



Massachusetts Department of Conservation and Recreation
Bureau of Planning and Resource Protection
Resource Management Planning Program

RESOURCE MANAGEMENT PLAN

Mount Holyoke Range Planning Unit

Including Mount Holyoke Range State Park, Joseph Allen Skinner State Park, Mount Tom State Reservation and Holyoke Heritage State Park



July 2013



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RESOURCE MANAGEMENT PLAN

2013

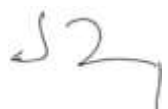
Deval L. Patrick, Governor
Richard K. Sullivan, Jr., Secretary
John P. Murray, Commissioner

Resource Management Plans provide guidance for managing properties under the stewardship of the Department of Conservation and Recreation (DCR). They are intended to be working documents for setting priorities, enabling the Department to adapt to changing fiscal, social and environmental conditions. The planning process provides a forum for communication and cooperation with park visitors and the surrounding communities to ensure transparency in the DCR's stewardship efforts.

As I travel the Commonwealth, I am reminded of the variety of high-quality experiences offered by DCR parks. Those within the Mount Holyoke Range Planning Unit are among the best that this state has to offer. They provide a variety of recreational opportunities, from challenging hikes along mountain ridgelines, to family picnics on a promontory overlooking the Connecticut River Valley, to taking in a summer concert in downtown Holyoke. Although they may all be visited in a single day, the true character of these parks is best revealed through repeat visits.

In addition to providing outstanding recreational opportunities, these parks protect important natural and cultural resources. They are among the most important sites for biodiversity conservation in the Commonwealth, providing habitat for fifty-two plants and animals on the Massachusetts Endangered Species List. They also contain a variety of Native American sites, 19th century buildings associated with that era's commercialization of mountain ridges, and buildings and structures that document more than a century of park development.

This Resource Management Plan provides recommendations that protect these resources while providing for compatible recreation, so that they may be enjoyed for generations to come.



John P. Murray
Commissioner

The Massachusetts Department of Conservation and Recreation (DCR), an agency of the Executive Office of Energy and Environmental Affairs, oversees 450,000 acres of parks and forests, beaches, bike trails, watersheds, dams, and parkways. Led by Commissioner John P. Murray, the agency's mission is to protect, promote, and enhance our common wealth of natural, cultural, and recreational resources for the well-being of all. To learn more about the DCR, our facilities, and our programs please visit us at <http://www.mass.gov/eea/agencies/dcr>. Contact us at mass.parks@state.ma.us.



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EXECUTIVE SUMMARY

INTRODUCTION

Resource Management Plans (RMPs) are working documents that provide a guide to the short- and long-term management of properties under the stewardship of the Department of Conservation and Recreation (DCR). They include an inventory and assessment of natural, cultural, and recreation resources; identify unique characteristics and values of a property; develop clear management goals; and analyze complex resource protection and recreation issues. They guide the management of DCR's properties by setting priorities, targeting capital and operational resources, protecting sensitive resources, and improving communication and cooperation with park visitors and the surrounding communities.

The Department of Conservation and Recreation is directed by a legislative mandate (M.G.L. Chapter 21: Section 2F) to prepare management plans for "all reservations, parks, and forests under the management of the department." Although the mandate does not specify the format or content of these management plans, it does require that:

"Said management plans shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks, and forests, shall provide for the protection and stewardship of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management."

The legislative mandate also establishes two other requirements. First, that the DCR "shall seek and consider public input in the development of management plans, and shall make draft plans available for a public review and comment period through notice in the Environmental Monitor." Second, management plans must be reviewed and adopted by the DCR Stewardship Council, a thirteen-member citizen oversight entity. Within 30 days of adoption, the Commissioner "...shall file a copy of such management plans as adopted by the council" with the Secretary of State and the Joint Committee on the Environment, Natural Resources and Agriculture.

This plan covers the Mount Holyoke Range Planning Unit in the municipalities of Amherst,

Belchertown, Chicopee, Easthampton, Granby, Hadley, Holyoke, and South Hadley, Massachusetts.

THE MOUNT HOLYOKE RANGE PLANNING UNIT

The Mount Holyoke Range Planning unit is located in the Connecticut River Valley of western Massachusetts. It includes Mount Holyoke Range State Park, Joseph Allen Skinner State Park, Mount Tom State Reservation, and Holyoke Heritage State Park. The first three of these parks are similar in character; mountainous and largely undeveloped. In contrast, Holyoke Heritage State Park is in a relatively flat, urban setting. What these parks have in common is the influence of the Connecticut River, which over millennia shaped their natural and cultural landscapes.

The planning unit also contains additional DCR properties managed by the staff of these parks. This includes land and facilities located at 194 West State Street, Granby; the former site of the Buttery Brook Memorial Pool; and those portions of Connecticut River Greenway State Park located adjacent to Mount Tom reservation and Skinner state park. Although not managed by park staff, Aldrich Lake Dam in South Hadley is also included in this RMP because of its proximity to Mount Holyoke Range State Park, whose resources it directly affects.

The DCR holds Conservation Restrictions, totaling approximately 233 acres, on nine properties in the planning unit. These restrictions are associated with the four major parks, and are included in this RMP.

MANAGEMENT PRINCIPLE AND GOALS

The following management principle was developed for the Mount Holyoke Range Planning Unit:

To conserve the natural and cultural resources of the Mount Holyoke and Mount Tom ranges for future generations through informed management; recreational activities respectful of these resources and the landscape contexts in which they occur; and interpretive programming that connects the public to their natural and cultural heritages.

The following five management goals were developed to implement the management principle. Each is prioritized equally.

Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.

Goal 2. Preserve distinct scenic and cultural resources.

Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.

Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.

Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.

PRIORITY RECOMMENDATIONS

Recommendations are characterized on the basis of priority (i.e., High, Medium, or Low) and resource availability. High priority recommendations are those that address regulatory compliance or public health and safety; prevent immediate damage to, or loss of, resources; or repair or replace damaged equipment or systems critical to park operations. They are typically time sensitive. Medium priority recommendations maintain existing resources and visitor experiences. Low priority recommendations enhance resources or visitor experiences; they are not time sensitive.

Resource availability considers both funding and labor. A resource availability of one indicates that funding and/or labor are available to implement the recommendation. A resource availability of two indicates that funding and/or labor are not currently available, but may become so in the near future (i.e., the next five years). A resource availability of three indicates that funding and/or labor are not anticipated in the next five years. Resources to implement these recommendations may, or may not, become available after five years.

This RMP identifies 169 management recommendations; 51 are classified as high priorities. (See Table ES.1, below.) Resources are currently available to implement 18 of these high priority recommendations. It is anticipated that resources will be available within the next five years to implement 19 additional high priority

recommendations. These recommendations, and the lead DCR unit responsible for their implementation, are identified in the Action Plan that accompanies this Executive Summary.

Table ES.1. Number of management recommendations, by priority and resource availability.

Priority	Resource Availability			Total
	1	2	3	
High	18	19	14	51
Medium	26	35	25	86
Low	6	15	11	32
Total	50	69	50	169

PUBLIC PARTICIPATION IN DEVELOPING THIS RESOURCE MANAGEMENT PLAN

Notice of a public meeting and of the DCR's intent to prepare an RMP for the Mount Holyoke Range Planning Unit was published in the June 6, 2012 Environmental Monitor (Volume 78, Issue 3). Notices were also posted at the planning unit's parks and mailed to approximately 90 stakeholders. An initial public meeting was convened at the Notch Visitor Center, Amherst on June 14, 2012. Approximately 26 people attended this meeting, which ran from 6:30 to 8:00 P.M. Public input on this plan was received at the meeting; an additional seven sets of comments were received via U.S. and e-mail after the meeting.

Notice of a public meeting on the draft RMP for the Mount Holyoke Range Planning Unit, and of the availability of the plan, was published in the February 6, 2013 Environmental Monitor (Volume 78, Issue 5). Notices were also posted at the planning unit's parks and mailed to approximately 125 stakeholders. The meeting was held on February 21, 2013 at the Notch Visitor Center; approximately 27 people attended.

The public comment period on the draft RMP ran from February 22 through March 24, 2013; 95 sets of written comments were received. Information on the public process for this RMP is provided in Appendix B (Public Participation).

This Resource Management Plan was submitted to the DCR's Stewardship Council on June 7, 2013, and was adopted by the council on July 25, 2013.

Action Plan 2013-2017

Priority Action	DCR Lead Unit(s)
Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.	
Develop a wildfire response plan. [Mount Holyoke Range]	Forestry
Prepare a Habitat Management Plan for mowing the field east of the Mount Tom Quarry, submit to the NHESP for review and approval, and implement. [Mount Tom]	Planning
Prohibit rock climbing in areas where peregrine falcons are actively nesting. [Mount Tom]	Region
Close trail segments immediately above peregrine falcon nest sites for the entire nesting season. [Mount Tom]	Region
In association with the Mount Tom Partners and the NHESP, continue to monitor and manage pale swallow-wort. [Mount Tom]	Planning
Develop a wildfire response plan. [Mount Tom]	Forestry
Goal 2. Preserve distinct scenic and cultural resources.	
Continue discussions with the NHESP regarding the potential to develop a Habitat Management Plan for maintaining vegetation at the historic overlooks along Christopher Clark Road. [Mount Tom]	Planning
Prepare a Habitat Management Plan for maintenance of vegetation around the Goat Peak Tower, submit to the NHESP for review and approval, and implement. [Mount Tom]	Planning Forestry
Replace rotted siding on the Cole museum. [Mount Tom]	Region
Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.	
Convene a meeting of the DCR, NHESP, and representatives of trail user stakeholder groups to discuss existing regulatory review requirements and processes for trail maintenance or creation. [Planning Unit]	Planning
Post Lithia Springs Reservoir and Aldrich Lake as closed to swimming. [Mount Holyoke Range]	Region
Establish an agreement with the Amherst Police Department for the operation and maintenance of their ropes course. [Mount Holyoke Range]	Legal
Update GIS data to reflect trails, both authorized and unauthorized, throughout the entire park. Rank trails according to the International Mountain Bicycling Association's (IMBA) Trail Difficulty Rating System. [Mount Holyoke Range]	Planning
Permit trail construction or relocation only after the proposed trail has been reviewed by DCR staff using guidance and procedures established by the <i>DCR Trail Guidelines and Best Practices Manual</i> . [Mount Holyoke Range]	Planning
Actively discourage the creation of unauthorized trails, and enforce applicable regulations and laws as needed. Close new unauthorized trails as encountered and, if needed, existing trails that contribute to the creation of unauthorized trails. [Mount Holyoke Range]	Region Ranger Bureau
With input from the NHESP, DCR Archaeologist, and representatives of trail user groups, identify trail segments incompatible with resource protection and close or relocate incompatible segments as appropriate. [Mount Holyoke Range]	Planning Region
Add accessible picnic tables and an accessible grill to the Elder Field pavilion. [Mount Tom]	Region
Mark pavement in front of the Warming Hut to create an accessible route between designated HP parking spaces and walkway to building. [Mount Tom]	Region
Add an accessible picnic table at a location with an appropriate substrate. [Holyoke Heritage]	Region
Explore issues around the practice of parkour in state parks. [Holyoke Heritage]	Recreation Legal

Continued on next page.

Action Plan 2013-2017 (Continued)

Priority Action	DCR Lead Unit(s)
Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.	
Post perimeter of Zone I wellhead protection areas with signs. [Planning Unit]	Region
Close the staff parking lot behind the Notch Visitor Center to prevent vehicles from parking within the Zone I wellhead protection area. Relocate dumpster outside of this area. [Mount Holyoke Range]	Region
Seal floor drains at the Notch Visitor Center. [Mount Holyoke Range]	Engineering
Establish a new agreement with the Norwottuck Fish and Game Club to allow members to drive across DCR property to access club facilities. [Mount Holyoke Range]	Legal
Establish agreements with all telecommunications companies that cross park property in order to access communications equipment installed on Norwottuck Fish and Game Club property. [Mount Holyoke Range]	Legal
Mothball the stable at 535 Bay Road, Belchertown, in accordance with NPS standards. [Mount Holyoke Range]	Region
Install a radio base station with antenna at the Notch Visitor Center to permit range-wide communication. [Mount Holyoke Range]	Range Bureau
Install a radio base station with antenna at the Summit House to permit range-wide communication. [Skinner]	Range Bureau
Conduct annual safety inspections of the Bray and Goat Peak observation towers. [Mount Tom]	Engineering
Remove all power equipment, petroleum products, and chemicals from the Cole museum in accordance with BMPs for protecting Zone I areas. [Mount Tom]	Region
Construct or install a storage shed near the Reservation Headquarters, for the purpose of storing power equipment and associated supplies relocated from the Cole museum. [Mount Tom]	Region
Add a designated HP parking space directly adjacent to the Elder Field pavilion and construct an accessible path from that space to the pavilion. [Mount Tom]	Engineering
Remove conifers with the potential to fall on the Visitor Center. [Mount Tom]	Forestry
Repair the perimeter fence around the Mount Nonotuck radio building to prevent public access to tower. [Mount Tom]	Contractor
Establish a Memorandum of Understanding with the Holyoke Police Department for DiNapoli Plaza, as directed by Chapter 175 of the Acts of 2002. [Holyoke Heritage]	Legal
Repair or replace the irrigation control panel and faulty valves. [Holyoke Heritage]	Contractor
Paint crosswalk on pavement between accessible parking aisle and ramp to sidewalk. [Holyoke Heritage]	Region
Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.	
<i>There are no high priority recommendations for this goal.</i>	-



Joseph Allen Skinner State Park, showing the historic tobacco barn (foreground) and Summit House (background).

SECTION 1. INTRODUCTION

1.1. MOUNT HOLYOKE RANGE PLANNING UNIT

The Mount Holyoke Range Planning Unit is located in the Connecticut River Valley of western Massachusetts. It is easily accessible from most of southern New England, and may be reached by car in less than two hours from Boston, Nashua, Providence, Hartford, or Albany.

The planning unit consists of four parks, two situated east of the Connecticut River and two west of the river. Three of these parks are largely undeveloped, located on the slopes and ridges of small mountain ranges. The fourth is an urban park located in the heart of a former mill city. These parks lie in close proximity to one another, with travel times of less than 25 minutes between any two parks. In a single day trip visitors can take in all four properties.

Collectively, the planning unit contains some of the highest quality resources in the Massachusetts park system. A 2006 assessment of the biodiversity significance of properties managed by the Massachusetts Department of Conservation and Recreation (DCR) ranked Mount Holyoke Range, Mount Tom, and Joseph Allen Skinner as the fourth, sixth, and tenth most important parks, respectively

(NHESP 2006). Collectively, these parks are home to 52 of the 432 plants and animals (12.0%) protected by the Massachusetts Endangered Species Act (MESA; 310 CMR 10.00).

Protection of these species in the Mount Holyoke Range Planning Unit is a critical component of ensuring their persistence in the Commonwealth. The planning units' cultural resources are also of statewide significance. Among them are buildings constructed by the Works Progress Administration (WPA) and Civilian Conservation Corps (CCC), two historic summit houses, Native American stone quarries, and sensitive archaeological sites.

Despite their variety and quality, the parks' natural and cultural resources are underappreciated. They are overshadowed, both literally and figuratively, by the dramatic landscapes of the Mount Holyoke and Mount Tom ranges, associated scenic qualities, and the variety and quality of trail-based recreational opportunities. As a result, the planning unit's properties are often perceived as little more than regional parks of high recreation and scenic value. There is less awareness of the parks' unique natural and cultural values, or their statewide significance.

This Resource Management Plan (RMP) addresses the DCR's ability to provide continued public access to these parks while protecting their natural resources, cultural resources, and existing infrastructure. It provides guidance that will promote, protect, and enhance resources at all properties in the planning unit.

1.2. RESOURCE MANAGEMENT PLANS

RMPs guide the management of properties under the stewardship of the DCR. They identify clear goals and objectives; inventory and assess environmental, cultural, and recreation resources; identify current management practices and capabilities; and develop specific, implementable management recommendations.

The DCR is required to prepare management plans for "all reservations, parks, and forests under the management of the department" (M.G.L. Chapter 21: Section 2F; Appendix F). These plans "shall include guidelines for the operation and land stewardship of the aforementioned reservations, parks, and forests, shall provide for the protection and stewardship of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management." This is achieved through the preparation of RMPs.

In 2008, the DCR conducted a statewide survey of all of its properties for the purpose of guiding resource management planning (DCR 2009). Nearly 400 properties were grouped into 86 planning units, largely on the basis of physical proximity and shared management structure. RMPs will be prepared for each of these units and, collectively, will include "all reservations, parks, and forests."

The statewide survey reviewed and synthesized existing data on each planning unit's natural resources, infrastructure, and staffing (DCR 2009). New information was generated on each planning unit's cultural resources, recreational activities, and operations and management considerations. These three variables, and natural resources, were used to prioritize the preparation of RMPs.

1.3. THE PLANNING PROCESS

RMPs are developed by the DCR's Regional Planning Program through an iterative process of

data gathering and analyses, public input, writing, review, and revision.

Public Involvement

Public input is an important part of the process. The legislative mandate that requires the preparation of management plans directs the Commissioner of the DCR to "seek and consider public input in the development of management plans, and ... make draft plans available for a public review and comment period through notice in the Environmental Monitor."

There were two periods of public input associated with the preparation of the Mount Holyoke Range Planning Unit RMP. The first occurred early in the planning process, prior to preparing the RMP. The second coincided with the release of the draft plan. A public meeting was associated with each of these comment periods. Additional information on public participation in the development of this plan is provided in Appendix B.

Following public comment and revision, draft RMPs are submitted to the DCR Stewardship Council for review. Once reviewed and adopted by the council, RMPs become the primary guidance document for managing a planning unit's resources.

Natural Heritage and Endangered Species Program Involvement

The Massachusetts Natural Heritage and Endangered Species Program (NHESP) has regulatory authority for, and are experts on, the plants and animals protected under the Massachusetts Endangered Species Act. They provide assistance, in both capacities, with the preparation of RMPs. A description of the coordination process between the DCR and NHESP, for RMPs in general and for the Mount Holyoke Range RMP in particular, is provided in Appendix C.

1.4. MANAGEMENT PRINCIPLE AND GOALS

A principle for managing the Mount Holyoke Range Planning Unit and five associated goals were developed through the planning process.

Management Principle

The resource management planning process for the Mount Holyoke Range Planning Unit resulted in the following management principle:

To conserve the natural and cultural resources of the Mount Holyoke and Mount Tom ranges for future generations through informed management; recreational activities respectful of these resources and the landscape contexts in which they occur; and interpretive programming that connects the public to their natural and cultural heritages.

Management Goals

The following five management goals have been identified to achieve the management principle. These goals are of equal importance, and are not presented in order of priority.

Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.

The planning unit's rare plants and animals require specific environmental conditions. In many cases, these conditions are changing due to factors such as plant succession, climate change, the spread of invasive species, and impacts associated with incompatible trail segments (e.g., sedimentation of vernal pools). Conserving these species requires that the DCR play an active role in managing their habitats.

The planning unit's mountain parks share common geological and ecological histories. This has resulted in similar assemblages of plants and animals and, in the case of rare species, similar management needs. Management across all three properties, rather than on a park by park basis, will result in more efficient and effective conservation. For some species, the appropriate scale of management may extend beyond DCR properties onto adjacent conservation lands (e.g., Mount Tom Partners lands, municipal conservation lands).

Goal 2. Preserve distinct scenic and cultural resources.

The Mount Holyoke and Mount Tom ranges are well known for their views of the Connecticut River Valley. It is these views that first drew visitors in large numbers to the summits of Mount Holyoke and Mount Nonotuck, and continues to attract them today. The Mount Holyoke and Mount Tom ranges also have significant visual impact on surrounding

communities (e.g., Town of South Hadley 2007, Town of Amherst 2009).

The planning unit also has some of the highest quality and most easily accessible cultural resources within the state park system. These resources, which range from pre-Contact sites (i.e., those that pre-date the arrival of Europeans) to 20th century park buildings and structures, are part of the larger story of human endeavor in the Connecticut River Valley. Some have begun to degrade and are in need of preservation.

Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.

Recreation in this planning unit is primarily trail-based, and takes place in parks with large numbers of sensitive resources. In some instances, current trail systems and use aren't compatible with protection of these resources; in others, trail densities are inconsistent with a property's designation as a Reserve. Recommendations associated with this goal are intended to achieve the conservation of natural resources and preservation of cultural resources, while allowing for compatible recreation. They also address remediating structural and language barriers, so that all visitors may fully enjoy these parks.

Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.

Although the level and types of infrastructure at each park in the planning unit are appropriate, many buildings, structures, and roads are in need of repair. Poor infrastructure condition has reduced public access to key resources at some parks, detracting from the visitor experience. Several active park buildings are now experiencing water damage to their interiors due to damaged roofs. Preventative maintenance and timely repairs keep infrastructure resources in service and decrease long-term costs.

Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.

Effective park management depends on the support of well-informed visitors. Visitors often view the planning unit's parks as providing scenic views and trail-based recreation, with little awareness that their natural and cultural resources are among the best that the DCR has to offer. Interpretive programs and materials that educate visitors about the relationship between their actions and the health of a property's resources can decrease negative impacts to a park and improve the visitor experience. The link between visitors' actions and resource health is largely absent from current interpretive programming, displays, and materials.



Lithia Springs Reservoir, with the south slope of Mount Holyoke Range in the background.

SECTION 2. EXISTING CONDITIONS

2.1. INTRODUCTION

The Connecticut River winds through western Massachusetts, flowing approximately 68 miles from the Commonwealth's border with Vermont and New Hampshire to its border with Connecticut. As it approaches the City of Holyoke the river is constrained by two small mountain ranges; the Mount Holyoke Range to the east and the Mount Tom Range to the west. At this location the river is channeled through a narrow, ancient notch; the Mount Tom Water Gap. The Mount Holyoke Range Planning Unit straddles this water gap, with two parks to the east of the river and another two to the west of the river.

