

# MONTAGUE POLLINATOR ACTION PLAN



## Identifying and Expanding Wild Pollinator Habitat in the Town of Montague

**Prepared by Franklin Regional Council of Governments (FRCOG) staff:**

Peggy Sloan, AICP, MLA, MRP  
Director of Planning and Development

Kimberly Noake MacPhee, P.G., CFM  
Land Use & Natural Resources Program Manager

Helena Farrell, MLA  
Land Use & Natural Resources Planner

Tamsin Flanders, MRP  
Land Use & Natural Resources Planner

Ryan Clary  
Senior GIS Specialist

**In Collaboration with:**

## The Town of Montague

**Funding provided by the MA Executive Office of Energy and Environmental  
Affairs (EEA), Planning Assistance Grants Program**



## ACKNOWLEDGEMENTS

The *Montague Pollinator Action Plan* was developed with input from town staff and committee members representing Montague's Planning & Conservation Department, the Parks & Recreation Department, the Tree Committee, and the Cemetery Commission. Local farmers and land stewards, homesteaders, permaculturalists, and community residents also contributed valuable knowledge about pollinator habitat corridors and important sites for pollinators in Montague, as well as key experience with the challenges and opportunities for expanding and protecting pollinator habitat. The continued engagement of the Town, as well as individual residents and community groups such as Great Falls Apple Corps from Turners Falls, will be essential to sustaining the long-term beneficial work for native pollinators in the many different opportunity areas in Montague and beyond.

The *Montague Pollinator Action Plan* is part of the *Regional Pollinator Action Plan* for Franklin County, which identifies strategies to develop pollinator habitat at a municipal and landscape scale through community engagement. The *Regional Pollinator Action Plan* includes the towns of Heath, Shelburne, Montague, Greenfield, Conway, Bernardston, Wendell, and Orange. To view the *Regional Pollinator Action Plan*, the *Regional Pollinator Habitat Corridor Implementation Toolkit*, and the *Pollinator Action Plans* for each of the other participating towns, go to <https://frcog.org/franklin-county-regional-pollinator-plan/>.



# Table of Contents

<b>LANDSCAPE ANALYSIS</b>	<b>1</b>
<b>EXISTING HABITAT &amp; RESOURCE AREAS</b>	<b>3</b>
<b>EXPANDING POLLINATOR HABITAT</b>	<b>5</b>
Prime Opportunity Areas	6
Other Opportunity Areas	10
Coordination, Education & Volunteering	12
Summary of Implementation Strategies in Montague	14
Recommendations for Potential Changes to Montague Zoning Bylaw	16
Montague Center Park Concept Design	20
<b>MAPS OF EXISTING &amp; POTENTIAL POLLINATOR HABITAT SITES</b>	
Existing & Potential Sites of Pollinator Habitat	
Pollinator Corridors & Stepping Stones	
<b>LANDSCAPE ANALYSIS MAPS</b>	
Habitat and Environmental Resources	
Land Cover and Land Use	
Permanently Protected & Municipal Properties	



## LANDSCAPE ANALYSIS

Natural resource inventory and parcel maps of the Town of Montague were developed with MassGIS and other available geospatial data to identify existing land cover and land use, priority habitat, water resources, development patterns and areas of habitat fragmentation, protected open space and municipal properties, paved and gravel roads in town, and other relevant resources in each town. The method of landscape-scale analysis followed these steps:

- Identify pollinator habitat by analyzing land cover and land use, protected open space, rivers and wetlands, Natural Heritage and Endangered Species (NHESP) BioMap2 Core Habitat, utility corridors and right-of-ways (ROWs).
- Consider special geologic, hydrologic, soil, vegetation, and microclimate assets in Montague that serve as valuable resource areas for the whole lifecycle of pollinators across multiple seasons, including nesting, larval, and adult stages.
- Include locally observed habitat and known habitat resource areas.
- Identify existing conditions, habitat, and development patterns, and areas of habitat fragmentation.
- Use GIS and local knowledge to create the maps.

Landscape analysis for the Town of Montague included the following maps, which can be found at the back of the *Montague Town Action Plan*:

- *Permanently Protected and Municipal Properties*
- *Habitat and Environmental Resources*
- *Land Cover and Land Use*

The analysis shows that Montague is a predominantly rural town with an urbanized zone in its northwest corner, Turners Falls. Four other village centers, also home to Town-owned parks, cemeteries, and residential gardens, are dispersed through the remainder of the town and include Montague City, Millers Falls, Lake Pleasant, Montague Center. The eastern half is predominantly forested and undeveloped. Cultivated agricultural lands predominate along the Connecticut River on the western town boundary; hayfields predominate in Montague Center and along Turners Falls Road. Two thirds of the town's perimeter is bounded by major rivers that act as pollinator corridors: the Connecticut River (including Bartons Cove) to the north and west and the Millers River to the north and east. The Sawmill River winds through Montague Center in the southwestern portion of town. There are a number of major utility corridors traversing Montague both north to south and east to west that also function as pollinator corridors. Much of Montague's rivers and their floodplains, the Montague Sandplains, areas of the Montague State Forest and nearby forests, and the Montague portion of the Mount Toby



State Forest are identified as BioMap 2 Core Habitat—state-designated high-quality habitat and intact ecosystem areas.

Maps of existing and potential sites for pollinator habitat areas and corridors were developed through both GIS landscape analysis and community input. A pollinator planning workshop with the Town of Montague was held on April 11, 2021 via Zoom to review the GIS maps of the town, to discuss pollinator habitat corridors and stepping stones of connectivity, and to inventory locally known existing pollinator habitats as well as potential locations for creating new pollinator habitat in town.

Twenty people participated in the workshop, ranging from residents, to farm owners, to Town staff and committee members, to interested out-of-towners from across the state. The Chair of the MetroWest Conservation Alliance (MCA) Native Pollinator Task Force attended the virtual workshop from Southborough, MA to learn about FRCOG’s pollinator planning process and to share lessons learned through experience with pollinator planning in their local area. MCA may be interested in completing a project similar to FRCOG’s *Regional Pollinator Action Plan* in the 36 communities in the MCA region.

This local knowledge was used in conjunction with land use data to create the following maps, which can be found at the back of the *Montague Town Action Plan*:

- *Existing & Potential Sites of Pollinator Habitat*
- *Pollinator Corridors & Habitat Stepping Stones*



## EXISTING HABITATS AND RESOURCE AREAS

According to the Natural Resources Conservation Service (NRCS), the best pollinator habitat will generally have access to food, cover, and water in close proximity, as well as connectivity to other important habitats, such as deciduous forests. Sunny and open conditions, field edges, and hedgerows are needed for ground nesting sites, as well as wood and pithy-stem nesting pollinators.

Existing pollinator habitats and resources areas can be inferred from the “Sunny Open Landscapes” and “Forested and Open Wetlands” data displayed in the *Town of Montague Pollinator Corridors & Habitat Stepping Stones* map. These two composite prime pollinator land cover data layers consist of the following MassGIS 2016 land cover types:

### **Sunny Open Landscapes**

Cultivated  
Pasture/hay  
Developed open space  
Grassland  
Scrub/shrub

### **Forested and Open Wetlands**

Forested wetland  
Non-forested wetland


These land cover types meet the characteristics described by the NRCS as beneficial for pollinators, and therefore provide the basis for inferring the presence of the pollinator corridors and stepping stones.

