

WORCESTER CONSERVATION COMMISSION

Parsons Cider Mill

Conservation Property Baseline Assessment

July 2024



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Section One: Introduction

Property Information

Property Name: Parsons Cider Mill

Address: 51 Goddard Memorial Drive

MBL: 56-016-00011

Date of Visit: 5/17/2024, 5/26/2024

Visit conducted by: Lori Carlos and Patti Burns, PWS, CERP; Moriah Day, MAA & ISA Certified Arborist

Property Background and Setting

The approximately 34.26-acre Parson's Cider Mill Conservation Area is a long and narrow park (averaging about 3,000 feet wide by 500 feet long) that runs along the west side of Goddard Memorial Drive from 850 feet above mean sea level (AMSL) south to 620 feet AMSL near Apricot Street. It is characterized by mature forests, one unnamed perennial stream that runs from north to south, several intermittent streams that flow in from the east and west, wetlands, and two ponds: Cider Mill Pond and Parsons Pond. The foundation, dam, a timber waterfall, and other historical structures associated with the cider mill are present.

The stream begins at the outflow of a large, isolated wetlands at the northwestern portion of the conserved property, that is the Marois 28 (a Greater Worcester Land Trust parcel that is part of the conservation area). The stream then winds off-site and back onto the conservation land and flows to an open canopy (emergent and shrub/scrub) wetlands that is dominated by cattail (*Typhus spp.*). It discharges from the wetlands and then flows to the impounded Parson's Pond (upper pond). A mowed trail surrounds the pond, but it was overgrown and flooded on the western side during the site inspection. A white pine stand is located in the uplands at the eastern pond boundary and a few fire pits were encountered at this location. As the stream flows to the south from Parsons Pond, there are additional wetlands and a timber waterfall before ending at a small pond just beyond the cider mill foundations. An accessible trail parallels the stream from Parsons Pond to Cider Mill Pond (lower pond). The southern portion of the conservation area is best accessed from Apricot Street, where there is a parking area that is blocked. Street parking was available on side streets on the opposite side of Apricot Street. The trails at Apricot Street emphasized bike access. At the southeast corner of the park are interpretive signs and an impressive memorial to Robert H. Goddard, a Worcester native and father of the space age.

The Parson's Cider Mill and Marois 28 conservation areas are urban refuges for wildlife and locally valued for recreational, historical and cultural significance. The Parson's tract also receives and mitigates regional drainage from extensive surrounding area impervious cover including the upgradient sources: TJ Maxx Distribution Center and the Amazon Fulfillment Center and cross-gradient sources: South Community High School campus and Goddard Memorial Drive. Given the large quantity of stormwater runoff to the conservation areas, particularly at the northern portion of the property, drainage and flooding of the trails will likely be an on-going maintenance challenge.

Statement of Purpose

The purpose of this baseline report is to provide useful information for park planning and management; identify areas of conservation value, areas impacted by non-native plants, encroachments from abutting properties, public accessibility, and regulated areas such as wetlands, perennial rivers, certified vernal pools, and rare habitat. The observations and management recommendations provided in this report will aid the Worcester Conservation Commission in maintaining and improving their conservation properties, tracking changes in the properties over time, and securing funding to support necessary park management activities.

Equipment Used for Data Collection

- Dell Latitude 7220 Rugged Extreme Tablet (polygons and notes)
- Samsung Galaxy S9 SM-G960U phone (photos and notes)
- Apple iPhone Model: 12 Version: IOS 17.4.1 (photos and notes)

Acknowledgements

This project was funded in part by the USDA Forest Service through the Massachusetts Department of Conservation and Recreation Urban and Community Forestry Program. All elements of the project were completed by Davey Resource Group, Inc. with support from the Worcester Conservation Commission. Both institutions are equal opportunity employers.



Section Two: Findings

Forest Structure & Health

Field Observations

Although the map from the Greater Worcester Land Trust (GWLT) indicates that parking for Parsons Cider Mill is available along Apricot Street near the Goddard Memorial, that parking area is blocked by orange bins and chains and is inaccessible. Street parking is available by the Apricot Street Playground on Merchant Street. Signage and a crosswalk would improve safety across Apricot Street from the playground at Merchant Street to the southern Parsons Cider Mill property entrance.

Along the perimeter with Apricot Street, burning bush and Oriental bittersweet are abundant. There are also several smaller areas infested by autumn olive and multiflora rose. These invasive plants push inward into the property from the road and are abundant throughout the entire property. Burning bush is dense in the shrub layer near Cider Mill Pond. Oriental bittersweet is present mainly as smaller vines throughout the property, and particularly along Goddard Memorial Drive and Apricot Street. Multiflora rose and autumn olive are not as common as these other two invasive species, but are present in patches throughout the property, with autumn olive most abundant around Parsons Pond. Due to how well-established and extensive these invasive infestations are, it may not be possible to fully eradicate them from the property. Measures to reduce their impact and target the most damaging may have greater effect.

Throughout the property, American beeches (*Fagus grandifolia*), although not abundant, are impacted by beech leaf disease (BLD) and are in decline.

At the trailhead along Apricot Street, the forest is mixed hardwood in a mid-successional state. The overstory is made up of northern red oak (*Quercus rubra*), black locust (*Robinia pseudoacacia*), and white ash (*Fraxinus americana*). The white ash is declining or dying due to emerald ash borer (EAB, *Agrilus planipennis*), which is contributing to the scattered patches of poor canopy health throughout the property. The midstory and understory are composed of maples, including sugar maple (*Acer saccharum*), Norway maple (*A. platanooides*), and red maple (*A. rubrum*). The shrub layer is almost exclusively burning bush with a very sparse herbaceous layer. Near the trailhead there are a few white spruce (*Picea glauca*) which are in decline or dead and appear to correspond very well to patches of dead/dying canopy on the UTC canopy health assessment.

The trail heads north from the Apricot Street trailhead around the western flank of the Cider Mill Pond and consists of packed dirt. Only 50 feet or so in from the trailhead there is evidence of a recent brush fire to the west of the trail, with burned logs, scorched tree bases and burning bush, and charred understory. The fire did not fatally damage the midstory or canopy trees, but the overall vegetative cover is more sparse than in the surrounding forest. An intermittent stream or drainage area flows along the west side of the trail, just to the north of the burn area; it drains onto and across the trail. Logs have been installed across the trail to accommodate passage, but the logs are slippery to cross, starting to decay, and need maintenance. Further along the trail a large, dead ash tree has fallen across the trail and blocks trail access.

As the trail continues deeper into the property along the western side of the Cider Mill Pond, the overstory transitions to sugar maple of varied ages, from semi-mature to overmature specimens that may pre-date the land clearing for

farming and the cider mill. The midstory contains more northern red oak, and the forest is generally of mixed age with good sugar maple regeneration. The burning bush shrub layer continues to be dense and multiflora rose is present. The white ash that was once a dominant part of the canopy is dead or dying, and being replaced by other native trees. It was noted that several large, over-mature black cherries (*Prunus serotina*) are also dead or in decline, likely due to age. There are several large overstory basswood (*Tilia americana*) which are an unusual sight in the Worcester area.

The trail continues north along the western property boundary, paralleling Apricot Street. A stone wall was visible between the trail and abutting properties and drainage areas flow between the stone wall and the trail. For most of the hike between Cider Mill and Parsons ponds, the intermittent stream is present on the east side of the trail. The width and flow rates of the stream vary as the topography changes. The less dense canopy, due to the decline of mature sugar maples, ash and cherry trees, has given way to a diverse herbaceous understory along the trail with plants such as: white wood aster (*Eurybia divaricata*), goldenrod (*Solidago* spp.), hayscented fern (*Sitobolium punctilobulum*), daisy fleabane (*Erigeron annuus*), spotted joe-pye weed (*Eutrochium maculatum*), panicked-leaf ticktrefoil (*Desmodium paniculatum*), and meadow rue (*Thalictrum* spp.). These trails appear to be frequently used by hikers and are littered with food wrappers, beverage containers and even a few tarps and tents.

