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WHO IS INVOLVED?

B.E.D.I.C.

Formed in 1982, the Belchertown Economic Development and Industrial Corporation has deep roots in Belchertown. The nonprofit, quasi-governmental organization is governed by nine members, all town residents. Its mission is to develop and implement a town-meeting-approved economic development plan for the site of the former Belchertown State School that “maintains the small town look and feel, creates significant jobs and ideal business development that recognizes the past and enhances the future of the Town of Belchertown.”

MASS DEVELOPMENT

MassDevelopment, the state’s economic development and finance agency, is working with B.E.D.I.C. on the redevelopment project at the Belchertown State School. Mass Development hopes that through this project, the redevelopment - specifically the first building to break ground, an 83-unit assisted living facility - will be better meshed with the surrounding area. This could create opportunities for residents of the assisted living facility to access the natural areas on site, and invite the public into the redevelopment.

TOWN OF BELCHERTOWN

A number of municipal buildings, including the police station, Town Recreation Department, and Senior Center, are all located within the focus area. These municipal offices as well as the greater town government have a vested interest in improving this area.

THE PUBLIC

Foley Field and Lake Wallace serve as recreational areas for the community of Belchertown. Birding, snowmobiling, horse riding, and running are all activities that take place here. The field and lake are also important educational areas for the Belchertown Public Schools, who lead trips here for science classes.

AN OVERVIEW OF THE TRAILS MASTER PLAN

After years of standing vacant, the former Belchertown State School property is ready for a rebirth. Located in a prime spot, just next to the center of Belchertown, the property boasts scenic views, lakes, wetlands, and rich history. The town of Belchertown aims to take advantage of the many assets of the site by increasing opportunities for pedestrians to safely walk through trails connecting the former Belchertown State School campus, the public school system, and a number of scenic and ecologically rich areas. The overall goal of the town is to better integrate the redevelopment of the State School by creating recreation opportunities for people with all abilities and foster a sense of community through increased pedestrian connections. This project was funded by a Healthy Hampshire/Mass in Motion grant aimed at improving community health through increased opportunities for exercise.
Lake Wallace, a roughly 20-acre lake in the southern portion of the site, is encircled by a 1.4-mile loop trail. Evidence of beaver presence is found throughout the lake itself and the woods surrounding. A spillway controls flow out of the lake and into Lampson Brook.

Foley Field sits just north of Lake Wallace, just south of Lampson Brook, and west of the BSS campus. The field houses a 60’ diamond and multi-purpose fields for baseball, softball, soccer, and lacrosse. A trail around the lake starts at the northwestern corner of the field.

The Belchertown State School campus sits vacant and fenced off to the public. The 22 buildings on site have started to be demolished to make way for a redevelopment that will break ground in June 2017.

A sewer easement runs along the northern boundary of the property. An opening to a field along the easement boasts incredible views of the Mount Holyoke range and Lampson Brook Farm in the foreground. The easement is mowed regularly, creating a path between Foley Field and Jackson Street.
BELCHERTOWN STATE SCHOOL
Opened in 1922, the Belchertown State School for the Feeble Minded was the third Commonwealth State School. It occupied a large tract of land just southwest of Belchertown Center and housed its own farming operation, sewage treatment facility, and electrical generation. The State School functioned as a self-contained community, keeping patients separated from the general public. In the 1970s, overcrowding and mistreatment of patients led to a number of lawsuits and exposes. The State School eventually closed in 1992 and has since stood vacant.

FUTURE USES
The former State School site is in a period of transition. In June 2017, a mixed-use redevelopment project will break ground, beginning with an 83-unit assisted living facility. All historic State School buildings will be demolished but one, and a number of residential, industrial, and commercial buildings are slated to be built. Coupled with the redevelopment of adjacent Route 202, the redevelopment of the State School will likely transform this area of Belchertown into a more vibrant neighborhood center.