Each park in the planning unit has been shaped both directly and indirectly by the river; all share the region's common geologic history. The three mountain parks (i.e., Mount Tom, Skinner, and Mount Holyoke Range) rise high above the river valley, offering visitors views of a physical and cultural landscape shaped largely by the river. They also offer a variety of trail-based recreational opportunities. The fourth park (i.e., Holyoke Heritage) connects visitors to the region's recent past, when the river's energy was harnessed for

economic gain in the mills of Holyoke. It also provides much needed green space and serves as a community gathering point for today's Holyoke.

This section describes the present state of the natural, cultural, and recreation resources and infrastructure of the Mount Holyoke Range Planning Unit. An overview of the planning unit's physical, ecological, and political contexts is provided in Table 2.1.1.

2.2. MOUNT HOLYOKE RANGE PLANNING UNIT

The Mount Holyoke Range Planning Unit includes Mount Holyoke Range State Park, Joseph Allen Skinner State Park, Mount Tom State Reservation, and Holyoke Heritage State Park. These properties are included in this plan because of their physical proximity and because they share a common management structure; all are part of the DCR's Mount Holyoke Complex administrative unit. Locations of these properties are identified in Figure 2.2.1.

Table 2.1.1. Physical, ecological, and political settings of the Mount Holyoke Range Planning Unit.

Planning Unit:	Mount Holyoke Range			
Location:	Cities of Chicopee and Holyoke		Hampden County	
	City of Easthampton, and the Towns of Amherst, Belchertown, Granby, Hadley, and South Hadley		Hampshire County	
DCR Management Structure:	Region	West		
	District	Connecticut River Valley		
Properties:	Landscape Designation	City/Town	Area (acres)^a	Perimeter (miles)^a
<i>Mount Holyoke Range State Park</i>	Reserve and Parkland	Amherst, Belchertown, Granby, Hadley, South Hadley	4,588.92	63.14
<i>Joseph Allen Skinner State Park</i>	Reserve and Parkland	Hadley, South Hadley	780.77	9.75
<i>Mount Tom State Reservation</i>	Parkland	Easthampton, Holyoke	1,969.80	15.64
<i>Holyoke Heritage State Park</i>	Parkland	Holyoke	6.38	0.57
<i>Connecticut River Greenway State Park (in part)</i>	Parkland	Chicopee, Hadley, Easthampton	167.72	4.60
<i>Buttery Brook Memorial Swimming Pool lot</i>	Parkland	South Hadley	1.04	0.16
Ecoregion:	Connecticut River Valley			
Watershed:	Connecticut			
Legislative Districts:				
<i>Senate</i>	First Hampden and Hampshire		Senator Gale D. Candaras	
	Second Hampden and Hampshire		Senator Michael R. Knapik	
<i>House</i>	Hampshire, Franklin, and Worcester		Senator Stanley C. Rosenberg	
	Fifth Hampden		Representative Aaron Vega	
	Seventh Hampden		Representative Thomas M. Petrolati	
	Eighth Hampden		Representative Joseph F. Wagner	
	Second Hampshire		Representative John W. Scibak	
	Third Hampshire		Representative Ellen Story	
Restrictions:	Type^b	Property	Number	Acres^a
	CR	Mount Holyoke Range State Park	5	77.57
	CR	Joseph Allen Skinner State Park	2	60.31
	CR	Mount Tom State Reservation	2	95.15

Continued on next page.

Table 2.1.1. Physical, ecological, and political settings of the Mount Holyoke Range Planning Unit. (Continued)

Designations:	Property	Designation	Acres^{a,c}
	<i>Mount Holyoke Range State Park</i>	BioMap 2 Core Habitat	4,194.93
		BioMap 2 Critical Natural Landscape	4,450.13
		Mount Holyoke, Mount Tom, and East	e
		Mountain Range Important Bird Area	
		New England Trail	f
		Outstanding Resource Waters	558.84
		Priority Habitat	2,721.21
	<i>Joseph Allen Skinner State Park</i>	BioMap 2 Core Habitat	749.60
		BioMap 2 Critical Natural Landscape	618.81
		Connecticut River Scenic Farm Byway	d
		Hockanum Rural Historic District	d
		Mount Holyoke, Mount Tom, and East	e
		Mountain Range Important Bird Area	
		New England Trail	f
		Priority Habitat	676.86
	<i>Mount Tom State Reservation</i>	BioMap 2 Core Habitat	1,951.21
		BioMap 2 Critical Natural Landscape	1,096.43
		Outstanding Resource Waters	12.61
		Mount Holyoke, Mount Tom, and East	e
		Mountain Range Important Bird Area	
		New England Trail	f
		Priority Habitat	1,955.52
	<i>Holyoke Heritage State Park</i>	Environmental Justice Population	6.38
	<i>Connecticut River Greenway State Park (in part)</i>	BioMap 2 Core Habitat	137.46
		BioMap 2 Critical Natural Landscape	150.01
		Connecticut River Scenic Farm Byway	d
		Hockanum Rural Historic District	d
		Environmental Justice Population	1.86
		Priority Habitat	144.95
	<i>All</i>	Connecticut River National Blueway	g

- a. These values calculated through the use of a Geographic Information System; acreages are for lands owned in fee, unless otherwise indicated.
- b. CR = Conservation Restriction; see Section 2.3 for additional information.
- c. Values are for land owned in fee and do not include Conservation Restrictions.
- d. These designations lack sharply defined physical boundaries, making it impossible to calculate acreage.
- e. Spatial data are not available for calculation of acreage.
- f. No specific trail corridor width is associated with this designation, prohibiting calculation of acreage.
- g. The Connecticut River National Blueway includes the entire watershed, from source to Long Island Sound.

Place Holder for Figure 2.2.1. Mount Holyoke Range Planning Unit

The planning unit also contains additional DCR properties managed by the staff of these parks. This includes land and facilities located at 194 West State Street, Granby; the former site of the Buttery Brook Memorial Pool, 125 Willimansett Street, South Hadley; and portions of Connecticut River Greenway State Park located adjacent to Mount Tom reservation and Skinner state park in the municipalities of Chicopee, Easthampton, and Hadley.

Although not managed by park staff, Aldrich Lake Dam in South Hadley is also included in the planning unit. This has been done because of the dam's proximity to Mount Holyoke Range State Park, and also because the condition of some of the park's natural and recreation resources are directly influenced by this dam's ability to regulate water levels in Aldrich Lake.

Three of the parks in the planning unit are similar in character. Mount Holyoke Range State Park, Joseph Allen Skinner State Park, and Mount Tom State Reservation are all mountainous and largely undeveloped. In contrast, Holyoke Heritage State Park is in a relatively flat, urban setting. What these parks have in common is the influence of the Connecticut River, which over millennia shaped their natural and cultural landscapes.

Information common to all, or most, of the properties in the planning unit is provided below.

2.2.1. NATURAL RESOURCES

Physical Features

All properties are located within the Connecticut River Valley and share a common geologic history. The following description of this history is based on Skehan (2001).

Almost 200 million years before present (YBP) a great rift formed that would become the Connecticut River Valley. "Triassic and Jurassic sedimentary rocks and basalts filled the rift basin, and dinosaurs roamed the region." Basalt magma erupted from the rift faults, forming large lava flows. Two flows formed a "north-trending mountain ridge from Hartford, Connecticut, to Easthampton Township, where it turns east." This ridge includes the Mount Tom Range along the west side of the valley and, from a bend in the basalt ridge, the Mount Holyoke Range on the east side of the valley. During the

Jurassic Period, swiftly flowing rivers deposited sand and gravel that had eroded from Pelham, Belchertown, and the Berkshire Hills. "Sediments and volcanic rocks accumulated in the rift basin for about 50 million years."

About 65 million YBP, "the entire region had been eroded nearly to sea level." This was followed, during Miocene times (approximately 15 million YBP), by a period of uplift. As the land slowly rose, the Connecticut River cut through layers of sedimentary rock, creating the "Mount Tom Water Gap," the narrow between the Mount Tom and Mount Holyoke ranges through which the Connecticut River, Interstate 91, Route 5, and a railroad line all pass.

During the Wisconsin ice age (approximately 23,000 YBP), the valley floor was scoured and rounded by ice. At this time, the Mount Tom and Mount Holyoke ranges projected upward into the ice sheet. As the glacier receded, a single large lake (i.e., Lake Hitchcock) formed; it extended from Rocky Hill, Connecticut to St. Johnsbury, Vermont, a distance of about 220 miles. The lake drained approximately 13,000 years ago, creating the Connecticut River Valley that we know today.

Information of the influence of this geology on plants and natural communities is provided in Section 2.3.1, Vegetation.

Water Resources

On May 24, 2012 the Secretary of the Interior designated the Connecticut River National Blueway; the first in the nation. The affected area includes the Connecticut River and its 7.2 million-acre watershed. All DCR properties in the planning unit occur within this blueway. This designation does not establish any new protective status or regulations; it is intended to recognize and support existing local conservation, recreation, and restoration efforts.

Wildlife

The Massachusetts Audubon Society has designated the Mount Holyoke, Mount Tom, and East Mountain ranges as an Important Bird Area (IBA). This includes three of the planning unit's four parks; only Holyoke Heritage State Park is outside the IBA's boundary. IBAs are sites that provide "essential habitat to one or more species of breeding, wintering, and or migrating birds" and the

designation is largely to increase awareness of the area's conservation value and needs ([http://www.massaudubon.org/Birds and Birding/IBAs/](http://www.massaudubon.org/Birds_and_Birding/IBAs/)). The area is considered important for its concentrations of migrating raptors, long-term hawk watch monitoring data, and for providing breeding and migratory habitat for land birds.

2.2.2. CULTURAL RESOURCES

The land within the DCR's forests and parks is a storehouse of cultural resources; its historic buildings, structures, archaeological sites, and landscapes are reminders of the important role these lands have played in this nation's history. Scattered across the landscape, this ensemble of buildings, structures, and sites tell the story of our common heritage. Their protection and preservation is an integral component of the DCR's mission.

The RMP development process has resulted in an improved body of knowledge on the cultural resources of Mount Holyoke Range State Park, Joseph Allen Skinner State Park, Mount Tom State Reservation, and Holyoke Heritage State Park. Data have been field verified and collected using a handheld GPS, recording spatial data (location) as well as condition, materials, threats, and recommendations. Cultural resources that are over 50 years old are considered potentially historic and evaluated for significance. The DCR uses the nationally accepted standards for evaluating historic significance, primarily the National Register of Historic Places. The DCR treats properties as historically significant if they meet the criteria for listing on the National Register, even if the property has not been formally nominated or listed. The DCR's Office of Cultural Resources coordinates all regulatory compliance related to state and local laws protecting historic and archaeological resources located on DCR property.

This section describes the known and potential cultural resource areas in the planning unit, including pre-Contact and post-Contact archaeological resources, and historic buildings, structures, and landscapes. An overview of significant events in the planning unit's history is presented in Table 2.2.1. Section 4.3 provides specific recommendations for cultural resources which require additional research, documentation, stabilization, or preservation. All cultural resources

are to be managed in accordance with the DCR Cultural Resource Policy provided in Appendix D.

Archaeological Resources

In 1984–85, the Massachusetts Historical Commission (MHC) inventoried 69 cities and towns in Hampden, Hampshire, and Franklin counties as part of a statewide historic resources inventory funded by the National Park Service and others. The results appear in *Historic and Archaeological Resources of the Connecticut River Valley* (Zimmerman et al. 1984). Although the MHC's study area is much larger than the Mount Holyoke Range Planning Unit, the inventory provides a convenient framework for evaluating the potential existence and significance of the cultural resources located within these parcels. The planning unit is located in the heart of the Connecticut River Valley ecoregion, so identified because of similar vegetation, climate, geology, physiography, and land-use history.

There are many pre-Contact archaeological sites recorded within the Holyoke Range RMP parcels. While conducting the statewide inventory noted above, the MHC determined that its records contained "*only a fraction of the sites that were actually known to local amateur archaeologists and artifact collectors*" statewide. Therefore, one can anticipate that many more (perhaps even thousands of) pre-Contact sites exist than are recorded within the parcels. The Connecticut River Valley contains diverse fresh water sources including an extensive network of wetlands, ponds, lakes, and small streams. Important river systems drain the region and this network of waterways provided ample subsistence resources for local indigenous populations.

The existing archaeological record indicates that 12,000 YBP, Paleo Indian hunters and gatherers occupied the margins of Glacial Lake Hitchcock in what today is largely defined as the Connecticut River Valley. Several Connecticut River Valley towns lie within or adjacent to this former lake; these areas have yielded evidence of Paleo occupation. Throughout the valley, Native American occupation continued, although perhaps on a seasonal basis, through early historic times. Every cultural/temporal pre-Contact period is represented in the Holyoke Range study area, spanning a period from about 12,000 YBP to the late 1660s: Paleo,

Table 2.2.1. Significant events in the history of the Mount Holyoke Range Planning Unit.

Year(s)	Event
1902	Survey conducted to determine the cost of acquiring a part of Mount Tom and Mount Nonotuck as a state reservation.
1903	Mount Tom State Reservation established; initial land acquisitions follow.
1905	Hadley Water Supply District established with power to “take by purchase or otherwise, and hold the waters of... any and all springs and streams flowing from the northerly slope of the Mount Holyoke Range.”
1916	State Forester assessed the possibility of taking Mount Holyoke as a state reservation.
1940	Joseph Allen Skinner State Park established.
1951	Metacomet-Monadnock Trail established through planning unit.
1957	Reconstruction and renovation of historic infrastructure, development of parking areas, and development of recreation facilities at Joseph Allen Skinner State Park.
1960–67	Interstate 91 extended north from Holyoke to the Vermont border, impacting the eastern edge of Mount Tom State Reservation.
1967	Public boat ramp constructed along the Manhan River near Route 5 (i.e., the Connecticut River Boat Ramp).
1968	Massachusetts Department of Public Works takes 1.06 acres in South Hadley to construct the Buttery Brook Memorial Pool. The pool was constructed in 1969, and closed and demolished in 2008.
1969	State reservation commissions placed under the control of the Executive Office of Environmental Affairs.
1972	State takes 1.86 acres along the eastern shore of the Connecticut River, along Syrek Street in Chicopee, immediately south of the town boundary with South Hadley. A Fisherman Access Point was constructed here in 1995.
1974	Mount Tom State Reservation transferred to the control of the Department of Environmental Management (DEM).
1975	Control of Mount Tom State Reservation returned to Hampden and Hampshire counties.
1975	Master plan prepared for Mount Tom State Reservation.
1978	Legislature appropriates \$600,000 for the rehabilitation of the Summit House on Mount Holyoke and the “reconstruction...or construction of ... a visitor center.”
1979	Massachusetts’ Urban Heritage State Parks program established.
1989	DEM releases GOALS Plan to guide the management of Mount Holyoke Range State Park.
1990	Historic Curatorship Program established, allowing for the leasing of private properties including the Summit House at Joseph Allen Skinner State Park.
1990	Mount Tom State Reservation again transferred to the DEM.
1991	Facility assessment prepared for Mount Tom State Reservation following transfer to DEM.
2002	The Boys and Girls Club of Greater Holyoke, DEM, The Trustees of Reservations, and the U.S. Fish and Wildlife Service acquire the Mount Tom Ski Area, protecting land and creating the informal Mount Tom Partners group in the process.
2009	Omnibus Public Lands Act designates the Metacomet-Monadnock Trail as the New England National Scenic Trail (NET).

Early, Middle, Late Archaic, Early, Middle, and Late Woodland and Early Historic.

Favorable environmental factors made the Connecticut River Valley appealing to pre-Contact indigenous groups:

- The diverse and abundant resources of the Connecticut River Valley were easily accessible and the climate may have been milder (as it is now) than adjacent ecoregions.

- The many falls and rapids in the principal river drainages served as fishing stations where anadromous species could be harvested during spring spawning runs, from about 8,000 YBP through the settlement period. Expanses of riverine meadows within the river drainages provided excellent habitat for a wide variety of local fauna that were important to the survival of groups who relied on subsistence strategies.

- The abundance of ponds, lakes, streams, rivers, and wetlands provided adequate subsistence resources during the fall and winter months.
- The rich alluvial deposits along the Connecticut River were favored by the Woodland horticulturalists from 3,000 to 450 YBP.
- Within the planning unit, two important lithic materials, diabase or “traprock” and steatite or “soapstone,” are known to have been quarried at several locations. Traprock, used for large ground stone tools, is abundant in the Mount Holyoke and Mount Tom ranges, and soapstone is known from nearby river drainages.

During pre-Contact times, human populations did not randomly roam across the landscape. Instead, their life styles were driven by a keen knowledge of their natural surroundings and there was considerable purpose to their actions and activities. This behavior was recurrent and patterned; therefore, archaeologists have been able to quantify the underlying characteristics of each location that pre-Contact hunters and gatherers chose to live (i.e., archaeological site locations). From these characterizations, archaeologists developed a model based on “Site Location Criteria.” Site Location Criteria are a valuable tool for land managers who are trying to assess the potential presence of archaeological sites, and the potential for adverse impacts to sites that may result from proposed activities that involve ground modification or subsurface disturbances.

During the Contact Period and Early Historic times, local Native American populations appear to have clustered in at least five principal locations that have been called Cores: the Woronoc comprised the Westfield Core, the Agawams the Springfield Core, the Norwottuck the Hadley-Northampton Core, the Pocumtucks the Deerfield Core, and the Squateags the Northfield, Massachusetts-Vernon, Vermont Core. The increasing European population during the early to mid-1600s caused the Native American populations to change drastically as epidemics ravaged settlements and their political and social structure and traditional subsistence patterns were modified by participation in the fur trade and growing dependence on European material goods. Although Contact Period and Early Historic Period Native American sites are few in number in the Mount Holyoke Range, partly because they are

difficult to distinguish from early European sites and because they were most susceptible to destruction because of their proximity to the surface, there are in fact a number of sites in the valley from this time.

Historically, a network of Native American land and water routes were used for trade and travel. Native American trails crisscrossed the Connecticut River Valley, with the major trails tending to follow the courses of the major rivers. They ran primarily east-west, toward the valley, which served as an east-west travel obstacle, but was the main north-south route. A system of lesser trails penetrated the upland area as well, following the networks of the tributary streams. During the Colonial Period (1675–1775) and Federal Period (1775–1830) many of these Native American trails became important roads for the slowly growing populations.

There are hundreds of historic archaeological sites, ranging from those associated with the first emergence of colonial settlement in the Plantation Period (1630–1675) to the industrial remains of 18th and 19th century mill operations, including landscape features. The most numerous historic archaeological sites, but not necessarily the most visible, are the archaeological remains of farmsteads, often with the cellar holes of the main houses, barns and out buildings. Despite some rocky and hilly terrain, the potential for farmstead sites in the valley is high because the climate and soils are generally conducive to agriculture.

Small town centers and agricultural landscapes are abundant in the Connecticut River Valley. The enriched stone free alluvial soils of the valley provided a strong foundation for the region’s farmers which is attested to by the archaeological remains of farmsteads and stonewalls that are scattered throughout the region. These same remains, stonewalls that partitioned off land for pasture and tillage and the archaeological remains of many former farms and mills, create significant historic vernacular landscapes.

Historic Resources

The intact historic buildings, structures, objects, and landscapes in the Mount Holyoke Range Planning Unit largely reflect the intense recreational usage of the upland areas of the Mount Tom and Mount Holyoke ranges that flourished in the 19th century due to extensive private investment and

development, and later expanded in the 20th century thanks to park infrastructure constructed by local counties and the Civilian Conservation Corps (CCC). Although the Holyoke Heritage State Park tells a different story, that of the industrial heritage of downtown Holyoke, the urban site on which it stands and the resources that exist there have unexpected historic associations with the mountain parks in the planning unit.

2.2.3 RECREATION RESOURCES

Properties within the planning unit provide a variety of active and passive recreational opportunities. Authorized activities and facilities include:

- Boating, non-motorized
- Events (e.g., concerts, block parties)
- Fishing
- Geocaching/letterboxing.
- Hang gliding/Paragliding
- Hiking
- Horseback riding
- Hunting
- Interpretive displays and programs
- Merry-go-round
- Mountain biking
- Nature Study
- Pet walking
- Photography
- Picnicking
- Playground
- Ropes course
- Skiing, cross-country
- Snowmobiling
- Snowshoeing
- Volleyball
- Walking/Jogging/Running

The New England Trail (NET) is the only recreation resource common to most properties in the planning unit. This National Scenic Trail extends from Guildford, Connecticut to Belchertown, Massachusetts, with an additional segment running from Leverett to Royalston. It incorporates the Metacomet-Monadnock Trail and runs through Mount Tom State Reservation, Joseph Allen Skinner State Park, and Mount Holyoke Range State Park.

In the fall of 2012 an effort was made to obtain standard information on visitors to each park in the planning unit. On-line visitor use surveys were developed to obtain information on visitation, recreation, and demographics. Announcements of these surveys were made on the DCR web page, via e-mail notices sent to approximately 90 stakeholders, and through the distribution of several hundred printed announcements at the parks. In addition, some user groups promoted the availability of these surveys to their membership. Unfortunately, these surveys generated little usable information. Three major problems affected the validity of the results: a non-random sample design; low response rates; and respondents including information for multiple parks in surveys designed for individual parks. As a result, only qualitative information (e.g., types of recreation, respondent likes and dislikes) specific to individual parks is presented in this RMP. There remains no statistically valid information on recreation at the planning unit scale.

Demographics

There is no planning unit-wide information on park visitors. Such information exists only for visitors to Mount Holyoke Range and Skinner state parks, combined; and only for one summer season. (See Section 2.3.3 for a description of these visitors.) In the absence of demographic information derived from visitors to all parks in the planning unit, this section describes the demography of potential visitors.