In addition to pollinator habitat that is identified through GIS landscape analysis, local knowledge contributed by the Montague workshop participants further identified existing wild locations, farms, pollinator-friendly gardens, municipal and utility areas, and connected corridors that are important for wild native pollinators in town. These locations are indicated as “existing pollinator sites” on the *Existing and Potential Sites of Pollinator Habitat* map.

## Neighborhood Networks

Montague is home to a variety of land stewards, from homesteaders and residential gardeners to organic farmers and organizations focused on community food security and edible gardening. Many share the goal of creating native pollinator habitat on the land that they steward. The Montague community is actively networking to help support one another with plants, materials, and labor for implementing and sustaining pollinator habitat in Montague’s opportunity areas. Several parks and neighborhoods in Montague’s five village centers were identified as having existing pollinator habitat areas as well as the potential for creating more. The following locations were identified as areas actively cultivated for pollinator habitat, indicated in red on the *Existing & Potential Sites of Pollinator Habitat* map:

- Taylor Hill residential area, Montague Center
- Lake Pleasant village

- 
- The Patch, Turners Falls

Residential gardens or open areas located near fresh water, as in the Lake Pleasant and The Patch neighborhoods, provide enhanced pollinator habitat because of the importance of close proximity to a consistent source of fresh water.

For private property owners who may not already be considering pollinator habitat needs, the plant lists and site typology designs available in the *Regional Pollinator Habitat Corridor Implementation Toolkit* can support private land-owners in taking that extra step toward pollinator-friendly practices.

## Public Parcels

Unity Park in Turners Falls contains two rain gardens, a butterfly garden, and perennials planted around the perimeter of some areas. The Unity Park Community Garden has 38 beds, with one being a dedicated pollinator bed. The Town is interested in expanding the gardens to include more pollinator habitat.

In Montague Center, the Department of Fish and Game's Sawmill River Access area—locally known as the Montague Meadow—is a 57-acre property that is predominantly meadow with a couple of miles of Sawmill River frontage. The property is traversed by mown walking paths and has moderate invasive plant species present in some places and minimal invasive plant species in other areas.


## Farms

Large parcels with cultivated land cover, including farms producing commercial crops, dairy, hay and orchards, can be a major resource for pollinators depending on farmland management practices. Workshop participants identified the following farms as operations that were already adapting their management practices to improve the benefit to pollinators:

- Brooksbend Farm and other residences within the Taylor Hill neighborhood in Montague Center
- Red Fire Farm, an 110-acre organic farm in Montague Center along the Sawmill and Connecticut Rivers

## Riparian Areas

Rivers, streams, lakes and ponds are important pollinator habitat because they are partially open to the sun or very sunny, host to a great diversity of flowering woody and herbaceous plant species, and typically have an abundance of forage and water resources that are essential to wild native pollinators. The sandy and clay substrates that can make up beds, banks, and floodplains can provide nesting habitat for ground-nesting bees. Rivers and streams can be vital pollinator corridors because they are naturally continuous. Waterbodies act as good habitat



core areas as well as stepping stones. The following waterbodies are important for pollinator habitat in Montague:

- Millers River
- Connecticut River
- Barton Cove
- Sawmill River
- Tributaries to the Sawmill River
- Lake Pleasant

## Other Ecologically Important Areas

Montague is home to a number of ecologically significant areas, shown as BioMap2 Core Habitat and NHESP Priority Habitat areas in the *Habitat and Environmental Resources* map. In addition to the areas bordering roads, rivers and streams, the ecology and open character of the Montague Sandplains stands out as important pollinator resource area.

The Montague Sandplains is an 1,500-acre state wildlife refuge and rare pine barren ecological area operated by the Massachusetts Department of Fisheries and Wildlife that supports habitat for a number of rare plants and animals. Turners Falls Airport is a municipally owned, developed section of the Montague Sandplains. The tree-less shrub and grassland habitats are maintained by mowing and burning as part of the airport maintenance requirements. These landscape management practices allow the site to serve as breeding habitat for a number of uncommon or rare grassland birds, indicating that it likely also supports flowering species and longer bloom periods and is probably not heavily sprayed with pesticides.

## Pollinator Corridors


In addition to the more conspicuous pollinator corridors—utility corridors, roads, rivers and streams—the following locations were identified by Montague residents and Town officials as important natural habitat areas connected by roads with residential gardens or roadside fields:

- Greenfield Road and Hatchery Road from Montague City to the Montague Sandplains
- Bartons Cove to the Industrial Park and grassland habitat at Turners Falls Airport
- Farms and fields along Sunderland Road via roads in the Taylor Hill neighborhood and via the Sawmill River to farmland along the Sawmill and Connecticut Rivers

## EXPANDING POLLINATOR HABITAT

The *Pollinator Corridors & Habitat Stepping Stones* map shows a series of well-connected pollinator corridors as well as isolated stepping stones of connectivity between pollinator corridors in Montague. The quality and connectivity of existing pollinator habitat may be enhanced at the sites labeled “Potential Sites” on Montague’s *Existing & Potential Sites of*





*Pollinator Habitat* map, which represents an inventory of locations that workshop participants had in mind for creating new pollinator habitat. The areas indicated as “stepping stones” on Montague’s *Pollinator Corridors & Habitat Stepping Stones* map also represent key locations for expanding pollinator habitat. This strategy is beneficial by expanding the size, quality, and the physical proximity of pollinator habitat areas to one another, which helps more pollinators meet their life cycle needs.

Pollinator habitat can be expanded through generally beneficial strategies and approaches too. For example, Montague residents and stewards of large parcels of cultivated land can adopt pollinator-friendly land management practices and actively work to enhance local ecosystems with native plants wherever they are. Whatever the strategy, expanding existing and implementing new pollinator habitat in Montague will be accomplished by bringing together pollinator stakeholders, working together to pursue opportunities, and building upon the many assets and strengths of Montague and the greater region.

## Prime Opportunity Areas

Montague’s prime opportunity areas for expanding pollinator habitat are with local farmers and farmlands, private gardeners, permaculturalists, homesteaders, and the Montague Parks & Recreation Department, supported by informed and dedicated volunteers. Land stewards managing large parcels of forestland, meadows, pastures, and open space are also important partners in efforts to expand pollinator habitat.


## Residential Gardens and Homesteads

The Montague community is already very interested and engaged in creating and stewarding local, native pollinator habitat. Continuing to build upon the momentum and the collective capacity among residents to carry out this work is an important long-term strategy. Some residents are equipped with information that supports their work. Landowners of parcels of any size acreage could be encouraged to support this mission of ecosystem restoration and pollinator resilience. One very important neighborhood-scale need identified by Montague workshop participants and by other communities is for organized bulk purchases of native plants from reputable local nurseries (see the *Regional Pollinator Habitat Corridor Implementation Toolkit* for native-plant nurseries that facilitate bulk purchasing).

## Town-Owned Parcels

The Town of Montague owns open space parcels throughout town, predominantly parks, cemeteries, and municipal facilities. The potential habitat areas on town-owned parcels include:

- Turners Falls
  - Unity Park


- 
- Town Hall rain garden in parking lot behind building
  - Peskeomskut Park
  - Sheffield Elementary School
  - Fairway Avenue Cemetery
  - Millers Falls
    - Highland Park
    - Highland Cemetery
  - Montague Center
    - Montague Center Park
    - Montague Center Common
  - Lake Pleasant
    - Rutter’s Park
    - Norma’s Park

Montague Center Park and Rutter’s Park are slated for redevelopment soon and could be considered potential pollinator habitat sites. Unity Park contains a steep hillside that was recently cleared and will be replanted with trees. The hillside is a perfect place for pollinator habitat because it is not in a mowed space, and already has some native plants regenerating.

