



Buttery Brook, South Hadley



Bachelor Brook, South Hadley

Climate Change Preparedness Public Listening Session Town of South Hadley May 12, 2020

Agenda

- **Introduction**
- **Brief overview: Municipal Vulnerability Preparedness Program**
- **Climate Change Projections**
- **Community Resilience Building Workshop Summary of Findings**
- **Recap of earlier Listening Sessions**
- **Priority Projects**
- **Community Feedback**

South Hadley's MVP Program - \$25,000

- **Grant Supports Climate Change Vulnerability Assessments and Resiliency Planning**
- **MVP Comprehensive Approach**
 - Infrastructure**
 - Society**
 - Environment**
- **Expanded Scope**
 - Extra listening sessions focused around stormwater management at Titus Pond and Black Stevens Pond**

MVP designation leads to enhanced standing in future funding opportunities

MVP Action Grant

- **Grant supports priority actions identified at Community Resilience Building Workshop**
- **\$25,000 - \$2M available (up to \$5M for regional projects)**
- **Local match of 25% - can be in-kind**
- **New funding round open now – applications due June 2020**

Only those communities which have completed the CRB workshop are eligible to apply

Terminology

Climate Change

The Change in Usual Climate Conditions

- Rising Temperature
- Changing Precipitation/ Rainfall Amount and Intensity
- Sea Level Rise

Town of South Hadley – Connecticut Basin

Rising Temperature

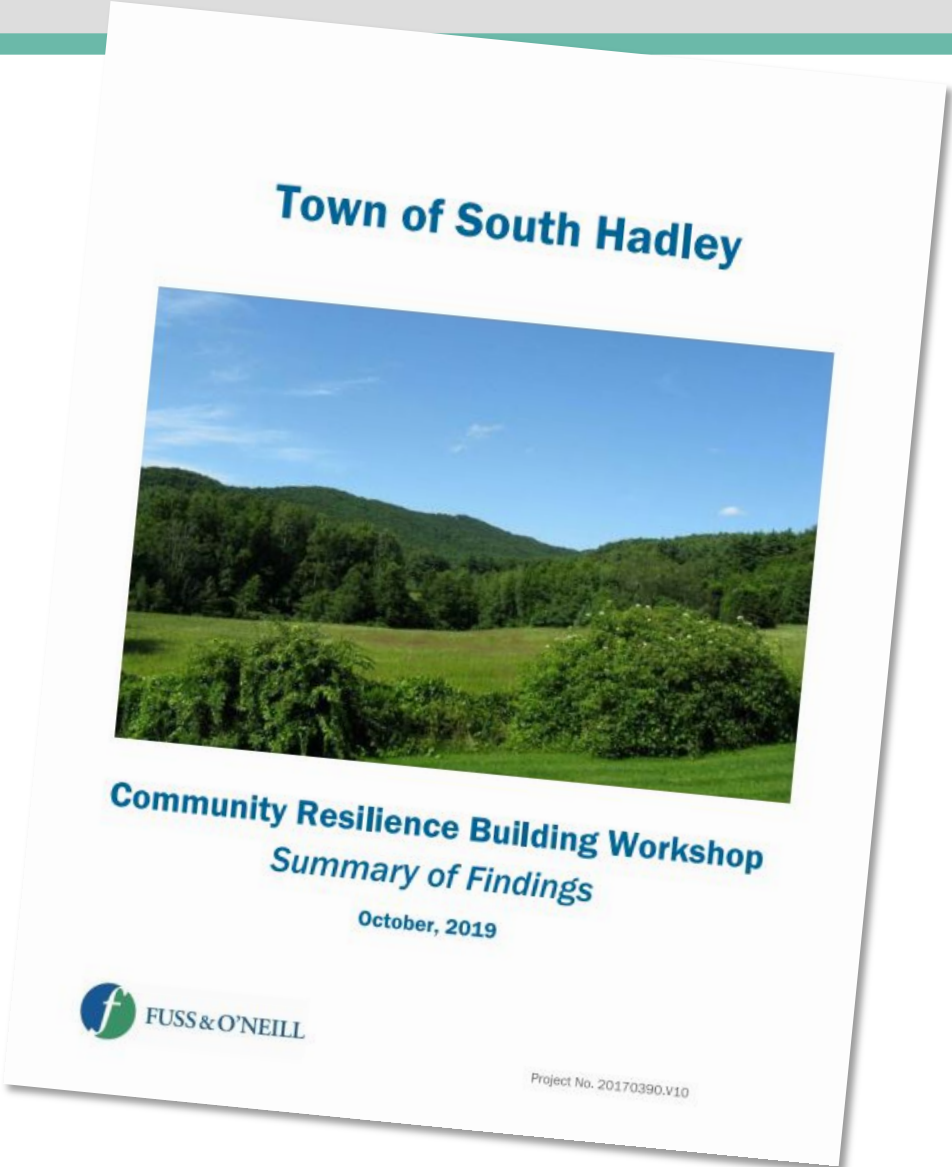
Connecticut Basin	Observed Baseline 1971-2000	Projected Change in 2030s	Projected Change in 2050s	Projected Change in 2070s	Projected Change in 2090s
Average Annual Temperature (°F)	46.98	2.18 to 4.46	3.00 to 6.43	3.57 to 9.00	4.04 to 10.94
Annual Days with Maximum Temperature over 90°F (Days)	6.41	6.36 to 19.72	9.87 to 35.35	11.98 to 57.07	14.50 to 76.01
Annual Days with Minimum Temperature below 32°F (Days)	158.63	-10.58 to -28.13	-18.57 to -37.28	-22.18 to -50.76	-22.88 to -59.79