The first step in identifying the demographic attributes of potential visitors is to define their geographic origins (i.e., define the demographic area). For the Mount Holyoke Range Planning Unit, the demographic area is based on information obtained from surveys of summer visitors to Mount Holyoke Range and Skinner state parks. Loomis et al. (2009) reported that 57.2% of park visitors travelled 10 or fewer miles to the park, and 72.9% came from within a 20-mile radius. Only an additional 5.4% of visitors came from within 20 to 40 miles. The remaining visitors originated from more than 40 miles from the park. Based on this information, the demographic area of the planning unit is defined as the area within 20 miles of the center of the planning unit. The demographic area extends north to Greenfield; south to East Windsor,

Connecticut; west to Chester; and east to New Braintree. (Figure 2.2.2)

There are 700,557 residents, in 284,927 households, living within 20 miles of the planning unit. These potential visitors, from both Massachusetts and Connecticut, share some demographic characteristics with the average Massachusetts resident, but also differ in important ways.

The age structure of potential visitors is very similar to that of all Massachusetts residents. (Table 2.2.2) The percentage of children in the population is slightly higher, and the percentage of adults and seniors slightly lower, among potential visitors than the Massachusetts average. However, the magnitudes of difference are only a few tenths of a percent. Given the similarity in the local and state age structures, it is unlikely that the observed variation reflects the need for unique facilities or management within the planning unit. It is the size, rather than percentage, of the population within each age class that informs the need for different types of recreation facilities and activities. With nearly 152,000 children and 99,000 seniors among the potential user base, facilities and programming must be both “child friendly” and “senior friendly.”

Table 2.2.2. Age of population potentially served by the Mount Holyoke Range Planning Unit.

Age	#	%	State Average (%) ^a
Children (Under 18)	151,981	21.7	21.3
Adults (Ages 18–64)	451,698	64.5	64.7
Seniors (65 and older)	98,878	13.8	14.0
Total	700,557	100.0	100.0

a. Data from 2011 American Community Survey 1-Year Estimates data set (DPO5). (<http://www.factfinder2.census.gov>).

English is the primary language spoken in most households in the demographic area. (Table 2.2.3) The percentage of households where English is the primary language spoken (78.6%) is similar to that of the state average (78.0%). In non-English speaking households, Spanish is spoken more frequently in the demographic area than in the state as a whole; other non-English languages are spoken less frequently within the demographic area. These findings suggest the need for bilingual or multi-lingual signs and printed materials.

Table 2.2.3. Primary language spoken in households potentially served by the Mount Holyoke Range Planning Unit.

Language	#	%	State Average (%) ^a
English	208,498	78.6	78.0
Spanish	30,390	11.5	8.0
Other European	20,339	7.7	9.0
Asian	4340	1.6	3.9
Other	1659	0.6	1.1
Total	265,226	100.0	100.0

a. Data from 2011 American Community Survey 1-Year Estimates data set (S1601). (<http://www.factfinder2.census.gov>).

Ethnicity data are consistent with language data. Over 15% of the demographic area’s population (108,381 individuals) self-identified as Hispanic.

Households potentially served by DCR parks in the Mount Holyoke Range Planning Unit differ from the state average in income. (Table 2.2.4) There are more low and medium income households, and fewer high income households. This highlights the need for, and importance of, no cost and low cost recreational opportunities in the region.

Table 2.2.4. Income of households potentially served by the Mount Holyoke Range Planning Unit

Income Range	#	%	State Average (%) ^a
Low (Under \$25,000)	68,534	25.8	21.4
Medium (\$25,000–\$74,999)	105,958	40.0	35.7
High (\$75,000 and over)	90,734	34.2	42.8
Total	265,226	100.0	100.0

a. Data from 2011 American Community Survey 1-Year Estimates data set (CPO3). (<http://www.factfinder2.census.gov>).

Place Holder for Figure 2.2.2. Mount Holyoke Range Planning Unit Demographic Area

2.3. MOUNT HOLYOKE RANGE STATE PARK

The Mount Holyoke Range extends eastward from the Connecticut River to the Belchertown Hills. North of its ridgeline, the range drops sharply to the farmlands and residential neighborhoods of Hadley and Amherst. To the south, the range drops more gently toward the neighborhoods and woodlands of South Hadley and Granby. Along its eastern edge, in Belchertown, it transitions to a series of hills that decrease in elevation as they approach the headwaters of Bachelor Brook. Although physically small, at approximately seven miles long and with a maximum elevation of 1,106 feet, the range looms large in local culture, history, and sense of place. It is also one of the most ecologically significant areas in Massachusetts.

Mount Holyoke Range State Park is located in the towns of Amherst, Belchertown, Granby, Hadley, and South Hadley. No single event, such as a land acquisition, dedication ceremony, or Act of the Legislature signaled its establishment. Rather, creation of the park built upon a long-standing desire by the public and the Commonwealth to protect the range. The DCR's predecessor agencies had been acquiring land in the region since the acquisition of Skinner state park in 1940. (See Section 2.4 for additional information on Skinner state park.) However, the focused acquisition of land in fee or easements that began in 1975 marked a turning point for land protection on the range (DEM 1989). These efforts continue today and represent decades of state, federal, and private preservation efforts; efforts described in detail in Carr (2009).

Although most of the park is located on the slopes and summits of the Mount Holyoke Range, some is not. The 100-acre Granby Sand Plain parcel is located south of the park, between Green Meadow Lane and Lyman Street, in the Town of Granby. This flat parcel was once a remote transmitter site for Westover Air Reserve Base in nearby Chicopee. It became part of Mount Holyoke Range State Park in 2002.

Two additional parcels, although not part of the park, are under the control of park staff. The DCR owns a vacant 1.1-acre parcel of land in South Hadley that was once the site of the Buttery Brook Memorial Swimming Pool. It also owns a 1.4-acre parcel in Granby that was once home to a dinosaur

museum. Both properties were acquired through eminent domain takings, the former in 1968 and the latter in 1985.

There are five Conservation Restrictions associated with the park; they are identified in Table 2.3.1. All are located on inholdings, or abutting properties. Conservation Restrictions are legal agreements by which a landowner conveys a partial interest in a property to a qualified conservation organization or public entity (e.g., the DCR). These restrictions limit future development and use of the property in order to preserve identified conservation values (MassAudubon 2006).

Table 2.3.1. Conservation Restrictions associated with Mount Holyoke Range State Park.

Land owner(s), in fee	Acres ^a
Brace	15.47
Brockway	31.60
Camella World Peace	7.78
"Multiple Private Owners"	5.02
Town of Amherst	17.70
Sweet Alice Conservation Area	
Total	77.57

a. Number of acres as calculated by GIS; this value may differ from the number of acres on the deed, if listed.

2.3.1. NATURAL RESOURCES

Mount Holyoke Range and Skinner state parks are separate entities from a historical perspective and have regulations that differ slightly. However, from an ecological perspective they are both parts of the same larger whole; the Mount Holyoke Range. Information on the geology, vegetation, natural communities, and wildlife of the Mount Holyoke Range are presented for Mount Holyoke Range and Joseph Allen Skinner state parks, combined (i.e., for the entire range). An exception to this is rare species information, which is presented individually, by park. All other resource types are also dealt with individually, by park.

Physical Features

Topography. The park is largely located atop the Mount Holyoke Range, which has an east-west orientation. The highest point, in both the park and the range, is Mount Norwottuck which has an elevation of 1,106 feet. A number of lower peaks extend along the ridgeline from the park's western boundary just east of Taylor's Notch, to Harris

Mountain in Belchertown. East of Harris Mountain, the park's topography flattens out.

Topography differs between the range's north and south slopes. To the north, the range drops quickly to the valley floor, reaching elevations of 200 to 300 feet. South of the ridge, the topography drops more gradually, reaching elevations of approximately 250 feet.

Geology. The Mount Holyoke Range consists of sedimentary arkoses and volcanic basalts, with the latter forming the crest of the range (Searcy 2008). The basalt dips from north to south, from the range's ridgeline toward South Hadley and Granby. "The cliffs visible on the steep, north-facing slope are the cross section of the (basalt) lava flow, while the south side is the upper surface" of the basalt (Searcy 2008).

During the Wisconsin ice age, the Mount Holyoke Range was a bedrock island that projected upward into the glacier. As the glacier retreated, melting water along both sides of the ridge cut into the bedrock, forming cliffs and benches (Skehan 2001). Meltwater channels are especially prominent features of the south slope. It is these channels that have created the "roller coaster" landscape favored by mountain bikers.

South of the range, the Granby Sand Plain parcel sits atop a glacial river delta.

Water Resources

Ponds. There are approximately 35.96 acres of ponds. The largest, Lithia Springs Reservoir (14.45 acres), is artificially impounded. Approximately 0.86 acres of ponds occur on associated Conservation Restrictions.

Wetlands. There are approximately 108.79 acres of wetlands in the park, and another 3.89 acres on Conservation Restrictions associated with the park. A variety of forested and non-forested wetland types have been recorded. See Natural Communities, below, for more information.

Vernal Pools. There are 23 certified and 32 potential vernal pools in the park. Nearly all are located on the southern slopes of the Mount Holyoke Range. A single potential vernal pool is located on an associated Conservation Restriction.

Streams. There are approximately 17.66 miles of streams, most on the south side of the range. This includes Elmer Brook, unnamed tributaries of Bachelor and Ingraham brooks, and several unnamed intermittent streams. An additional 0.43 miles occur on associated Conservation Restrictions.

Groundwater. A portion of a medium-yield aquifer, which extends from Pelham to the Massachusetts-Connecticut border, occurs beneath two sections of the park. A small portion of the park (24.52 acres), located northwest of the intersection of Lithia Springs Road and Pearl Street, in the Town of South Hadley, lies above the aquifer as does the entire Granby Sand Plain parcel. There are no DEP identified aquifers beneath any other portions of the park.

There are three drinking water wells within the park. The first is located at the Military Road facilities; it provides domestic water for the Moore House. The second well is located northeast of the Notch Visitor Center, in the corner of the employee parking lot. It is located approximately 70 feet from the visitor center, 120 feet from the visitor center's 1,000-gallon underground fuel storage tank, and 230 feet from the facility's septic system. This well provides domestic water for toilets and sinks at the Visitor Center.

Due to the high concentration of sodium in the water (115 mg/l), which likely originates from deicing practices on Route 116, this well is not used for human consumption. Instead, bottled water is provided to visitors. The well is registered with the Massachusetts Department of Environmental Protection (DEP) as a Transient Non-Community (TNC) water supply (PWS ID: 1008006). A TNC is any public water system that has at least 15 service connections or serves water to 25 or more different people per day for more than 60 days each year (DEP n.d.). The Zone I wellhead protection area for this well has a radius of 100 feet and an approved pump rate of 250 gallons per day.

The third well is associated with a toilet in a stable on the recently acquired Deep Woods parcel in Belchertown. A records review indicated that no permits were issued for either the well or septic system at the Deep Woods parcel (PES Associates 2011). Water from all three wells ultimately discharges to on-site septic systems.

Flood Zones. Little of the park (42.91 acres; 0.94%) occurs within the 100-year flood zone; with affected areas located chiefly along the shores of Aldrich Lake and Ingraham Brook. Within this flood zone are a paved road and culverts at the Granby Sand Plain parcel. The beds of several unnamed streams are included in the 500-year flood zone, which covers an additional 48.13 acres (1.05% of the park). All of these stream beds are on the south side of the range, to the east of Route 116. No critical infrastructure is located within either flood zone.

Rare Species

Thirty state-listed species are known from the park, including seven animals and 23 plants. (Table 2.3.2) Three of these species, one animal and two plants, are susceptible to collection and are not identified in this RMP. Nearly 60% of Mount Holyoke Range State Park (2,721.21 acres; 59.29%) has been designated as Priority Habitat under the Massachusetts Endangered Species Act (321 CMR 10.00; see Appendix F). This includes nearly all of the park situated south of the ridge and west of Route 116, large sections south of the ridge and east of Route 116, all upland portions of the Granby Sand Plain parcel, and most of the 535 Bay Road, Belchertown parcel. Areas north of the ridge, the former location of Buttery Brook Memorial Pool in South Hadley, and facilities at 194 West State Street, Granby are not included. Approximately 43% of associated lands on which the DCR holds Conservation Restrictions (33.32 acres) are also designated as Priority Habitat.

Several of the state-listed animals are associated with wetlands. Blue-spotted and marbled salamanders breed in the park's vernal pools and live in adjacent uplands. Wood turtles use a variety of streams and wetland types. Eastern box turtles facultatively use wetlands, but may be found throughout the park's forests.

The park's rare moths, the orange sallow moth and sandplain euchlaena, are associated with dry uplands.

Table 2.3.2. State-listed species of Mount Holyoke Range State Park, as identified by the NHESP.^{a, b}

Species ^c	Type ^d	MESA ^e
American bittersweet	P	T
Appalachian bristle-fern	P	E
Back's sedge	P	E
Blue-spotted salamander	A	SC
Climbing fumitory	P	SC
Data sensitive rare animal 1 ^f	-	E
Data sensitive rare plant 1 ^f	P	T
Data-sensitive rare plant 2 ^f	P	SC
Drooping speargrass	P	E
Eastern box turtle	R	SC
False hop sedge	P	E
Glaucouscent (blue) sedge	P	E
Green rockcress	P	T
Hairy (soft) agrimony	P	T
Large-bracted ticktrefoil	P	T
Linear-leaved milkweed	P	T
Marbled salamander	A	T
Narrowleaf vervain	P	E
New England blazing star	P	SC
Nodding chickweed	P	E
Orange sallow moth	I	SC
Purple clematis	P	SC
Purple milkweed	P	E
Putty root	P	E
Red mulberry	P	E
Sandplain euchlaena	I	SC
Shining wedgegrass	P	T
Swamp cottonwood	P	E
Violet wood-sorrel	P	E
Wood turtle	R	SC

- From Maier (2012). See text for state-listed species observed on the reservation but not included in the NHESP database.
- Fact sheets for these species are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.
- When common names differ between the MESA list and the PLANTS database (USDA 2012), the MESA name is presented.
- Types of state-listed species include A = Amphibian, B = Bird, I = Insect, M = Mussel, P = Plant, and R = Reptile.
- Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered; SC = Special Concern; and T = Threatened.
- This species not identified in accordance with NHESP's policy of not revealing in site-specific documents the name or location of rare species susceptible to collection.

Most of the park's rare plants occur on the range's main ridge and south slope. These plants require partial to full sun exposure, something traditionally available in these sections of the range. However, the amount of habitat available for these species is decreasing as canopy closure increases (NHESP 2007a). Other threats to the plants are invasive species, recreation impacts (e.g., trampling), erosion, and sedimentation.

The remaining rare plants occur in a variety of environmental conditions. Swamp cottonwood and false hop sedge are associated with wetlands and riparian areas at the base of the south slope. These wetland species "are exceptionally rare in Massachusetts and require a particularly high level of protection for the wetlands they occupy" (NHESP 2007a). Putty root is found in moist, nutrient rich forests with full canopy closure. One species occurs on the dry sandy soils of the Granby Sand Plain parcel.

Additional state-listed species reported from the park, but not included in the NHESP database, are the blackpoll warbler (Special Concern), northern parula (Threatened), peregrine falcon (Endangered), and Philadelphia panic grass (Special Concern).

Two additional state-listed species have been recorded near, but not in, the park. Appalachian fir-moss, a state Endangered plant, has been recorded in the Greater Mount Holyoke Range (Searcy 2008). The eastern whip-poor-will, a Species of Special Concern, has been recorded in local breeding bird surveys (Breeding Bird Atlas Explorer 2012). Both potentially occur in the park.

In 2010, MassWildlife and The Nature Conservancy issued BioMap 2, a guide to conserving the biodiversity of Massachusetts (MassWildlife and TNC 2010). This guide identified two types of areas important for conservation: Core Habitat and Critical Natural Landscape. The first is crucial for the long-term persistence of rare species and other species of conservation concern. The second provides habitat for wide-ranging native wildlife, supports intact ecological processes, maintains connectivity among habitats, enhances ecological resilience, and buffers aquatic Core Habitats to help ensure their long-term integrity. Protection of both areas, which may overlap, is "important to conserve the full suite of biodiversity" in Massachusetts (MassWildlife and TNC 2010). Most of the park has been designated

Core Habitat (4,194.93 acres; 91.41%) and Critical Natural Landscape (4,450.13; 96.98%). Both extend in all directions beyond the park's current boundaries; highlighting additional conservation needs and opportunities in the region.

Vegetation

Botanists have been collecting and documenting the plants of the Mount Holyoke Range since at least the 1820s (Searcy 2008). Much of this work was done by researchers associated with the area's colleges and universities.

In 2008, Karen Searcy, curator of the University of Massachusetts' herbarium, published a flora of the Greater Mount Holyoke Range (i.e., the range and adjacent low-elevation areas). This flora compiled recent and historic information on vascular plants, identified natural communities, and described the influence of aspect and surficial geology on plant distribution.

Nearly 900 plant taxa have been recorded for the Greater Mount Holyoke Range; almost 840 are known to have current populations (<http://www.bio.umass.edu/biology/research/herbarium/checklist/checklist.phtml>). The vegetation of Mount Holyoke Range and Skinner state parks, based largely on Searcy (2008, with updates), is presented in Appendix G, Table G.1.

The distribution of plants on the range is influenced, to varying degrees, by both bedrock type and aspect. Searcy et al. (2003) reported that the diversity of both trees and herbaceous plants was higher on basalt than on arkose. It was also higher on the range's south slope than on the north. Bedrock type alone exerted the greatest influence on plant distribution, followed by the combination of bedrock type and aspect. Aspect alone had relatively little influence on plant distribution (Searcy et al. 2003). In general, the range's main ridge and south slope, which are underlain by basalt and are south-facing, have higher plant diversity than does the north slope.

Because bedrock type influences species composition and diversity, plants may be used as indicators of underlying bedrock. Searcy (2006) identified a series of trees, shrubs, and herbaceous plants that serve as indicators of either arkose or basalt bedrock types. Red maple, American beech, sheep laurel, and lowbush blueberry are among those species that indicate arkose bedrock. Among the

indicators of basalt are white ash, hophornbeam, American basswood, alternatleaf and roundleaf dogwood, Virginia creeper, chokecherry, marginal wood fern, and perfoliate bellwort.

Invasive Species. Eighteen invasive plants, and an additional nine likely invasive plants, have been recorded on the Mount Holyoke Range. (Table 2.3.3)

Table 2.3.3. Invasive and likely invasive plants of the Mount Holyoke Range.^a

Species ^b	Status ^c	Frequency ^d
Amur corktree	L	Infrequent
Autumn olive	I	Infrequent
Black locust	I	Infrequent
Border privet	L	Infrequent
Burning bush	I	Infrequent
Coltsfoot	L	Occasional
Common buckthorn	I	Infrequent
Common reed	I	Infrequent
Creeping buttercup ^e	L	-
Creeping Jenny	I	Rare
Curly pondweed	L	Rare
Cypress spurge	I	Rare
European Swallow-wort	L	Rare
Fin leaf sheep fescue	L	Rare
Garlic mustard	I	Infrequent
Glossy buckthorn	I	Occasional
Japanese barberry	L	Occasional
Japanese knotweed	I	Infrequent
Morrow's honeysuckle	I	Infrequent
Multiflora rose	I	Occasional
Norway maple	I	Rare
Oriental bittersweet	I	Infrequent
Purple loosestrife	I	Infrequent
Reed canarygrass	I	Infrequent
Showy fly honeysuckle	I	Infrequent
Spotted knapweed	I	Rare
True forget-me-not	L	Infrequent

- Based on Searcy (2008; with updates), which does not distinguish between Mount Holyoke Range and Skinner state parks.
- Species are presented alphabetically in this table; taxonomic information is available in Appendix G.
- Plants are classified as being either invasive (I) or likely invasive (L). According to MIPAG (2005), invasive plants are non-native species that have spread into native or minimally managed systems and cause economic or environmental harm; while likely invasive plants are non-native species that are naturalized but do not meet the full criteria for designation as an invasive plant.
- Indicates the frequency of occurrence of populations and not the abundance of individual plants within a population (Searcy 2008); Rare = found at one or two locations, Infrequent = found at up to 4% of sample locations, and Occasional = found at 5-10% of sample locations.
- This species was added to the flora in 2010 – 2011; its frequency was not reported.

Searcy (2008) identified Japanese barberry as the most common invasive in the Mount Holyoke Range, and one of the few that occurs outside of disturbed areas. Coltsfoot, glossy buckthorn, and multiflora rose are also common. Many invasives are associated with recent or historic disturbances including: quarrying; the construction, use, and abandonment of the historic trolley line along Route 116; and, in the case of Japanese knotweed, trail construction.

Invasive species pose a threat to several rare plants in the Mount Holyoke Range. Swallowworts, Japanese barberry, and multiflora rose “are of particular concern” for the persistence of rare plants on ridgetops, well-drained slopes, and other examples of dry, open forests (NHESP 2007a). Japanese barberry and garlic mustard pose a threat to moist, nutrient rich (mesic) forests and the rare plants present (NHESP 2007a). In wetlands and floodplains, common reed, glossy buckthorn, Japanese knotweed, and purple loosestrife degrade the habitats of false hop sedge, green dragon, and swamp cottonwood (NHESP 2007a).

Natural Communities. Twenty-three natural communities are known from the Mount Holyoke Range. Twelve are terrestrial communities, located on uplands. The remaining 11 are palustrine communities, associated with non-tidal freshwater environments. (Table 2.3.4)

Several of the natural community types that occur on the range may decrease in extent in response to climate change (Manomet and MassWildlife 2010). Under a low carbon emissions scenario, which assumes a doubling of carbon emissions by the end of the century, the following natural communities are at risk of being moderately (i.e., <50%) reduced in Massachusetts: Deep Emergent Marsh, Major River Floodplain Forest, Northern Hardwoods-Hemlock-White Pine Forest, and Shallow Emergent Marsh. Two other communities, Shrub Swamp and Woodland Vernal Pool, are predicted to undergo moderate or no change in abundance in response to climate change. Other community types were not assessed. In general, communities and habitats “close to the southern extremes of their distributions (e.g., northern hardwoods) are likely to be vulnerable” to climate change, while those closer to the northern edge of their limits (e.g., Oak-Hickory Forest) “may benefit by being able to extend

northward and/or extend their cover to higher elevations.”