A member of the Cemeteries Commission noted that the Town of Montague owns seven small, historical, closed cemeteries and is currently considering acquiring an eighth—Highland Cemetery on Millers Falls Road. The Highland Cemetery has a lot of potential for installing pollinator habitat, as it is 7.5 acres and contains abundant edge space between lawn and woods that could be planted. Fairway Cemetery on Fairway Avenue in Montague City is small but has space along its edges between lawn and woods, which could serve as ideal pollinator habitat but is currently occupied by autumn olive and other invasive plants. Finally, the “Poor Farm Cemetery,” a pocket cemetery on Route 63 near Millers Falls, contains three marked graves and presumably a number of additional unmarked graves. Adding pollinator landscaping, fruit trees, or other edible landscaping to this site could bring some special attention to these uncelebrated graves. The Cemetery Commission oversees the care of the Town’s cemeteries and would need informed and dedicated volunteer support to ensure long-term care and upkeep of new pollinator projects.

Another important opportunity area for pollinator habitat on public land is empty tree belts. Town-owned, these areas could be planted with both native trees, shrubs and herbaceous plants that support pollinators along continuous linear pathways through developed landscapes.

In the Montague Pollinator Planning Workshop, the Department of Parks & Recreation and the Cemetery Commission expressed their interest in expanding pollinator habitat on Town-owned properties. Several of Montague’s parks and cemeteries have excellent potential to



accommodate pollinator meadows and woodland edges in peripheral locations where safety, visibility, and other maintenance concerns are less of an issue.


The challenge for Montague Parks and Recreation is that they lack sufficient staff that would be needed to maintain additional areas of pollinator habitat. Given the special nature of pollinator-friendly landscapes, including differences in how they are maintained and communicated to the public, the work of expanding pollinator habitat would ideally have a dedicated staff person to coordinate and oversee the implementation and on-going care of pollinator projects in Montague. The Department of Parks & Recreation has just one full-time employee and one part-time staff, and the Department of Public Works (DPW) does not have sufficient time or staff to take on additional landscape care. The Cemetery Commission consists of volunteer members. The Montague DPW, which does much of the mowing and weed whacking on most Town-owned properties, also lacks the necessary training to care for pollinator landscapes, including how to adapt mowing practices to benefit pollinators. One workshop participant observed that the DPW will need to adjust its mowing schedule to allow pollinator habitat plants to bloom.

Montague has the key ingredients for enriching public landscapes with pollinator habitat. In particular, it has support from municipal leadership, enthusiastic community support, some volunteer support, and an ideal mix of prime pollinator land cover types in its developed and open public landscapes. Any potential expansion of pollinator habitat will involve skillful care and maintenance and most likely, upfront implementation costs as well. Town departments and staff should be involved from the beginning of any project to ensure their leadership and oversight. However, in the context of a growing number of pollinator opportunities, the Town may need to take action to secure additional resources for staffing and training necessary for projects to succeed long-term.

## Farmland and Large Cultivated Parcels

Several farms in Montague are actively promoting pollinator habitat in the agricultural areas that they cultivate. Still, they acknowledge that there is room for improvement in their practices to be even more pollinator-friendly. Some agricultural operations in Montague may not already be thinking about pollinator habitat and could be given information on the benefits of providing habitat; among them, vegetable farms and hayfields, dairy farms, orchards, and livestock farms.

Monocropping, poorly timed mowing, and pesticide application are three common agricultural practices that can tend to have deleterious effects on pollinators. Planting a diversity of plants with staggered flowering times, even if only in strips planted expressly for pollinators, can mitigate the impact of the monocrops, which have a limited timespan for providing food and do not support the complete lifecycle of many pollinators. Mowing areas after the availability of nectar and pollen resources has been exhausted better supports pollinators. Conventional pesticides are almost universally harmful to pollinators, as are some organic options. Tailoring



spraying practices to protect pollinators is one option for adapting to pollinators. However, reducing pesticide application is the preferred option.

Farmland can be supplemented with pollinator habitat along woodland edges, in hedgerows, pollinator planting strips, buffer strips (including roadside buffer strips), and around resource areas such as ponds, wetlands, and streams. One farmer at the pollinator workshop pointed out that they would like to be able to plant pollinator habitat in the more sloped sections of their fields. However, successfully establishing habitat for wild native pollinators involves planting new native plants and managing invasive species that can overtake and undermine new plantings. Information on problematic cold season grasses can be found in the Meadow Establishment section of the *Regional Pollinator Action Plan*. The task of managing invasive species is already a major undertaking in Montague.

Many farmers, and the agricultural community in general, may have limited experience with cultivating native pollinator plant species. In addition to gaining a strong understanding of why pollinator habitat is valuable on farms, farmers need to know when, where, what, and how to plant pollinator habitat on their land. Resources for farmers on how to propagate, establish, and maintain native plantings are essential to this kind of transition in agricultural practices. The United States Department of Agriculture (USDA) provides some resources on pollinator value in conservation plantings (see the Resources section of the *Regional Pollinator Action Plan*). It is likely that more research is needed in this area.

Given the small profit margin farm businesses work within, farmers will also likely need compensation for extra work to enhance pollinator habitat. Many of the grants and reimbursements available to farmers for environmental stewardship, especially through the USDA NRCS, have provisions for funding pollinator improvements, but farmers in Montague may need resources for applying to those grants, including a schedule of grant cycles and guidelines for design, plant selection, and management. The NRCS provides incentives for pollinators in many of their grants, including the Conservation Stewardship Program. A table of potential agricultural grants and funding sources for farmers to implement pollinator habitat on farmland can be found in the discussion of funding sources in the *Regional Pollinator Action Plan*.

There may be an emerging market for local ecotype native plant seed propagation that local farms could leverage. A workshop participant with experience installing pollinator gardens reported that they commonly have to source seeds from out of state. Propagating native pollinator plants would have the double benefit of providing abundant pollinator habitat and a source of income.



## Other Opportunity Areas in Montague

The following areas also offer great potential for expanding and enhancing Montague's pollinator habitat through general approaches and practices to enhance local ecosystems with native plants.

### Industrial Park & Turners Falls Airport

The Turners Falls Industrial Park and neighboring Turners Falls Airport provide significant opportunities to create abundant pollinator habitat. Both sites contain a large amount of open space and low traffic volume. Since the sites are not highly public areas, they do not have the same pressures to present a highly manicured appearance as more public, commercial facilities. Because it is privately owned, so changing landscape management practices at the industrial park will likely require a concerted effort on the part of pollinator advocates and Town officials, who must be able to provide resources and potentially funding to support the expansion of pollinator habitat. The Turners Falls Airport, owned by the Town of Montague, is likely already practicing more pollinator friendly landscape management and could be encouraged to adopt further beneficial practices.

### Golf Courses


The Thomas Memorial Golf Course offers an expanse of open space that could support pollinator habitat and reinforce the network of pollinator stepping stones throughout Turners Falls. Fairways are often heavily mowed and fertilized, but golf courses contain other areas that remain out-of-play that can be seeded for pollinator forage or managed for bee nesting. A number of resources on pollinator-friendly practices for golf courses are available (see the References section in the *Regional Pollinator Action Plan* for resources on pollinator-friendly golf course management).

### Riparian Areas

The multifold benefits of the land around rivers, streams, lakes, and ponds include sun, water, forage, and nesting habitat. While there are already many riparian corridors that function well as bee habitat, others are compromised by the presence of invasive plant species, especially Japanese knotweed. Support for ongoing invasive plant species prevention and eradication projects will likely benefit wild native pollinators.

