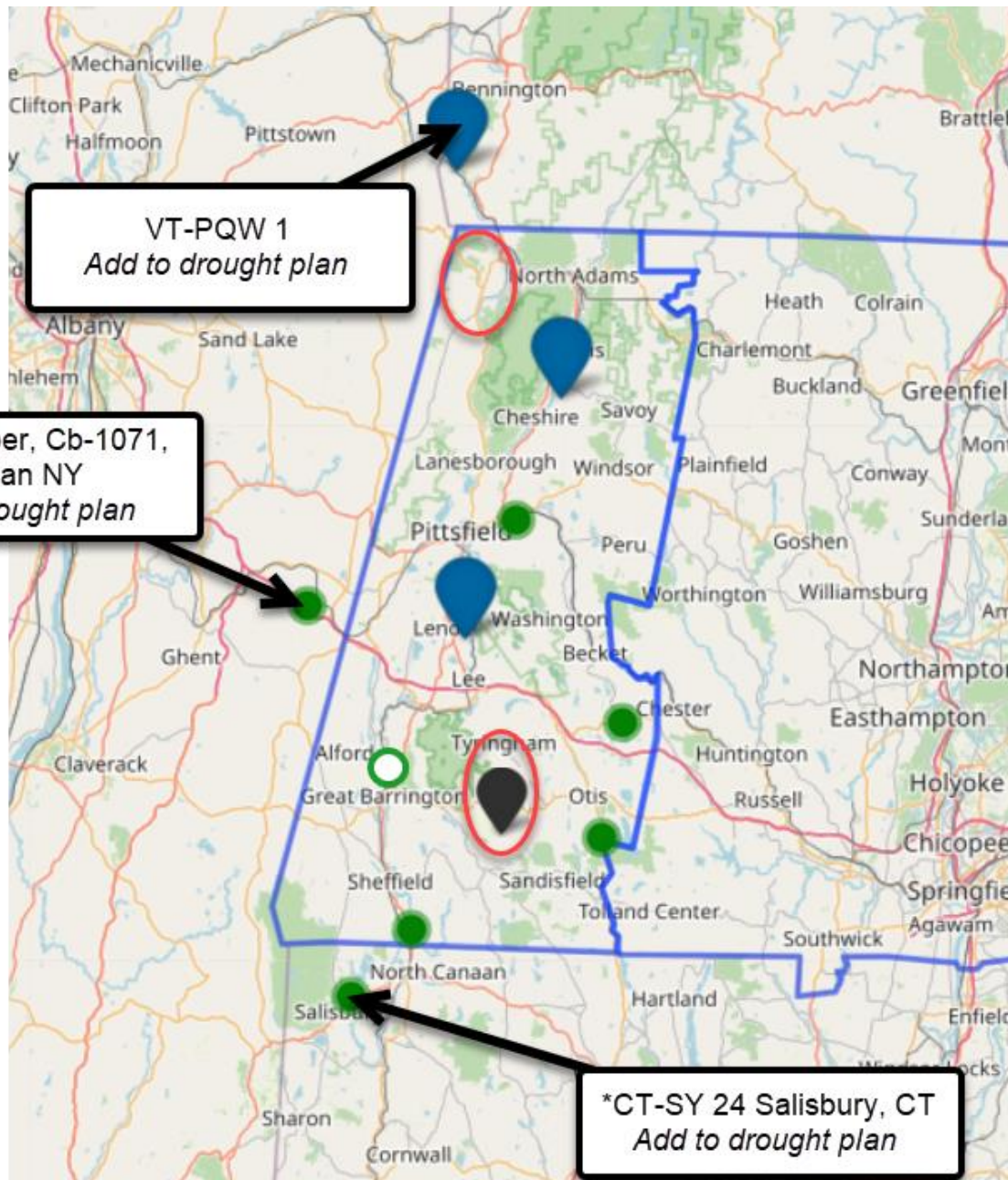
- Streamflow
 - 1 redundant site
 - (Discontinued funding by municipal or federal agencies)
- Groundwater
 - Impacted - pumping or stormwater management
 - Well collapse
 - Property owner request