Natural communities are ranked from the rarest (S1) to the most common (S5). Ranks of S1 through S3 indicate community types believed to be critically imperiled, imperiled, or vulnerable in Massachusetts (NHESP 2011); their conservation is encouraged. Five S2 communities, four S3 communities, and one S2/S3 community type are known to occur at Mount Holyoke Range State Park. (Table 2.3.4)

Abrupt transitions in natural communities may take place at bedrock contact zones. Searcy (2006) provides an example from the south side of the range. On one side of a forest road an Oak-Hemlock-White Pine Forest overlays arkose, while on the other side of the road a Dry, Rich Acidic Oak Forest overlays basalt. Away from contact zones, transitions between community types are generally less abrupt.

Table 2.3.4. Natural communities of DCR properties within the Mount Holyoke Range, including Mount Holyoke Range State Park, Joseph Allen Skinner State Park, and adjacent portions of the Connecticut River Greenway State Park. This table is based on Searcy (2008; Table 3).

Community Type ^a	System ^b	State Rank ^c	Bedrock Type ^d	Side ^e	Distribution ^f	Source ^g
Black Ash Swamp	P	S2	V	S, N	T	2
Black Gum-Pin Oak-Swamp White Oak “Perched” Swamp	P	S2	-	-	L	2
Circumneutral Rock Cliff	T	S3	B	N, E	R	1
Circumneutral Rocky Summit/Rock Outcrop	T	S2/S3	B	S	R	1, 2
Circumneutral Talus Forest/Woodland	T	S3	B	N, E	R	1, 2
Deep Emergent Marsh	P	S4	S	S	L	1
Dry, Rich Acidic Oak Forest	T	S4	B	S, E	R	1
Forest Seep	T	S4	V	S, N	T	1
Hemlock Ravine	T	S4	V	S, N	T	1
Hickory-Hop Hornbeam Forest/Woodland	T	S2	B	S	R	1, 2
Inland Acidic Pondshore/Lakeshore	P	S4	S	S	L	1
Major River Floodplain Forest	P	S2	S	N	L	2
Mud Flat	P	S4	S	S	L	1
Northern Hardwoods-Hemlock-White Pine Forest	T	S5	V	N	R	1
Oak-Hemlock-White Pine Forest	T	S5	S	S, N	L	1
Oak-Hickory Forest	T	S4	B	S	R	1
Red Maple Swamp	P	S5	S	S, N	L	1
Red Oak-Sugar Maple Transition Forest	T	S4	V	N	R	1
Rich Mesic Forest	T	S3	B	S	R	1
Shallow Emergent Marsh	P	S4	S	S	L	1
Shrub Swamp	P	S5	V	S, N	L	1
Small River Floodplain Forest	P	S2	S	S	L	1
Woodland Vernal Pool	P	S3	V	S, N	T	1

a. Classified according to Swain and Kearsley (2001).

b. P = Palustrine; T = Terrestrial.

c. The NHESP ranks communities from the most rare (S1) to the most common (S5).

d. Bedrock types include: B = Basalt; S = Sedimentary (e.g., arkose); and V = Various (i.e., community is not associated with a particular bedrock type).

e. Side indicates the direction that the slope on which the community occurs faces (i.e., the slope’s aspect). Possible sides include: E = East; N = North; and S = South.

f. Distribution indicates the location of the community on the slope; possible locations include: L = Lower sides of slope; R = Main ridge; and T = Throughout (i.e., community may occur on both the ridge and lower side of the slope).

g. Information contained in this table was obtained from the following sources:

1. Searcy (2008).

2. Maier (2012).

Forests. The park is mostly forested (4361.30 acres; 95.0%), with limited open water, turf grass, or pavement.

The recent BioMap 2 project (MassWildlife and TNC 2010, 2011) identified those forested areas most important to the conservation of the Commonwealth's biodiversity. These areas, referred to as Forest Core Habitat, are minimally impacted by roads, residential and commercial development, and other fragmenting features. In the Connecticut River Valley ecoregion there are seven Forest Core Habitats; each 500 or more acres in area. Three are associated with Mount Holyoke Range State Park. Nearly the entire park, 3,792.15 acres (82.6%), occurs within these forest cores.

There is inconsistent information on the presence of stands of old-growth forest. Davis (2005) reported "15 acres of old-growth with hemlock, sweet birch, northern red oak, white oak, and white ash on Mount Norwottuck." A separate assessment of Massachusetts' old-growth forests did not identify any in the park (D'Amato et al. 2006).

Twenty-two Continuous Forestry Inventory (CFI) plots are located in stands ranging in age from approximately 60 to 105 years. As part of the CFI process, DCR foresters monitor major agents of tree loss. Since 2000, 12 biological loss agents have been observed in the park's monitoring plots. These agents, in decreasing order of occurrence, are: gypsy moth (*Lymantria dispar*); hemlock woolly adelgid (*Adelges tsugae*); white pine weevil (*Pissodes strobe*); heart rot; unknown diseases; unknown biological agents; *Nectria*, a fungus; beech bark disease; *Hypoxylon*, a fungus specific to aspen; *Eutypella*, a fungus associated with sugar maple; ants; and white pine blister rust (*Cronartium ribicola*). Although not recorded on CFI plots, disease due to fungus in the Genus *Armillaria* also occurs in the park (e.g., Brazee 2011).

Wildlife

There is little current information on the wildlife of the Mount Holyoke Range. As a result, information in this section reflects potential occurrences based on known distributions of wildlife species in Massachusetts. The exception to this is information on the range's birds, which is based on recent observations.

Birds. Mount Holyoke Range receives relatively little attention from birders. However, recent sightings provide partial information on the birds of Mount Holyoke Range and Skinner state parks.

Fifty-six species of birds have been recorded on the range in recent years. (Appendix G, Table G.2) This is far less than the 141 species recorded at nearby Mount Tom, or the same number of species identified in local Breeding Bird Atlas surveys. It is likely that many of the species observed nearby are also present on the range, and that our knowledge of its avifauna is far from complete.

Of those species recorded from the range, three are classified as Species in Greatest Need of Conservation (MassWildlife 2005). This includes the eastern towhee, peregrine falcon, and wood thrush.

Mammals. There is little current information on the range's mammals. One species confirmed to occur on the range and an additional 51 species that may possibly occur on the range are identified in Appendix G, Table G.3.

Reptiles. There is little current information on the range's reptiles. Three species confirmed to occur on the range and an additional 12 species that may occur on the range are identified in Appendix G, Table G.4.

Amphibians. There is little current information on the range's amphibians. Nine species confirmed to occur on the reservation and an additional 11 species that may possibly occur are identified in Appendix G, Table G.5.

Fish. There is no current information on the fish of either Mount Holyoke Range State Park or Joseph Allen Skinner State Park. However, historic information exists for one water body, Aldrich Lake (Basler 2012). Surveys conducted by MassWildlife in 1980 identified the following 10 species: golden shiner (*Notemigonus chrysoleucas*), bluegill (*Lepomis macrochirus*), pumpkinseed (*L. gibbosus*), largemouth bass (*Micropterus salmoides*), yellow perch (*Perca flavescens*), white sucker (*Catostomus commersoni*), chain pickerel (*Esox niger*), black crappie (*Pomoxis nigromaculatus*), brown bullhead (*Ameriex nebulosus*), and yellow bullhead (*A. natalis*).

Invertebrates. Fourteen species of butterflies have been recorded on the range; none are rare. (Appendix G; Table G.6) Other known invertebrates include the state-listed sandplain euchaena and orange sallow moths; and three pest species, the gypsy moth, hemlock woolly adelgid, and white pine weevil.

2.3.2. CULTURAL RESOURCES

Virtually all of the cultural resources found within Mount Holyoke Range State Park are archaeological in nature, reflecting early settlement and industrial development patterns from the 19th century on, and are mostly located on the south slopes of the range. Few pre-Contact sites are known.

The park's cultural resources and major infrastructure are identified in Appendix H, Table H1.

Archaeological Resources

Scattered throughout the southern reaches of the park, in the towns of Granby and South Hadley, are a number of stone cellar holes that are the remains of 19th century homesteads. Other archaeological resources are associated with specific sections of the park.

Notch Visitor Center Area. A route for electric trolleys was established in 1905 to connect Holyoke and South Hadley to downtown Amherst; this route passed through The Notch. Remains of this trolley bed are still visible east of Route 116, from Bay Road, Amherst through the Aldrich Lake area in Granby.

Aldrich Lake. The Aldrich Lake Boy Scout camp remains are found all along the western limits of the lake. Extant remains entail concrete pads and supports for cabins, stone and brick foundations for associated structures (e.g., kitchen), outdoor stone and cement cooking hearths, and an extensive trail system for the camp. A recent pet internment, marked with a make-shift pile of stones and a marker, was identified on the eastern limit of the lakeshore.

Granby Sand Plain. The Granby Sand Plain is clearly identified by the multiple military-related architectural remains. Numerous poured concrete structural pads, brick and cementitious gate entrances, signs, and transportation related features

define this parcel. The area is fairly clear of vegetation, with the exception of stands of white pine. Evidence of heavy OHV (Off-Highway Vehicle) activity, although not recent, is revealed by the extensive, erosive, deep track system carved out by this unauthorized use.

Historic Resources

Lithia Springs Reservoir. Lithia Springs Reservoir was created by damming Lithia Brook at the base of the south slope of the Mount Holyoke Range in South Hadley. A dam was first constructed on the brook between 1939 and 1941 to create a smaller reservoir. The reservoir was expanded to its current dimensions by the construction of a 360-foot-long earthen dam in 1948; it still exists today. The dam features a spillway with a concrete retaining wall at its west end, and a square brick gate house at its center. The gate house features an asphalt shingled hip roof, and its door and window openings have been infilled with brick or plywood enclosures. The roof and trim is deteriorated and graffiti mars the exterior brick walls.

Bachelor Street Area, Granby. A garage of unknown origin is located in the portion of the park east of Route 116 and north of Bachelor Street. This building, constructed atop a concrete slab, has stone and mortar walls. A reinforcing steel I-beam spans the front opening, where a garage door was once located. The garage measures approximately 13-feet-wide by 22-feet-deep. There is no roof, nor roof framing, present.

Harris Mountain Road, Amherst and Granby. Near the park entrance gate located on the west side of Harris Mountain Road stands a small granite pier that serves as a boundary marker between the towns of Amherst and Granby. Non-historic boundary markers are located along the NET on Rattlesnake Knob and Long Mountain.

2.3.3. RECREATION RESOURCES

Most of the park's recreation resources are associated with the Notch Visitor Center. Drinking water and bathrooms are located in the visitor center, and a few picnic tables and grills are located behind the building. A 16-element ropes course (U.S. Amusement ID # 10732) is also located behind the visitor center. Designed for groups, participants develop self-confidence and build team skills while

performing such tasks as climbing a 10-foot wall, walking across a log suspended 30 feet above the ground, and climbing a ladder with rungs spaced from three to six feet apart. A description of each course element is provided in Appendix I.

Recreation away from the visitor center is largely trail-based. This includes such activities as hiking and running; dog walking; mountain biking; horseback riding; snowmobiling; cross-country skiing; and snowshoeing. The DCR Universal Access program periodically offers accessible recreation programs at the park. Hunting and geocaching occur throughout the park, with participants both on and off trails. As of April 2013, there were 34 known geocaches. Off-highway Vehicle (OHV) use, which is in violation of park regulations, occurs along forest roads, especially in the Bachelor Street area and the Granby Sand Plain parcel.

During the summer of 2009, visitor use patterns, attitudes, and satisfaction levels were surveyed at the park (Loomis et al. 2009). Between June 3 and August 28, surveyors intercepted 321 park visitors and asked them to participate in the survey. A total of 178 mail and on-line surveys were completed. Survey results identified the relative popularity of summer recreational activities in the park. (Table 2.3.5) Over 93% of respondents identified some form of pedestrian activity, either with or without pets, as their primary activity at the park. The average distance of these hikes and walks was 4.2 miles. Other types of recreation were relatively uncommon. Respondents indicated that they had also participated in cross-country skiing/snowshoeing, fishing, hunting, and the Park Passport Program at the park in the 12 months prior to taking the survey.

The survey also examined trail users' acceptance of the presence of other trail users (Loomis et al. 2009). Trail users considered encountering 13 or fewer hikers at any one time an acceptable level of use. They also considered acceptable encountering five or fewer horseback riders, or six or fewer mountain bikers. Numbers of trail users encountered by survey respondents were within the level of acceptability for all three user groups.

Table 2.3.5. Levels of participation in recreational activities at Mount Holyoke Range State Park; summer 2009.

Activity	#	%
Hiking	141	80.1
Walking/Running/Jogging	16	9.1
Pet walking	7	4.0
Biking, mountain	2	1.1
Geocaching/Letterboxing	2	1.1
Interpretive/Educational programs	2	1.1
Special events	2	1.1
Nature Study	1	0.6
Picnicking	1	0.6
Visit a historic site	1	0.6
Other	1	0.6
Total	176^a	100

a. Two surveys lacked a response to this question.

Quantitative information on the number of trail users is largely unavailable. However, data were recently collected for the segment of the NET located immediately behind the Notch Visitor Center. An automated counter (Eco-Counter®, model Pyro) was placed at this location between July 19 and November 19, 2012. This period includes the end of summer, return of the area's college students, and fall foliage season. During this period, a total of 21,216 passes were recorded. Because many trail users begin and end their trip at the Notch Visitor Center, the number of passes does not equal the number of users. Rather, it likely represents approximately twice the number of users (i.e., one pass for the outbound trip and one for the return trip). Therefore, approximately 10,600 trail users are believed to have been on this segment during the period surveyed. The average daily number of users was 85, and the average weekly number was 586. Peak use occurred in the first half of October. The busiest day of the week was Sunday, with 27.9% of weekly use, followed by Saturday, with 25.8% of weekly use. Peak daily use occurred between 2:00 P.M. and 3:00 P.M. on both weekdays and weekends.

Fishing and swimming take place at Lithia Springs Reservoir and Aldrich Lake. The former is an approved activity, the latter is not. There are no designated swimming areas at either water body, although neither is posted "No Swimming." A small boat and a canoe have been observed chained to trees along the shores of Aldrich Lake, suggesting that fishing at this location is both boat- and shore-based.

There are two large, annual recreation events. In May, the 7 Sisters Trail Run takes place along the range to the west of the Notch Visitor Center. This 12-mile race attracts approximately 250 to 300 participants. This race is a “fundraising event that benefits The Friends of the Holyoke Range;” having raised over \$10,000 since its inception (www.7sisterstrailrace.com). The New England Orienteering Club runs a two-day event called the Western Massachusetts 5 Day. Stages one and two take place at Mount Holyoke Range State Park. There were approximately 180 participants in 2012.

Attendance

Fiscal Year (FY) 2012 attendance is estimated at 36,420 visitors; all unpaid. This is the lowest estimated attendance of any park in the planning unit. September and October were the months of highest use, likely reflecting increased visitation by returning college students and those seeking to view fall foliage. The next highest period of use was May through August. The remainder of the year saw fewer than 3,000 visitors per month.

Demographics

Visitor survey data provide limited insight into the demographics of park users (Loomis et al. 2009). There appears to be two groups of summer visitors, those that come from local towns and those who travel long-distance to reach the park. (Table 2.3.6.) Over one half (57.2%) of visitors originate from within 10 miles of the park, and 72.9% originate from within 20 miles. (Figure 2.2.2) Few visitors (5.4%) originated from residences located 21–40 miles from the park. However, 21.7% of visitors came from more distant locations. Visitors originating from close to the park may be classified as “local visitors” and those from more distant areas as “tourists” (Spencer 2013). Significant differences may exist in the way each group relates to the park and its managers. (See Spencer 2013 for review.)

Information on the age of park visitors was skewed by the survey methodology, which permitted only adults (i.e., those over 18 years of age) to take the survey. Of these adults, only 5.3% were seniors (i.e., 65 and older). Interestingly, less than one-third of respondents (31.9%) had children under 18 in the household. Park visitation, therefore, was largely not by traditional nuclear families.

Table 2.3.6. Distance visitors travelled from their residences to Mount Holyoke Range State Park; summer 2009.

Distance (Miles)	# Visitors	% Visitors
1–10	95	57.2
11–20	26	15.7
21–30	7	4.2
30–40	2	1.2
Over 40	36	21.7
Total	166	100.0

Nearly all visitors (98.2%) came from households where English was the primary language spoken. Visitors from households where English was not the primary language spoken, identified Arabic and Korean as their primary languages. Similarly, nearly all visitors surveyed (97.0%) were white non-Hispanics.

Overall, visitors surveyed had a lower proportion of seniors, non-English speaking household, non-whites, and percentage of the population of Hispanic or Latino ancestry than the Massachusetts average (<http://quickfacts.census.gov/qfd/states/25000.html>). It is unknown if this is true for all visitors to the park, or just summer visitors.

2.3.4. INFRASTRUCTURE

Property Boundary

The park’s boundary is irregular, with numerous projections, inholdings, and isolated parcels (Figure 2.2.1). It occurs within an area roughly bounded by Joseph A. Skinner State Park to the west; Chmura Road, Hadley and Bay Road, Amherst and Belchertown to the north; Stebbins Street, Belchertown to the east; and Pearl Street, South Hadley and Amherst Road and Bachelor Street, Granby to the south. Also within this area are parcels of municipal and private open space and residential, commercial, agricultural, and industrial lands. The park’s isolated parcels (i.e., Granby Sand Plain; 194 West State Street, Granby; and Buttery Brook, South Hadley) also occur in mixed-use contexts. Although many of the park’s parcels have boundary markers (e.g., metal pipes), the perimeter of the park is not marked in a way recognizable to abutters or the general public.

The property boundary continues to change, typically as a result of land acquisition and park expansion. For example, in 2011 the 337 acre Deep

Woods parcel, which is located at 535 Bay Road, Belchertown, was added to the park. In 2011, the Massachusetts legislature authorized the exchange of 0.67 acres of land between the DCR and the Massachusetts Department of Transportation (MassDOT) to allow for the realignment of a portion of Route 116 near the Notch Visitor Center. This transfer, which will change the park's boundary but not its acreage, has not yet been finalized.

Buildings and Structures

The majority of the park's buildings are located off Route 116 in Amherst, along the ridge of the Mount Holyoke Range. At this location there are two developed areas, Military Road to the west of Route 116 and the Notch Visitor Center to the east of Route 116. Locations of these areas' buildings are identified in Figure 2.3.1. Additional buildings and structures, largely historic, are located elsewhere in the park.

The park's cultural resources and major infrastructure are identified in Appendix H, Table H1.

Military Road. This area provides office and storage space for the Bureau of Forest Fire Control and Forestry's Fire Control District 10, and Forest Health Program. Buildings at this site include an office, garage, and three outbuildings. Metal storage containers, vehicles, and heavy equipment are situated to the west of the office. A permanent utility easement, for the utilities to the adjacent Amherst College archives, passes through the parcel, as does Military Road.

The Moore House is a 76- by 28-foot single-story wood framed and sheathed ranch style building, located at 51 Military Road. It was constructed in 1970. The house's shingled roof, wooden clapboard siding, and trim are all in good repair. There are three entrances on the front of the building, two standard doors and one garage door. Heat is provided by an oil-fueled forced hot air furnace. A 275-gallon oil tank is located in the basement.

Domestic water is provided by an on-site well and wastewater is disposed of in an on-site septic system. This building's condition is classified as Adequate, with some corrective and preventative maintenance required.

Next to the Moore House is a three-bay maintenance garage that was constructed in 2008. It is square, measuring 54-feet on a side. The building is wood framed and sheathed in plywood, with eastern white pine siding. It sits atop a poured concrete slab. There is no plumbing in the building. Heat is provided by a wood pellet furnace, with the pellets stored in a galvanized steel silo near the northeast corner of the building. This building's condition is classified as Excellent.

There are three storage sheds on the site. The first is an 8- by 15-foot, two-bay metal storage building. This shed, which has electricity, is used to store pesticides and flammable materials. There is peeling paint and minor rust; its condition is classified as Adequate. The second shed is an 8- by 16-foot wooden building located behind the Moore House. It has an earthen floor. This shed's condition is also classified as Adequate. The third shed is located northwest of the Moore House. It is an 8- by 10-foot masonry block building constructed on a concrete slab. It has a wood framed and sheathed roof with asphalt shingles. This shed's condition is classified as Good.

Notch Visitor Center Area. There are two buildings at the Notch Visitor Center Area, the visitor center itself and a small outbuilding.

The Notch Visitor Center, constructed in 1982, is located at 1500 West Street. It is a wood, masonry block, and glass building oriented east to west, approximating the direction of the Mount Holyoke Range's ridge. Designed by the firm of Alderman & MacNeish, the building has a central meeting room, with administrative space to the north and restrooms and utility space to the south. The meeting room measures 28- by 69-feet, with a height of 28-feet. Fireplaces, surrounded by windows, are located at both the east and west ends of this room. On the north side of the meeting room is a 12-foot by 40-foot, single story section. There are two rooms in this section, an office and a storage room; the latter now contains a wood pellet furnace. Installation of the pellet furnace resulted in inadequate storage space in this building. On the south side of the meeting room is a 24- by 40-foot section that contains bathrooms, a kitchenette, mechanical room, janitor's closet, and entrance lobby. The building sits atop a single, poured concrete slab. The roof over the central meeting room is pitched, and covered in

Place Holder for Figure 2.3.1. Mount Holyoke Range State Park Infrastructure

wood shingles; the rest of the building has a flat, gravel roof. The flat sections of roof have leaks, and there is water damage to associated soffits and fascia boards. The building's condition is classified as Adequate; in need of corrective and preventative maintenance.