### Recreational Trails

Pollinator corridors and stepping stones of habitat connectivity are essential for pollinators to travel safely and to access food and nesting resources. Recreational trails can contribute to habitat connectivity because they tend to be continuous paths with "edge" conditions through natural landscapes. Montague has a wealth of hiking trails in a variety of wild areas, from trails through the thickly wooded Montague State Forest, to riverine corridors like those along the



Sawmill River, to the trails through the Montague Sandplains Pine Barrens. Hiking and recreational trails offer the potential for stepping stones of connectivity between larger pollinator corridors across the town to help pollinators fulfill their life cycle needs. These stepping stones can be reinforced by creating patches along recreation trails that provide forage with pollinator plants as well as bee nesting sites that are connected, yet safely located off of the beaten path.

## Paved and Gravel Roads

Like recreational trails, gravel roads in rural parts of Montague can also be especially good pollinator habitat because of the ‘edge’ conditions that they create in which wild pollinators can find food, nesting, and meet other life cycle needs along continuous pathways that offer connectivity between larger pollinator corridors. The gravel substrate of the rural dirt roads is itself an attractive medium for ground-nesting bees. The risk, of course, is vehicular traffic as well as roadside maintenance practices used by the town.


The Montague Highway Department is in charge of much of the landscape maintenance on Town-owned transportation right-of-ways. Modifying mowing practices or managing existing roadside edges to serve as corridors for pollinator movement could create effective and important habitat connections for native pollinators, which may otherwise be difficult to establish. For example, limiting roadside mowing to a narrow road-edge strip can leave habitat for pollinators while meeting safety requirements. The *Handbook for Supporting Pollinators through Roadside Maintenance and Landscape Design* prepared by the U.S. Department of Transportation Federal Highway Administration could be used as a starting point for Highway Departments interested in adjusting their mowing practices.<sup>1</sup> Management practices presented in the handbook emphasize win-win strategies that maintain public safety standards and save time, trouble and costs with fewer and simpler mowing regimens and other ecological practices.

## Utility Corridors

Montague contains a network of utility corridors, especially power line corridors. Power companies maintain the rights-of-way (ROWs) to keep them free of interfering brush and woody vegetation. These continuous, open sunny corridors can offer ideal nesting habitat and a cornucopia of food and forage, if native plants are allowed to remain within the utility ROW. The common practice of using herbicides in utility corridors to manage tree and shrub growth indiscriminately kills native vegetation when applied by broad spraying, which destroys the desired plants for wild native pollinators. Practices can be developed that would allow for both

---

<sup>1</sup> U.S. Department of Transportation Federal Highway Administration, “Handbook for Supporting Pollinators through Roadside Maintenance and Landscape”:  
[https://www.environment.fhwa.dot.gov/env\\_topics/ecosystems/Pollinators\\_Roadsides/BMPs\\_pollinators\\_landscape.pdf](https://www.environment.fhwa.dot.gov/env_topics/ecosystems/Pollinators_Roadsides/BMPs_pollinators_landscape.pdf)



effective maintenance of the ROW as well as pollinator habitat. Areas where streams and rivers, isolated wetlands, scrub/shrub lands, and open cultivated areas overlap with the utility and highway corridors area especially valuable for pollinators. Refer to Utility Corridors and Improving Infrastructure Maintenance in the *Regional Pollinator Action Plan* for more information on the potential and challenge of utility corridors.

## Solar Installations

Ground-mounted solar is often sited on open sites and habitats that benefit native wildlife, and are advantageous places to manage for pollinator habitat because they equate to very large areas of contiguous sunny, dry, open space where flexible mowing needs can accommodate pollinator life cycles. Montague is home to a 23-acre ground-mounted solar installation owned by Eversource energy. Refer to discussions of large scale solar arrays in the *Regional Pollinator Action Plan* for more information on the value and management of ground-mounted solar for pollinator habitat and pages 16-18 of this plan for recommended zoning bylaw language for solar installations that reinforces pollinator habitat.

## Coordination, Education & Volunteering

Increasing pollinator resources in a community will involve a variety of stakeholders, including Town staff, residents, local farms, businesses, and organizations. As discussed in the *Regional Pollinator Plan* and throughout this plan, even though pollinator habitat areas can be resilient and low-maintenance landscapes, creating and managing them over the long-term can require awareness, labor, time and money.

Community engagement and volunteer support for the Town can play a key role in realizing the potential for developing pollinator projects on town-owned parcels. The Montague Highway Department, Parks & Recreation Department, and Town boards and committees have great ideas, and the town-owned parcels inventoried in this plan offer ideal opportunity areas. If provided with consistent, volunteered labor contributed by the community, the Town may be able to initiate its top priority pollinator-friendly initiatives. If the project can demonstrate success, a case could be made for dedicating staff time to the management and oversight of pollinator projects into the future. Unfortunately, volunteer support for pollinator gardens in some of Montague's community parks has fallen short of basic requirements in recent years.

The Town's website can serve as an informational resource for citizens looking for guidance on how to create and expand pollinator habitat in their own yards and properties, how to support efforts undertaken by the Town, and how to connect with groups in Montague and across the County working to implement the *Montague Pollinator Action Plan* and the *Regional Pollinator Action Plan*.

Ultimately, positive change for pollinators will need many people working to implement strategies for landscape change in Montague's prime opportunity areas for pollinator habitat.



In addition to being a good partner in land management to the Town, the Great Falls Apple Corps—a Turners Falls-based community group that advocates for edible landscapes and all kinds of community gardening—is well poised to be an educational resource and an advocate for pollinator strategies. The networks and ambition of other organizations, such as Drawdown Montague, are also assets. One potentially reliable source for volunteers is businesses in the cannabis industry, who are obligated by their Host Community Agreements to provide 150 volunteer hours within the community annually.

The *Summary of Implementation Opportunities and Strategies in Montague* table lists ideas brainstormed during the Montague pollinator planning workshop for expanding pollinator habitat in town.



## Summary of Implementation Opportunities and Strategies in Montague

Opportunity/Location	Strategy	Jurisdiction	Potential Partners
Residential gardens, homesteads, and properties town-wide	Gather information and resources including pollinator plant lists and mowing regimen changes for protecting seed heads and overwintering insects on private property. Share with Town boards and committees, neighborhood networks, schools, the senior center, and church groups to help with community outreach.	Private/Town	Residents
Residential gardens, homesteads, and properties town-wide	Coordinate neighborhood groups to organize bulk purchases of native pollinator plants from reputable nurseries.	Private	Residents, landowners
Properties town-wide	Utilize local knowledge and neighborhood networks to provide site assessments to help identify pollinator opportunities, priorities and challenges on properties town-wide.	Private	Residents, landowners
Privately and publicly owned public spaces	Install pollinator habitat into highly visible public spaces throughout town. For example, the new FRTA bus station will need vegetative screening and plants should be selected from the list of shrubs and trees provided in the regional toolkit. Procure and install educational signage about native pollinator habitat.	Private/Town	Residents, businesses, Parks and Recreation Department, Great Falls Apple Corps
Farmland and Large Cultivated Parcels	Gather information and resources including plant lists, mowing regimen changes, grant funding, plant starts and seed sources for farmland and large cultivated parcels. Reach out to farmers and landowners to implement pollinator habitat on their farm fields, hayfields, and field edges, and to learn and apply invasive species management strategies on their land.	Private	Residents, farmers, landowners
Properties town-wide	Provide plant identification resources for recognizing young pollinator plants, and plants at different life stages, and encourage their protection from mowing. Develop and share a master document with plant ID information and photos.	Private/Town	Residents, landowners, Western Massachusetts Master Gardener Association
Montague Town Properties	Assess potential for pollinator-friendly mowing practices in non-recreational areas, including cemeteries and the Turners Falls Airport. Mitigate and manage invasive species.	Town	Town Planner, Department of Public Works, Parks and Recreation Department
Montague Town Properties	Include a high proportion of pollinator plant species in any park redevelopment projects, including at Unity Park, Montague Center Park, and Rutters Park, or road construction projects, such as the Montague City Road renovation.	Town	Parks and Recreation Department, Town Planner, Department of Public Works