The wide trail continues north towards Parsons Pond. Just before reaching Parsons Pond, the forest canopy changes to a coniferous forest dominated by eastern white pine (*Pinus strobus*) and red pine (*Pinus resinosa*), with a very sparse understory or herbaceous layer, and almost no evidence of tree regeneration. This area appears to be popular for gathering and even camping, with firepits and circles of cut logs for seating. There are burned trees, and debris from food wrappers and beverage containers. The red pines are dead or dying, likely due to red pine scale (*Matsucoccus matsumarae*), which has been a known cause of red pine decline and death in Massachusetts in recent years. This corresponds to a large area of dead/dying canopy identified in the UTC assessment.

The land surrounding Parsons Pond is a grass-covered and periodically mowed trail. Autumn olive and Oriental bittersweet were observed along the pond banks. The west side of Parsons Pond appears to be infrequently hiked because the grass-cover is not matted down. At the inlet and outlet of Parsons Pond there are wooden, metal and concrete structures that may have been used to control water levels in the pond. At the outlet to the south, a metal and wood structure is overgrown with poison ivy and Oriental bittersweet. The wood planks are in decay. Further to the north, this unmaintained trail crosses Parsons Pond's inlet, where there are slippery planks of wood to facilitate crossing in wet areas.

To the north of Parsons Pond, the land is steeply sloped from the east and the north. The uplands along the slope are dominated by a mix of coniferous and deciduous forest dominated by white pine and northern red oak in the overstory and a sparse to dense midstory or understory of rhododendron or mountain laurel (*Rhododendron* spp.), and a variety of upland ferns. Sassafras (*Sassafras albidum*) seedlings and saplings are abundant at the trail edge. This is near the boundary with the Marois 28 tract and there is a large cattail-dominated wetlands that is mapped on regional maps. The trail eventually dead-ends with thick vegetation. The main trail is at a low elevation between an expansive wetlands to the west and the toe of a steep slope to the east. The trail is flooded out or extremely muddy and nearly impassable. These wetlands are classified by MassMapper as a wooded deciduous swamp and DRG noted that the dominant plant species are more typical of shrub/scrub or emergent wetlands with a dense cover of cattails, willows, and alders. Relocating the trail may require cutting into the side of a bank and that could contribute to maintenance issues and erosion.

Not far from the wetlands north of Parsons Pond there are trails that seem to be used for both hiking and drainage and that lead to the entrance to the abutting Marois 28 tract from Goddard Drive. At this location the forest is much younger than the southern and central portions of the tract, composed mainly of scattered overstory red oaks and black oaks (*Quercus velutina*) at a semi-mature age and with a midstory and understory of black birch (*Betula lenta*). The shrub layer consists of dense mountain laurel and rhododendron. This area shows indication of human use with debris consisting of food wrappers, beverage containers, and camping tarps. There is no signage indicating allowed and prohibited uses. There is a Marois 28 sign and interpretive sign welcoming hiking near the sidewalk along Goddard Memorial Drive. There is no on-site parking. The partially intact soil erosion control fencing from the adjacent Amazon property is in place.

The inspection continued south along the eastern perimeter from the sidewalk along Goddard Memorial Drive. This area's entire boundary appears to be managed as an open canopy with somewhat steep to very steep slopes into the conservation area. There was no evidence of trails leading to the park from the eastern perimeter sidewalk. Invasive plants were abundant along most of the perimeter. A few public works features were noted including a raised round structure with a lattice surround, a cattle gate and an overgrown trail, and electric utility boxes. This sidewalk leads to Apricot Street and at the corner of Apricot Street and Goddard Memorial Drive there is a parcel that abuts the conservation area that has been developed as an historical and cultural monument honoring Robert H. Goddard, a Worcester native and father of the space age.

Potential Impacts of Climate Change

Table 2 includes a summary of the USFS Climate Change Atlas information for tree species commonly found in Parsons Cider Mill.

Table 1: Expected response of common Parsons Cider Mill species to climate change.

Species		Model Reliability	Abundance	Habitat Area Change		Capability to Cope with Climate Change	
Common	Scientific			RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5
Norway maple	Acer platanoides	N/A	Rare	Due to its status as an invasive species in Massachusetts, model data is not available for Norway maple.			
Red maple	Acer rubrum	High	Abundant	Small decrease	Small decrease	Good	Good
Sugar maple	Acer saccharum	High	Common	Large increase	Large increase	Very Good	Very Good
Black birch	Betula lenta	High	Common	No change	Small decrease	Poor	Poor
American beech	Fagus grandifolia	High	Common	Large increase	Large increase	Very Good	Very Good

Species		Model Reliability	Abundance	Habitat Area Change		Capability to Cope with Climate Change	
Common	Scientific			RCP 4.5	RCP 8.5	RCP 4.5	RCP 8.5
White ash	Fraxinus americana	Medium	Common	Small increase	No change	Fair	Poor
Red pine	Pinus resinosa	Medium	Rare	Large decrease	Large decrease	Very Poor	Very Poor
Eastern white pine	Pinus strobus	High	Abundant	Large decrease	Large decrease	Poor	Poor
Black cherry	Prunus serotina	Medium	Common	Large increase	Large increase	Good	Good
Northern red oak	Quercus rubra	Medium	Abundant	No change	Small decrease	Very Good	Good
Black oak	Quercus velutina	High	Abundant	Small increase	Small increase	Very Good	Very Good
American basswood	Tilia americana	Medium	Rare	Small decrease	Small decrease	Very Poor	Very Poor

Many of the common species within deciduous forests at Parsons Cider Mill are predicted to adapt well to climate change. Maples and oaks, in particular, are abundant and are predicted to do well and even increase in range under climate change emissions scenarios. Several hardwood species which were once abundant on the landscape, including white ash and American beech, are likely to be lost due to invasive pests and diseases rather than climate change. The coniferous forests present on the property, made up of white and red pine, are likely to decline and struggle as the climate changes.

Key Results

- Invasive species are abundant and well-established at Parsons Cider Mill, particularly burning bush, Oriental bittersweet, autumn olive, and multiflora rose. Eradication of these species is likely impossible, but control measures could help reduce their impact and prevent further spread.
- The main trail through Parsons Cider Mill is in good shape between Cider Mill Pond and Parsons Pond. North of Parsons Pond the trail is located between a steep slope and extensive wetlands that floods the trail and limits access to the northern portion of the conservation area. Several crossings are in need of repair. Trails through the Marois 28 tract were very wet and muddy and may limit hiking in this area.
- The southern portion of the property provides access to bikers and hikers. The trails appear to be frequently used and are littered with food wrappers and beverage containers, tents and tarps, and there were several fire pits observed. There is no signage outlining allowed or prohibited uses, “Pack it in, pack it out” signage, or trash receptacles.