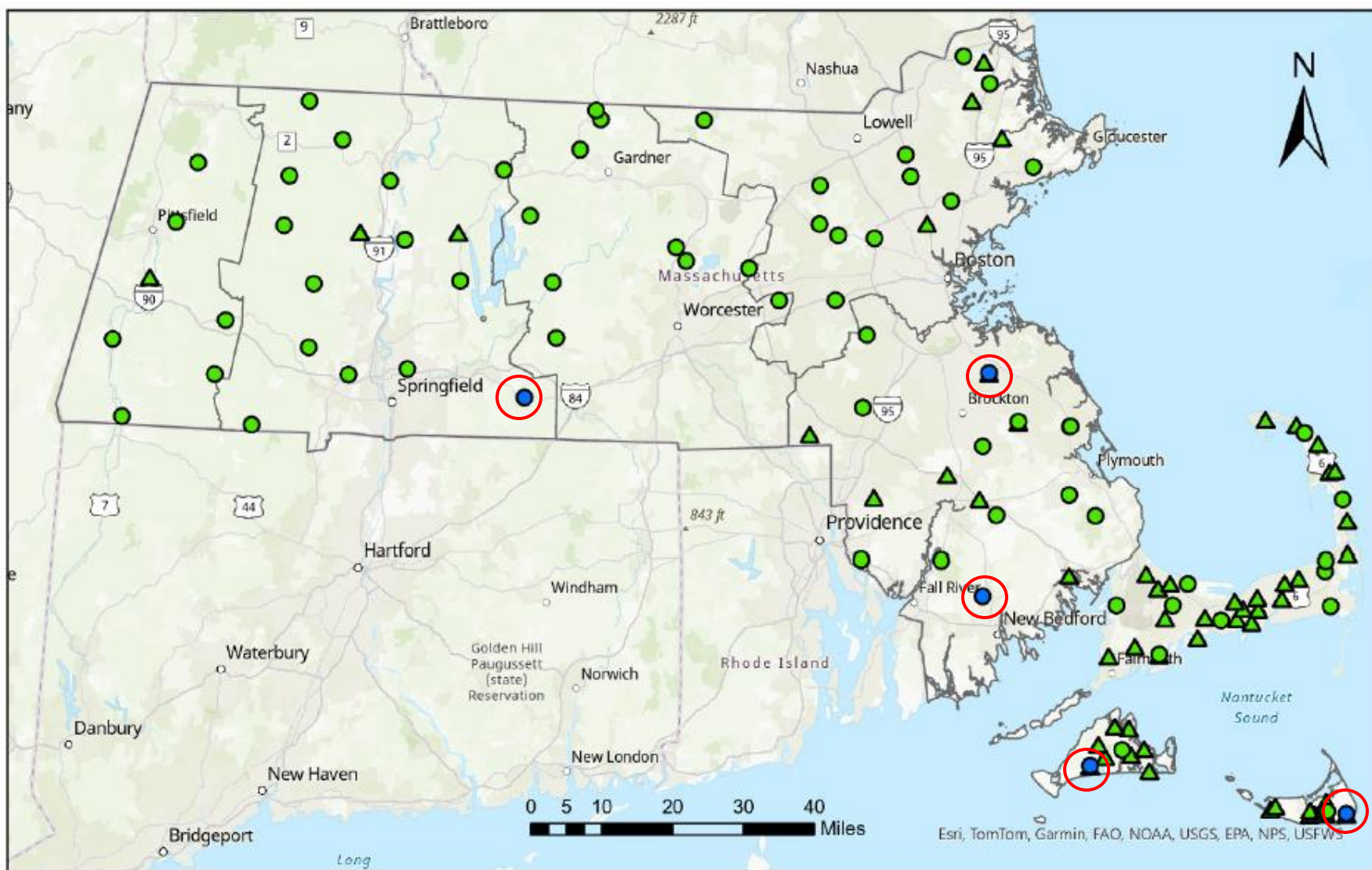
Prioritizing

- Why?
 - Installation costs > O&M costs
 - Phase install costs over multiple years, each FY as much as possible
- How?
 - Focus on streamflow - no federal funding
 - For groundwater - apply for federal grant
 - Select for
 - Filling large spatial gaps
 - Streamflow - more headwater streams
 - Groundwater - more till wells, more coastal wells

Western Region - Groundwater



- **FY24** - Upgraded Cheshire to real
- **FY25** - none
- **FY26** - Reactivate well in S
 - New well in NW area using grant
 - Upgrade Lenox manual well using grant