A HISTORY OF BELCHERTOWN
Historically, Belchertown was a small farming community; lumbering, orcharding, and the raising of beef cattle, sheep, and hogs were the main forms of agriculture here because of the rocky soil. Belchertown was once known for its carriage making. More recently the Belchertown State School was the major employer in Belchertown, from the early 1900s, until its closing in 1992. Today, Belchertown is a small, rural-suburban town that serves as a bedroom community for Amherst, where the University of Massachusetts employs more residents than any other institution or enterprise.
Goals & Benefits

OVERVIEW
Two community meetings were organized to gauge the wants and wishes of the community for this area. In conjunction with client requests, a number of goals arose. The need for more and safer pedestrian options became clear through the meetings. A number of key areas were identified as key nodes of activity and importance, including a scenic view, Foley Field and Lake Wallace, the proposed redevelopment, and the public school system. Connecting these places and making safer routes between them became the main charge of this project. This main goal was broken down into more specific goals with clearer criteria.

SOME BENEFITS OF COMMUNITY TRAILS
Source: “Places for Physical Activity” by CDC, National Center for Chronic Disease Prevention and Health Promotion

IMPROVED COMMUNITY HEALTH
- Trails provide opportunities for individuals to be physically active. Biking, walking, and running, as well as hiking, horseback riding, cross-country skiing, and snowmobiling are some activities that trails enable.

IMPROVED TRANSPORTATION OPPORTUNITIES
- Trails with high connectivity potential may provide community members with alternative routes for travel.

ENVIRONMENTAL CONSERVATION
- Trails may improve the physical appearance of the community through revitalization and preservation of the environment. Increases in non motorized transportation may reduce emission of vehicle exhaust fumes and improve air quality.

ECONOMIC ADVANCEMENT
- Trails may improve a community’s economy by expanding the local tourism market (e.g., new restaurants, gift shops, and other local specialty stores built alongside trails). Trails may also enhance the natural beauty of communities, thus increasing property values.

HISTORIC AND CULTURAL PRESERVATION
- Preserved landmarks tell a story of the past. Trails that pass through or near historic landmark areas may help to define the local culture and promote trail use and tourism.

GOALS

IMPROVE PEDESTRIAN CIRCULATION
- Create a universally accessible path between the assisted living facility and the ADA playground
- Address safety issues at street crossings

HIGHLIGHT VIEWS
- Create spaces for gathering and reflection

CREATE PHYSICAL CONNECTION BETWEEN SCHOOLS & LAKE WALLACE
- Create areas to access and view Lake Wallace for environmental education
HAZARDOUS TRIP ROUTES

Access to the state school campus has restricted since its closing; the few who visit the derelict buildings do so illegally. Consequently, most pedestrian and vehicle traffic occurs at the western edge of the former campus along a single-lane road; vehicle traffic peaks during sporting events, though scant evidence indicates equally intense pedestrian travel. This will remain a primary route between Foley Field and Lake Wallace, and Route 202.

Community members noted that trails support seasonal recreation — hiking, horseback riding, snowmobiling, and cross-country skiing — and visiting groups of students. The condition of existing trails varies. Snowmobile trails are mostly wide (6-10 feet), have a vertical clearance of up to 10 feet, and are cleared of most surface debris; hiking trails are narrow (3 feet or less), and occasionally uncleared or inundated. They cross streams and wetlands over wooden bridges, all of which are in states of disrepair. Trails cross roads (including Route 202) at several locations. Some trails end at private properties, while others end at no particular destination.

Pedestrian routes frequently conflict with vehicle traffic at intersections where a lack of pedestrian infrastructure exacerbates the risk of collisions with vehicles. The intersection of Route 202 and School Road (14,100 average daily traffic) is a particularly hazardous crossing (Mass DOT). A complete-streets project (#608412) is planned for a 1.3-mile segment of Route 202 and includes this crossing (Mass DOT).

DIRECTIVES

- Minimize pedestrian-vehicle conflict wherever possible, especially for higher-traffic areas near Foley Field and intersections with limited driver stopping-sight distance.
- Designs should reinforce pedestrian safety infrastructure at the Route 202 crossing, including traffic-slowing features.
- Consider standardized safety designs for new trails, and implementing a maintenance regime for improving accessibility and safety on existing ones.
Slopes and Soils

Belchertown’s topography is characteristic of the surrounding region — low rolling hills with a few mountains—and is criss-crossed by multiple trails. While some of these trails may traverse slopes of 45 percent or higher, an accessible trail without handrails is restricted to slopes of 5 percent or less, and cross slopes of 2 percent (see trail design guidelines, sheet 12).