The visitor center's utilities originate both on- and off-site. A well provides water for domestic use and a 1,500-gallon septic system disposes of wastewater. The well, which is located at the edge of the staff parking area behind the building, is classified by the DEP as a TNC. Its Zone I wellhead protection area includes the northeast corner of the visitor center, staff parking area, and a portion of the high ropes course. The septic system is located to the north of the parking lot and connects to the building's cast iron waste pipe via a 4-inch-diameter PVC pipe.

A variety of means are used to heat the building, including a wood pellet furnace, oil-fired boiler, and fireplaces. The wood pellet furnace, which was not part of the building's original mechanical systems; is located in a room designed for storage. A silo for the furnace's wood pellets is located in an enclosure attached to the northeast corner of the building. A 1,000-gallon, below-ground oil tank is located behind the building; it supplies fuel to boiler, which is located in the mechanical room.

Water from the well also enters the building at the mechanical room. There are four floor drains in the building, one in the mechanical room, one in the janitor's closet, and one in each bathroom; all discharge to the septic system. Adjacent to the septic system is a utility pole with electric and phone lines. These utilities enter separate underground pipes which run to the visitor center's office. Communications are provided by a single phone line or hand-held radio; there is no base station radio or Internet connection.

A single outbuilding is located south of the visitor center. It is a 12- by 9.3-foot masonry block shed built on a concrete slab. It has a wood framed and sheathed roof with asphalt shingles. The shed's metal door casing is rusted. The condition of this shed is classified as Adequate. Although dimensions differ, the design and construction materials of this shed are the same as those of a similar shed at Military Road.

Lithia Springs Reservoir. There is one structure and one building at this location; a dam and a gate house. Both were purchased by the Commonwealth, from South Hadley Fire District No. 2, in 2002 as part of a 27 parcel acquisition.

The Lithia Springs Reservoir Dam (MA-00667) is an approximately 3,600-foot-long rock-filled embankment along the south side of Lithia Springs Reservoir. This dam was constructed in 1948, expanding upon an earlier, smaller dam. A 25-foot-wide concrete spillway is located at the dam's western margin. This dam is classified as having a low hazard potential; indicating that it is located where a failure may cause minimal property damage, but loss of life is not expected.

A recent inspection found the dam to be in poor overall physical condition, with numerous deficiencies (Tighe & Bond 2011a). These deficiencies were:

- Inoperable low-level outlet; condition unknown.
- Large trees and woody vegetation growing along the dam's downstream slope.
- Woody vegetation growing along the upstream slope, including near abutments.
- Erosion near left abutment.
- Dam crest lacks vegetation.
- Centerline of dam crest eroded from ATV traffic.
- Pooled water and seepage near the embankment center.
- Seepage near left abutment.
- Left concrete trailing wall is cracked and spalled (i.e., flaking, pitted, or broken).
- Deterioration of gate house roof shingles and bricks.

An estimated \$135,000 in repairs is needed to correct these deficiencies.

The gate house is located near the center of the dam. It is a square, brick building measuring approximately 10-feet on a side. Its hip roof is wood framed and sheathed, with a layer of asphalt shingles; there are multiple holes through this roof. In addition, sections of wood trim are rotted, many of the bricks are chipped, and the structure is graffiti covered. Entrance to the building was not possible

during the site visit so it is unknown what equipment, if any, remains in this building.

Bachelor Street Area, Granby. At the south end of Comma Pond is Aldrich Dam (MA-01893), an approximately 220-foot-long earthen dam. This dam is considered “non-jurisdictional,” meaning that it is not regulated by the DCR Office of Dam Safety due to limited dam height or amount of water storage. Such dams are not assigned hazard codes.

Aldrich Lake. Aldrich Lake Dam (MA-00491) is located in Granby at the west end of Aldrich Lake. It is an approximately 100-foot-long mass concrete gravity dam with a 24-foot height above the streambed (Lenart and Michalski 2007). The current dam was constructed in 1934 at the location of a previous dam. Although not part of Mount Holyoke Range State Park, this DCR-owned dam created Aldrich Lake, which in turn created the lake-front portion of the park. The dam is classified as having a significant hazard potential; indicating that it is located where a failure may cause the loss of life and damage to homes, industrial or commercial facilities, secondary highways, and railroads, or cause interruption of use or service of “relatively important facilities” (MassGIS 2012).

In 2009, it was determined that the dam did not meet accepted dam safety standards and its condition was downgraded to unsafe (Sullivan 2009). The following deficiencies were documented in a recent inspection (Tighe & Bond 2012):

- Spalling, eroded, and cracked concrete on the downstream sides of the auxiliary spillways.
- Cracking and spalling on the upstream side of the auxiliary spillway.
- Increasing concrete erosion on the primary spillway.
- Water seepage through the dam’s abutments.
- A corroded discharge pipe.
- An inoperable low-level outlet with spalled concrete.
- Brush growing on the abutments and auxiliary spillway.

The report further stated that “based on visual observations... the dam has continued to deteriorate since the 2011 Phase I inspection, particularly the left auxiliary spillway where a transverse crack

within the top several feet of the crest has worsened” (Tighe & Bond 2012).

Granby Sand Plain. There are no buildings at this location, only remnants of Westover Air Reserve Base’s buildings 9200, 9201, and 9202. (See Cultural Resources, Section 2.3.2 for additional information on these building remnants.)

Three 42-inch-diameter corrugated metal culverts pass beneath the access road to the former buildings; Ingraham Brook passes through these culverts. Adjacent to the culverts, both up and down stream, is a “beaver deceiver.” These devices are constructed of fencing and multiple lengths of small-diameter culverts that pass through the fencing. The fencing creates a barrier against which beaver will construct dams, while the small culverts allow water to pass through the dam, thereby avoiding flooding and potential road damage. These devices are in need of replacement.

194 West State Street, Granby. There are two buildings at this site, the former dinosaur museum located at the front of the lot and a residential building located at the back of the lot.

The former dinosaur museum is a 26- by 56-foot split-level house constructed c. 1971. It was formerly used as a combination dinosaur museum and coffee shop until being acquired by the Commonwealth (Weston & Sampson Engineers, Inc., and ATC Associates, Inc. 1998). In 1993, \$40,000 in renovations was performed in preparation for the building’s use as a temporary police station; this included painting, landscaping, upgrading the electrical service, and constructing a 9- by 14-foot addition. The Granby Police Department occupied the building from November, 1993 through July, 2010 (Granby Police Department 2012). It is not currently occupied.

The former museum has wooden framing, sheathing, and siding, and asphalt shingles. It sits atop a masonry block foundation. The building is in need of paint. Heat is provided by an oil-fueled, forced hot air furnace; a 275-gallon oil tank is located in the basement. Domestic water is from a private well; it is heated via a propane-fueled water heater. Wastewater is disposed of in a private septic system. This septic system, with a 1,000-gallon septic tank, has a design flow rate of 150 gallons per day (Weston & Sampson Engineers, Inc., and ATC

Associates, Inc. 1998). It was repaired in 1998 and passed a Title V inspection at that time. The condition of the building is classified as Adequate.

The former residence, dating to c. 1949, is constructed in two parts. A 20- by 22-foot one-story section with a basement forms the front (i.e., street-side) of the residence. On the back is an approximately 24-foot-square section without a basement. This back section is believed to be the oldest portion of the residence. An enclosed porch, measuring 9- by 19-feet, is attached to the west side of the back section. Due to a lack of occupancy and renovations, this building is in poorer condition than the former dinosaur museum. Vegetation is growing in the gutters and the porch roof is collapsing.

This former residence once had its own well and septic system; both were decommissioned in 1998 (Weston & Sampson Engineers, Inc., and ATC Associates, Inc. 1998). As with the former museum, heat is provided by an oil-fueled hot air furnace and a 275-gallon oil tank is located in the basement. The building is currently used for storage. Its condition is classified as Poor, indicating that renovation is needed.

535 Bay Road, Belchertown. There are two buildings on this site, both associated with previous commercial land use.

The larger of the two buildings is a horse stable. It consists of three parts, each with different dimensions and construction materials. The main part is a 1.5-story wooden stable. It is framed and sided in wood, and has asphalt roofing shingles. This appears to be the original section of the building, which according to Belchertown Assessor's records, was constructed in 1982 (PES Associates 2011). Attached to the stable's east side is a single story metal building. This building is approximately 80-feet by 38-feet, and sits atop a concrete slab. It has a damaged metal cupola. Both the wooden and metal parts have jalousie windows, most of which have missing panes of glass. Vines and trees are growing on and against both sections, causing damage to the siding and roof. A shed-style addition is attached to the back (i.e., south side) of the wooden stable. It runs the entire length of the stable and extends two horse stalls beyond (i.e., away from) this section. This addition is wood framed and sided, and has asphalt roofing shingles. A non-functioning bathroom is located within one of the stable's stalls;

it appears to be served by an on-site septic system (PES Associates 2011). The Town of Belchertown has no record of a septic system at this location. Domestic water is believed to originate from the municipal water system; however, the town has no record of a connection (PES Associates 2011). The condition of the metal part of the stable is classified as Adequate, while the wooden sections are classified as Fair.

The second building, located approximately 70-feet south of the stable, is described as a cabin (PES Associates 2011). It is 16-feet-wide by 12-feet-deep and has wood framing, T-111 siding, multiple windows with screens, and asphalt roofing shingles. The interior has carpet, finished wallboard, and electric outlets. The siding is rotted near the ground and the interior has been damaged by a combination of vandalism, weather, and animals. The condition of this building is classified as Fair.

Roads

Most of the park is road free. There are only 0.63 miles of public or administrative roads; all of which are legal. Of these roads, 0.47 miles (74.2%) is classified as good and the remainder is classified as fair. An additional 0.11 miles of roads occur on associated Conservation Restrictions; all are legal and in good condition.

Parking

Public parking is limited, with approximately 80 spaces available in the main part of the reservation, 12 on adjacent non-DCR land, and 8 spaces at the former dinosaur museum and residence in Granby. There is no public parking at the Granby Sand Plain parcel. (Table 2.3.7) On busy days, the Notch Visitor Center, Bachelor Street, and Harris Mountain Road lots fill early.

Table 2.3.7. Number of public parking spaces, by location and type, at Mount Holyoke Range State Park.^a

Location	HP	Other	Total
Notch Visitor Center, Amherst ^b	1	39	40
Amherst Road/Old Mill Lane, Granby ^{c, d}	0	7	7
Amherst Road Fire Gate, Granby ^d	0	5	5
Bachelor Street, Granby ^c	0	19	19
Harris Mountain Road – West, Granby ^c	0	6	6
Harris Mountain Road – East, Amherst and Granby ^c	0	16	16
Granby Sand Plain parcel ^c	0	0	0
Former Dinosaur Museum and Residence, Granby ^b	1	4	5
Total	2	96	98

- a. This table does not include roadside parking.
b. Number of spaces is based on pavement markings.
c. Number of spaces is based on the number of potential 9-foot wide, perpendicular parking spaces.
d. The parking areas are not on DCR property.

Public parking facilities in the main part of the reservation include one paved lot and three gravel lots. The paved lot is located at the Notch Visitor Center in Amherst; there is no designated school bus parking, nor is there bicycle parking. When this lot fills, vehicles are parked on the lawn, atop the septic system. A Pioneer Valley Transit Authority bus stop is located just south of the lot's entrance.

Gravel lots are located off Bachelor Street and along the east and west sides of Harris Mountain Road. These lots are supplemented by paved parking areas near the intersection of Amherst Road and Old Mill Lane in Granby, and at the fire gate south of the MassDOT facility on Amherst Road in Granby; neither of which is on DCR land. Visitors park at all of these locations and, when the lots fill, on adjacent roadsides and grassy areas. Visitors also park illegally along the shoulder of Lithia Springs Road in South Hadley, often on private property.

Accessible parking is limited to one space at the Notch Visitor Center and another behind the former dinosaur museum. Neither space is van accessible or meets current codes. The space at the visitor center is too narrow, lacks an aisle of appropriate width, and requires those using the space to travel the unpaved road to circumvent the main entrance's steps. In addition, current standards require at least two accessible spaces for a lot with a 40-space capacity. The space at the former dinosaur museum

is on a side slope that is too steep for current standards.

DCR staff parking is located behind the Notch Visitor Center in that facility's Zone I wellhead protection area and also at the Moore House. Neither lot is paved. Staff parking at the former dinosaur museum is located on the east and south sides of that building.

Trails

The park's trail system is one of its great attractions, offering a variety of hiking and cycling experiences, providing scenic overlooks, and allowing visitors to experience natural surroundings. Many segments are not on DCR lands, but on adjacent private lands or inholdings within the park. For example, the NET crosses private lands to both the east and west of the Notch Visitor Center, and the Bachelor Street Trails cross several private inholdings. Peripheral portions of the park, including Aldrich Lake; Bay Road, Belchertown; and the Granby Sand Plain currently lack a formal trail system.

There are approximately 79.85 miles of trails within the park. Nearly a third (25.77 miles; 32.2%) are unofficial; created by recreationists without the benefit of proper planning or regulatory review. Many of these unofficial trails are located between the ridgeline and Bachelor Street. An assessment of trail condition, conducted in 2009, indicated that 33.65 miles of legal trail (62.3%) were in Good condition, 17.51 miles (32.3%) were in Fair condition, and 2.92 miles (5.4%) were in Poor condition.

An additional 1.56 miles of trails are located on Conservation Restrictions associated with the park. Of these, 1.45 miles (92.9%) are legal. Most were classified as being in either Good or Fair condition (1.38 miles, 95.5%), with only a small amount (0.07 miles; 4.5%) in Poor condition.

A survey of park visitors revealed trail users' perceptions of trail conditions, markings, and maps (Loomis et al. 2009). Most respondents (83.5%) felt that the physical condition of trails was either Good or Very Good. Only 4.3% identified the trails as being in either Poor or Very Poor condition. In general, it was information about the trails, rather than their condition, that was perceived to be the problem. When asked what they liked the least about the park, 26 respondents (28.3%) indicated that there

were insufficient trail markers and 20 (21.7%) indicated that trail maps were unclear or unavailable. An on-line survey conducted in the fall of 2012 supported these findings; increased trailhead parking, improved trail markings, updated maps, and increased enforcement of regulations along trails were among the improvements recommended by trail users.

Kiosks and Signs

Kiosks and signs are located mainly at Military Road, the Notch Visitor Center, and along the park's trails.

Identification signs are located in front of the Moore House and at the entrance to the Notch Visitor Center. These signs are neither Park and Forest Entrance Signs nor Main Identification Signs, as described in the DCR Graphics Manual (DCR n.d.). However, they are in good condition and effectively identify these resources.

A double-sided kiosk is located next to the Notch Visitor Center. This kiosk is constructed of wood and has asphalt roofing shingles; it is in good repair. The front of this sign has a Welcome Wayside/Orientation Sign for both Skinner and Mount Holyoke state parks. This is the same panel as used on the two kiosks at Joseph Allen Skinner State Park. The back of the kiosk is a bulletin board with a locking Plexiglass cover. An unpainted iron ranger, a secure metal donation box, is situated next to this kiosk.

The park's only other kiosk is located at the Bachelor Street parking lot. This one-sided kiosk is similar in design and construction to that at the Notch Visitor Center. It functions as a bulletin board; the most prominent posting on which is an unofficial map of park's mountain bike trails. Non-DCR trail signs, with trail names matching those on the map on the kiosk, are nailed to trees throughout the area. Limited DCR alpha-numeric Location Identification (LID) signs are also present. In general, these signs are sparse throughout the park's trails system.

At the east entrance to the Granby Sand Plain parcel is a sign that reads: "*Granby Sand Plain, Mount Holyoke Range State Park; Massachusetts Department of Conservation and Recreation. This property acquired through the National Park Service Federal Lands to Parks Program for use by*

the general public." This language closely approximates that required by the National Park Service in the terms and conditions listed in the parcel's Quitclaim Deed (Book 6959, Page 0092).

Signs at the former dinosaur museum are regulatory (i.e., traffic related). There is no sign indicating that the facility is owned by the DCR.

A Road Marker/Lead-in Sign (DCR n.d.), which directs people to the Notch Visitor Center is located at the intersection of Bay Road and Route 47 in Hadley. There is no similar sign at the intersection of Bay Road and Route 116 in Amherst. There are no Road Marker/Lead-in Signs on Route 116 as you approach the Notch Visitor Center from either the north or south.

A sign near the intersection of Amherst Road and Old Mill Road in the Town of Granby identifies a small paved area as "Parking for Trails." Additional information on this parking area was presented in Table 2.3.7.

Memorials and Markers

No memorials were identified on this property. A single granite marker, indicating the boundary between Amherst and Granby occurs along the west side of Harris Mountain Road at the end of a DCR parking lot. Presumably, additional town boundary markers are present in the park, but went undetected during the preparation of this RMP.

2.4. JOSEPH ALLEN SKINNER STATE PARK

Skinner state park is located on Mount Holyoke, at the western terminus of the Mount Holyoke Range. A destination for scenic tourism since the early 1800s, Mount Holyoke was "known for its views of the winding Connecticut and the interval meadows and agricultural fields that extend along it" (Carr 2009). It remains known for these views, which attract tens of thousands of visitors to the park each year.

The park was established in 1940, when Joseph Allen Skinner donated 375 acres in the towns of Hadley and South Hadley to the Massachusetts Department of Conservation. This property ran from the summit of Mount Holyoke to the eastern bank of the Connecticut River and its donation included not only the land, but "the buildings thereon situated" (Quitclaim Deed; Book 953, Pages 401). Included

were a variety of now historic structures, most notably the Summit House. Skinner’s gift to the people of Massachusetts came with the condition “that the area conveyed shall be designated and hereafter known as Joseph Allen Skinner State Park.” Thus began the Commonwealth’s land protection on the Mount Holyoke Range.

Since its establishment, Skinner state park has expanded from 375 to 780.77 acres. However, its impact on conservation and recreation is far greater than its modest size. Protection of this park has served as inspiration for other public and private land protection efforts in the region, including Mount Holyoke Range State Park to the east and Connecticut River Greenway State Park to the west.

There are two Conservation Restrictions associated with the park; they are identified in Table 2.4.1.

Table 2.4.1. Conservation Restrictions associated with Joseph Allen Skinner State Park.

Land owner(s), in fee	Acres ^a
Harrop and Dudkiewicz	5.52
Lyman	54.79
Total	60.31

a. Number of acres as calculated by GIS; this value may differ from the number of acres on the deed, if listed.

2.4.1. NATURAL RESOURCES

Because Skinner state park is located in the westernmost portion of the Mount Holyoke Range, its natural resources are largely a subset of that of the entire range, as presented in Section 2.3.1. The exception is those resources associated with the Connecticut River that occur within the park, but not elsewhere in the range. Information on resources unique to the Skinner state park is presented below.

Physical Features

Topography. The park ranges in elevation from approximately 108 feet above sea level at the east bank of the Connecticut River to 889 feet above sea level at the summit of Mount Holyoke.

In the park, the Mount Holyoke Range’s ridgeline runs from approximately southwest to northeast. Slopes north and west of the ridgeline are steep while those to the south and east are more gradual.

Geology. A summary of the geology of the entire Mount Holyoke Range was provided in Section

2.3.1. This description is applicable to Skinner state park.

Water Resources

Ponds. There are no ponds.

Wetlands. There are approximately 5.37 acres of wetlands in the park, and no known wetlands on associated Conservation Restrictions.

Vernal Pools. There are three certified and six potential vernal pools in the park and associated portions of Connecticut River Greenway State Park.

Streams. There are approximately 3.23 miles of streams. Hop Brook, the park’s largest stream, is located on the range’s south slope; two smaller streams flow down the north slope. An additional 0.53 miles of streams occur on associated Conservation Restrictions.

Groundwater. There are no DEP identified aquifers beneath the park. Despite this, there are three wells; two located at the Halfway Area and the third located at the summit. The wells at the Halfway Area provide water to the Halfway House and Halfway Garage. The well at the summit provides water to the Summit House and is classified as a TNC (PWS ID: 1117006); it has a Zone I radius of 136.5 feet and an approved pump rate of 1,750 gallons per day.

Flood Zones. Only 11.84 acres of the park (1.52%), located along Hockanum Road near or on the Connecticut River, is within the 100-year flood zone. The DCR’s historic tobacco barn is located within this zone. No sections of the park are within the 500-year flood zone.

Nearly all portions of the Connecticut River Greenway State Park located adjacent to Skinner State Park and along Hockanum Road are located within the 100-year flood zone.

Rare Species

Sixteen state-listed species are known from Skinner state park, and nine are known from adjacent portions of Connecticut River Greenway State Park. (Table 2.4.2) Four species, all highly mobile animals, are common to both parks. Based on the occurrence of the presence of rare species and rare species habitat, 676.86 acres (86.69%) of Skinner state park have been designated Priority Habitat

under the Massachusetts Endangered Species Act (321 CMR 10.00; see Appendix F). Nearly all land in Conservation Restrictions associated with Skinner state park (59.93 acres; 99.38%) and adjacent portions of Connecticut River Greenway State Park (143.10 acres; 86.28%) have also been designated as Priority Habitat.

Virtually the entire park provides habitat for rare animals. Marbled salamanders, which breed in vernal pools, are associated with forested uplands. Eastern box turtles use both the park's wetlands and forested uplands. The orange swallow moth is associated with the park's dry uplands along the range's main ridge. Several species (i.e., bald eagle, dragonflies) fly and may occur in or over most of the park.