Town of South Hadley – Connecticut Basin

Changing Precipitation

Connecticut Basin	Observed Baseline 1971-2000	Projected Change in 2030s	Projected Change in 2050s	Projected Change in 2070s	Projected Change in 2090s
Total Annual Precipitation (Inches)	46.39	-0.40 to 4.99	1.25 to 6.22	1.95 to 7.26	1.68 to 8.30
Annual Consecutive Dry Days (Days)	16.41	-0.18 to 1.34	-0.42 to 1.75	-0.73 to 2.26	-0.35 to 2.44

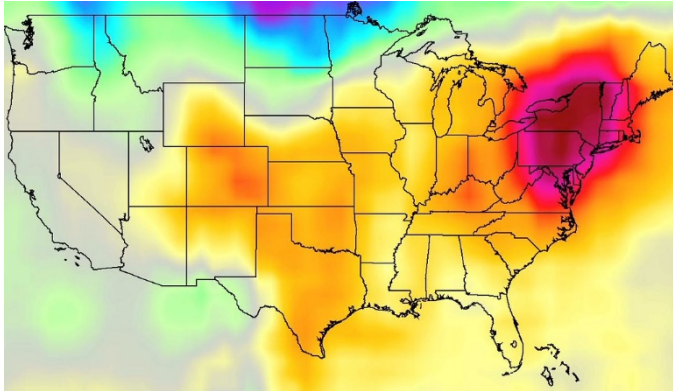
MVP Planning Process: Summary of Findings



MVP Planning Process: Summary of Findings

Top Four Hazards

- Flooding
- Ice and Snow
- Drought and Extreme Precipitation
- Extreme Weather Events



Findings: Water Resources-Related Concerns

- **Culverts and Bridges, Stormwater Systems**
 - Designed for historic precipitation
- **Dams** (especially Queensville Dam)
- **Water Quality** (e.g. algal blooms)
- **Trees and Forests**
- **Invasive Species**
- **Titus Pond & Black Stevens Pond**
(Stormwater management, water quality)
- **Beavers** (Cedar Ridge, Stony Brook, scattered areas)
- **Parks and Open Space**
- **Pest and Disease Control** (EEE, West Nile, Lyme)
- **Economic Revitalization** (The Falls, floodplain areas)
- **Neighborhood Conflicts** (e.g. sump pumps)



Top Watershed-Related Resiliency Actions

Infrastructure Priorities

- **Conduct field inventory/assessment and repair culverts and bridges**
- **Replace the Route 116/Newton Smith Brook culvert**
- **Conduct dam assessments, study feasibility of dam removals/repair**
- **Assess green infrastructure/LID opportunities for stormwater management**
- **Address flooding on Route 47/Pearl Street near Bachelor Brook**