Accessible trails therefore are limited to areas where slopes are gentle, and require significant grading or excavation for slopes above 5 percent.

The steepest slopes (12 to 20 percent, and up to 50 percent) are to the northwestern, western, and southern edges of Lake Wallace, and northern corner of the campus; in these areas the shallow granitic and metamorphic bedrock results in steeper topography, and thinner and acidic soils. Less-steep slopes (1 to 12 percent) cover most of the site, where the surficial geology is almost exclusively glaciofluvial deposits — fine to coarse sands, gravel, till, and boulders, some exposed — extending to depths of 8 feet or greater. These soils are largely well-drained; however, locally high water tables (3 feet or less from the surface) may exist near wetlands.

The prevalence of shallow boulders, thin soils prone to erosion, and steep slopes may lead to higher trail construction costs, and potentially higher maintenance costs.

**DIRECTIVES**

- To reduce construction cost, trails should be designed or sited in areas with slopes of 5 percent or less, and follow contours wherever possible.
- Provide for a range of routes for users limited to accessible trails only, assuming they are unable to access other trail types.
**A HOST OF WETLANDS**

Wetlands and open water cover more than 60 acres of the project site and are integral to its ecological and aesthetic value. These wetlands have been officially identified and are protected under state and municipal bylaws.

Wetlands were formerly used as components of water and sewage management for the state school; a twenty-five-acre wetland acted as filter beds as recently as the 1980s (Fuss and O’Neill 2009). Wetland management has since transitioned to conservation and restoration. Wetland clean-ups and water monitoring, especially around Lake Wallace, are overseen by the Conservation Commission, and have been performed by public schools and volunteer groups.

The wetlands have undergone considerable transformation in size over the past twenty-five years. Aerial photos indicate Lake Wallace’s surface area has increased approximately four-fold since 1997, including a portion of Lampson Brook downstream from an existing weir; beavers are partly responsible for this increase. A recreation field once used as a ball field was overtaken by an adjacent wetland beginning in the early 1980s; a 2009 engineering study confirmed this expansion, and identified an additional wetland upslope and potential seeps (Fuss and O’Neill 2009).

As the built environment expands, the potential for damage to wetlands increases, as does the likelihood of ongoing change in wetland size, species richness, and chemical composition.

**SITE DRAINAGE**

Drainage from the campus flows downhill towards Lampson Brook Farm, and southwest into Lake Wallace. A proposed development will impact drainage patterns; constructed wetlands are being considered for treating and filtering stormwater on-site (Fuss and O’Neill 2009).

**Water, Wetlands, & Drainage**

- Existing drainage
- Potential drainage
- Potential retention basin

View of beaver-created wetland from weir, date of construction - 1930 (est).

Potential vernal pools, viewed from Lake Wallace trail. Route 202 is approximately 200 ft south.
Exposure to elements is unavoidable for trail users. It is of particular concern for those who may be adversely affected by prolonged or intensive exposure to hot sun or cold winds, particularly children and the elderly. The number of elderly users will increase with the completion of the assisted living center and independent senior residences. These and other users can expect to experience Belchertown’s mid-latitude temperate climate, typified by long, cold, snowy winters (average low 21.2°F) with strong winds, and mild to hot and wet summers (average high 75.8°F). Topography and vegetation, especially trees, may create microclimates where users experience locally higher temperatures or increased wind exposure. These conditions may become increasingly harmful for humans, plants, and animals, especially if summer heat and precipitation increases in duration or intensity as a result of climate change.

Tree shade benefits pedestrians by filtering sunlight, blocking strong winds, and providing some limited refuge from precipitation. This is especially true under the dense wooded canopy on Lampson Brook Farm, but less so where human activity appears concentrated, specifically the recreation field, and across the former campus that is currently under construction. Many larger trees in these areas may succumb to inundation along the lake edge and wetlands, disease, damaging winds, root compaction, or trunk abrasion.