Table 2.4.2. State-listed species of Joseph Allen Skinner State Park and adjacent portions of Connecticut River Greenway State Park, as identified by the NHESP.^{a, b}

Species ^c	Type ^d	MESA ^e	Location ^f
Bald eagle	B	T	C, S
Climbing fumitory	P	SC	S
Data sensitive rare animal 1 ^g	-	E	S
Data sensitive rare animal 2 ^g	-	E	C
Eastern box turtle	R	SC	S
False hop sedge	P	E	S
Frank's lovegrass	P	SC	C
Glaucous sedge	P	E	S
Gray's sedge	P	T	C
Green dragon	P	T	C
Green rockcress	P	T	S
Large-bracted ticktrefoil	P	T	S
Marbled salamander	A	T	S
Midland clubtail	I	E	C, S
Orange swallow moth	I	SC	S
Purple clematis	P	SC	S
Red mulberry	P	E	S
Riverine clubtail	I	E	C, S
Shortnose sturgeon	F	E	C
Skilllet clubtail	I	T	C, S
Yellow lampmussel	M	E	C

a. From Maier (2012).

b. Fact sheets for all species are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/mesa-list/list-of-rare-species-in-massachusetts.html>.

c. When common names differ between the MESA list and the PLANTS database (USDA 2012), the MESA name is presented.

d. Type of state-listed species include A = Amphibian, B = Bird, F = Fish; I = Insect, M = Mussel, P = Plant, and R = Reptile.

- e. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered; SC = Special Concern; and T = Threatened.
- f. Location codes are: C = Connecticut River Greenway State Park; and S = Joseph Allen Skinner State Park.
- g. This species is not identified in accordance with NHESP's policy of not revealing in site-specific documents the name or location of rare species susceptible to collection.

Most of the park's rare plants occur on the range's main ridge and south slope. These plants require partial to full sun exposure, something traditionally available in these sections of the range. However, the amount of habitat available for these species is decreasing as canopy closure increases (NHESP 2007a). Other threats to the plants are invasive species, recreation impacts (e.g., trampling), and erosion.

Other rare plants, such as false hop sedge, are associated with wetlands at the base of the south slope. This species is "exceptionally rare in Massachusetts" and requires a particularly high level of wetland protection (NHESP 2007a).

Rare species at Connecticut River Greenway State Park include seven animals and three plants. One animal species is susceptible to collection and, therefore, not identified in this RMP. The park's rare species are either fully aquatic (e.g., yellow lampmussel), associated with river's floodplain (green dragon), or hunt along the river (e.g., various clubtails).

Ninety-six percent of the park (749.60 acres) has been designated BioMap 2 Core Habitat; 79.26% (618.81 acres) has been identified as Critical Natural Landscape. The Core Habitat extends in all directions beyond the park's current boundaries, while the Critical Natural Landscape extends to the north, east, and south. Both are contiguous with similar categories in the adjacent Mount Holyoke Range State Park.

Vegetation

Vegetation and natural communities of the park are a subset of those of the Greater Mount Holyoke Range. See Section 2.3.1.

Invasive Species. Invasive species information for the entire Mount Holyoke Range was presented in Table 2.3.3 and associated text. Limited park-specific information is available. However, two invasive plants are known to be associated with the developed portions of Skinner state park. Garlic

mustard is common along the moist slopes adjacent to the lower portion of the park road, and fin-leaf sheep fescue is associated with the park's lawns.

Forests. The park is largely forested (735.41 acres; 94.2%), with limited agricultural fields, turf grass, and pavement.

The westernmost Forest Core Habitat in the Mount Holyoke Range includes over one-half of Skinner state park (53.7%; 419.07 acres). Included in this forest core are the eastern and southern portions of the park that are contiguous with Mount Holyoke Range State Park. The north and west portions, including the Summit Area, Halfway Area, and Skinner Park Road corridor are not included.

There is inconsistent information on the presence of stands of old-growth forest in the park. Davis (2005) reported 35 acres of "old-growth hemlock-hardwoods" at Skinner. A separate assessment of Massachusetts' old-growth forests did not identify any in the park (D'Amato et al. 2006).

Five CFI plots are located in stands ranging in age from approximately 85 to 117 years. As part of the CFI process, DCR foresters monitor major agents of tree loss (i.e., factors that lead to the death of trees). Since 2000, eight biological loss agents have been observed in the park's monitoring plots. These agents, in decreasing order of occurrence, are: heart rot; hemlock woolly adelgid; unknown diseases; *Nectria*, a fungus; unknown biological agents; white pine weevil; gypsy moths; and ants.

Wildlife

Information on the Mount Holyoke Range's birds, mammals, reptiles, and amphibians was presented in Section 2.3.1. This information is applicable to Skinner state park.

Fish. There are no permanent ponds within park boundaries and there is no information on whether any of the wetlands or streams support fish populations.

Invertebrates. Information on invertebrates is largely limited to butterflies, rare species, and forest pests. Information on these animals was presented earlier in Section 2.4.1.

2.4.2. CULTURAL RESOURCES

The Commonwealth of Massachusetts' 70-year management of Mount Holyoke and its surrounding land is a continuation of a long history of promotion, stewardship, and recreational usage of a landscape with strong cultural associations. The cultural resources of Joseph Allen Skinner State Park are primarily clustered in two locations; the Summit Area and the Halfway Area. These two areas are connected historically, physically, and visually to each other.

Many of the park's cultural resources are listed on the National Register of Historic Places as contributing resources within the Hockanum Rural Historic District. This district encompasses much of the west end of the park, including the Summit Area, Halfway Area, and Mountain Road. Not all of the resources mentioned below are noted specifically in the nomination form (Farmer et al. 1992), but those located within the district boundary would likely be considered eligible for listing.

The park's cultural resources and major infrastructure are identified in Appendix H, Table H2. Additional information on the park's infrastructure is presented in Section 2.4.4.

Archaeological Resources

The Connecticut River Valley has been peopled for the last 12,000 years. Known and recorded Native American archaeological site occupation continued from the Paleo Period, although perhaps on a seasonal basis, through early historic times. Every cultural/temporal pre-Contact period is represented in the Holyoke Range study area, spanning a period from about 12,000 YBP to the late 1660s: Paleo, Early, Middle, Late Archaic, Early, Middle, and Late Woodland and Early Historic.

Joseph Allen Skinner State Park contains 17 recorded pre-Contact sites. The number of known sites, as mentioned earlier, is no doubt far less than what actually exists. The park has not been systematically surveyed for archaeological resources. All of the pre-Contact sites are adjacent to water sources, with the majority located on the floodplain of the eastern shore of the Connecticut River.

Historic Resources

Summit Area. The summit of Mount Holyoke and its scenic views of the agrarian Connecticut River Valley are highly significant for their history as a major tourist and recreational destination, particularly during the 1800s. While written accounts of the view first drew visitors to the summit in the late 1700s, it was descriptions penned by Timothy Dwight, and such noted 19th century authors as Ralph Waldo Emerson, Nathaniel Hawthorne, and James Fenimore Cooper, that attracted an international audience and placed Mount Holyoke on par with Niagara Falls as an American must-see destination.

The view from Mount Holyoke also became widely famed through the work of 19th century artists celebrating the sublime nature of the American landscape, most notably in *The Oxbow*, painted in 1836 by Thomas Cole, the founder of the Hudson River School art movement.

Today, the summit of Mount Holyoke is a cultural landscape dominated by the presence of the Summit House, which is visible from many of the surrounding cities and towns. A map of the Summit Area is provided in Figure 2.4.1.

The construction of buildings to feed and house visitors on major mountain peaks throughout New England was a popular trend throughout the mid- to late 19th century. Most of these historic summit houses have been lost to fire, natural disasters, or deterioration. Not only is the Summit House one of the last remaining intact examples of such structures, but Mount Holyoke is the site of what may have been the first such summit house to have been built in New England.

Increasing visitation by tourists to Mount Holyoke in the early 19th century prompted the Town of Hadley in 1821 to construct a one-room, 18- by 24-foot log cabin at the summit in order to provide refreshments to hikers. A competing summit house was constructed the next year just northeast of the other cabin. As these buildings drew more visitors to the summit, the Mount Holyoke Association (MHA) was formed in 1825 with the intent of building a more permanent summit house. By 1828, the MHA had acquired both summit houses, and that year the original cabin was moved next to the second one to create a single structure. This “combined” summit

house was operated by a number of proprietors for a number of years until the summit property was purchased by John W. French of Northampton and a partner in 1849.

In 1851, French designed and constructed a new summit building to replace the earlier structure. Known as the Prospect House, this two-story, wood framed structure measured 25- by 30-feet and featured a dining room on the first floor, hotel apartments on the second, and a 12-foot-square observatory on the roof. This building was significantly altered and expanded in 1861 in order to feed more diners and accommodate more overnight visitors, essentially creating the Summit House that stands today. A major addition was constructed on the south side of the Prospect House in 1894, consisting of a four-story wing with a new kitchen, dining room, and 39 guest chambers.

The Mount Holyoke Company, a corporation of stockholders led by Joseph A. Skinner, acquired the summit property in 1908 with the intent of preserving Mount Holyoke for the state. After a failed effort to sell the property to the Commonwealth of Massachusetts as a state reservation in 1916, Skinner bought out the company, took over management of the Prospect House, and made many improvements to the facility in the following years. Reduced tourism arising from the Great Depression, combined with significant damage to the 1894 addition during a 1938 hurricane, made continued operation of the Summit House less economically feasible. This led to Skinner’s donation of the summit and 375 acres of surrounding land to the state in 1940. The state made little investment into the Summit House until a major restoration in 1982–83 designed by the West Springfield architectural firm of Alderman & MacNeish.

The Summit House is perched just west of the summit of Mount Holyoke at the edge of its steep northern slope. It is a two-story, wood framed, rectangular structure with a gently sloping shed roof and a wide open porch deck that surrounds the building on all four sides at the first floor level. The elevated deck is accessible from the ground via wood stairs at the east and west sides and a switchback ramp on the south side. The exterior walls of the Summit House sit on poured concrete foundation walls, while the remaining structure

Place Holder for Figure 2.4.1. Joseph Allen Skinner State Park: Summit Area

inside the basement and below the porch deck and ramp is supported by wood posts on concrete piers.

The building's wood clapboard exterior, painted white with blue trim, is largely devoid of architectural embellishment except for some limited Italianate detailing such as bracketed lintels above the wood sash windows, arched door and window openings on the first floor, and scalloped boards on the north porch awning structure. The first floor interior features a central hall with four corner rooms, while the second floor has a series of small rooms oriented around a central hall with an opening to the hall below. Modern restrooms on the east side are the only finished areas of the basement level that is largely open to exposed outcrops of rock.

After closing the Summit House to the public for two seasons due to deterioration of the porch structure, the DCR undertook a major project in 2012–13 to repair the porch, repaint the building exterior, and make a variety of access improvements, including construction of a new ramp structure on the south side of the porch, and rebuilding the access road from the upper parking lot to new accessible parking spaces at the base of the ramp.

This recent rehabilitation has addressed most of the exterior repair needs at the building, though the membrane roof on the Summit House and wood shingle roofs on the porch awning structures are in need of replacement. Views from the porch to the Connecticut River Valley, the Mount Tom Range, and beyond are still largely open, but tree growth in the vicinity of the Summit House is beginning to block the views.

East of the Summit House are a variety of historic markers and objects scattered around the picnic areas along the summit ridge. Embedded in the exposed rock outcrop next to the east porch stair is a metal plate mounted on a metal rod, marking the official summit of Mount Holyoke. On the steep face of another rock outcrop in the picnic area is mounted a bronze plaque installed in 1940 to honor the dedication of Joseph Allen Skinner State Park. Nearby is a 3-foot-tall granite obelisk etched with an "H" and "SH" on alternate sides, marking the boundary between the towns of Hadley and South Hadley. In addition, historic graffiti consisting of etched letters and initials in exposed rocks in the picnic area (and in the basement of the Summit

House) is still visible, probably dating from the 19th and 20th centuries.

A number of historic foundations can be found in the Summit Area. A cellar hole with partially collapsed stone foundation walls is located just to the west of the Summit House next to the west porch stair. The origins of this cellar hole and foundation are unknown. Without stabilization this foundation will continue to collapse.

A few hundred yards to the west of the summit, directly adjacent to the NET, can be found a series of stone walls that once served as the foundation for a mountain house constructed in 1869 by Loren Pease to compete with the successful Prospect House. The structure was torn down in 1884 when it was discovered that Pease did not have the right to build where he did.

At the east end of the lower parking lot is a rectangular bump-out from the stone retaining wall for the mountain road. This three-sided stone retaining wall acted as the foundation for a wood-framed horse and carriage barn that stood on the site from probably the mid- to late 19th century until it was damaged by arson and subsequently demolished in the late 1990s.

Tramway. Extending from the north side of the Summit House down the slope to the Halfway Area is a 50-foot-wide by 600-foot-long swath in the mountainside forest that is the location of the tramway that once provided visitors direct access to the Summit House during its heyday as a tourist destination.

A wooden track from the Halfway Area to the relatively new Summit House was built by John French in 1854. Railway cars were pulled up and down the track using a horse located at the Halfway Area, until a steam-powered engine was installed in 1856. The single wood track was replaced by a double track in 1860. A 32- by 80-foot barn was constructed at the base of the railway in 1861 to service the horses and carriages used by most visitors to reach the Halfway Area. The barn was expanded in 1866 to house a terminal for a new track that was built to connect the Connecticut River ferry landing to the Halfway Area. That same year, French made a major investment in improving the tramway system, replacing it with three tracks with funicular balance cars and enclosing it with sidewalks and a

roof. Fieldstone sleepers for this version of the tramway still exist on the mountainside. The roof and walls suffered a major collapse during a snowstorm in 1948, and by 1960 most of the tramway structure had been removed. The tramway path, while still visible on the landscape, is rapidly becoming overgrown with vegetation. Left unchecked, the vegetative growth will soon obscure the location of the tramway.

Halfway Area. The Halfway Area consists of a cultural landscape of buildings and structures that originally supported the operations of the Summit House and the tramway. Today the complex serves as the operations headquarters for park staff, including offices and maintenance facilities. (See Figure 2.4.2 for a map of the Halfway Area.)

At the east end of the Halfway Area stands the Halfway House, a two-story, cross-gabled, wood frame building with an open porch on the west side of the north ell. John French used the building as his residence starting in 1852. Historic photographs indicate that the original building consisted of a two-story north ell with a two-sided porch, connected to a one-story south ell. At some later time, the south ell had a second story added, and the north ell's gable roof was rebuilt with a shallower slope. The existing building features a concrete block foundation, which is not original to the building. Paint on the exterior wood clapboard siding is badly peeling, apparently due to high moisture content in the wood, which is visibly rotting near the sills.

The other major building at the Halfway Area is the two-story Halfway Garage, which sits perpendicular to Skinner Park Road, down the hill from the Halfway House. Currently used as a maintenance building for park staff, it features a metal-sheathed gable roof with vertical wood siding, modern two-bay garage doors at its south end, and wood sash windows. Like the Halfway House, it sits atop a concrete block foundation that was not original to the building. It has a structural frame of wood timbers re-used from another building; historical records indicate that a barn was torn down near the ferry landing on the Connecticut River in 1890, the wood of which was used to build this structure.

Up the slope from the Halfway Garage are a number of cultural resources related to the infrastructure of the Halfway Area and tramway. These include two circular underground cisterns or water tanks that are

slightly elevated above grade; one is constructed of poured concrete and the other of mortared stone, and each has a concrete cap. Just above the cisterns is a pump house partially built into the slope, featuring an asphalt shingled gable roof, concrete walls, and a paneled wood door and boarded window opening on the north elevation. Just up slope from the pump house is a concrete slab topped with a square concrete removable access panel and a stepped concrete pier. This structure has been repurposed as a picnic shelter with roof pavilion.

West of these structures is an L-shaped stone retaining wall that served as the foundation for the barn constructed in 1861 for tramway operations. The dry-laid stonework is largely intact, but some stones have become loose and unstable.

At the far west end of the Halfway Area, at the base of the tramway path, stands the remnants of the steam engine that powered the tramway cars from 1867 to 1926, when it was replaced by an electric motor at the Summit House. The remnants include a cast iron flywheel and the engine's pistons and chamber connected by rods to a horizontal gear, all set on a mortared stone foundation and protected by a modern roof pavilion.

Just down the slope from the Skinner Park Road, across from the Halfway Garage, is a poured concrete wall that acts as a dam to retain water draining from a road culvert. It was likely constructed as an erosion control measure. Its date of construction is unknown, but a 1940s map of the park notes an "overflow pool" at that location.

Skinner Park Road. The park's internal summit road and the local roads that connect to it from Hockanum Road/Route 47 are largely late 19th and early 20th century routes that replaced a variety of access roads from the valley.

A horse path to the Halfway Area was in place as early as the mid-18th century; by 1830 carriages were able to travel up the slope from the valley. An 1831 map depicts a z-shaped road extending east from the Hockanum ferry landing to the Halfway Area. This apparently was replaced by a new road built by the county in 1850 on a more direct east-west alignment.

A new, more popular route was established to the Halfway Area in 1865 when John W. French built a road just upstream from the ferry landing that extended straight up the hill, paralleled by a wood

Place Holder for Figure 2.4.2. Joseph Allen Skinner State Park: Halfway Area

railroad track for horse-drawn cars. It is not clear when this road was abandoned for use by carriages, but today's red-blazed Tramway Trail follows the original road bed.

A new road was constructed in 1888, extending from the Hockanum Burying Ground on the Hadley/South Hadley town line directly up to the Halfway Area. Named Dwight Avenue, this is now the mostly unpaved Old Mountain Road that leads up to the park entrance gate, and Skinner Park Road that extends from the gate to the Halfway Area.

Sometime in the early 20th century the 1850 county-built road from the ferry landing was replaced by a new road on a slightly different alignment, which is the existing paved Mountain Road that connects Hockanum Road/Route 47 to the park entrance gate.

Footpaths were the only way to access the summit from the Halfway Area to the summit until the first of a series of more established horse paths was built in 1845. These were used until the coming of the automobile, when in 1908 the Mount Holyoke Company built a new road from the Halfway Area to the summit, following a native trail used by early settlers. This road, with some minor adjustments made in 1927 to eliminate some sharp curves, established the alignment of today's upper summit road. The bituminous asphalt surface of Skinner Park Road is rapidly deteriorating.

Route 47. Two historic resources are located off of Route 47; a tobacco barn and the former site of a Mount Holyoke College cabin.

On the east side of Hockanum Road (across the street from 133 Hockanum Road), just north of the intersection with Old Mountain Road, stands a tobacco barn with vertical hinged board siding and a metal roof. The cultivation of light broad leaf tobacco was very popular in this area of the Connecticut River Valley by 1870, but declined quickly after only a few years. This barn thus likely dates from c. 1870. The barn suffers from lack of maintenance; sheets of roofing are missing or deteriorated, wood siding and trim are heavily weathered, and its structural frame is compromised. Staghorn sumac trees are growing around the entire structure and bittersweet vines extend up the walls and over the roof, trapping moisture and facilitating deterioration of the wood. The area around the barn is in active agriculture.

Historically, there has been a strong association between Mount Holyoke and the academic institution of Mount Holyoke College (formerly Mount Holyoke Female Seminary) located in South Hadley. Starting in the school's initial year of operation in 1837, students have celebrated the tradition of "Mountain Day," when classes are cancelled for the day and students hike to the summit of Mount Holyoke. In addition, Joseph A. Skinner was actively involved in the development of the college in the early 20th century as a philanthropist and chairman of the college's board of trustees.

The stone foundation, well, and chimney stack of a cabin still remain along the NET southwest of the summit. These may be the remains of a cabin constructed in 1929 for the Mount Holyoke College outing club, and destroyed by fire in 1958 (http://www.mtholyoke.edu/lits/library/arch/col/rg25_cci.htm).

2.4.3. RECREATION RESOURCES

The summit of Mount Holyoke provides outstanding views of the Connecticut River Valley, and it is here where most of the park's recreation resources are located. Picnic facilities at the summit include two pavilions, eight grills, and tables. An accessible picnic site was constructed adjacent to the Summit House during the 2012–13 renovations to that building. Drinking water and restrooms are available at the Summit House, as are views north toward the mountains of Vermont and south toward Connecticut. An annual concert series, sponsored by the Friends of the Mount Holyoke Range, takes place at the Summit House in July.

Approximately 1,600 feet west of the summit is the park's hang glider and paraglider launch area. From here pilots drop 732 vertical feet to a landing zone on the valley floor (<http://masshga.org/skinnerstatepark.html>). This is the only location in the planning unit where these activities take place on DCR land.

Remaining recreational activities are largely trail-based. This includes hiking and running; dog walking; horseback riding; mountain biking; snowmobiling; cross-country skiing; and snowshoeing. Geocaching occurs throughout the park, with participants both on and off trails. As of April 2013, there were six known geocaches. The

park is closed to hunting. OHV use, which is illegal in the park, occurs along forest roads.

Runners, cyclists on street bikes, skateboarders, longboarders, and in-line skaters use the park road. Only the first two activities are in compliance with DCR regulations.

The Sugarloaf Mountain Athletic Club conducts an annual 5K road race along Skinner Park Road. This event, the Summit Run, takes place in September. In 2012, there were approximately 110 participants.

Attendance

An estimated 41,568 people visited Skinner state park in FY 2012. This includes 2,636 paid day use fees, representing an estimated 7,117 visitors, and 34,451 unpaid visitors. These numbers likely underestimate typical visitation rates because construction at the summit resulted in fewer visitor parking spaces and fewer days that the park road was open to the public. Fiscal Year 2012 data suggest a visitor use pattern similar to that of Mount Holyoke Range State Park, with the highest visitation rates during the fall foliage season and a second, lower peak during the summer. However, because peak construction was over by the fall, this pattern may reflect building activity rather than visitor demand.