Top Watershed-Related Resiliency Actions

Environmental Priorities

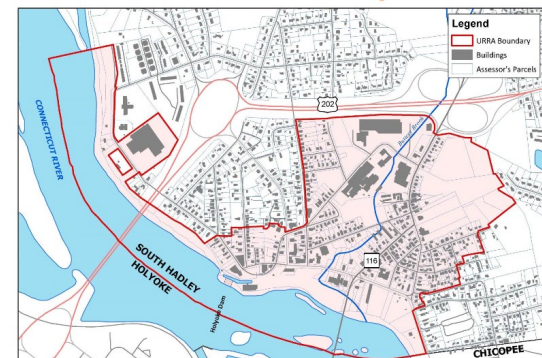
- **Develop a tree and forest management program**
- **Explore stormwater management at Titus Pond and Black Stevens Pond**
- **Pursue open space acquisition**
- **Develop a beaver management plan**
- **Long-term solutions for floodplain management**

Societal Priorities

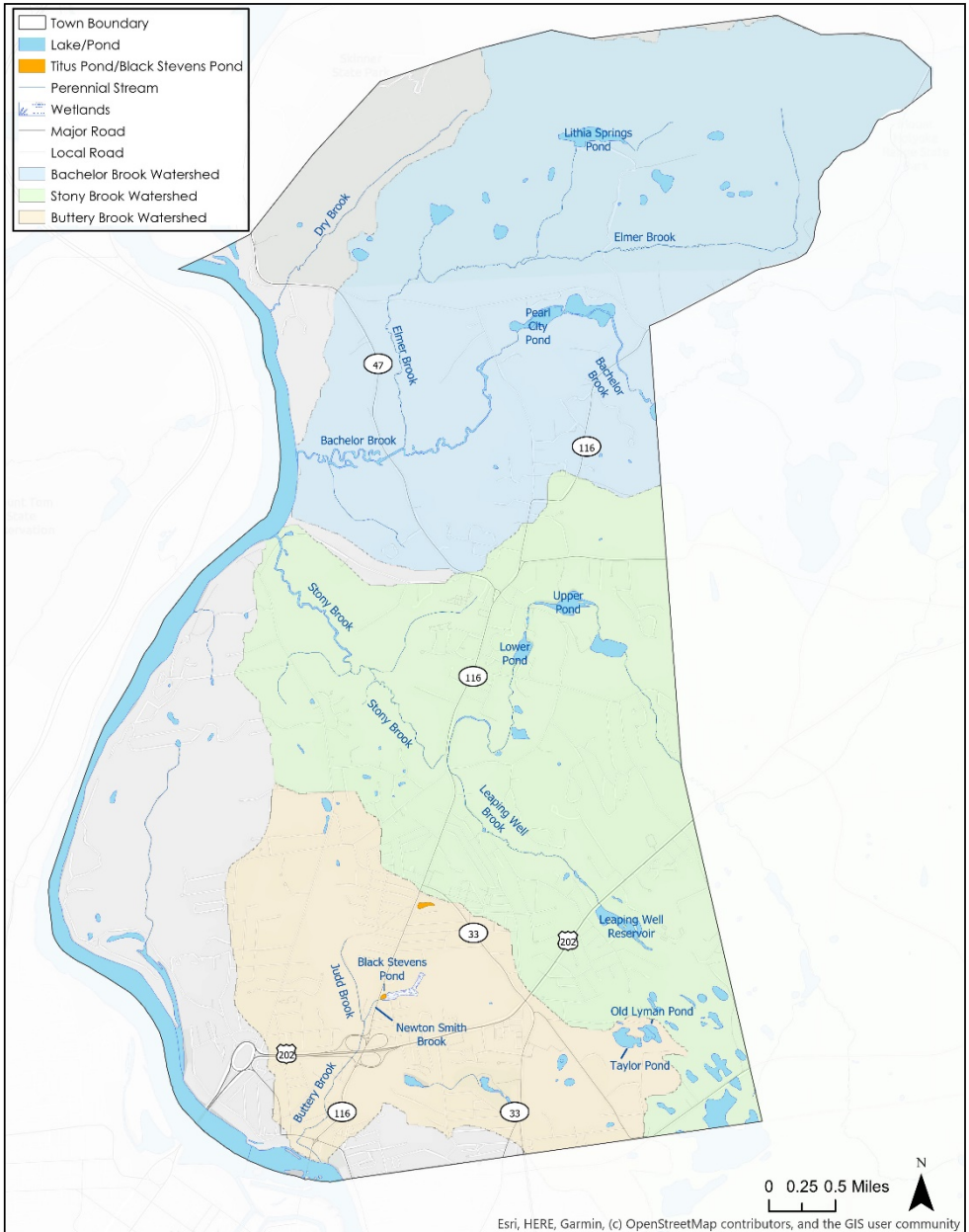
- **Incorporate resiliency into the Falls economic development**
- **Promote bio-blitzes and citizen science**
- **Develop resources/programs for residents to make resiliency improvements**