**DIRECTIVES**

- Most users will actively choose trails located in comfortable settings, especially if they remain outdoors for longer periods of time.
- Over-exposed trails and destinations will not be traveled or visited as often, and may fall into disrepair through neglect.
- Trees are important for providing refuge. Protect them where they exist, and plant them, when appropriate, where they don’t.
- Reinforce edge habitat and natural windbreaks, especially where tree stands are exposed or susceptible to disease or damage.
Viewpoints are valuable for outdoor activities including bird-watching, hiking, and snowmobiling, and even science experiments, for example, to study beaver habitat or forest succession. They may highlight local landmarks, natural assets, and landscapes that reflect the cultural values shared by residents and visitors. Clear views of obstacles or potential hazards may also increase safety at intersections and along roads, particularly for drivers, cyclists, and pedestrians.

The woodlands, potential vernal pools, and a sweeping vista of the Holyoke Range are among some of the more desirable views, yet they are located along less-traveled or inaccessible routes.

Interrupted or obstructed sight-lines where pedestrians encounter vehicles heightens the risk of collision; the intersection of Route 202 and School Road is an area of particular concern for pedestrian safety.

**Viewsheds**

Above: A beaver lodge (circled) is visible across Lake Wallace. Beyond, a wooded slope shelters a hiking trail that circles the lake. Right: A dense tree-line obstructs drivers’ view of the crossing on Route 202 between Lake Wallace and Jessica’s Playground and public schools.

Below: Clear skies above the Holyoke Range allow views extending nearly twenty miles. Right: An emergent wetland stands in place of a former recreational field, and once included the state schools’ filter beds. Below-right: Foley Field — formed as recently as 1980 — hosts baseball, soccer, and lacrosse games for school and club teams.

**DIRECTIVES**

- For the safety of pedestrians, design for high visibility at all vehicle crossings, along wooded or obscured sections of trails, and where students and children gather.
- Avoid routing pedestrian traffic where potential concerns with privacy or private property may arise.
- Determine least-cost routes to allow the public to access desirable views, especially of natural assets.
For over three centuries, human disturbance has fundamentally altered the ecology of Belchertown, particularly the ecology of the site, and contributed to diminished species diversity and richness and fragmented habitats. This pattern of human activity has also influenced present vegetative species composition, and therefore species succession. Species succession may respond adversely to human activity, and potentially major shifts in climate.

Individual species and certain habitat may become more vulnerable as a result, while others, particularly non-native species, may spread and require management, or potentially removal.

A variety of plant and animal species, and habitat within walking distance of three schools presents invaluable educational resources for students and teachers to explore multiple ecological niches, perform on-site experiments, and monitor and record seasonal and annual ecological processes.

Protecting this dynamic landscape is congruent with town and state conservation goals. In addition the site may serve as a test-bed for land management methods that explore the impact of construction in or near ecologically rich sites.

**DIRECTIVES**

- Providing access to ecologically rich features may engender efforts to learn about and preserve them, yet restricting access may also help to protect them.
- Designs should limit interference with vulnerable ecosystems, particularly edge habitat and wetlands, and particularly during trail construction.
- Design trails as opportunities for users to see and engage with their surroundings and explore ecological processes present in the landscape.
Summary Analysis

OBSERVED PATTERNS

Belchertown’s State School campus is host to local and regional historical, ecological, and recreational assets. It is also a site undergoing significant transformation. This summary identifies existing human and landscape patterns, and assumes the potential and extent of changes to the landscape as a result of new construction.

- Belchertown aims to invigorate its economy with a large-scale residential and commercial development that may contribute increased vehicle traffic, and stormwater runoff, and include public access to undisturbed areas.
- Pedestrian access and circulation is limited—most travel is by vehicle, trails are inconsistently maintained, and dedicated pedestrian infrastructure is lacking or absent at critical intersections.
- Circulation occurs at the edges of areas currently used.
- Destinations — especially desirable viewpoints and places of refuge— are disconnected or inaccessible.
- Past land use, particularly agriculture, has altered both the physical landscape and vegetation.
- Wetlands and open space are a priority for conservation and preservation.

MOVING FORWARD

Safety is a priority considering a trail and path network will service multiple user groups, including children and the elderly.

A network of trails and paths may fundamentally diversify user experience of the landscape.

A trail and path system may impact ecologically sensitive areas.

There is an opportunity for education by using the landscape as a laboratory.