- The property offers many interesting historical and cultural features including the foundation of the cider mill, dams, and stone and concrete water management structures in Parsons Pond. There is some signage to educate park users about the history of the parcel, but only at the entry point along Apricot Street. The abutting parcel to the southeast provides well maintained, interpretive signs honoring Robert H. Goddard, a Worcester native and father of the space age.
- A large tree has fallen over the main trail only ~100 feet from the Apricot Street trailhead which blocks the trail and is a significant obstacle to trail use.
- UTC canopy health results appear to align well with observations from the ground. Patches of poor canopy health throughout the property appear to correspond with individual dead or declining trees, mainly white ash affected by EAB and over-mature black cherry and white spruce. The area of dead/dying trees near the Parsons Pond corresponds with dead/dying red pine, likely affected by red pine scale.
- Aside from the health issues outlined above, canopy health appears to be good among species not currently impacted by pests and disease. Future forest monitoring should focus on looking for pests and diseases of maples and oaks, as these trees are currently doing well and should do well under climate change barring the introduction of novel pests/diseases.
- The Parson's Cider Mill and Marois 28 conservation areas are urban refuges for wildlife and locally valued for recreational, historical and cultural significance. The Parson's tract also receives and mitigates regional drainage from extensive surrounding areas of impervious cover and increasing quantities of stormwater can be expected as precipitation levels rise. Trail maintenance, particularly at the northwestern portion of the property, is likely to be an on-going challenge due to these potentially increasing stormwater discharges that drain to the property and flood the trails.

UTC Results

Canopy Cover

Table 2. Canopy cover at Parsons Cider Mill.

	Number of Parcels	Total Property Acres	Acres of Canopy Cover	% Canopy Cover
Parsons Cider Mill	1	18.13	17.18	94.76

Note that only the 51 Goddard Memorial Drive parcel was included in the UTC assessment of Parsons Cider Mill.

Canopy Health

Table 3. Canopy Health at Parsons Cider Mill.

Very Good		Good		Fair		Poor		Dead/Dying		Not Classified	
Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
1.13	6.60	5.64	32.83	7.13	41.48	2.91	16.92	0.22	1.26	0.14	0.79

Overall, canopy health at Parsons Cider Mill is fair or better (80.91%). Patches of poor canopy health seem to be associated with individual trees that are dead or in declining health, such as overstory ash and white spruce. The area of most severe canopy decline near the Parsons Pond appears to be related to the death of overstory red pines which have likely succumbed to red pine scale.

Benefits

Table 4. Canopy Benefits at Parsons Cider Mill.

Air Pollution Removal (Annual)		Carbon Sequestration (Annual)		Avoided Stormwater Runoff (Annual)		Carbon Storage (Lifetime)	
Pounds	\$	Tons	\$	Gallons	\$	Tons	\$
1,235.87	\$279.69	19.46	\$3,319.54	23,150.26	\$206.87	588.87	\$100,432.82

Please note that the trees at Parsons Cider Mill provide many additional benefits not calculated here. Only benefits for which there are well-supported algorithms were estimated for this project.

Section Three: Management Recommendations

Recommendations in Priority Order

1. Maintain and improve trails through both Parsons Cider Mill and the adjacent GWLT property, Marois 28.
 - a. Remove the fallen dead ash along Cider Mill Pond to clear the trail.
 - b. Add a bridge or other method of navigating the small stream flowing across the trail into the western side of Cider Mill Pond. Remove the existing “corduroy road” logs as they are beginning to rot and are slippery.
 - c. Consider mowing or otherwise maintaining/improving the trail around the western flank of Parsons Pond to ensure it persists and is not overgrown by meadow vegetation.
 - d. Add a bridge or other method of navigating the inlet stream into the northern end of Parsons Pond, as the area is currently slippery with loose, moving stones that present a hazard.
 - e. Repair and restore the bridge on the western side of Parsons Pond. It is currently overgrown with Oriental bittersweet and poison ivy, and the boards are beginning to decay and may eventually become hazardous.
 - f. Consider methods to reduce erosion at the inflow into Parsons Pond from Goddard Memorial Drive.
 - g. Monitor the western road through the property for further stream-related erosion and repair as needed.
 - h. Work with GWLT to relocate the trail in Marois 28 around the eastern side of the swamp, as it is currently too low lying and muddy enough to be impassable much of the year.
 - i. Work with GWLT and Hike Worcester to update trail maps to reflect the current state of the trails through Parsons Cider Mill and Marois 28. The current map includes trails that are no longer passable.
2. Reduce or eliminate illegal camping and campfires on the property.
 - a. Post signage at entrances along Apricot Street and Goddard Memorial Drive indicating prohibited uses for the property.
 - b. Post additional signage in areas with heavy camping activity, including in the pine stand to the south of Parsons Pond and periodically along trails.
 - c. Work with volunteers, Worcester park staff, and Conservation Commission staff to periodically walk the trails and inform visitors of prohibited uses.
 - d. Increase property usage by improving the trails and parking areas and promoting the property. With greater usage, it will be more difficult for campers to remain undetected.
 - e. Consider allowing camping by permit or other system to encourage responsible use of the property.
3. Reduce garbage along trails.
 - a. Consider providing garbage bins at the trail heads for hiking snack and beverage rubbish disposal.
 - b. Work with volunteers and stewards to walk trails periodically and pick up trash. People are less likely to litter when there is no litter already present.
4. Reduce the impact of invasive species including burning bush, Oriental bittersweet, multiflora rose, and autumn olive.
 - a. Patches of autumn olive are infrequent and mainly clustered around Parsons Pond. It may be possible to eradicate them with a combination of hand-pulling and cut stump treatments, followed by monitoring and continued treatments as needed.
 - b. Oriental bittersweet, while common in the property, does not currently appear to be affecting canopy trees. Monitor the property for a change in this pattern and cut any vines that start making their way

into the canopy. Mowing, hand cutting, and chemical treatments may also be effective at managing lower-growing populations.

- c. Burning bush and multiflora rose are dominant shrub species in the southern portion of the property. Full eradication of these species is unlikely due to their distribution and density, but they can likely be reduced in their impact. Cutting and cut stump treatments, basal bark treatments, foliar sprays, and controlled burns can all help reduce their presence on the property.
5. Improve property access.
 - a. Consider reopening the Apricot Street parking area to allow for easy access to the property without crossing busy streets.
 - b. Consider adding a crosswalk and/or pedestrian crossing signage at the intersection of Apricot Street and Merchant Street.
 - c. Work with GWLT and Hike Worcester to revise the trail maps for Marois 28 and Parsons Cider Mill, as they currently indicate that parking is available on Apricot Street and on Goddard Memorial Drive. Neither location currently has parking available.
6. Promote the property to improve interest and use.
 - a. Center events such as Earth Day clean-ups or Arbor Day events at the property to garner interest.
 - b. Work with GWLT and Hike Worcester to better promote the property across their websites and to provide updated trail maps for Marois 28 and Parsons Cider Mill.
 - c. Consider adding additional interpretive signage explaining the history and past uses of the land at key features such as the cider mill foundation and the stone and concrete foundation at Parsons Pond. This project could be a collaborative effort between the Conservation Commission and a scout troop, college graphic design class, etc.