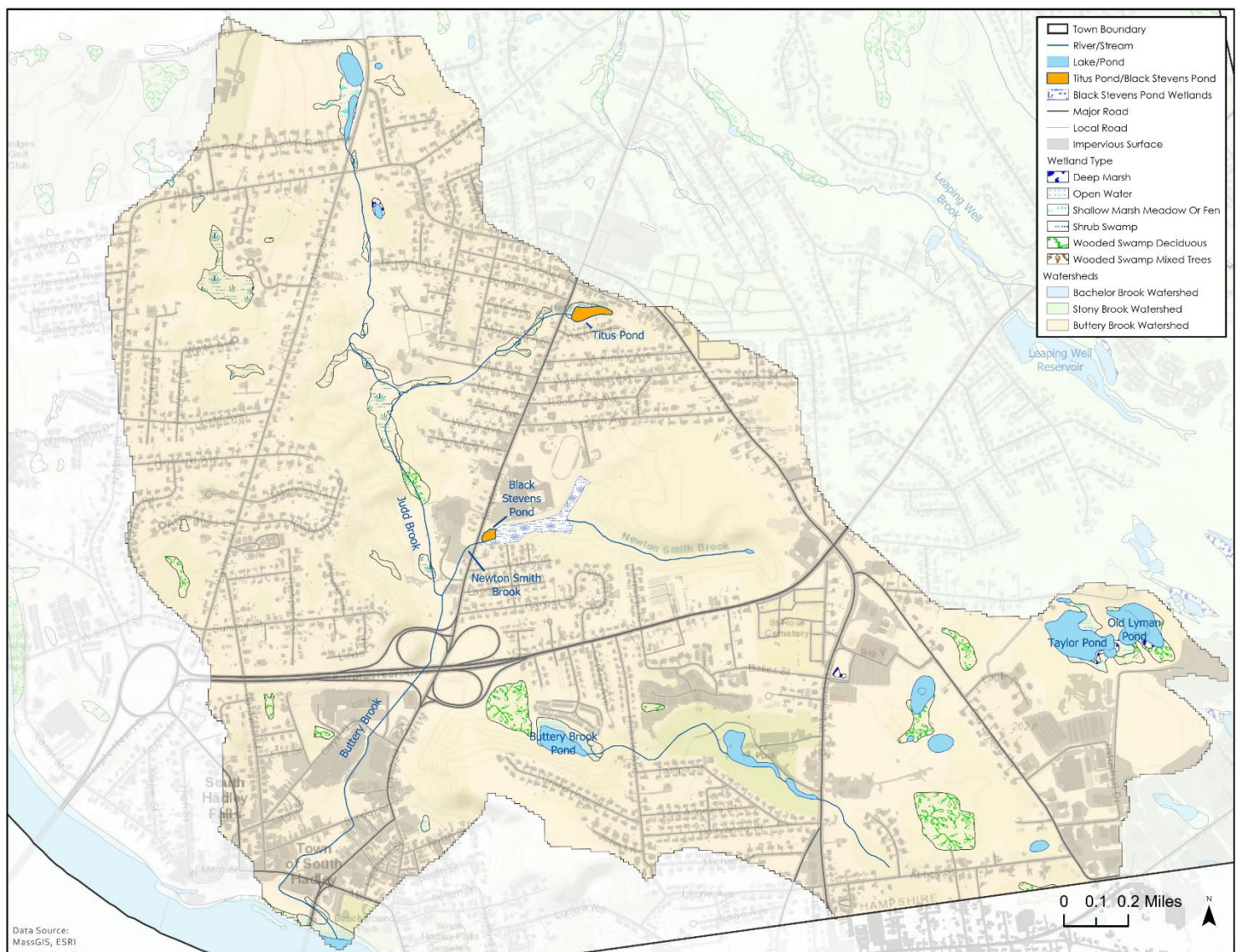
**South Hadley Falls
Urban Renewal & Redevelopment Area**