There is an opportunity for tying into regional trails and bike paths.
Trail Design Guidelines

KEEP IT SIMPLE

Trails are always exposed to the elements, and subject to intense variations in weather in all seasons. Likewise, frequency and intensity of use contributes wear and tear, impacting the long-term viability of trails. Sustainable trail design imparts techniques for siting and constructing trails that do not adversely affect natural and cultural resources; withstand impacts of seasonal variations and inclement weather; require only routine or emergency maintenance; and encourage users to remain on-trail (USFS). A good indicator if a trail is sustainable may be the overall effort required to install it: if it necessitates extensive removal of vegetation, displaces wildlife, disturbs large areas of soil, or requires obstructing or redirecting drainage, it may not be sited in the most appropriate location.

For improving sustainable design and construction of trails, consider:

- **Uniform construction standards:** adopt sustainable design guidelines for all new trails, and require low-impact maintenance of existing trails.
- **Consistent naming and identification:** adopt town-wide trail classification, for use on trails supporting activities within Belchertown, and separate from regional networks.
- **Trail construction and maintenance education:** community members—especially students—participate in workshops exploring and experimenting with sustainable trail design and management. Existing trails may serve as experiment stations.

**UPHILL, DOWNHILL**

Trail class is defined by intended use, and determines all aspects concerning trail design, construction, maintenance, and permitted use. Environmental and cost constraints will ultimately limit which trails are appropriate, and therefore which users can access them. Design criteria are based on Americans with Disabilities Act guidelines (ADA), U.S. Forest Service Trails Accessibility Guidelines (FSTAG), and the Architectural Barriers Act (ABA) (see references, sheet 25).

**ADA**

In all cases of ADA, infrastructure must at a minimum meet the needs of users with limited mobility. These guidelines apply to built environments, and assume they also apply to pathways and some trails.

**ABA**

In most cases of ABA, infrastructure must meet the needs of users with limited mobility; however, terrain, availability of skilled labor, and other environmental constraints may present exceptions (FSTAG, Section 1017).

**CONSIDERATIONS**

Maintenance cost will vary depending on trail class.

Trails lacking adequate infrastructure or management may adversely affect users’ perception of accessibility.

It must be clear that trails other than ADA may not be passable by all users, all the time.
The view area (see page 14) acts as an area for reflection, contemplation, and historic importance. The Belchertown Historic Commission plans to place a monument here honoring the history of the State School. Not only does this area act as a place for respite and reflection, but it also connects on to Jackson Street, and eventually the path adjacent to the railway line, a regional connection.

The Lake Wallace (see page 17) node acts as a living laboratory, allowing people to interface with the lake and surrounding wetland ecology. Boardwalks and platforms create gathering areas for the public school to use as an environmental education learning area and for trail-goers to rest and look out onto the lake.

The Route 202 crossing (see page 19) connects the Belchertown Public School system with Lake Wallace and surrounding natural areas. The crossing also allows pedestrians to more safely access the trail system, Foley Field, and the redevelopment.
Viewpoint Gathering Spaces

TWO STOPS AND A VIEW

1. The northern gathering area offers nearly twenty-mile views of the Holyoke Range and Pioneer Valley. A short spur off of the main path brings visitors up to a private area with seating for up to 8 and spaces for up to 4 wheelchairs. Small trees provide shade, and a large rock retaining wall adds additional seating.

2. Large boulders at regular intervals along the path provide seating, where visitors can enjoy an uninterrupted view of the horizon. These large stones are among the many excavated during construction of the development.

3. The southern gathering area provides seating for up to 8 and spaces for up to 4 wheelchairs. A 400 square foot central area provides space for groups up to 20 people, including student groups, exercise classes, and even bird-watching clubs.

4. A trail kiosk provides users a site map, particularly of sites and trails that are ADA accessible, and details trail length, difficulty, and interest. The kiosk also maps historical memorial markers for the former state school as part of an interpretive trail.

5. The trail connects to sidewalks north of the independent living community; a short spur connects to the plaza within the live-work community.
The view areas are small, shady areas for residents and visitors to gather. Each provides a distinct vantage point from the northern slope of the Holyoke Range. For those traveling down from their homes, or small classes venturing from the schools, reaching these areas is the culminating experience of hiking the state school trails.
The trail extends north along the densely-wooded slopes. Benches placed every 100 feet offer passers-by a chance to rest, and observe the forest changing through the seasons.