APPENDIX A: MAPS





Resource Group

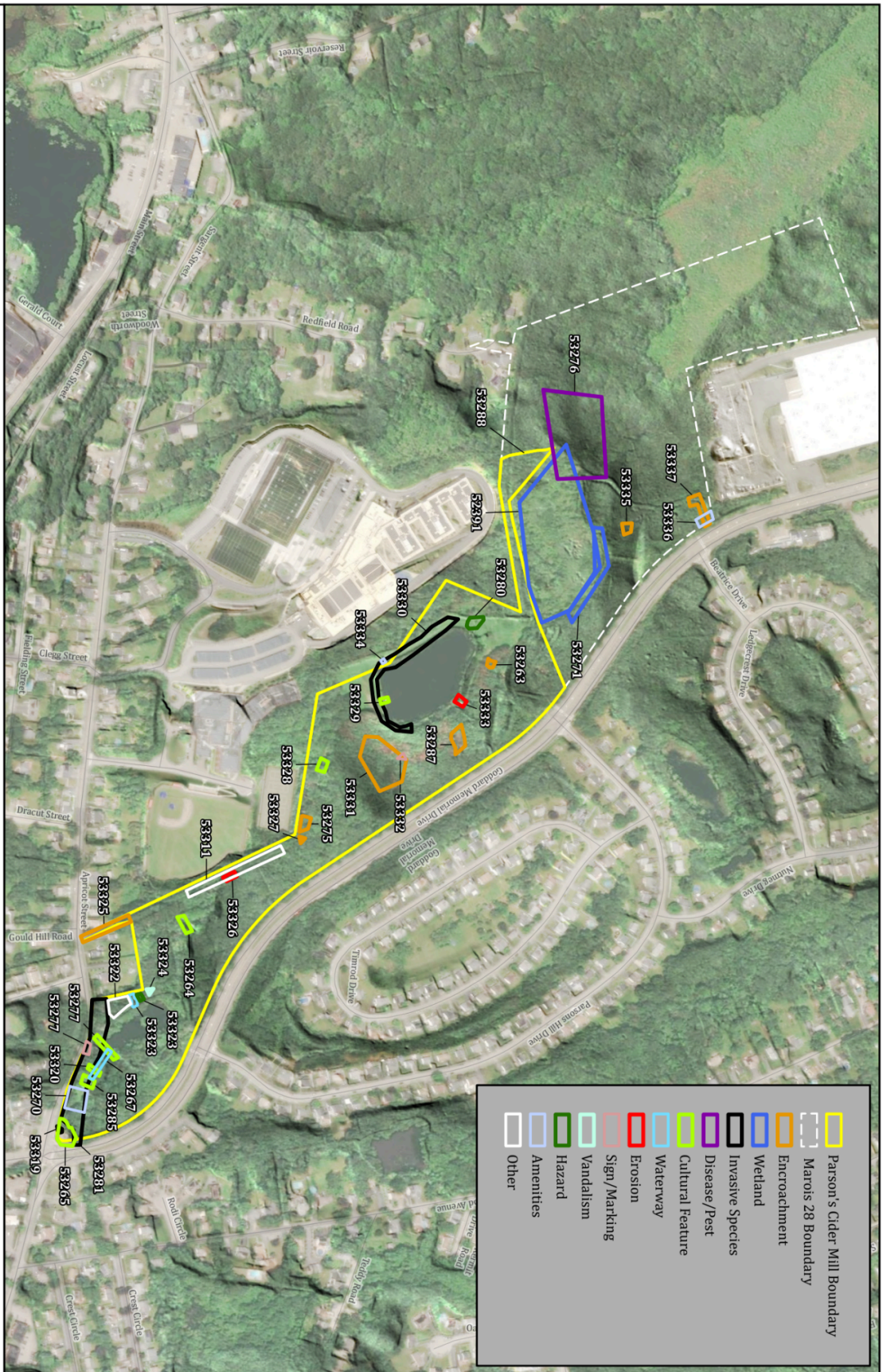
3 Industrial Drive, Suite A
Shrewsbury, MA 01545

Figure 2. Existing Resources Summary Map.

Conservation Property Baseline Assessment

Parson's Cider Mill

Worcester, Massachusetts



Map 2: Existing resources summary map.



DAVEY
Resource Group
3 Industrial Drive, Suite A
Shrewsbury, MA 01545

Figure 3. Existing Trails Summary Map.
Conservation Property Baseline Assessment
Parson's Cider Mill
Worcester, Massachusetts

0 250 500 Feet
N
Date: 6/25/2024
NAD 1983 2011 StatePlane Massachusetts Mifg FIPS 2001 FUS
7186052W 42.24461N
Prepared for: Worcester Conservation Commission
Prepared by: N. Singh
Sources: ESRI World Imagery, MassGIS Data, Elevation
Contours (30m interval), Interval = 5m, DTM Site Visits
6/17/2024 and 6/29/2024



Map 3: Existing trails summary map.

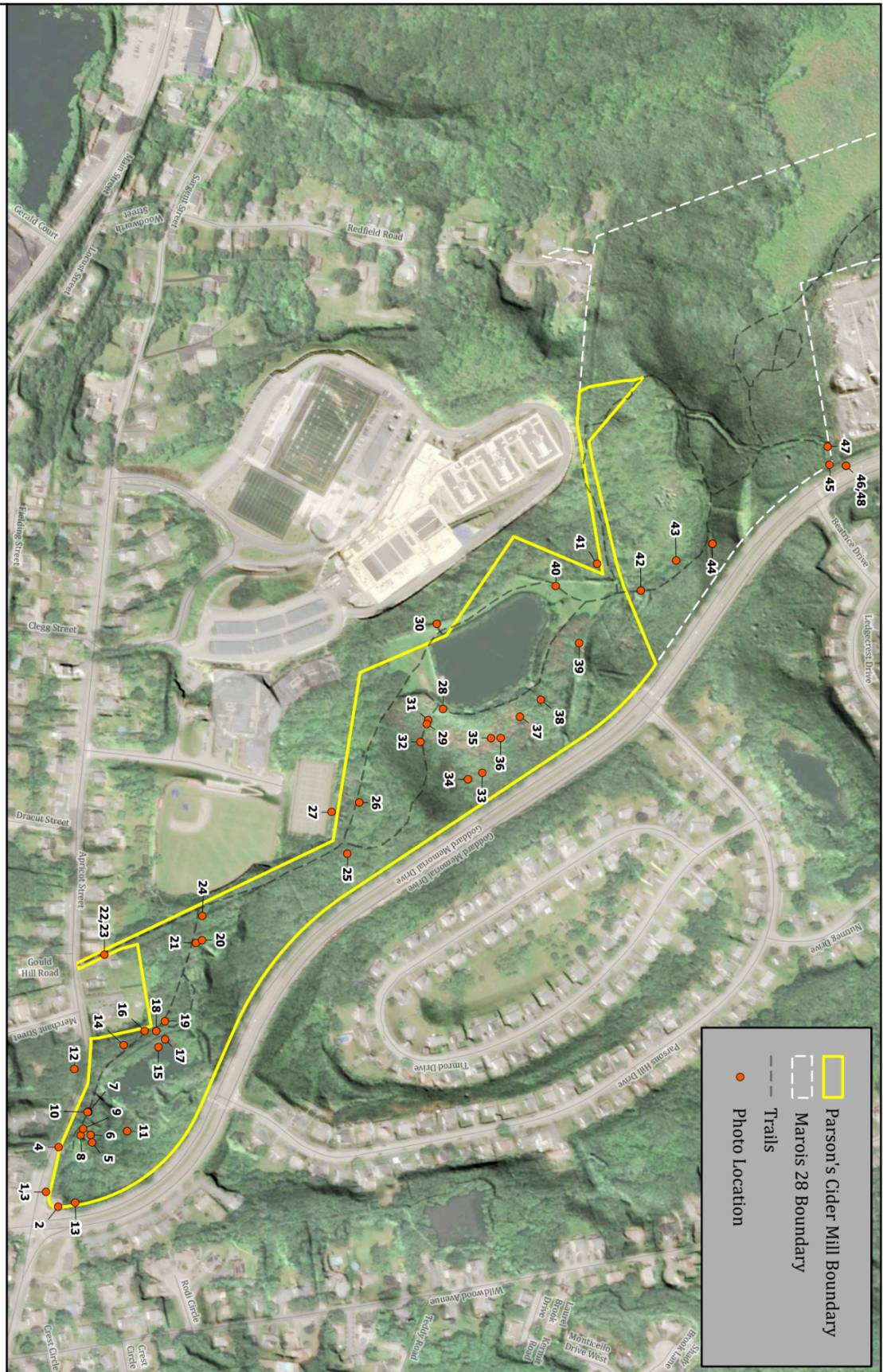


Map 4: Existing tree health rank summary map.