Water Resources in South Hadley

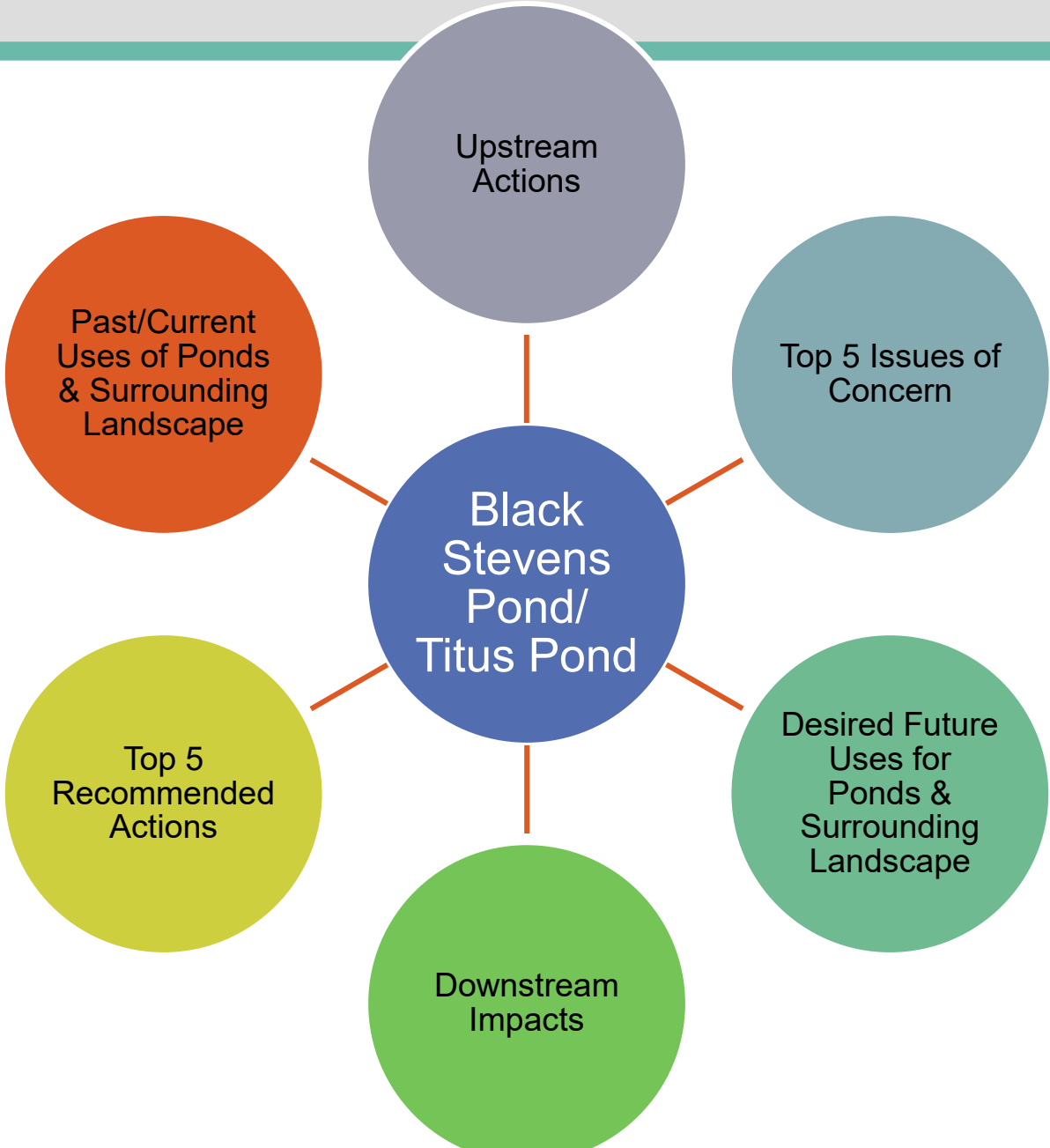


Water Resources – Buttery Brook Watershed



Data Source: MassGIS, ESRI

Prior Public Discussions



Past Public Discussion Points– Water Resources

- **Concern regarding downstream impacts**
 - closed landfill and potential flood impacts
- **Discussion of existing water quality monitoring in Town waterbodies**
 - e.g. Buttery Brook
- **Climate impacts to South Hadley Falls**
 - Flooding a particular concern
 - Integration of climate resiliency with redevelopment/economic and historic preservation
 - Nature-based approaches to protect South Hadley Falls
 - *Increasing green space and flood storage*
 - *Upstream management of development pressure and stormwater*

Past Discussion – Titus & Black Stevens Ponds

- **Current Associations with Titus Pond and Black Stevens Pond**
 - Titus Pond does not attract many visitors
 - Black Stevens appealing for hiking/walking
 - Black Stevens has been used by teachers and classes for ~50 years for education
 - Buttery Brook as a site for recreation with family

- **Future Vision for Titus Pond and Black Stevens Pond**
 - Consider upstream protection and management to improve Buttery Brook
 - Open Space preservation and forest/tree management important to residents
 - More public awareness needed
 - Incentives for abutters to help protect/improve waterbodies
 - Use Town regulations to facilitate watershed protection

Priority Projects – MVP Action Grant

Flood of 1936 – North Main Street, South Hadley Falls





North Main Street during the Flood of 1936. Connecticut River and Buttery Brook overtopped their banks.