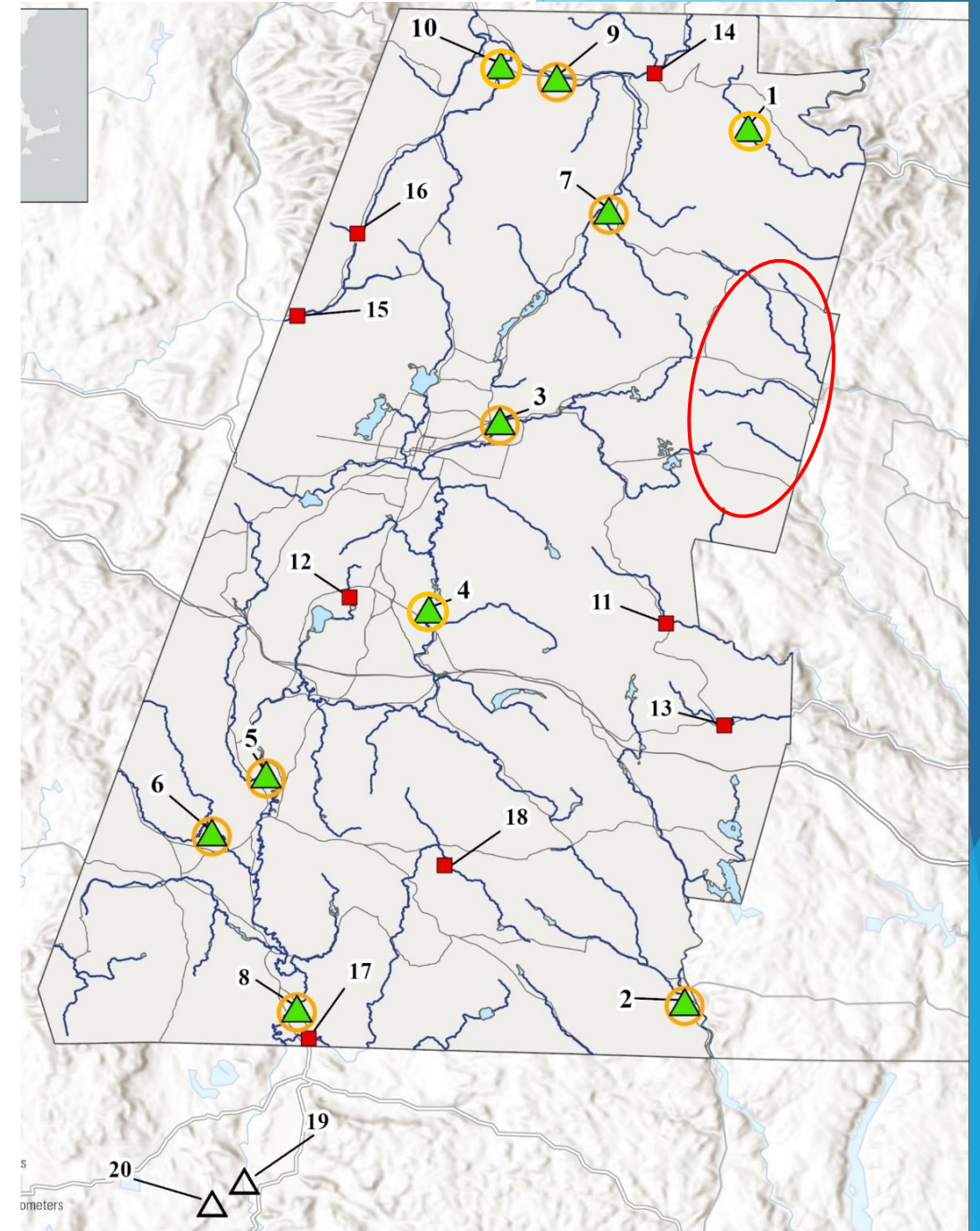
Massachusetts Groundwater Monitoring Network and Planned Expansion