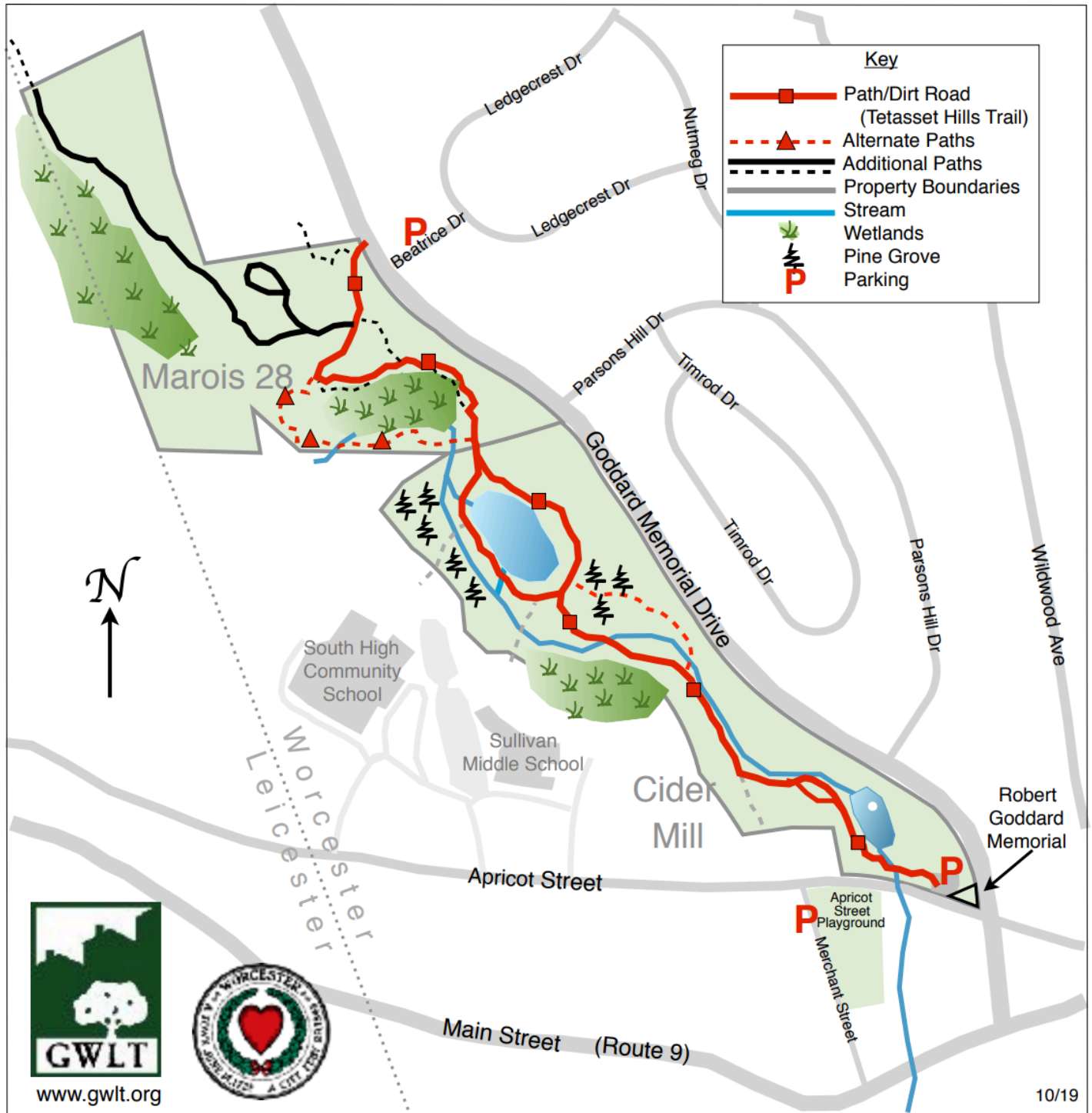
DAVEY
Resource Group
3 Industrial Drive, Suite A
Sturtevant, MA 01545

Figure 5. Representative Photo Locations Summary Map.
Conservation Property Baseline Assessment
Parsons Cider Mill
Worcester, Massachusetts



Map 5: Representative photo locations summary map.

Parson's Cider Mill and Marois 28 Worcester, MA



Map 6: Parsons Cider Mill and Marois 28 trail map from Greater Worcester Land Trust.

APPENDIX B: FINDINGS BY PHOTO & POLYGON

Table 5. Summary of Field observations by photo and/or polygon ID.

Photo ID	Polygon ID	Type	Comments
1-2	53265	Cultural Feature	Robert Goddard memorial park. Several signs for Worcester bike trails are present providing information on Goddard, the Father of Modern Rocketry and Worcester native. One placard appears to be missing.
3	53319	Invasive Species	Autumn olive (<i>Elaeagnus umbellata</i>) and tree-of-heaven (<i>Ailanthus altissima</i>) being maintained as landscape plants at the Goddard Memorial.
4	53270	Amenities	Grass parking area off Apricot Street blocked off by cones and boulders. Maps indicate street parking is instead available near the Apricot Street Playground on Merchant Street. Garlic mustard is present in the mowed area.
5-7	53285	Cultural Feature	(Photo 5) Cider mill foundation set over a small stream flowing out of the Cider Mill Pond. (Photo 6) The interior of the foundation has small piles of food and beverage wrapper garbage and broken glass. (Photo 7) Several trees have fallen and are leaning on the foundation.
8	53267	Waterway	Small stream flowing out of the Cider Mill Pond and under the cider mill foundation. The water has a slightly cloudy cast.
9	53320	Cultural Feature	Old dam with water working around the edges rather than over and causing erosion near the trail.
10	No polygon	Sign/Marking	Red trail markings along Apricot Street are faded.
11	53321	Cultural Feature	Old dam at the mouth of the outlet from the Cider Mill Pond.
12	53277	Sign/Marking	Signs at the Apricot Street trailhead provide background on the cultural significance of the property. Signs have been lightly vandalized but are legible.
13	53281	Invasive Species	Burning bush (<i>Euonymus alatus</i>), Oriental bittersweet (<i>Celastrus orbiculatus</i>), autumn olive (<i>Elaeagnus umbellata</i>), and multiflora rose (<i>Rosa multiflora</i>) are abundant along the boundary of the property on Apricot Street and extending inward throughout the property.
14-15	53322	Other	Evidence of a recent brush fire which appears to have killed the understory and burning bush but did not harm the midstory or overstory.
16	53289	Waterway	A stream flows over the trail and into the Cider Mill Pond. Logs have been placed to provide a drier trail through the water.
17	53323	Hazard	A large, dead ash tree has fallen over the trail, rendering it nearly impassable.