The trail extends west along the edge of Foley Field and Lake Wallace, where views of the lake can be enjoyed by those who are heading to the snowmobile trails and Lake Wallace circuit trail (see phase 2, sheet 21).

An overlook marks the beginning of the easement trail. Visitors enjoy an unobstructed view of Foley Field, and may even catch a glimpse of a soccer or baseball game below.

A tree-lined high-visibility crossing enables safe travel to and from the living laboratory and viewpoint. Here, elderly residents, students, or even the occasional through-hiker can traverse the road with minimal interference with vehicles, particularly during sporting and other high-traffic events.

The trail connects to sidewalks north of the independent living community. This route enables residents, particularly senior citizens, to travel to and from Foley Field safely and comfortably.
Living Laboratory Design

LEARNING THROUGH LEVELS

The trail connects users to Foley Field and continues to a wooded path along the sewer easement and on to the vista area.

Shoreline buffer planting along the lake bank re-vegetates the area with native wetland species, helping to manage invasive species.

A parking lot along the road acts as a trailhead for trail users. The parking lot should comply with ADA criteria to accommodate trail users of all abilities. Planted buffers create a more pleasant user experience. The lot allows for two accessible parking spaces and two non-accessible spaces, four total.

A boardwalk leads to the northern platform. The northern and southern platforms are varying elevations, creating two different experiences and distances from the water itself. This allows for varying educational activities such as specimen collection, observation, and note taking. The public could use the platforms for reflecting, viewing the lake, and relaxing.

ADA trails connect the parking lot to the trail and are no more than 5% slope and 2% cross-slope.

The trail connects south to the road crossing and on to the public school complex and accessible playground. The trail also connects to the non-ADA-accessible Lake Wallace trail.
Living Laboratory Details

1. Parking lot detail
2. Southern dock
3. Northern platform
4. Section through parking lot and overlook
5. Section through southern platform
6. Section through northern platform

Belchertown Trail Master Plan
Town of Belchertown
Belchertown, MA
A. Mackay / A. Kilduff
Spring 2017
413-369-4044    www.csld.edu
PRIORITIZING PEDESTRIAN SAFETY

1. **Street trees** slow traffic, filter runoff, and shade sidewalks.

2. **An ADA path** extends away from the crossing and towards the living laboratory. The path weaves through the forested edge of Lake Wallace.

3. **High-visibility crosswalks** are painted to alert drivers to pedestrian activity. Road signs warn drivers of high-pedestrian traffic zone.

4. **Pedestrian crossing lights** are activated by pedestrians; lights are timed to accommodate large group crossings, like school classes.

5. **An ADA sidewalk** extends to Jessica’s Boundless Playground and the public schools.

6. **A bioswale** lines the road, catching and infiltrating polluted stormwater into the ground to prevent road runoff from draining into Lake Wallace.

---

**N.T.S.**

Section through sidewalks, roads, and bioswales

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Belchertown Trail Master Plan
Town of Belchertown
Belchertown, MA
A. Mackay / A. Kilduff
Spring 2017
413-369-4044    www.csld.edu
Phase II Proposed Trails

Phase two build on improving connections to secondary destinations and enabling pedestrians to circumnavigate the entire state school development, reducing walking trip times to destination within the property, and in adjoining properties.

Connectors that intersect private property — particularly a proposed pedestrian-only railroad grade-crossing — require additional stakeholder input. Phase-two recommendations include:

1. **Establishing a new trail head at Jackson Street** where an existing snowmobile trail abuts the railroad.
2. **Extending trails along the eastern site boundary**, including the northeastern wetlands.
3. **A spur off the viewpoint trail to Lampson Brook Farm** along the tree line. (The proposed route along the existing maintenance road was determined to not be an appropriate route based on topography).
4. **Extending the phase-one path west along the existing parking lot** to points west of Foley Field, including the weir and Lampson Brook headwaters.
5. **Establishing a formal trail head** where the Lake Wallace trail and snowmobile trails intersect.
6. **A trail spur and elevated boardwalk runs along the edge of the beaver-created wetland**, where groups of students and visitors can see first hand beaver ecology and the complex of beaver dams.