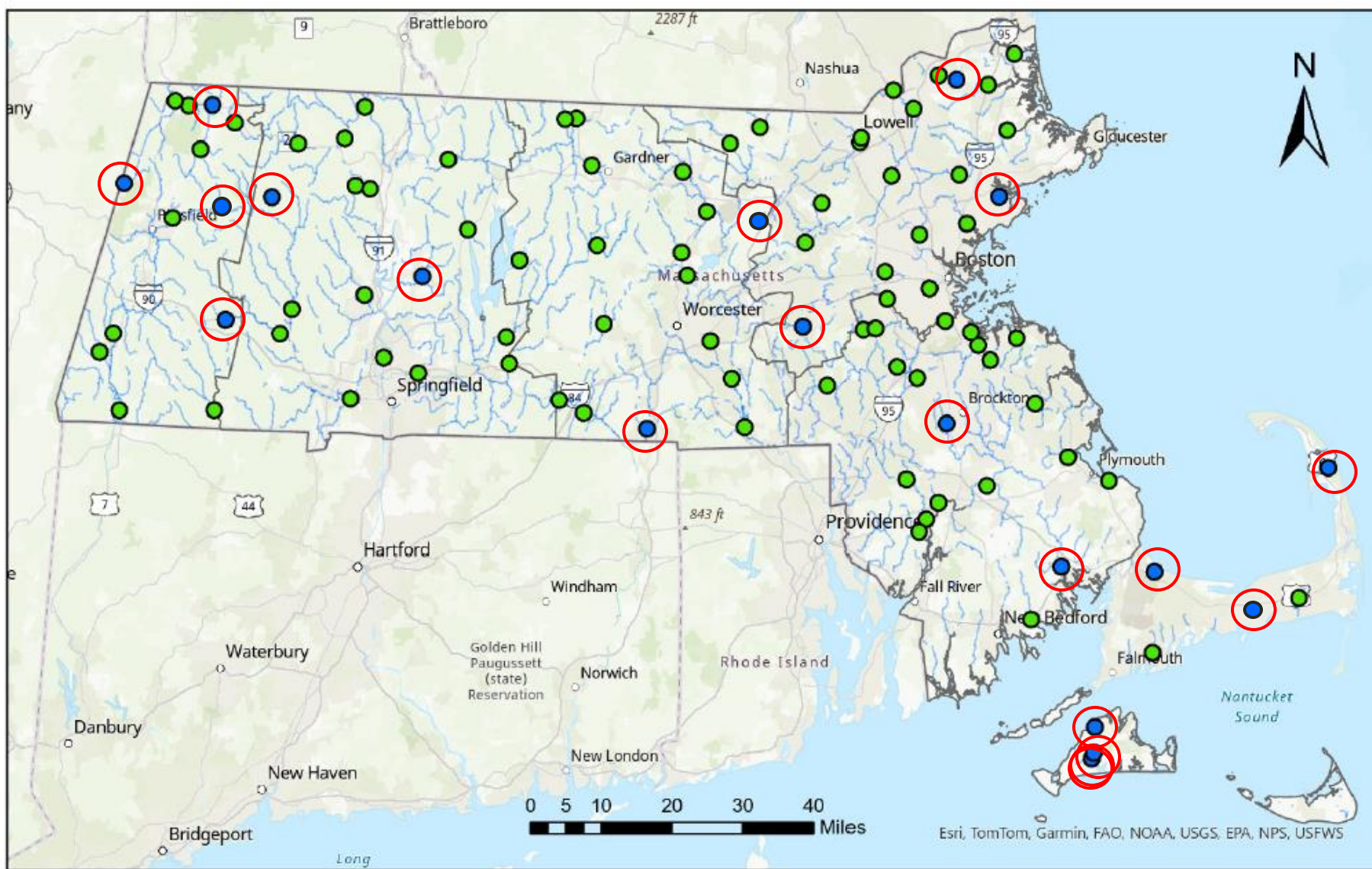


Western Region - Streamflow



- **FY25 - Add 4** to the DMP list
 - **Add 1** to DMP list, CY25 = 10 yrs POR
 - **Reactivate 13** - 15 yrs POR
 - **Reactivate 14** -60 yrs POR, NWS
 - request as reference gage for forecast point at Williamstown
 - **New at 15** NW gap
 - **New in NE** gap
- **FY26 - New at 18** but lowest priority





Massachusetts Surface Water Monitoring Network and Planned Expansion



Network Characteristics by End of FY25

	Sites	Data Collector
Streamflow	54+19=73	USGS
Groundwater	113+5=118	USGS
Tide gages	4	USGS
Precipitation	57+1	50 DCR, 7 USGS
Lakes & Impoundments	19	DCR

FY25 expansion = \$0.62 million

Total FY25 = \$1.84 million

Remaining \$50,000 = UMass manual measurements
& completion of Drivers of Low Flow study

The background features abstract, overlapping geometric shapes in various shades of blue, ranging from light sky blue to deep navy blue. These shapes are primarily located on the left and right sides of the frame, leaving a large white central area.

Questions?