Photo ID	Polygon ID	Type	Comments
18	53324	Vandalism	Graffiti on stones along the trail.
19	No polygon	Invasive Species	Burning bush is very abundant along the trail to the old road along the western property boundary.
20	53264	Cultural Feature	Old dam along the stream between the upper and Cider Mill Ponds. The dam has diverted water in a sharp curve westward before it flows through a breach.
21	No polygon	Encroachment	Camping garbage including plastic, cardboard, and a tent instruction manual left behind near the dam from Photo 20.
22	53325	Encroachment	Access corridor to the old road on the western boundary of the property appears to have been combined into neighboring driveways and landscaping.
23	53311	Other	Diverse meadow plants and insects are found along this stretch of trail.
24	53326	Erosion	Past trail erosion due to the stream running along the old road on the western property boundary has been filled with large gravel underlaid by metal pipes, possibly the same as those left along the trail.
25	53327	Encroachment	Abandoned tent along trail and stream.
26	53275	Encroachment	Large metal utility pipes left near the trail.
27	53328	Cultural Feature	Old stone bridge, heavily overgrown with poison ivy (<i>Toxicodendron radicans</i>) and Oriental bittersweet.
28	53329	Cultural Feature	Stone and concrete foundation in the Parsons Pond with an ironwork structure, possibly a dilapidated bridge, leading to it. The ironwork has ornate floral motif bolts.
29	53330	Invasive Species	Autumn olive is present in patches around the shore of Parsons Pond.
30	53334	Amenities	The outflow from the Parsons Pond runs through a man-made canal with a metal and wood bridge over it. The bridge is being overgrown by oriental bittersweet and poison ivy and boards need to be replaced due to rot.
31-33	53331	Encroachment	(Photo 31) Burned tree, food and beverage containers, and remains of a tree stand in the pines to the southeast of Parsons Pond. (Photo 32) A second firepit among the pines. (Photo 33) A third firepit at the top of the piney hill with many food and beverage containers left behind.
34	53332	Sign/Marking	Granite boundary marker for property corner between 11 and 51 Goddard Memorial Drive.

Photo ID	Polygon ID	Type	Comments
35-36	No polygon	Other	(Photo 35) The pine stand to the southwest of Parsons Pond. This area has almost no midstory, understory, shrub layer, herbaceous layer, or tree regeneration. (Photo 36) By comparison, as the pine stand continues to wrap around the eastern side of the Parsons Pond, the midstory, understory, shrub layer, herbaceous layer, and regeneration return.
37	53287	Encroachment	Camping equipment abandoned in the woods. Items left include tarps, clothing, food and beverage containers, and a canoe sling.
38	53333	Erosion	A waterway flows under the trail from east to west and into Parsons Pond through a large metal pipe. The bank is eroding on the western side of the trail.
39	53263	Encroachment	Firepit among the pines on the northeastern side of Parsons Pond.
40	53280	Hazard	A small stream flows into Parsons Pond on the northwest corner. The trail here is very muddy and overgrown, and a small plank bridge crossing the stream is broken.
41	No polygon	Other	The alternate trail around the swamp on the western side in the Marois 28 property has multiple logs laid across it, possibly intentionally. This trail appears to dead end after only about 100 feet.
42	53291	Wetland	Dense wooded deciduous swamp filled with willow (<i>Salix</i> spp.), alder (<i>Alnus</i> spp.), and cattails (<i>Typha</i> spp.).
No photo	53276	Disease/Pest	Beech leaf disease is affecting all beech on the property.
43	53271	Wetland	The main trail around the cattail swamp runs through a low-lying, muddy area that floods frequently.
44	53335	Encroachment	Tarp and blankets left along a connector trail.
45-46	53337	Encroachment	Food and drink wrappers left along the trail and a larger stash of camping garbage, including fuel canisters, cans, and a bucket left by the bench.
47	53336	Amenities	Bike rack and bench at the Marois 28 property entrance from Goddard Drive.
48	No polygon	Invasive Species	Oriental bittersweet is very common along the side of Goddard Drive.



Photo 1

Polygon ID: 53265

Type: Cultural Feature

Comments: Robert Goddard memorial park. Several signs for Worcester bike trails are present providing information on Goddard, the Father of Modern Rocketry and Worcester native. One placard appears to be missing.



Photo 2

Polygon ID: 53265

Type: Cultural Feature

Comments: Robert Goddard memorial park. Several signs for Worcester bike trails are present providing information on Goddard, the Father of Modern Rocketry and Worcester native. One placard appears to be missing.



Photo 3

Polygon ID: 53319

Type: Invasive Species

Comments: Autumn olive (*Elaeagnus umbellata*) and tree-of-heaven (*Ailanthus altissima*) being maintained as landscape plants at the Goddard Memorial.



Photo 4

Polygon ID: 53270

Type: Amenities

Comments: Grass parking area off Apricot Street blocked off by cones and boulders. Maps indicate street parking is instead available near the Apricot Street Playground on Merchant Street. Garlic mustard is present in the mowed area.



Photo 5

Polygon ID: 53285

Type: Cultural Feature

Comments: Cider mill foundation set over a small stream flowing out of the Cider Mill Pond.



Photo 6

Polygon ID: 53285

Type: Cultural Feature

Comments: The interior of the foundation has small piles of food and beverage wrapper garbage and broken glass.



Photo 7

Polygon ID: 53285

Type: Cultural Feature

Comments: Several trees have fallen and are leaning on the foundation.



Photo 8

Polygon ID: 53267

Type: Waterway

Comments: Small stream flowing out of the Cider Mill Pond and under the cider mill foundation. The water has a slightly cloudy cast.



Photo 9

Polygon ID: 53320

Type: Cultural Feature

Comments: Old dam with water working around the edges rather than over and causing erosion near the trail.



Photo 10

Polygon ID: No Polygon

Type: Sign/Marking

Comments: Red trail markings along Apricot Street are faded.



Photo 11

Polygon ID: 53321

Type: Cultural Feature

Comments: Old dam at the mouth of the outlet from the Cider Mill Pond.



Photo 12

Polygon ID: 53277

Type: Sign/Marking

Comments: Signs at the Apricot Street trailhead provide background on the cultural significance of the property. Signs have been lightly vandalized but are legible.