These routes are recommended based on preliminary slopes assessment; not all phase-two proposed trails may be accessible.

LAKE WALLACE LOOP TRAIL

To Lampson Brook Farm
To playground and public schools
Potential learning laboratory
5-foot wide ADA trail
Lake viewing area
Trail Management Strategies

OPERATIONS

Trail management includes ongoing maintenance of trail surfaces, adjoining areas, and related infrastructure; establishing and enforcing trail-use guidelines; maintaining awareness of environmental hazards and establishing risk management; gathering and acting on user feedback; and promoting trails to wider user-groups and for different uses. How a trail is managed will determine who uses it, for what reason, at which time, and to what extent. Consider:

- Dividing management of trails geographically; trails within municipal, state, and federal properties may predetermine which agency oversees management.
- Exploring whether special arrangements with private property owners are required to provide access for trails, or resources for maintenance.
- Incorporating existing or new trails with regional networks, and sharing management with regional planning council (PVPC).
- Establishing volunteer-based friends-of-trails organization, or privately-managed adopt-a-trail program.

CONSIDERATIONS

Memorandum of understanding (MOU): establish framework between BDPW and trail user groups regarding use of sewer easement, seasonal maintenance of paved trails, and input on infrastructure projects.

Community benefits agreement (CBA): the community stipulates that participating agencies and groups provide adequate attention to pedestrian safety and infrastructure.

Integrated trail manual (ITM): BDPW, town agencies, and community members collaboratively develop and follow official practices for maintaining trails.

Community-based management (CBM): disbursement of town resources to a specific neighborhood or community. For example, funding for recreational organizations to maintain trails.

Improvement request forms (IRF): trail users submit maintenance requests directly to the responsible party.
Funding Opportunities

OVERVIEW

Because the proposed trails incorporate historical interpretation, accessibility, education, sustainability, and connections to regional trails, there are numerous grants for which this project would qualify. In addition, community fundraising and corporate sponsorship could bring the proposed plans to fruition.

Recreational Trails Program:

Criteria for this grant are that the qualifying project "creates, expands or enhances a trail system or new trail connections, with real and lasting public benefits while thoroughly considering relevant environmental, social and cultural issues, and minimizes or mitigates impacts to natural and cultural resources. The trail should also create partnerships among trail users, organizations, or agencies and demonstrate community support for the project."

Agency: Massachusetts Department of Conservation and Recreation (DCR)

Description and Eligible Activities: Provides funding support for a variety of motorized and non-motorized trail development and trail maintenance projects.

Eligible Applicants: Non-profits, government agencies, and municipalities

Application Deadline: February 1st each year

Average Grant Size: $31,000; maximum of $100,000 grant award

More Information: www.mass.gov/eea/agencies/dcr

Recreational Trails Program - Statewide Trails Education Grants:

If trail signs were integrated into the living laboratory design to further learning opportunities for all users, this grant could be an option.

Agency: Massachusetts Department of Conservation and Recreation (DCR).

Description and Eligible Activities: First round of a new grant offered through the federally-funded Recreational Trails Program. This year, the Massachusetts Recreational Trail Advisory Board (MARTAB) has elected to set aside 5% of its appropriated funds and call for projects which focus on trail education programs or trainings which address trail safety and/or environmental protection. The programs must also be beneficial to and welcome the statewide trails community, rather than be specific to a particular property or region.

Eligible Applicants: All state, regional, municipal, and some federal government agencies, as well as IRS-approved non-profit organizations are eligible for grants under the program. State and federal agencies should call for additional details on eligibility.

Estimated Application Deadline: February 1, 2018

Average Grant Size: $8,000 - $10,000 with approximately 18 months to complete projects.


A RECREATIONAL TRAILS GRANT FUNDED PROJECT: CONCORD RIVER GREENWAY PARK

“The Concord River Greenway connects the city’s largest open spaces, Shedd Park and Rogers Fort Hill Park, to the center of the city and a network of walkways that have been developed by the City of Lowell and Lowell National Historic Park.