## Summary of Implementation Opportunities and Strategies in Montague

Opportunity/Location	Strategy	Jurisdiction	Potential Partners
Montague Center Park	Support the Parks and Recreation Department in implementing the pollinator concept design along with park upgrades planned for Montague Center Park.	Town	Parks and Recreation Department, Residents
Town Roads	Support the Department of Public Works in adopting pollinator-friendly mowing on roadside edges and public properties.	Town	Residents, Department of Public Works
New development town-wide, large ground-mounted solar arrays	Support the Planning Board in adopting recommendations for potential changes to Montague Zoning Bylaws and Subdivision Regulations	Town	Planning Board, Residents
Open water, wetlands, and river corridors	Coordinate riparian corridor stewardship by landowners, including management strategies for Japanese knotweed. Incorporate pollinator habitat into all types of projects along the Sawmill River and its tributaries.	Town, Private	Local land stewards, landowners, Conservation Commission
Permanently Protected conservation land	Incorporate into the language of conservation restrictions that the restriction holder holds the right to plant and manage pollinator habitat within the area of the restriction.	Private	Landowners, land trusts



## Recommendations for Potential Changes to Montague Zoning Bylaws and Subdivision Regulations

One way to create and protect pollinators is by updating land use regulations to address pollinator habitat. For this project, the FRCOG reviewed Montague's land use regulations and identified potential changes to the Zoning Bylaw and Subdivision Regulations. Montague's Planning Board can review potential changes and decide whether to pursue the proposed amendments. The key areas where changes can be incorporated are:

- Site Plan Review,
- Special Permits,
- Large-Scale Solar Facilities,
- Open Space Residential Development/ Conservation Development/ Major Residential Development, and
- Subdivision Regulations.

### Site Plan Review


1. **Content of Site Plan** – Add existing or proposed locations of pollinator habitat to the required contents of the Site Plan. Pollinator habitat consisting of native wildflower and tree species can be an alternative to grass or other proposed landscaping.
2. **Review Criteria** – Add creation and/or conservation of pollinator habitat as a criteria.
3. **Landscape Maintenance** – Add requirement for annual monitoring and maintenance of the pollinator habitat to the Site Plan Review conditions.

### Special Permits

1. **Content of Application** – Add existing or proposed locations of pollinator habitat to suggested contents of the Special Permit Application.
2. **Special Permit Criteria** – Add creation and/or conservation of pollinator habitat as a criteria.
3. **Landscape Maintenance** – Add requirement for annual monitoring and maintenance of the pollinator habitat to the Special Permit conditions.

### Large Scale Solar Facilities

1. **Content of Application** – Add a paragraph requiring that a native flowering planting plan that supports pollinators be planted under the solar array instead of grass or semi pervious or impervious materials.
2. **Review Criteria** – Add creation and/or conservation of pollinator habitat as criteria.

- 
3. **Landscape Maintenance** – Add requirement for annual monitoring and maintenance of the pollinator habitat to the Special Permit conditions.

## Open Space Residential Design (OSRD)/ Conservation Development/ Major Residential Design

1. **Content of Application** – Add existing or proposed locations of pollinator habitat to suggested contents of the development plan.
2. **Review Criteria** – Add creation and/or conservation of pollinator habitat as criteria.
3. **Landscaping** – Require or encourage the planting of pollinator habitat as an alternative to grass or traditional landscaped areas in the development plan and make provisions for the maintenance of these areas.
4. **Maintenance** – Add requirement for annual monitoring and maintenance of the pollinator habitat to the Special Permit conditions.

## Subdivision Regulations

1. **Purpose** – Add to the purpose statement the provision of wildlife and pollinator habitat.
2. **Content of Definitive Plan** – Add existing or proposed locations of pollinator habitat to the required contents of the Definitive Plan.
3. **Environmental Analysis** – Add to the Environmental Analysis the impact of the subdivision on native plants and pollinator habitat.
4. **Tree Belts, Grass Plots or Landscaped Areas** – Encourage the planting of pollinator habitat as an alternative to grass or traditional landscaped areas in the subdivision plan and make provisions for the maintenance of these areas.
5. **Special Permit Criteria** – Add creation and/or conservation of pollinator habitat as criteria.

A summary of the specific sections follows as a guide for Montague to amend their land use regulations to address pollinator habitat. Each of the *Town Pollinator Plans* includes model language specific to the respective Town that can be used to update land use regulations.


## Recommendations for Changes to Montague’s Zoning Bylaws

### **Section 8.9 Solar Energy Installation & Facilities**

#### **Section 8.9.5. Solar Energy Facilities** (add text below in italics)

##### 8.9.5 (a) Required Submittals

*v. The Project proponent shall submit a native flowering planting plan that supports pollinators with plants to be located under the proposed PV array and the perimeter*



*around the array (see diagram) to increase pollinator habitat in accordance with UMASS Clean Energy's Extension Pollinator Friendly Solar PV Guide. Applicant will also provide a Maintenance Plan to maintain the pollinator habitat.*

**8.9.5 (b) Special Permit Standards**

*viii. Herbicides may not be used to control vegetation. The Owner or Operator shall conduct annual monitoring of the pollinator plantings and will remove invasive species and replant native flowering plants as needed.*

**Section 8.11 Open Space Residential Development**

**Section 8.11.6 Additional Site Design Standards** (add text below in italics to end of paragraph)

*8.11.6 (d) Pollinator habitat should be provided in common areas as an alternative to grass and in protected open space areas to the extent feasible.*

**Section 8.11.8 Bonus Incentives** (add text below in italics)

*8.11.8 iii. Any conservation development that provides at least five (5) acres or more of pollinator habitat in the Common Areas and/or in the Permanently Protected Areas will earn a 5% density bonus.*

**Section 8.12 Planned Unit Development**

**Section 8.12.7 Design Guidelines** (add text below in italics to end of paragraph)

*8.12.7 (h) Landscaped areas shall utilize native plants and trees that support pollinators to the extent feasible.*

**Section 9.1 Site Plan Review**

**Section 9.1.5 Site Plan Elements** (add text below in italics)

*9.1.5 (d) Landscaping features including the location and description of screening, fencing, and plantings that should include native plants and trees that provide pollinator habitat.*

**Section 9.1.6 Evaluation Guidelines** (add text below in italics)

*9.1.6 (e) Provision of wildlife and pollinator habitat areas utilizing native trees and plants.*



**Section 9.2 Special Permits**

**Section 9.2.3 Special Permit Criteria** (add text below in italics)

*9.1.6 (n) Degree to which the proposal provides wildlife and/or pollinator habitat areas utilizing native trees and plants.*

**Recommendations for Changes to Montague’s Subdivision Regulations**

**Section 1.2 Purpose** (add text below in italics)

*1.2. A. (10) Maximizing the preservation of farmland and forest and the provision of wildlife and pollinator habitat utilizing native trees and plants.*