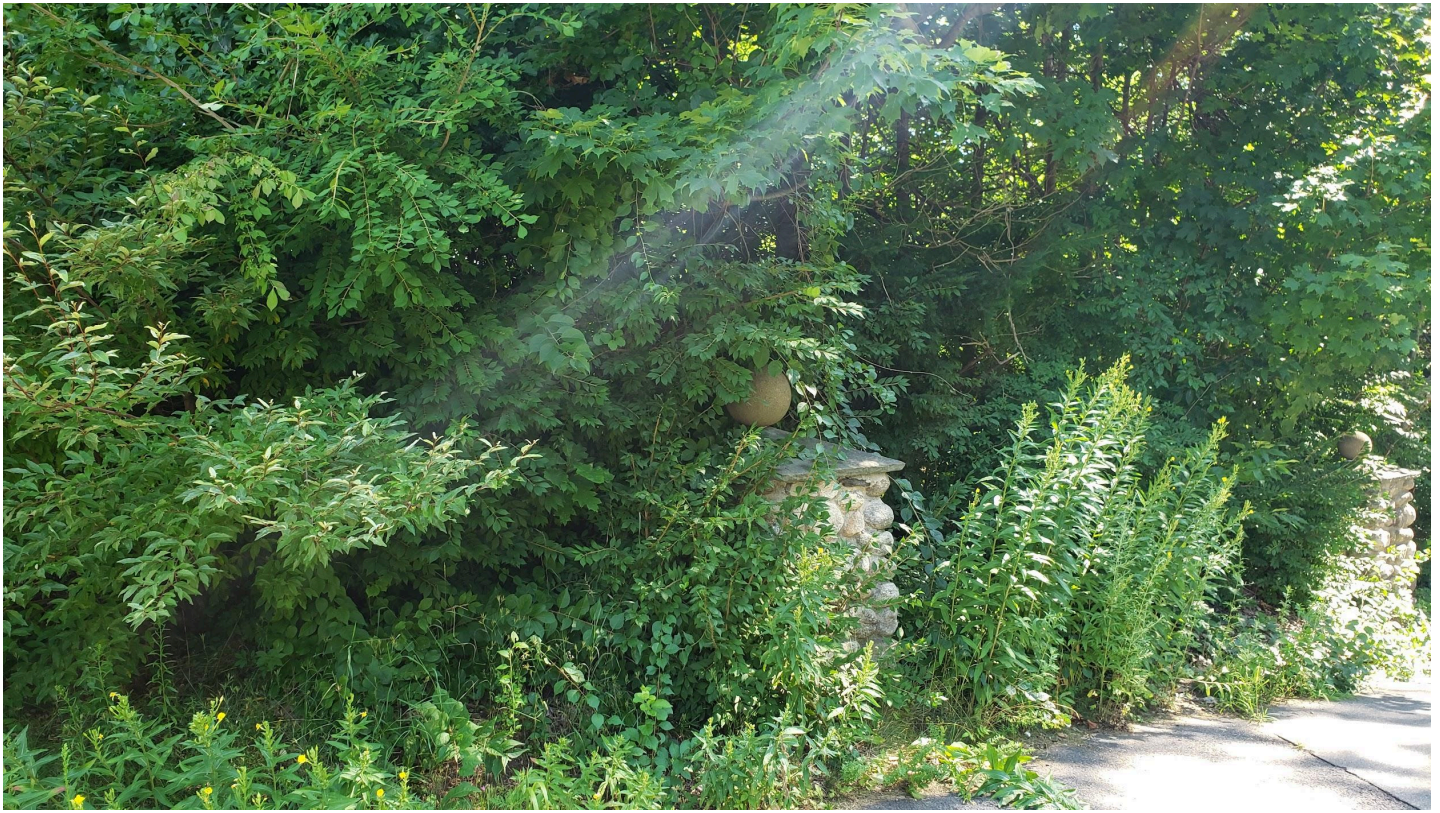


Photo 13

Polygon ID: 53281

Type: Invasive Species

Comments: Burning bush (*Euonymus alatus*), Oriental bittersweet (*Celastrus orbiculatus*), autumn olive (*Elaeagnus umbellata*), and multiflora rose (*Rosa multiflora*) are abundant along the boundary of the property on Apricot Street and extending inward throughout the property.



Photo 14

Polygon ID: 53322

Type: Other

Comments: Evidence of a recent brush fire which appears to have killed the understory and burning bush but did not harm the midstory or overstory.



Photo 15

Polygon ID: 53322

Type: Other

Comments: Evidence of a recent brush fire which appears to have killed the understory and burning bush but did not harm the midstory or overstory.

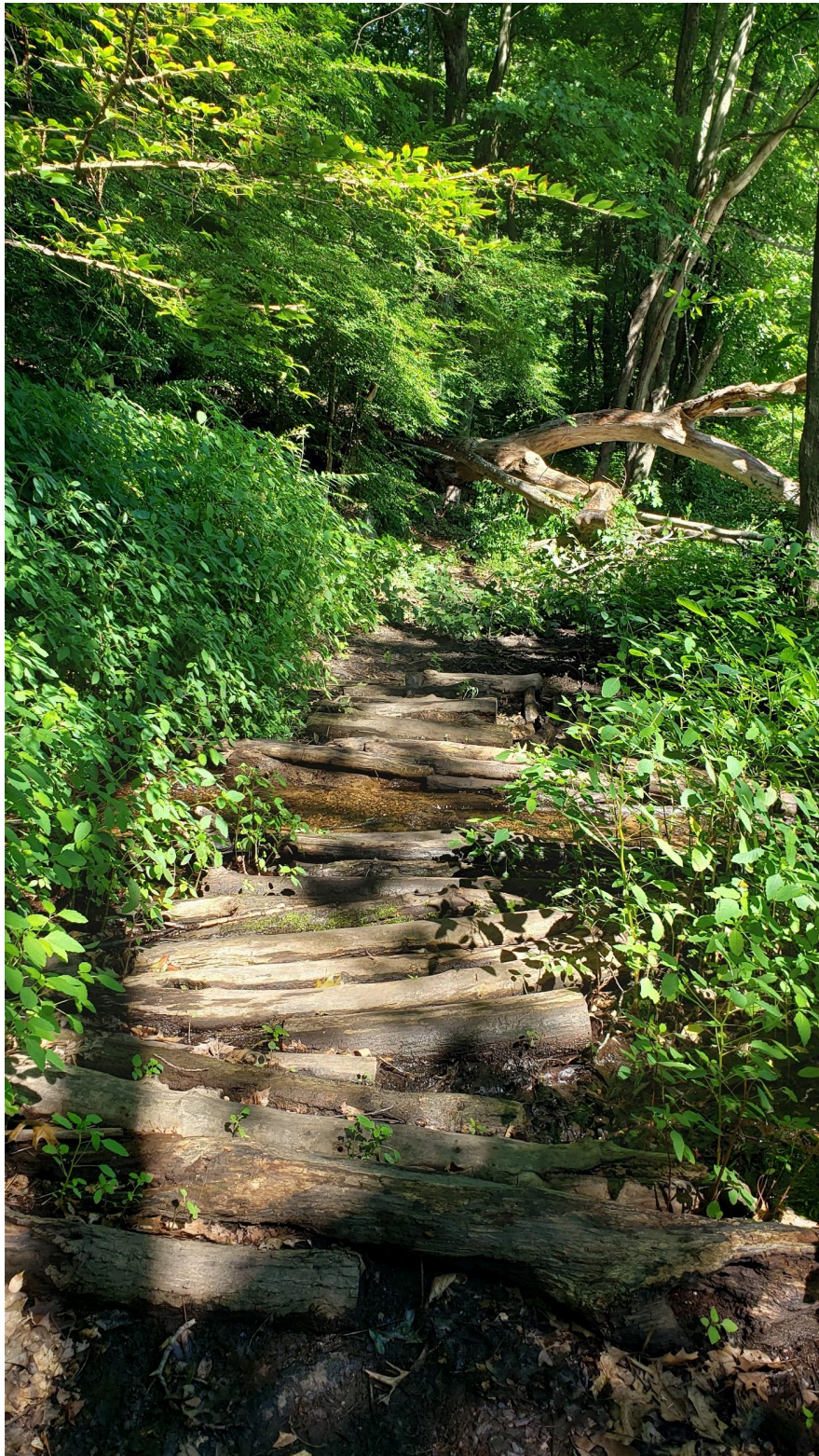


Photo 16

Polygon ID: 53289

Type: Waterway

Comments: A stream flows over the trail and into the Cider Mill Pond. Logs have been placed to provide a drier trail through the water.



Photo 17

Polygon ID: 53323

Type: Hazard

Comments: A large, dead ash tree has fallen over the trail, rendering it nearly impassable.



Photo 18

Polygon ID: 53324

Type: Vandalism

Comments: Graffiti on stones along the trail.



Photo 19

Polygon ID: No polygon

Type: Invasive Species

Comments: Burning bush is very abundant along the trail to the old road along the western property boundary.



Photo 20

Polygon ID: 53264

Type: Cultural Feature

Comments: Old dam along the stream between the upper and Cider Mill Ponds. The dam has diverted water in a sharp curve westward before it flows through a breach.



Photo 21

Polygon ID: No Polygon

Type: Encroachment

Comments: Camping garbage including plastic, cardboard, and a tent instruction manual left behind near the dam from Photo 20.



Photo 22

Polygon ID: 53325

Type: Encroachment

Comments: Access corridor to the old road on the western boundary of the property appears to have been combined into neighboring driveways and landscaping.



Photo 23

Polygon ID: 53311

Type: Other

Comments: Diverse meadow plants and insects are found along this stretch of trail.



Photo 24

Polygon ID: 53326

Type: Erosion

Comments: Past trail erosion due to the stream running along the old road on the western property boundary has been filled with large gravel underlaid by metal pipes, possibly the same as those left along the trail.



Photo 25

Polygon ID: 53327

Type: Encroachment

Comments: Abandoned tent along trail and stream.



Photo 26

Polygon ID: 53275

Type: Encroachment

Comments: Large metal utility pipes left near the trail.