MVP Action Grant Categories

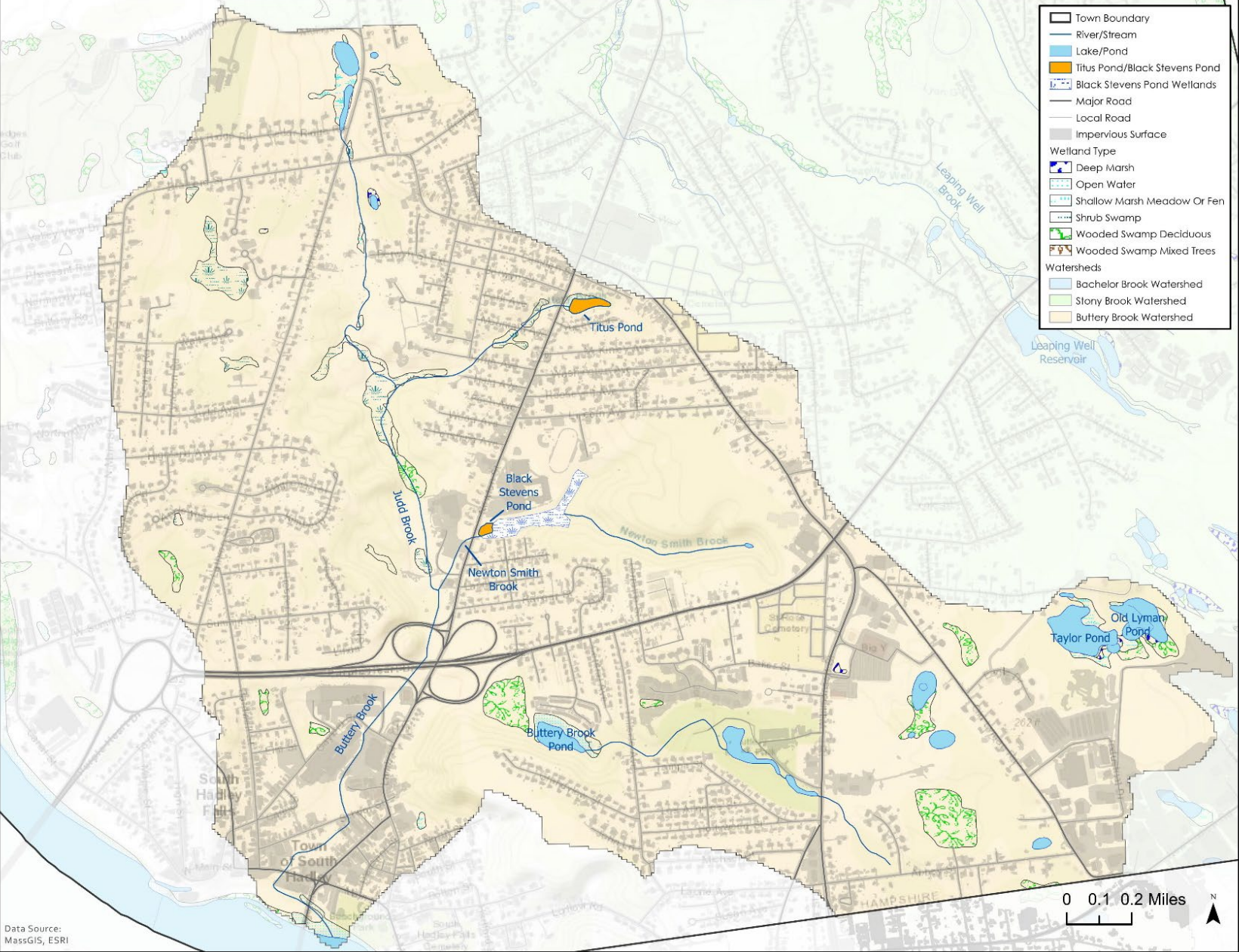
- **Planning, Assessments and Regulatory Updates**
- **Nature-based Solutions for Ecological and Public Health**
- **Resilient Redesigns and Retrofits for Critical Facilities and Infrastructure**

**Focus on opportunities for implementing
green infrastructure / nature-based solutions
for stormwater management.**

Buttery Brook Watershed

- **Improve upstream stormwater management through restoration of existing open space for greater flood attenuation with co-benefits of improved downstream conditions (reduce scour and erosion)**
 - **Stormwater assessment for Buttery Brook watershed**
 - **Identify opportunities to increase retention and infiltration in the watershed**
 - **Preliminary design of Newton Smith Brook and Black Stevens Pond restoration to eliminate downstream erosion and sedimentation, and increase flood storage resilience**

-  Town Boundary
-  River/Stream
-  Lake/Pond
-  Titus Pond/Black Stevens Pond
-  Black Stevens Pond Wetlands
-  Major Road
-  Local Road
-  Impervious Surface
- Wetland Type**
-  Deep Marsh
-  Open Water
-  Shallow Marsh Meadow Or Fen
-  Shrub Swamp
-  Wooded Swamp Deciduous
-  Wooded Swamp Mixed Trees
- Watersheds**
-  Bachelor Brook Watershed
-  Stony Brook Watershed
-  Buttery Brook Watershed