2.4.4. INFRASTRUCTURE

Property Boundary

The park's boundaries are approximated by Route 47 to the north and west; Pearl Street, South Hadley to the south; and the western boundary of Mount Holyoke Range State Park to the east. The actual boundary is more complicated, as the park is irregularly shaped and abuts multiple parcels of private land along its western and southern borders. At two locations, the park boundary is west of Hockanum Road; it fronts the Connecticut River at one of these locations.

Buildings and Structures

The park's buildings and structures are chiefly located in two areas: the Summit Area and the Halfway Area. An additional building is located along Route 47 in the Hockanum village of Hadley, and additional structures are located along Skinner Park Road. Combined information on the park's

cultural resources and major infrastructure is presented in Appendix H, Table H2. Information on the cultural resources aspects of these buildings and structures was presented in Section 2.4.2.

Summit Area. The summit of Mount Holyoke has long attracted recreationists and the buildings and structures on the summit are largely associated with current or historic recreation. A map of this area was provided in Figure 2.4.1.

The Summit House is the largest structure on the summit. A detailed description of its construction materials and historical significance was provided in Section 2.4.2. Despite recent renovations, this building is still in need of repair. Its membrane roof leaks, as do wooden shingles on the porch awnings; both need replacement. The building's condition is classified as Adequate; in need of corrective and preventative maintenance.

The Summit House's utilities originate both on- and off-site. A well provides water for domestic use and a 1,500-gallon septic system disposes of wastewater. The well, which is located along the building's south side, is classified by the DEP as a TNC. Its Zone I wellhead protection area includes the Summit House, its accessible parking and ramp, the State Police Building, and picnic areas to the east of the Summit House. Accessible bathrooms are located on the basement floor of the building's east side. Wastewater from these bathrooms exits the building, flows downhill through a surface mounted HDPE plastic force main, and into a septic tank and leach field in the Halfway Area. The building is unheated, with the exception of a utility room in the basement. An electric heater in this room keeps water for the building's fire suppression system, a pressurized 5,000-gallon water tank, from freezing. Electrical service comes from the Halfway Area via poles and lines located adjacent to the path of the historic tramway. This building, as well as the Halfway House and Halfway Garage, are served by a single phone line. There is no base station radio or Internet connection. Remnants of historic mechanical systems, associated with the tramway, remain in the building's basement.

To the south of the Summit House is an 8- by 10-foot communications building. It has a concrete pad, stone block walls, and a wood framed and sheathed roof with asphalt shingles. The shingles are damaged, rake boards are rotted, and all exterior

wood surfaces are in need of paint. This building houses low frequency (800 MHz) radio equipment for the Massachusetts State Police who are solely responsible for its maintenance and repair. Two antennas, one a monopole and the other triangular, are associated with this building. Both the building and antennas are surrounded by a 6-foot-high chain link fence. Because this is not a DCR building, its condition has not been classified.

There are two picnic pavilions at the summit; both have wood framed and sheathed roofs with asphalt shingles. These roofs are supported at each corner by wood timbers set atop concrete footings. The first is an 8-foot 2-inch square pavilion located at the edge of the summit's north slope, near the Summit House. The second is a 10-foot 6-inch square pavilion adjacent to the informational kiosk. The conditions of both are classified as Good.

Two concrete retaining walls dominate the view of the Summit House from Skinner Park Road. The first, located south of the house, is an approximately 225-foot-long wall constructed in 2012. The second, located west of the house, is an approximately 140-foot-long wall. The former is visible from the summit's lower parking lot and the latter is visible from the upper lot. The conditions of these walls are classified as Excellent and Good, respectively.

Halfway Area. Both Joseph Allen Skinner State Park and Mount Holyoke Range State Park are managed from the Halfway Area. This area's two largest buildings, both historic, are used for administrative and operations purposes. In addition, this area contains several other historic structures. A map of this area was provided in Figure 2.4.2.

The Halfway House serves as the administrative offices for Skinner and Mount Holyoke Range state parks. It is constructed of wood framing, sheathing, and siding, with asphalt roof shingles. Siding near the ground is badly rotted, paint is peeling from the siding and trim, and there are multiple leaks in the roof that have damaged the second-floor ceilings. Heat is provided by an oil-fueled forced hot air furnace; a 275-gallon fuel oil tank is located in the basement. This building has its own well and shares a septic system with the Halfway Garage. The septic system is located on the opposite side of Skinner Park Road, downhill from the Halfway Area. The Halfway House shares a phone line with the

Halfway Garage and Summit House. The condition of the Halfway House is classified as Adequate.

An 8- by 10.5-foot storage shed is located behind the Halfway House; it has wood framing, board-and-batten siding, and an asphalt shingle roof. The siding is rotted where it contacts soil and leaf litter. The condition of this building is classified as Adequate; requiring some corrective and preventative maintenance. The date of construction is unknown.

The Halfway Garage provides shop and storage space for equipment and materials used to operate and maintain Skinner and Mount Holyoke Range state parks. It is an approximately 46- by 20-foot two-story building. The garage has wood framing, sheathing, and siding and a corrugated metal roof. Utilities include an oil-fueled, forced hot air furnace and its own well. It shares a septic system with the Halfway House and a phone line with the Halfway House and Summit House. Its siding is rotting where it contacts the parking lot's pavement, and the building needs to be repainted. The condition of this building is classified as Adequate.

There are two circular water tanks west of the Halfway House. Tank 1 has a 6-foot radius, and has stone and mortar walls with a concrete cap. Tank 2 has a 9-foot radius, is constructed of concrete, and painted white. The capacity of these tanks is unknown. Both are in Good condition.

An 8- by 10-foot masonry block pump house is located just uphill of the water tanks. It has a wood framed and sheathed roof with asphalt shingles. The roof is in excellent condition; the building's east (i.e., uphill) wall has a structural crack with missing masonry. This building's condition is classified as Fair.

The pump cove is an open-sided 8- by 8-foot wood framed structure currently in use as a picnic pavilion. It has a wood framed and sheathed roof with wood shingles and copper corner trim. This roof is supported at each corner by wood timbers set atop a concrete slab. This structure has badly peeling white paint, which is potentially lead-based. Its condition is classified as Adequate.

In the southwest corner of the Halfway Area is an open-sided pavilion that covers a steam engine once used to power the tramway to the summit. This pavilion and its contents are collectively referred to as the Steam Engine and Cover. It is an 18- by 28-

foot structure with wood framing and sheathing, and asphalt roofing shingles. This roof is supported by 10 timbers, painted brown, set atop poured concrete footings. The condition of this structure is Good; requiring only routine maintenance.

Dry laid stone retaining walls are located up and down slope of the parking area. The upslope wall measures approximately 125 feet and the down slope wall approximately 140 feet. The condition of these walls is classified as Good, with only minor repairs needed.

A 65-foot-long poured concrete dam is located north of Skinner Park Road, opposite the Halfway Garage. This dam creates a small detention pond that temporarily holds runoff from the Halfway Area. The condition of this dam is unknown.

Route 47. The DCR owns a historic tobacco barn located near the intersection of Route 47 (Hockanum Road) and Mountain Road. This building is approximately 121-feet-long and 30-feet-wide (Smyth et al. 2004). It is framed with 8-10 inch diameter “whole tree stems,” which rest on concrete piers. It has variable width one-inch thick vertical boards for siding and a galvanized corrugated metal roof. Portions of the roof are missing or damaged; much of the siding is broken, rotted, or missing; and support beams are rotted at the base. The weight of the roof is spreading the walls, and may result in collapse (Smyth et al. 2004). The condition of this building is classified as Poor.

Roads

There are 2.83 miles of public or administrative roads in the park; all of which are legal. The park’s main road, Skinner Park Road, is 1.62 miles long and provides the primary access to the Halfway and Summit Areas. As of 2009, when the park’s roads and trails were mapped, this road was classified as being in Good condition. However, the condition of the road has degraded rapidly since then, with potholes, cracked pavement, and broken road edges common, particularly below the Halfway Area. Just above the Halfway Area and beyond a poured concrete retaining wall, a stone retaining wall is beginning to fail, which has led to the sinking of a section of the roadway.

There are no public or administrative roads associated with Conservation Restrictions.

Parking

Public parking is chiefly associated with Skinner Park Road. (Table 2.4.3) A small gravel parking lot is located outside the entrance gates, at the intersection of Mountain and Skinner Park roads. Extensive overflow parking occurs along both sides of Mountain Road near this lot. Paved, striped parking lots are located at the Halfway and Summit Areas, including a two vehicle HP lot constructed adjacent to the Summit House in 2012. There is no bike parking at either the Halfway or Summit Area. Additional vehicle parking is available at a gravel roadside lot along Route 47 in the Hockanum village of Hadley.

Table 2.4.3. Number of public parking spaces, by location and type, at Joseph Allen Skinner State Park.^a

Location	HP	Other	Total
Main Entrance lot ^b	0	5	5
Halfway Area lot ^c	1	14	15
Summit – Upper lot ^c	1	5	6
Summit – Lower lot ^c	1	9	10
Summit – Summit House	2	0	2
Route 47 lot ^b	0	16	16
Total	5	49	55

- a. This does not include roadside parking.
- b. Number of spaces is based on the number of potential 9-foot wide, perpendicular parking spaces.
- c. Number of spaces is based on pavement markings.

Staff parking is provided behind the Halfway House. A gravel, two-car lot is located adjacent to the house. A paved, three-car lot is located on the opposite side of the driveway. Additional staff parking takes place along the shoulder of the driveway.

Trails

The park’s trail system chiefly consists of segments that lead from Hockanum Road to the Summit House or through the park to Mount Holyoke Range State Park. Within the park, the Dry Brook Trail crosses private property, and both the Black Rock and Lithia Springs trails leave the park and cross private property on their way to Mount Holyoke Range State Park.

There are approximately 9.78 miles of trails within the park. Almost all (8.91 miles; 91.1%) are official. Most official trails (97.4%) were in Good or Fair condition; only 2.6% were classified as Poor.

An additional 0.42 miles of trails are located on Conservation Restrictions associated with the park. Of these, only 0.06 miles (14.5%) are legal. No legal trails were classified as being in Good condition; 0.055 miles (91.8%) were in Fair condition and 0.005 (8.2%) were in Poor condition.

Kiosks and Signs

Kiosks and signs are largely concentrated at the park entrance, Halfway Area, and Summit Area.

A Park and Forest Entrance Sign is located at the intersection of Mountain Road and Skinner Park Road. This sign is in good repair, but does not meet current DCR standards (DCR n.d.). A kiosk is located adjacent to the Main Entrance Lot. It is framed and sheathed with wood, and has wood roofing shingles. This kiosk is double-sided, with a Welcome Wayside/Orientation Sign facing the parking lot and current event postings on the other side. An Internal Park Information Sign, with a welcome message and overview of park resources and regulations, is located to the right of the main entrance gate.

Signs at the Halfway Area are largely Internal Park Information Signs. These signs identify the Halfway Trail trailhead, public parking lot, and park office. An Interpretive Panel, providing a brief history of the Halfway Area, is located in front of the Steam Engine and Cover.

Signs at the summit are primarily Internal Park Information Signs. These signs identify the end of the Halfway Trail, elevation of Mount Holyoke, and park regulations. A double-sided kiosk, similar to the one at the park entrance, is also located on the summit. Unlike the entrance kiosk, this one has asphalt roofing shingles. This kiosk has the same Welcome Wayside/Orientation Sign as at the park entrance.

Additional signs located elsewhere in the park include a bulletin board in the Route 47 lot, an Internal Park Information Sign at Taylor Notch, and LID signs at most trail intersections.

A Road Marker /Lead-in Sign (DCR n.d.) is located at the intersection of Mountain Road and Route 47 in Hadley.

Memorials and Markers

There are two markers and two memorials. A granite marker, identifying the boundary of Hadley and South Hadley, is located atop the summit of Mount Holyoke. Its dimensions are 8- by 8.5- by 33-inches. On the same rock outcrop as the town boundary marker is a metal plaque identifying the property as Joseph Allen Skinner State Park and indicating that it was presented to the Department of Conservation in 1940 “*to be devoted to the use and enjoyment of the people of the state FOREVER.*”

On the south side of the summit is a stone marker in memory of 10 Army Air Corpsmen who lost their lives on May 27, 1944 when their B-24J aircraft crashed into Mount Holyoke. This memorial consists of a 69-inch-high by 11-inch-deep, by 55-inch-wide engraved stone, with a metal propeller standing on end next to the stone. A metal flagpole is nearby, and both the stone and flagpole are within a landscaped area that includes a crushed stone path bordered by landscape timbers. This memorial was dedicated on May 27, 1989, the 45th anniversary of the crash.

The other memorial is located in the north stairwell of the Summit House. It consists of a cast metal plaque mounted on the wall. This plaque indicates that the flagpole on the roof of the Summit House “*is in honor of R. W. Daniel Stebbins, owner of the first summit house... a Freemason and member of Jerusalem Lodge A. F. & A. M. Northampton, Massachusetts.*” There is no date indicating when this memorial was installed.

2.5. MOUNT TOM STATE RESERVATION

Mount Tom State Reservation is located in the cities of Holyoke and Easthampton, along the Mount Tom Range. Despite its name, the state reservation has never included the summit of Mount Tom.

Mount Tom State Reservation is the oldest park in the planning unit. In 1902, the Massachusetts legislature authorized the Board of Harbor and Land Commissioners “a sum not exceeding two thousand dollars” for a survey to determine the cost of acquiring “a part of Mount Tom and Mount Nonotuck as a state reservation.” The following year the legislature directed the Hampshire and Hampden County commissioners “to take or acquire by purchase, gift, or otherwise” up to 1,500 acres on or

about the Mount Tom Range. With this, Mount Tom State Reservation was established. Over the years it increased in size to its current 1,969.80 acres. In 1990, control of the reservation transferred from the county commissioners to the DEM.

Throughout its history, emphasis has been placed on the reservation's ability to provide recreation resources and experiences. This continues today. However, Mount Tom is much more than a recreation area; it hosts more rare species than are known from the Mount Holyoke Range.

Two parcels of Connecticut River Greenway State Park are managed by the Mount Tom staff. This includes the Connecticut River Boat Ramp and Berchulski Fisherman Access Point. Both facilities, although not part of Mount Tom State Reservation, are also described in this section.

2.5.1. NATURAL RESOURCES

Physical Features

Topography. The Mount Tom Range has a north-south orientation. It extends approximately four miles from the northern base of Mount Nonotuck, to the north, to the southern base of Mount Tom, to the south. The reservation is chiefly located along the northern half of this range.

The highest point on the range is Mount Tom, which is 1,202 feet above sea level; it is not on the reservation. The highest point on the reservation is an unnamed rise located west of the former Mount Tom Ski Area's slopes, and approximately 400 feet north of a turbine situated on adjacent private property. This location is approximately 1,150 feet above sea level.

Topography differs between the range's east and west slopes. To the west, the range drops quickly toward the City of Easthampton; a series of sheer cliffs occur along the southern half of the ridge. To the east, the topography drops more gradually toward the Connecticut River. Elevations along the reservation's western boundary range from approximately 250 to 400 feet; to the east they reach 90 feet along Route 5.

The Connecticut River Boat Ramp slopes northward toward the Manhan River. It has an average elevation of approximately 100 feet above sea level.

Berchulski Fisherman Access Point slopes westward toward the Connecticut River. Elevations range from approximately 90 feet above sea level at Tyrek Street to 60 feet at the river.

Geology. The geology of the Mount Tom Range is similar to that of the Mount Holyoke Range. (See Section 2.3.1.) Both are part of a north-trending mountain ridge that extends from Hartford, Connecticut, to Easthampton where it turns east, and ends in Belchertown (Skehan 2001). The two ranges differ in their orientation.

The Mount Tom Range's western cliffs are the cross section of uplifted basalt. The range's east side, which dips from west to east, is the upper surface of a lava flow. This configuration resembles that of a Mount Holyoke Range that has been rotated ninety degrees counter-clockwise.

The range's basalt is aesthetically, ecologically, and economically important. The cliffs along the western side of the range reveal columns of basalt, creating dramatic views from Easthampton. They also provide nesting substrate for birds. Below the cliffs, broken pieces of basalt accumulate, creating what are known as talus slopes. These talus slopes have higher amounts of light and different vegetation than the surrounding forest. Finally, the Mount Tom Range has been subject to quarrying since well before the arrival of Europeans.

To the east and west of the range are large expanses of arkose. This stone underlies both the Connecticut River Boat Ramp and the Berchulski Fisherman Access Point.

Water Resources

Ponds. There are approximately 9.18 acres of ponds. The largest, Lake Bray (8.84 acres), is artificially impounded. The waters of this lake are considered impaired due to the presence of non-native aquatic plants (Division of Watershed Management 2010). An additional 0.45 acres of ponds occur on associated Conservation Restrictions.

Wetlands. There are approximately 61.64 acres of wetlands on the reservation. Known types include emergent marshes, such those at the southern and northwestern ends of Lake Bray, and red maple dominated wetlands, such as those along Bray Brook. Additional wetland types likely occur, but have not yet been documented. An additional 0.65

acres of wetlands occur on associated Conservation Restrictions.

Vernal Pools. There are eight certified vernal pools on the reservation; one is located adjacent to Elder Field and the other four are located along the ridgeline west of the former ski area. Several additional certified vernal pools are located just off the reservation, on Holyoke Gas and Electric property.

There are 12 potential vernal pools on the reservation and an additional two on Conservation Restrictions. They are largely located south of Smith's Ferry Road.

The reservation's forested uplands also provide non-breeding habitat for amphibians that breed in vernal pools off the reservation.

Streams. There are approximately 3.60 miles of streams; mostly along Bray and Cascade brooks. An additional 0.07 miles occur on associated Conservation Restrictions.

Groundwater. There are no DEP identified aquifers beneath the reservation. Despite this, water for drinking fountains at the Elder Field pavilion and the Hampden Area is provided by a well located adjacent to the Robert S. Cole Museum. This well (PWS ID: 1137003) and the associated distribution system are classified as a TNC. The well has a Zone I radius of 250 feet and an approved pump rate of 10,000 gallons/day. Elsewhere on the reservation, at the Warming Hut and at the reservation's headquarters, domestic water is provided by the City of Holyoke Water Department and effluent is disposed of via the City of Holyoke sewer system (Weston & Sampson Engineers, Inc., and ATC Associates, Inc. 1998). Porta-Johns are provided adjacent to the Visitor Center; two are available from the spring through the fall and one is available during the winter.

Floor drains are located in both restrooms in the Warming Hut. They are connected to the municipal sewer and have an in-line oil-water separator (Weston & Sampson Engineers, Inc., and ATC Associates, Inc. 1998).

There are two historic landfills that represent potential threats to groundwater; both are located in the Cedar Knob section of the reservation and were created by the land's previous owner. The first

landfill contains four vehicles and waste associated with the former Mountain Park amusement park. The second, also associated with Mountain Park, contains demolition debris and park-associated waste. Remnants of the amusement park's incinerator are also located at the site. Two monitoring wells are located down gradient from the landfill; no data associated with the installation of these wells or any sampling results were identified. Neither location has been identified by the DEP as a 21E site; there are no known impacts on groundwater quality.

Storm Water. Water samples taken at Berchulski Fisherman Access Point reveal infrequent water quality problems; only one weekly sample taken between July 30 and October 30, 2012 exceeded allowable levels of fecal coliform (City of Chicopee, unpublished data). This is in stark contrast to previous years. For example, 12 of 26 samples taken in 2007 exceeded standards; with three samples having 30-60 times the allowable limits for fecal coliform (City of Chicopee 2008).

Flood Zones. Flood zones are associated with Bray Brook and the Connecticut River. A 100-year flood zone extends from the south end of Lake Bray, northward along Bray Brook to Kennedy Pond and the reservation's border with the Holyoke Country Club. Although this constitutes only a small portion of the reservation (26.44 acres; 1.34%), it includes portions of Reservation Road and the south end of the Lake Bray parking lot. Less than one-half acre (0.48 acre; 0.02%) of the reservation is within a 500-year flood zone. This area, which is located between routes 91 and 5, has no infrastructure.

The western half of the Connecticut River Boat Ramp is located within the 100-year flood zone, as are adjacent portions of Route 5 and the utility substation. The remainder of the facility is within the 500-year flood zone.

The entire Berchulski Fisherman Access Point is located within the 100-year flood zone.

Rare Species

Twenty-seven state-listed species are known from Mount Tom State Reservation. Ten state-listed species are known from boat ramps associated with the reservation; three of which also occur on the reservation. (Table 2.5.1)

Table 2.5.1. State-listed species of Mount Tom State Reservation, Connecticut River Boat Ramp, and Berchulski Fisherman Access Point, as identified by the NHESP.^{a, b}

Species ^c	Type ^d	MESA ^e	Location ^f
American bittersweet	P	T	T
Autumn coralroot	P	SC	T
Bald eagle	B	T	B, C
Cobra clubtail	I	SC	T
Data sensitive rare animal 1 ^g	-	E	T
Data sensitive rare animal 3 ^g	-	E	T
Data sensitive rare animal 4 ^g	-	E	T
Data sensitive rare plant 1 ^g	P	SC	T
Eastern box turtle	R	SC	C, T
Eastern pond mussel	M	SC	C
Glaucous sedge	P	E	T
Green dragon	P	T	C
Green rockcress	P	T	T
Hairy agrimony	P	T	T
Jefferson salamander	A	SC	T
Large-bracted ticktrefoil	P	T	T
Linear-leaved milkweed	P	T	T
Marbled salamander	A	T	T
Midland clubtail	I	E	C
New England blazing star	P	SC	T
Orange sallow moth	I	SC	T
Peregrine falcon	B	E	T
Purple clematis	P	SC	T
Shining wedgegrass	P	T	T
Shortnose sturgeon ^g	F	E	B
Skillet clubtail	I	T	C, T
Smooth rockcress	P	SC	T
Spiked false oats	P	E	T
Spine-crowned clubtail	I	SC	T
Stygian shadowdragon	I	SC	B, T
Tidewater mucket	I	SC	B
Violet wood-sorrel	P	E	T
Wood turtle	R	SC	T
Yellow lampmussel	I	E	B

- a. From Maier (2012) and Harper (2013). See text for state-listed species observed on the reservation but not included in the NHESP database.
- b. Fact sheets are available at: <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/species-information-and-conservation/ mesa-list/list-of-rare-species-in-massachusetts.html>.
- c. When common names differ between the MESA list and the PLANTS database (USDA 2012), the MESA name is presented.
- d. Type of state-listed species include A = Amphibian, B = Bird, F = Fish, I = Insect, M = Mussel, P = Plant, and R = Reptile.
- e. Status of species listed under the Massachusetts Endangered Species Act (MESA): E = Endangered; SC = Special Concern; and T = Threatened.