Photo 27

Polygon ID: 53328

Type: Cultural Feature

Comments: Old stone bridge, heavily overgrown with poison ivy (*Toxicodendron radicans*) and Oriental bittersweet.



Photo 28

Polygon ID: 53329

Type: Cultural Feature

Comments: Stone and concrete foundation in the Parsons Pond with an ironwork structure, possibly a dilapidated bridge, leading to it. The ironwork has ornate floral motif bolts.



Photo 29

Polygon ID: 53330

Type: Invasive Species

Comments: Autumn olive is present in patches around the shore of Parsons Pond.



Photo 30

Polygon ID: 53334

Type: Amenities

Comments: The outflow from the Parsons Pond runs through a man-made canal with a metal and wood bridge over it. The bridge is being overgrown by oriental bittersweet and poison ivy and boards need to be replaced due to rot.



Photo 31

Polygon ID: 53331

Type: Encroachment

Comments: Burned tree, food and beverage containers, and remains of a tree stand in the pines to the southeast of Parsons Pond.



Photo 32

Polygon ID: 53331

Type: Encroachment

Comments: A second firepit among the pines.



Photo 33

Polygon ID: 53331

Type: Encroachment

Comments: A third firepit at the top of the piney hill with many food and beverage containers left behind.



Photo 34

Polygon ID: 53332

Type: Sign/Marking

Comments: Granite boundary marker for property corner between 11 and 51 Goddard Memorial Drive.



Photo 35

Polygon ID: No Polygon

Type: Other

Comments: The pine stand to the southwest of Parsons Pond. This area has almost no midstory, understory, shrub layer, herbaceous layer, or tree regeneration.

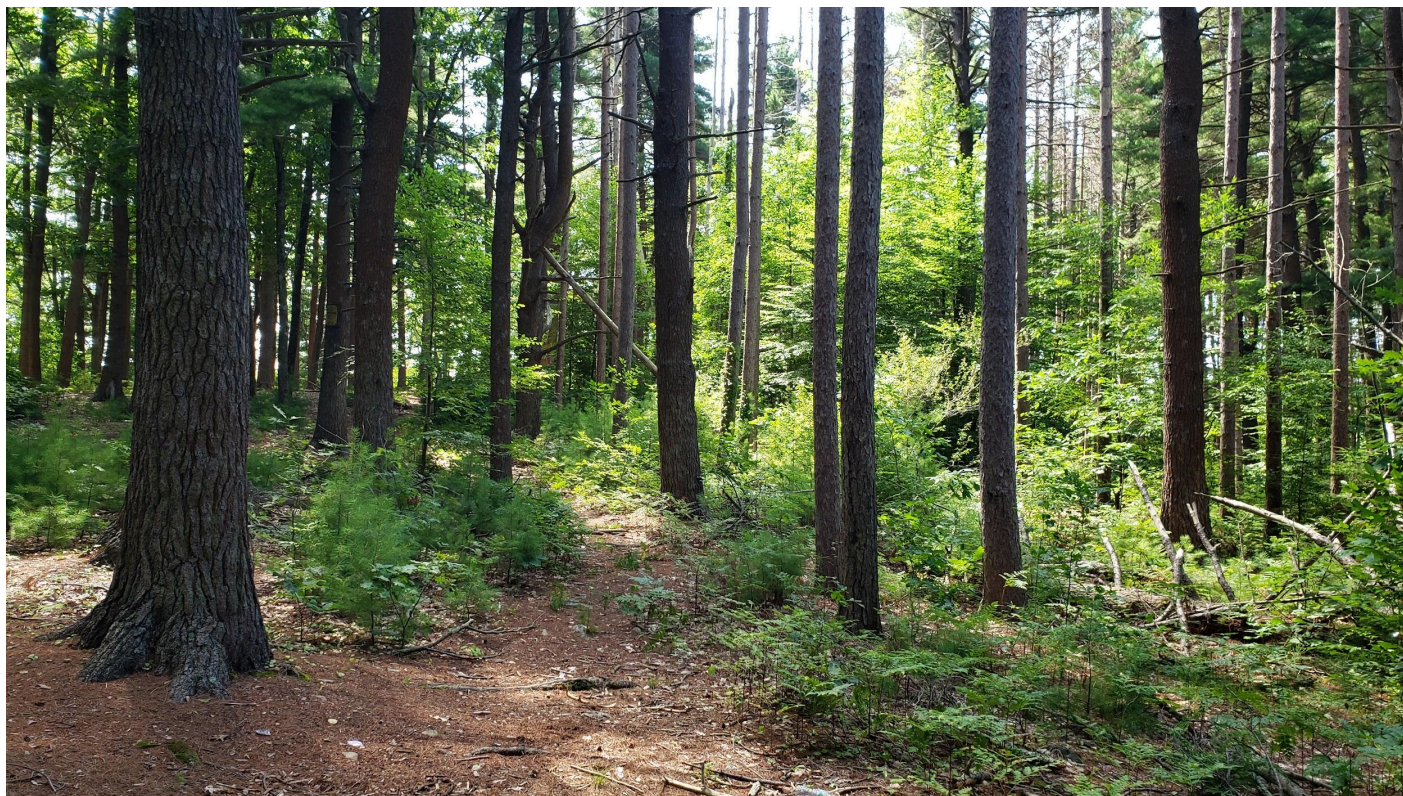


Photo 36

Polygon ID: No Polygon

Type: Other

Comments: By comparison, as the pine stand continues to wrap around the eastern side of the Parsons Pond, the midstory, understory, shrub layer, herbaceous layer, and regeneration return.



Photo 37

Polygon ID: 53287

Type: Encroachment

Comments: Camping equipment abandoned in the woods. Items left include tarps, clothing, food and beverage containers, and a canoe sling.



Photo 38

Polygon ID: 53333

Type: Erosion

Comments: A waterway flows under the trail from east to west and into Parsons Pond through a large metal pipe. The bank is eroding on the western side of the trail.



Photo 39

Polygon ID: 53263

Type: Encroachment

Comments: Firepit among the pines on the northeastern side of Parsons Pond.



Photo 40

Polygon ID: 53280

Type: Hazard

Comments: A small stream flows into Parsons Pond on the northwest corner. The trail here is very muddy and overgrown, and a small plank bridge crossing the stream is broken.



Photo 41

Polygon ID: No Polygon

Type: Other

Comments: The alternate trail around the swamp on the western side in the Marois 28 property has multiple logs laid across it, possibly intentionally. This trail appears to dead end after only about 100 feet.



Photo 42

Polygon ID: 53291

Type: Wetland

Comments: Dense wooded deciduous swamp filled with willow (*Salix* spp.), alder (*Alnus* spp.), and cattails (*Typha* spp.).



Photo 43

Polygon ID: 53271

Type: Wetland

Comments: The main trail around the cattail swamp runs through a low-lying, muddy area that floods frequently.



Photo 44

Polygon ID: 53335

Type: Encroachment

Comments: Tarp and blankets left along a connector trail.



Photo 45

Polygon ID: 53337

Type: Encroachment

Comments: Food and drink wrappers left along the trail and a larger stash of camping garbage, including fuel canisters, cans, and a bucket left by the bench.



Photo 46

Polygon ID: 53337

Type: Encroachment

Comments: Food and drink wrappers left along the trail and a larger stash of camping garbage, including fuel canisters, cans, and a bucket left by the bench.



Photo 47

Polygon ID: 53336

Type: Amenities

Comments: Bike rack and bench at the Marois 28 property entrance from Goddard Drive.



Photo 48

Polygon ID: No Polygon

Type: Invasive Species

Comments: Oriental bittersweet is very common along the side of Goddard Drive.