**Section 4.3 Definitive Plan** (add text below in italics)

*4.3. E. (1) (g) Identification of prime farmland, forest and wildlife habitat including pollinator habitat areas.*

**Section 6.7 Tree Belts and Trees** (add text below in italics)

6.7. F. The applicant shall submit a landscape plan showing existing and proposed street trees and other plantings *including pollinator habitat areas using native plants and trees to the extent feasible.*



## Montague Center Park Concept Design

The development of the Montague Pollinator Action Plan included the creation of a pollinator concept design for the Montague Center Park, the site chosen by the participants in the Montague pollinator workshop. The existing conditions of the site are suitable for pollinator meadow habitat, and there is an opportunity for a rain garden which could be planted with pollinator plants. If the Town chooses to move forward with implementation, the concept design for the Pollinator Meadow and the Woodland Edge Pollinator Habitat should follow the recommendations of the Meadow Habitat Design Typology and Meadow Plant List provided in the *Regional Pollinator Habitat Corridor Implementation Toolkit*. The Pollinator Meadow would have mostly grasses, sedges, and herbaceous plants, while the Woodland Edge Pollinator Habitat could feature woody trees and shrubs from the Meadow Plant List in addition to a range of grasses, sedges, and herbaceous plants. The planting design for the rain garden indicated in the concept design could select specimen native pollinator plants from the Riparian Plant List provided in the *Regional Pollinator Habitat Corridor Implementation Toolkit*.

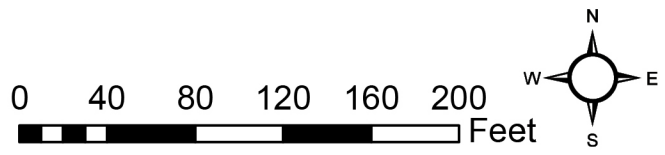
The concept design represents a preliminary vision for how the site could provide pollinator habitat. Montague Center Park is labeled on the Existing & Potential Sites of Pollinator Habitat map to show its context within the town and how it would connect to existing pollinator corridors or stepping stones.



\*Design is conceptual and represents general types and locations of habitat plantings envisioned

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**Potential Pollinator Habitat Implementation**  
**Concept Design for Montague Center Park**  
 TOWN OF MONTAGUE





# MAPS

## MAPS OF EXISTING & POTENTIAL POLLINATOR HABITAT SITES

Existing & Potential Sites of Pollinator Habitat

Pollinator Corridors & Stepping Stones

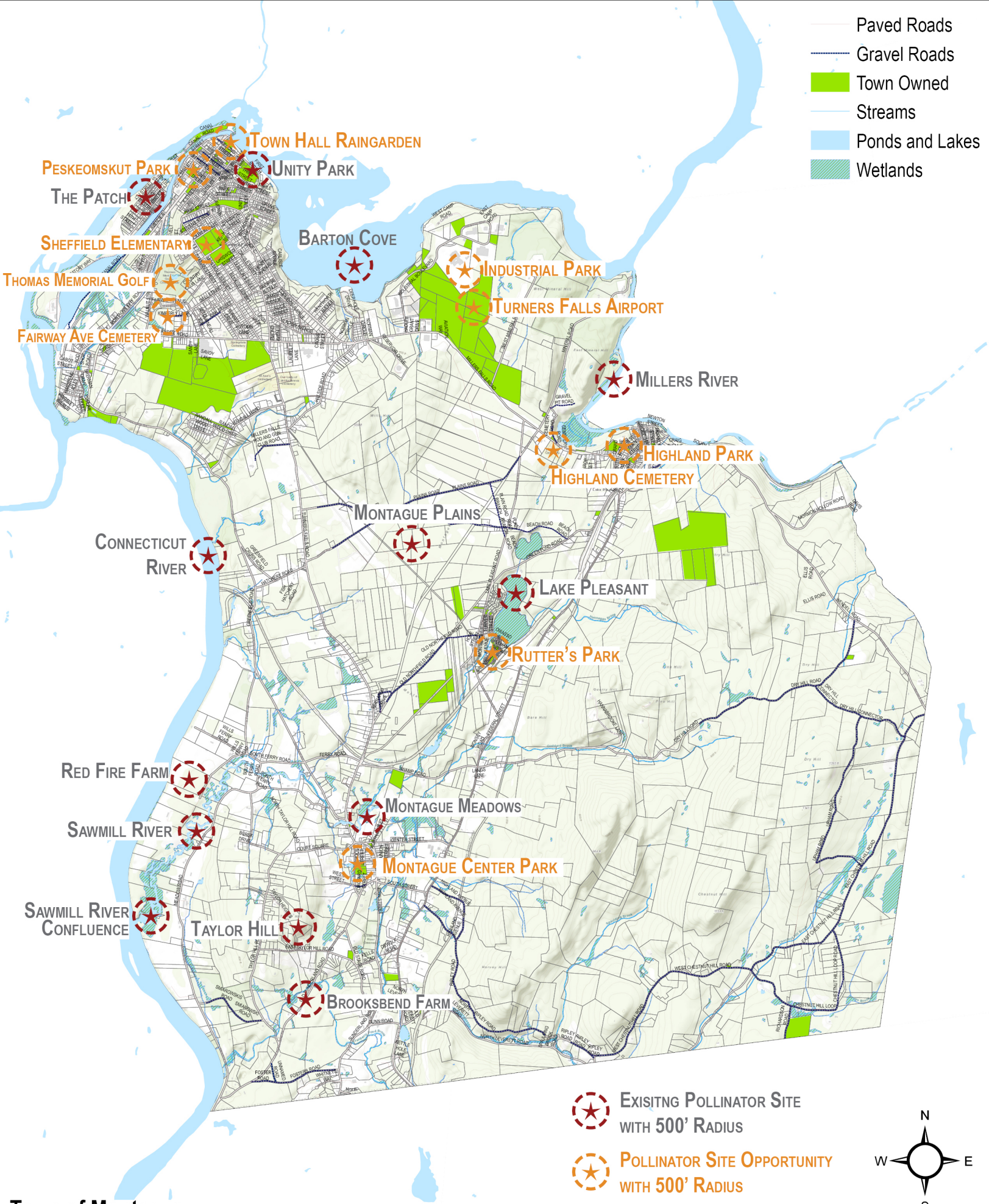
## LANDSCAPE ANALYSIS MAPS

Habitat and Environmental Resources

Land Cover and Land Use

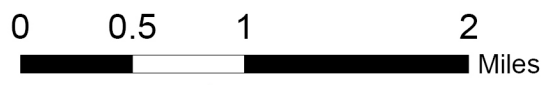
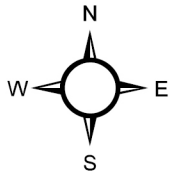
Permanently Protected & Municipal Properties