Data Source:
MassGIS, ESRI




Update Stormwater Bylaw

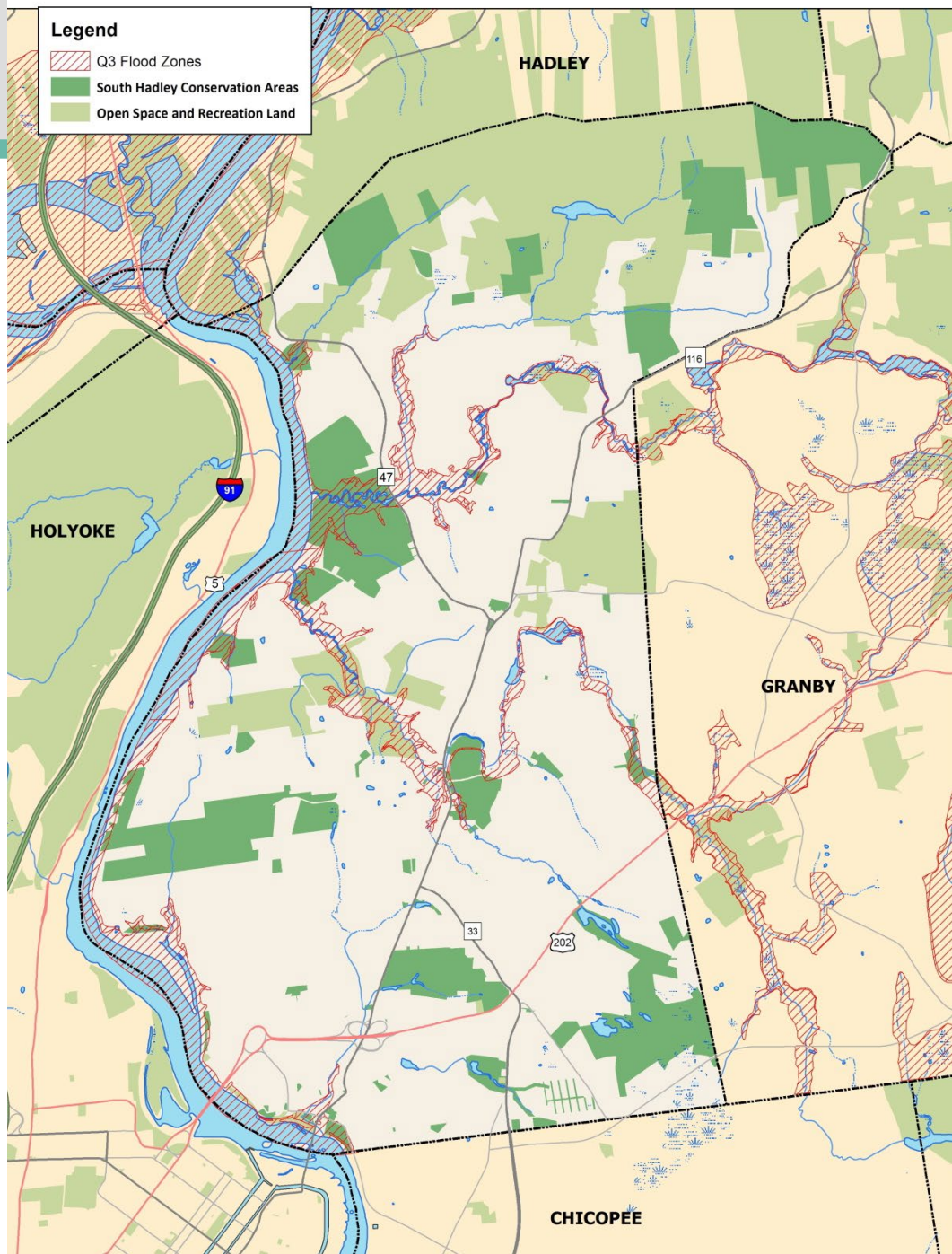
- Update the Stormwater Bylaw to require design of systems utilize most recently available data for appropriate sizing

Protect Floodplains and Expand Urban Tree Canopy

- **Protect undeveloped floodplains throughout South Hadley**
- **Implement a tree planting program to improve the resiliency of water resources to flooding and stormwater**
 - Priority focus on Floodplains, Riverfront Areas and Wetland Buffer Zones

Legend

-  Q3 Flood Zones
-  South Hadley Conservation Areas
-  Open Space and Recreation Land



Public Outreach Program

- Outreach to owners along all perennial streams
- Work with schools to conduct outreach and education on bioretention facility in Plains School parking lot
- Conduct public forums about green infrastructure and nature-based solutions as designed and/or implemented in BATTERY BROOK Watershed

Additional Discussion and Q&A

**South Hadley Community Resilience Building Workshop
Summary of Findings
December, 2019**

<https://www.southhadley.org/DocumentCenter/View/6007/Community-Resilience-Building-Workshop---Summary-of-Findings-December-2019>

<https://www.southhadley.org/294/Planning-Documents>