The Concord River Greenway is also an integral part of the Bay Circuit Trail and Greenway, which is a network of trails around greater Boston, from Duxbury on the South Shore to Plum Island on the North Shore. Stewardship, land protection, and trail maintenance for the Bay Circuit Trail is coordinated by the Bay Circuit Alliance.

A long-term vision for the Greenway is to connect to the Bruce Freeman Rail Trail, where it currently ends at a tunnel under Route 3 (CrossPoint Towers). The Bruce Freeman Rail Trail currently extends eight miles from Chelmsford to Westford. Construction is underway to connect the trail through Concord and eventually Framingham (35 miles total).”

BEFORE:              AFTER:

OTHER RELEVANT GRANTS

• Massachusetts Environmental Trust grants
• Federal Land and Water Conservation Fund grants
• PARC grants
• Safe Routes to School grants
• Redwood Creek Greater Outdoors Project Grant
• Historic Preservation Fund grants
• Rivers, Trails, and Conservation Assistance Program
• Congestion Mitigation and Air Quality Program

OTHER FUNDRAISING STRATEGIES

• Membership campaigns
• Buy-a-Foot-of-Trail campaigns
• Foundation donations
Planting Recommendations

SHORELINE BUFFER PLANTS

The living laboratory design, with trails that weave through a wetland ecosystem, should buffer the shoreline with native herbaceous, shrub, and tree species and stabilize the soil to prevent erosion. Planting species from upland forest species to open water, aquatic species diversifies the shoreline and provides an opportunity to educate visitors about this transition in vegetation. Also, these plants form a vegetated buffer that filters road runoff. This would help protect the lake from sediments and pollutants. Suggestions for native species are outlined in the table to the right, organized by plant type.

Herbaceous Species

<table>
<thead>
<tr>
<th>Species Name</th>
<th>Wetland Status</th>
<th>Shade Tolerance</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer rubrum (red maple)</td>
<td>FAC</td>
<td>Full Sun to Full Shade</td>
<td>Shores, edges of wet meadows, forest edges</td>
</tr>
<tr>
<td>Betula alleghaniensis (yellow birch)</td>
<td>FAC</td>
<td>Full Sun to Full Shade</td>
<td>Wet meadows and forests</td>
</tr>
<tr>
<td>Liriodendron tulipifera (tulip tree)</td>
<td>FAC</td>
<td>Full Sun</td>
<td>Shores and dry forests</td>
</tr>
</tbody>
</table>

SHORELINE VEGETATION TRANSITION ZONES

- Chelone glabra (turtlehead)
- Andropogon gerardii (big bluestem)
- Amelanchier arborea (serviceberry)
- Liriodendron tulipifera (tulip tree)

STREET TREES FOR TRAFFIC SLOWING

Street trees placed along Route 202 at the intersection with Whittlock Way could slow traffic, filter stormwater runoff, and create a scenic entry to Belchertown. Considering winter salting, trees should be salt tolerant. Trees planted under power lines must be tolerant of heavy pruning and should have a form that allows for clear sight lines. Some recommended species include:

- Red maple (Acer rubrum)
- Thornless honeylocust (Gleditsia triacanthus)
- Pin oak (Quercus palustris)
- Eastern redbud (Cercis canadensis)
- Common hackberry (Celtis occidentalis)
- Serviceberry (Amelanchier spp.)
Precedents & Inspiration

Acadia National Park in Maine offers accessible trails made of fine crushed gravel.

The Fort River Trail in Hadley, Massachusetts boasts ADA compliant boardwalks and platforms with seating and sweeping views of varying ecosystem types.

A pedestrian-activated traffic light is a simple and effective way to increase the safety of a crossing.

A Mammoth Lake trail sign in Mono County, California shows user types, a trail map, and information about trail difficulty.

The Amherst College WWI and WWII memorial highlights views of the Mt. Holyoke Range and provides space for reflection and respite.

Acadia National Park in Maine offers accessible trails made of fine crushed gravel.

The Amherst College WWI and WWII memorial highlights views of the Mt. Holyoke Range and provides space for reflection and respite.
References

Images

Information
Advocacy Advance, How Communities are Paying to Maintain Trails, Bike Lanes, and Sidewalks, 2014. www.advocacyadvance.org/Maintenance, PDF - Trail Management - pg. 21