- Paved Roads
- Gravel Roads
- Town Owned
- Streams
- Ponds and Lakes
- Wetlands



EXISTING POLLINATOR SITE WITH 500' RADIUS

POLLINATOR SITE OPPORTUNITY WITH 500' RADIUS

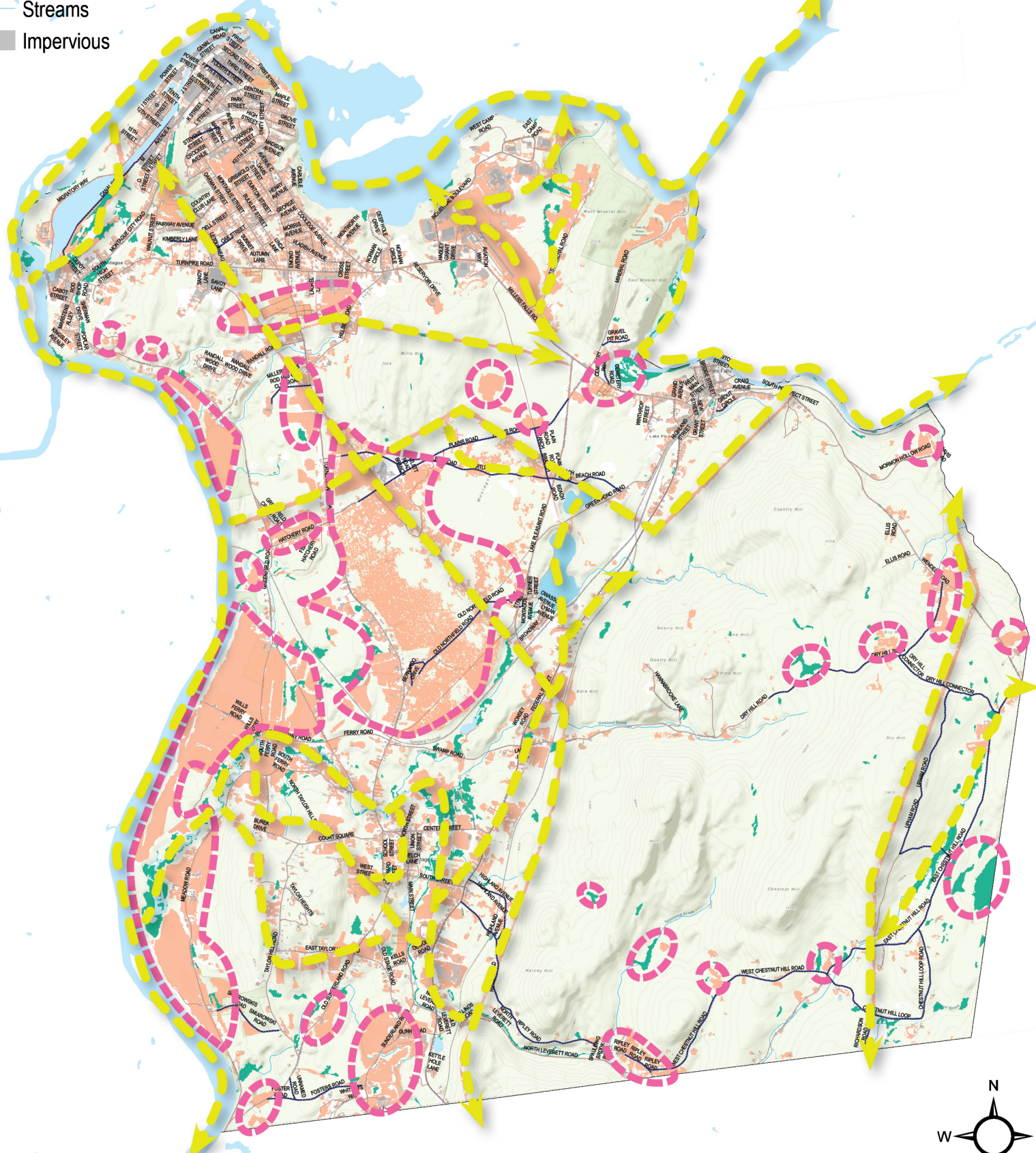


**Town of Montague  
Existing & Potential Sites of  
Pollinator Habitat**

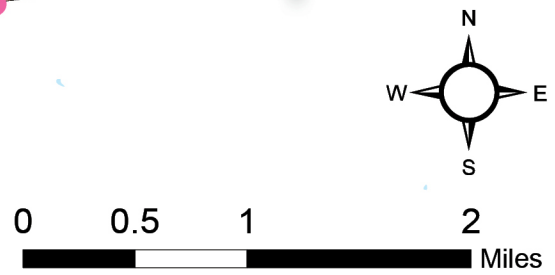


Source: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, NOAA, GeoEye, IGN, Kavasaki, Air, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swire, OpenStreetMap contributors, and the GIS User Community








- Sunny Open Landscapes
- Forested and Open Wetlands
- Gravel Roads
- Paved Roads
- Streams
- Impervious
- Pollinator Corridors
- Pollinator Habitat Stepping Stones

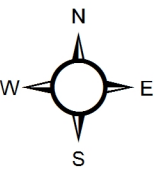
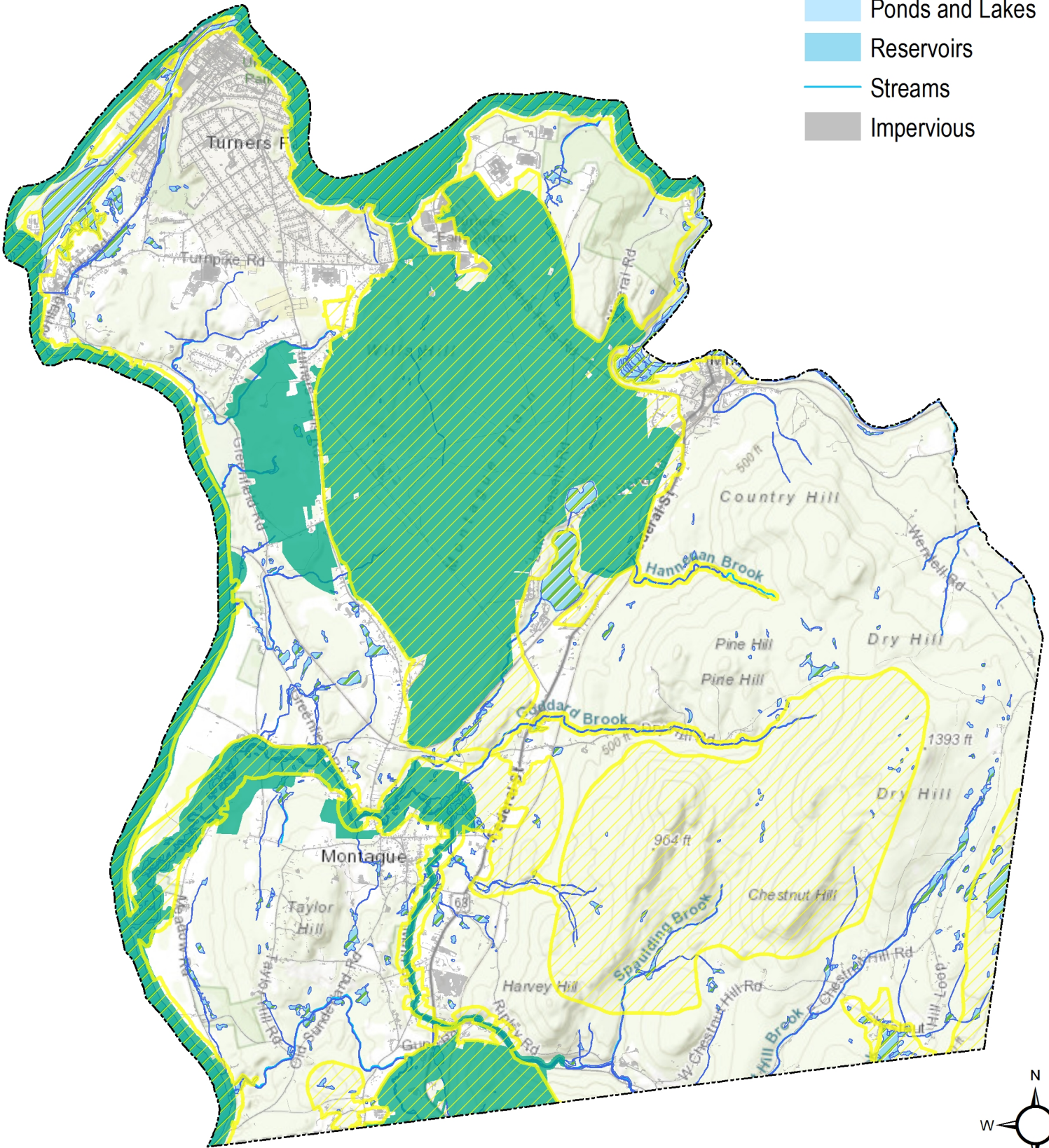


# Town of Montague Pollinator Corridors & Habitat Stepping Stones



Prime Pollinator Land Cover data extracted from MassGIS Land Cover and Land Use (<https://docs.digital.mass.gov/dataset/massgis-data-2016-land-cover-land-use>) by Future Lands Designs in collaboration with the FRCOG Planning Department

-  BioMap 2 Core Habitat
-  NHESP Priority Habitat
-  Wetlands
-  Ponds and Lakes
-  Reservoirs
-  Streams
-  Impervious

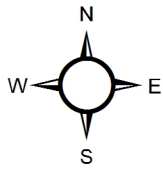
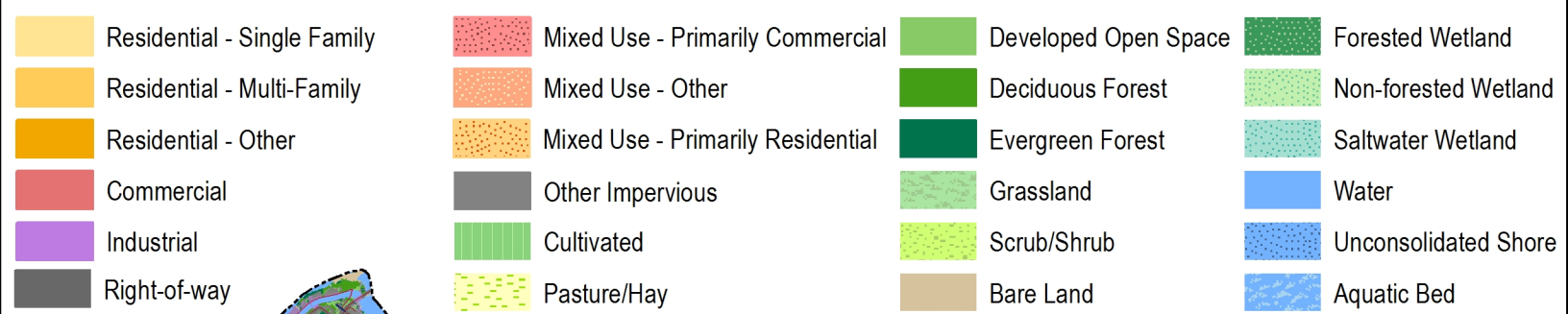


 Franklin Regional Council of Governments

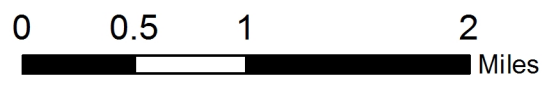
0 0.5 1 Miles






**Town of Montague  
Habitat and Environmental Resources**

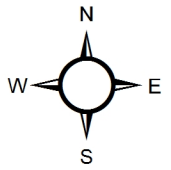
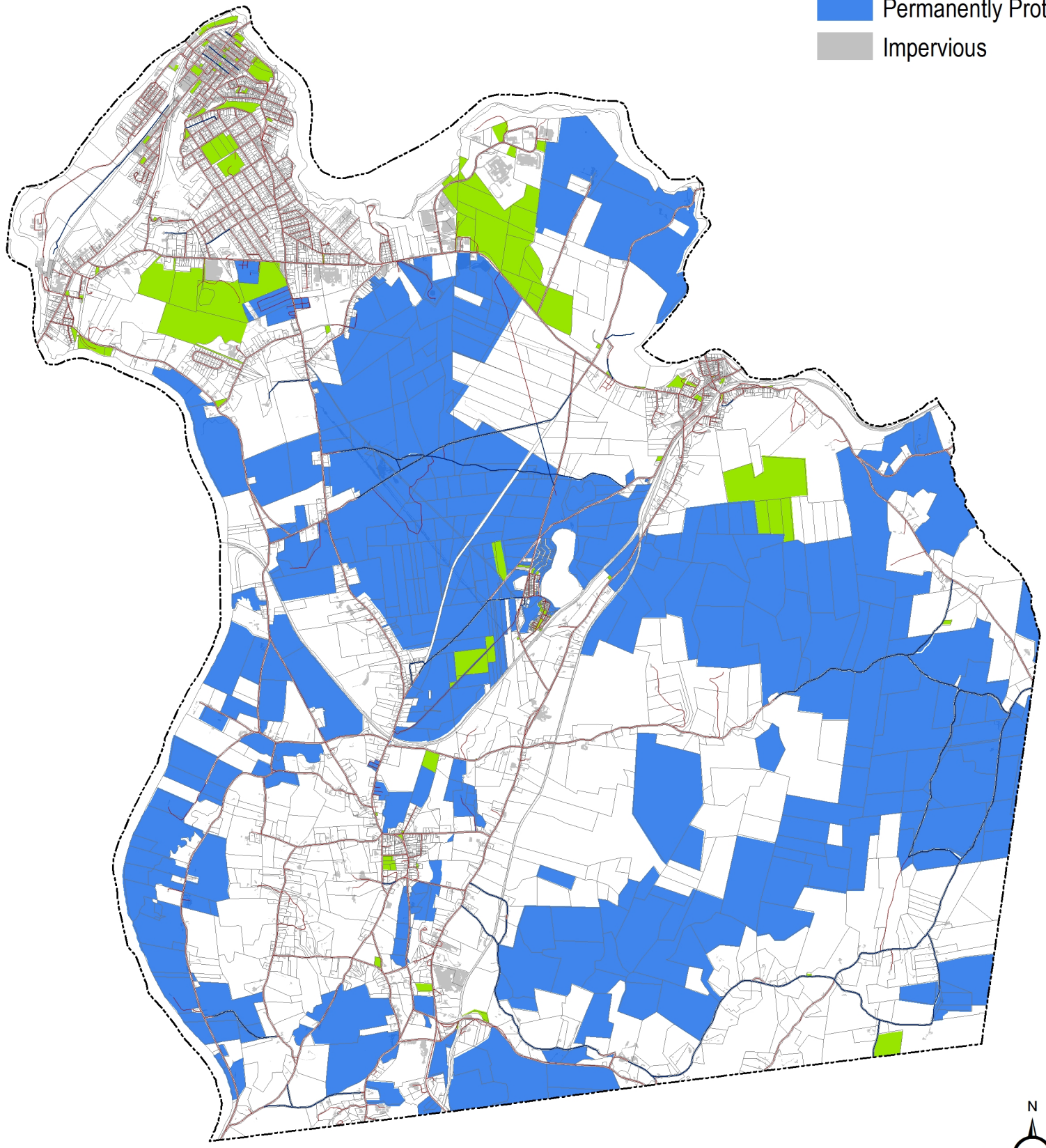
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



**Town of Montague  
Land Cover and Land Use**



-  Gravel Roads
-  Paved Roads
-  Town Owned
-  Permanently Protected
-  Impervious



**Town of Montague  
Permanently Protected  
and Municipal Properties**