- f. Location codes: B = Berchulski Fisherman Access Point, C = Connecticut River Boat Ramp; and T = Mount Tom State Reservation.
- g. This species not identified in accordance with NHESP's policy of not revealing in site-specific documents the name or location of rare species susceptible to collection.
- h. This species is also federally endangered.

Rare species at Mount Tom, and associated Connecticut River facilities, include 13 animals and 14 plants. Three species of rare animals, all Endangered, are susceptible to collection, as is one species of plant. In accordance with NHESP policy, these species are not identified in this RMP.

The presence of rare species and their habitats has led to the designation of 1,955.52 acres (99.28% of the reservation) as Priority Habitat under the Massachusetts Endangered Species Act (321 CMR 10.00; see Appendix F). This is the greatest percentage of any property in the planning unit. All of the associated Conservation Restrictions are also designated as Priority Habitat. Virtually all of the Mount Tom Range, not just those areas within the reservation, has been designated as Priority Habitat; highlighting the area's importance to rare species conservation in the Commonwealth.

The reservation's rare animals are highly variable in their habitats and distributions. The three data sensitive animals occur throughout the park in a variety of forested uplands, rock outcrops and cliffs, and talus slopes. These species are sensitive to the direct impacts of recreation and park operations.

In recent years peregrine falcons have nested on the reservation's cliffs. This species is sensitive to recreation-related disturbance while nesting.

Rare salamanders and wood turtles are associated with the reservation's wetlands. The former occur in high elevation vernal pools at the reservation's boundary with USFWS property, and the latter occur in a variety of wetland types and adjacent uplands.

Most of the reservation's rare plants are associated with its ridgetops, rocky outcrops, and well-drained slopes. These species require partial to full sun exposure; the amount of habitat available for these species is decreasing as canopy closure increases (NHESP 2007b). Orange sallow moths also occur in these areas. Autumn coralroot requires moister areas with richer soils and greater canopy closure. Eastern box turtles occur in both dry and moist forest types south of Reservation and Smith's Ferry roads.

Four species of riverine dragonflies hunt the uplands along the reservation’s east side, as well as the Whiting Street Reservoir.

Two additional state-listed species have been reported from the reservation, but are not in the NHESP database. These species are narrowleaf vervain (Endangered) and the sharp-shinned hawk (Special Concern).

Rare species found in adjacent portions of the Connecticut River Greenway State Park include five animals and one plant. None are considered susceptible to collection. These species are either fully aquatic (e.g., eastern pond mussel), associated with the river’s floodplain (e.g., green dragon, eastern box turtle), or hunt along the river (i.e., bald eagle, clubtails).

Nearly all of the reservation (1,951.21 acres; 99.06%) has been designated BioMap 2 Core Habitat, while only slightly more than half (1,096.43 acres; 55.69%) has been identified as Critical Natural Landscape. The Core Habitat extends from Mount Nonotuck southward to the Massachusetts Turnpike (I-90); emphasizing the importance of the Mount Tom Range to conservation. The Critical Natural Landscape extends from approximately Reservation Road, southward to the north end of the East Mountain Wildlife Management Area, Holyoke. Portions of both habitat types, most notably the summit, south slope, and east slope of Mount Tom, remain unprotected.

Vegetation

In contrast to the Mount Holyoke Range, the vegetation of the Mount Tom Range has received relatively little attention. Previous reports and management plans focused on the common or the atypical (e.g., Huber and Newbold 1975, Burke 1985, Sorrie 1985). There is only one known study that took a holistic approach to the area’s vegetation. Williams (c. 1991) conducted a four-year survey of the plants of Mount Tom; the geographic extent of this survey was not identified in the resulting species list. It is this investigation, now more than 20-years old, that provides much of the known information on the reservation’s plants.

Invasive Species. Seventeen invasive, or likely invasive, species of plants are known from the reservation. (Table 2.5.2) Most occurrences are associated with either disturbed areas or wetlands.

European swallow-wort, also known as pale swallow-wort, has “taken over many areas of the former Mt. Tom Ski Area,” which is owned and managed by the USFWS (Garrett 2011). Several years of management efforts resulted in only meager success despite the investment of significant labor and money (Garrett 2011.) This swallow-wort has spread into adjacent portions of the reservation, including along the Lost Boulder Trail where it poses a threat to the persistence of a Hickory-Hop Hornbeam Forest/Woodland and four populations of state-listed plants (Garrett 2011). Initial control efforts on the reservation were successful, “and the invasion persists now in a low density primarily in the form of single plants or very small patches over about 10 acres” (Garrett 2011). These efforts took place through 2012, and are anticipated to continue. Additional populations of this plant have been observed on the southeast side of the summit of Mount Nonotuck and at the site of the former Mountain Park incinerator.

Table 2.5.2. Invasive, and likely invasive, plants of the Mount Tom State Reservation.

Species ^a	Status ^b
Amur corktree	L
Autumn olive	I
Black locust	I
Coltsfoot	L
Common buckthorn	I
Common reed	I
European Swallow-wort	L
Glossy buckthorn	I
Japanese barberry	L
Louise’s swallow-wort	I
Morrow’s honeysuckle	I
Multiflora rose	I
Norway maple	I
Oriental bittersweet	I
Purple loosestrife	I
Spotted knapweed	I
Tatarian honeysuckle	L

- Species are presented alphabetically by common name; taxonomic information is available in Appendix G.
- Plants are classified as being either invasive (I) or Likely Invasive (L). According to MIPAG (2005), invasive plants are non-native species that have spread into native or minimally managed systems and cause economic or environmental harm; while likely invasive plants are non-native species that are naturalized but do not meet the full criteria for designation as an invasive plant.

Several species of invasive plants occur at the site of the former Mountain Park incinerator and landfill (Cavanagh 2012). European swallow-wort is the

most abundant, covering and obscuring most of the incinerator and surrounding vegetation. Oriental bittersweet, black locust, and autumn olive are present in small numbers.

Common reed appears both common and abundant in the reservation's wetlands. Large populations are present along Bray Brook where it enters Lake Bray, and in the wetland at Elder Field, just north of the pavilion. Other wetlands have not been surveyed for the presence of invasive plants.

Natural Communities. Only six natural communities are known from Mount Tom State Reservation. (Table 2.5.3) This low number is not a reflection on the reservation's diversity, but represents a lack of survey effort. It is likely that many of the community types observed on the Mount Holyoke Range also occur on the Mount Tom Range, but have not yet been documented.

Table 2.5.3. Natural Communities of Mount Tom State Reservation.

Community Type ^a	System ^b	State Rank ^c	Source ^d
Circumneutral Rock Cliff	T	S3	1
Circumneutral Rocky Summit/Rock Outcrop	T	S2/ S3	1
Circumneutral Talus Forest/Woodland	T	S3	1
Hickory-Hop Hornbeam Forest/Woodland	T	S2	2
Inland Acidic Pondshore/Lakeshore	P	S4	3
Shallow Emergent Marsh	P	S4	3

- Classified according to Swain and Kearsley (2001).
- P = Palustrine; T = Terrestrial.
- The NHESP ranks communities from the most rare (S1) to the most common (S5).
- Information contained in this table was obtained from the following sources:
 - Swain and Kearsley (2001).
 - Maier (2012).
 - Observed by RMP Planner during site visits.

Of the six natural communities known from the reservation, only the Shallow Emergent Marsh is at risk of being moderately reduced (i.e., <50%) in extent in Massachusetts as the result of climate change (Manomet and MassWildlife 2010). The reservation's Hickory-Hop Hornbeam Forest/Woodland community type, which is a variant of the Oak-Hickory Forest community type, might expand in response to climate change (Swain 2013).

Forests. The reservation is largely forested (1,858.92; 94.4%); non-forested areas include rock outcrops, talus slopes, areas of maintained turf, emergent marshes, and open water. No part of the reservation is located within a Forest Core Habitat. The park's north-south and east-west roads (Christopher Clark and Reservation, respectively) have effectively fragmented the reservation's forest.

There is inconsistent information on the presence of stands of old-growth forest within the reservation. Davis (2005) reported 15 acres of "old-growth hemlock-hardwoods." However, a separate assessment of Massachusetts' old-growth forests, conducted for regional conservation and forest reserve planning, did not identify any at Mount Tom (D'Amato et al. 2006).

Thirteen CFI plots are located in stands ranging in age from approximately 72 to 115 years. As part of the CFI process, DCR foresters monitor major causes of tree loss (i.e., loss agents). Since 2000, seven biological loss agents have been observed. These agents, in decreasing order of occurrence, are: hemlock woolly adelgid; heart rot; gypsy moths; *Nectria*, a fungus; birds; unknown biological agents; and scales.

The New England champion eastern hemlock is located on the reservation. It has a height of 126.4 feet, a girth of 15.1 feet, and a spread of 45.9 feet (Leverett 2010). Large individual red pine, sycamore, and ash are also present.

Wildlife

Over the years, lists of the reservation's wildlife have been presented in reports and interpretive materials (e.g., Clough 1975, Huber and Newbold 1975, Pioneer Valley Group of the Sierra Club 1985). However, these lists are of unknown accuracy. Sources of information are rarely identified, making it unclear if the animals were actually observed on the reservation or included on the basis of general information on a species' distribution (e.g., range maps in field guides). In addition, much of the information is decades old, reflecting past, rather than current, conditions. With the exception of birds, there is little verifiable information on the current occurrences of wildlife.

Birds. Information on Mount Tom's birds is the best of any park in the planning unit. Since at least 1923, the Connecticut River Valley has been known as a

major pathway for migratory birds (Bagg 1923). Their movements through the valley have long attracted ornithologists and recreational birders to the reservation's peaks, with particular emphasis placed on hawks and other birds of prey. The reservation is "known throughout western Massachusetts, if not the nation, as an excellent place to see hawks during their fall migration" (Tougias 2003). During peak migration, several thousand hawks may pass by the reservation in a single day (Gagnon 2010c). Interest in the reservation's birds is not restricted to migratory hawks, as the park is a great birding site that attracts birders throughout the year (Tougias 2003). Because birders typically document their observations, detailed, up-to-date information is available on the reservation's birds.

Over 140 species of birds have been recorded on, or over, the reservation in recent years. (Appendix G, Table G.2) Among these are 13 species of diurnal raptors (e.g., eagles, hawks, falcons); the reservation's most famous birds. It is interesting to note that the less celebrated wood warblers and sparrows both have higher species diversity than the raptors.

Fourteen species are classified as Species in Greatest Need of Conservation (MassWildlife 2006). This includes all of the state-listed birds, as well as American black duck, green heron, American kestrel, American woodcock, willow flycatcher, wood thrush, blue-winged warbler, prairie warbler, eastern towhee, and white-throated sparrow.

Mammals. There is little current information on the reservation's mammals. Three species confirmed to occur on the range, and an additional 49 species that may possibly occur on the range are identified in Appendix G, Table G.3.

Reptiles. There is little current information on the reservation's reptiles. Six species confirmed to occur on the reservation and an additional 13 species that may possibly occur on the range are identified in Appendix G, Table G.4. This table also includes historic information on Mount Tom's reptiles (Tynning 1985).

Amphibians. There is little current information on the reservation's amphibians. Four species confirmed to occur on the reservation and an additional 15 species that may possibly occur are

identified in Appendix G, Table G.5. This table also includes historic information on Mount Tom's amphibians (Tynning 1985).

Fish. There is no current information on the park's fish; only historic information is available. A survey conducted in 1975 identified the following species in Lake Bray: pumpkinseed, largemouth bass, yellow perch, white sucker, brown bullhead, and brook trout (*Salvelinus fontinalis*) and characterized the lake as a "fair warm-water fishery" (Foote 1975). The first four species were also identified by an electroshocking survey conducted in 1980 (Basler 2012).

Historic information also exists for fish in the oxbow in which the Connecticut River Boat Ramp is located (Basler 2012). Species identified in a 1982 survey, in order of abundance, included golden shiner, bluegill, largemouth bass, yellow perch, pumpkinseed, white perch (*Morone americana*), blueback herring (*Alosa aestivalis*), white sucker, brown bullhead, northern pike (*Esox lucius*), channel catfish (*Ictalurus punctatus*), black crappie, smallmouth bass (*Micropterus dolomieu*), rock bass (*Ambloplites rupestris*), common carp (*Cyprinus carpio*), and tiger muskellunge (*Esox masquinongy x lucius*). Walleye (*Sander vitreus*) have also been recorded from this stretch of river.

The Massachusetts Office of Fishing and Boating Access lists largemouth and smallmouth bass, northern pike, white perch, pickerel, black crappie, and walleye as associated with Berchulski Fisherman Access Point (OFBA 2013). Shortnose sturgeon is also known from this stretch of river (Harper 2013).

Invertebrates. Eleven species of butterflies have been recorded on the reservation. (Appendix G; Table G.6) Eight species of long-horned beetles, from eight different genera, have also been recorded (Vlasak and Vlasakova 2002). Information on the reservation's other invertebrates is largely limited to rare species and forest pests. Information on both was presented earlier in Section 2.5.1.

2.5.2. CULTURAL RESOURCES

The architectural and archaeological resources of Mount Tom State Reservation are primarily related to Native American occupations, historic quarrying activities, historic recreational use as a tourist destination and an early state reservation, and the

activities of the CCC. Nineteenth century settlement and industrial activity in the area was historically limited to the Northampton Road and railroad corridors along the west edge of the Connecticut River outside the park boundaries. Some limited farming occurred in the 1800s in and near the northeasternmost reaches of the reservation, near the present-day country club. Recreational use of the park was largely spurred by the establishment of the reservation in 1903, with basic circulation infrastructure, entrance gates, lookout towers and the Lake Bray Dam constructed by Hampden and Hampshire counties. Company 1173 of the Civilian Conservation Corps worked in the park between 1935 and 1941, and undertook extensive upgrades of the roads and trails. The CCC was responsible for building many of the most significant buildings and recreation resources at the reservation.

Information on the reservation's cultural resources is primarily based on a 2006 cultural resources inventory (Binzen et al. 2006). Field work, document research, and information in the Schwobe Collection provided supplemental information.

The reservation's cultural resources and major infrastructure are identified in Appendix H, Table H3. Additional information on the reservation's infrastructure is presented in Section 2.5.4.

Archaeological Resources

A number of pre-Contact archaeological sites are recorded within the Mount Tom State Reservation. Many have been recorded on the floodplain and terraces of the adjacent Connecticut River, but few have been recorded in the upland or mountaintop areas. An archaeological survey identified a small lithic workshop, chipping debris, and a single Woodland Period projectile point have been found on the ground surface of Mount Tom by both professional and avocational archaeologists.

Because many of the reservation's historic archaeological resources are intimately linked to its other historic resources, information on these resources is presented jointly, below.

Historic Resources

Early Settlement and Industry. Most of the lands in the reservation were not suitable for agriculture and settlement during the Historic Period due to the steepness of slopes on the east side of the mountains,

secondary terraces, and upland knolls of the Connecticut River. These areas likely witnessed timber harvesting and some agricultural or pasturage use. Stone walls that likely represent property boundaries are evident on this side of the mountain. Agricultural land use is represented by the Parsons' Free Orchard Farm, located southwest of Goat Peak. In 1773, a Bela Parsons established a farmstead in this location, clearing timber to create space for associated buildings, the cultivation of crops, and a large apple orchard. Seasonally harsh conditions led the Parsons family to sell the property. Evidence of the apple orchard remained visible into the early 20th century. The availability of free fruit for local residents resulted in the name "Free Orchard" for the locale.

The Lyman's Inn Site, located north of Smith's Ferry Road and east of Kennedy Swamp, if it survives, may contain information concerning late 18th century settlement and land use in the lands that became the Mount Tom State Reservation. A map from 1794 identifies the inn, however the site has not been field verified.

Extensive timber harvesting likely began in the late 1700s, with logs delivered to sawmills via the Oxbow and lower Bray Brook. The Bray Brook Sawmill Site and the Steam Sawmill Site are logging-related archaeological features on the reservation. The trails used for transporting logs may have contributed to the roadways and trails in the reservation today.

The Bray Brook Sawmill Site, located on maps from 1794, 1831, and 1873, has not been field verified. Located north of Smith's Ferry Road, east of Kennedy Swamp, south of Bray Brook and west of Interstate 91, the facility may contain information concerning early industrial land use.

The Steam Sawmill Site was located during an archaeological reconnaissance/background research visit to the reservation. The site is north of Smith's Ferry Road, west of Bray Brook Marsh and east of Teabag Trail. This site has not been field verified. The steam-powered sawmill site was built in 1919 and was used by the CCC during their infrastructural improvements on the reservation.

Numerous Historic Period quarry sites have been identified and offer evidence of historic land use and quarrying on the mountaintop that became Mount

Tom State Reservation. Extensive basalt talus slopes are abundant on the upper flanks of the mountains, and metal chutes were used to transport talus directly down the slopes. Sections of chutes and a stone crusher are extant at the reservation. Eight quarry-related archaeological resources have been documented on the reservation and have been added to the state inventory of archaeological resources. They include the Beau Bridge Trail Quarry; Christopher Clark Road Quarry Complex; Free Orchard Quarry; Lost Boulder Quarry and Quarry Road Trace; Nature Trails Quarry; Talus Railroad; Stone Crusher Remains; and the Dynamite Bunker.

Visitor Center Area. The Visitor Center Area is the main locus of historic building infrastructure and recreational activity in Mount Tom State Reservation. It includes the Visitor Center and associated landscape features; Bray Tower and park gates to the west; Goat Peak Tower and the Eyrie House Ruins to the north; the Robert S. Cole Museum and other features to the east; and the maintenance garage, entrance gates, and resources along Christopher Clark Road to the south. A map of this area is provided in Figure 2.5.1.

At its center, next to the intersection of Christopher Clark, Smith's Ferry, and Reservation roads, stands the Visitor Center, formerly called the Stone House. This is the most architecturally distinctive building in the reservation. Constructed in 1934–36, the Tudor Revival style building has exterior walls of random coursed, irregularly shaped local stone, a steeply pitched slate roof, a gabled center entrance, and massive central chimney. The building's style is different from most CCC buildings in Massachusetts, as the construction was initiated by others, with the CCC contributing to construction and completion of the interior. Many roof slates are missing or heavily weathered, and full replacement in-kind will soon be necessary.

Approximately 500 feet southwest of the Visitor Center is the Bray Tower. A roadway extends up the hill to the west of the Visitor Center, to this tower. The road is lined with fragments of stone curbing, one of the only remaining features of CCC-era road upgrades in the reservation. The traffic rotary at the base of the road is also said to have been constructed by the CCC. The lookout tower at the top of the hill is said to have been constructed in 1929, and consists of an open steel-braced structure on

concrete piers, with three flights of steep stairs leading to a square wood plank platform with a chain link railing. The tower offers an expansive view to the west, including the City of Easthampton and the Berkshire Hills. The view from this tower is being lost to vegetative growth.

Farther west, at the intersection of Reservation Road and East Street, Easthampton, stands the former west entrance gate; it is located off the reservation. The mortared fieldstone gate, said to have been constructed in 1929, features two square pillars flanking the roadway that are capped with stepped concrete slabs that originally featured spherical concrete finials. Concave curving stone walls connect these pillars to shorter piers with a concrete slab cap. The piers and walls are generally in good condition. However, a portion of the southern wall appears to have been struck by a motor vehicle and damaged.

The west entrance gate is one of three constructed for the reservation. In the early 20th century, all three park roads leading to the interior of the reservation were marked with formal entrance gates at their intersections with the major roadways outside the park. Although each gate was unique in design, they were tied together through the common use of piers with flanking walls, masonry construction, and the use of spherical concrete finials atop the piers. The other two gates, located at the Route 5 and Route 141 entrances, are discussed later in this section.

Approximately 3,100 feet up Christopher Clark Road, to the north of the Visitor Center, is the entrance to the Goat Peak Tower. This lookout tower was built at the same time as the Bray Tower, and is nearly identical in design and construction. The steel structural members are rusted. At the base of the tower, a flight of concrete stairs poured atop exposed ledge once provided access to the tower stairs, but the concrete is mostly missing today. A set of concrete stairs leading up to the peak from the (now closed) parking area below are deteriorated and require repair. Trees and other vegetation are encroaching on the structure and blocking the view.

At the northern terminus of Christopher Clark Road is Mount Nonotuck. The Eyrie House Ruins are located on its summit, at the northern terminus of and on the west, north and east flanks of the mountain. The archaeological record reveals a late 19th century tourism/hotel-related complex with

Place Holder for Figure 2.5.1. Mount Tom State Reservation: Visitor Center Area

many intact associated features. These remains include the original basalt supported cart/pathway to the summit, a lookout area, a croquet field, a picnic grove, a stone hotel foundation, a beacon tower (erected by the Federal Government in 1944 and now used as a radio tower), the supports for three promenades on the north, south, and west faces, the remains of a pavilion, a stable, a well, a small dam at a spring, stone stairways and a route for a planned railroad.

The Eyrie House was in operation from 1861 until 1901, when it was destroyed by fire. Prior to the establishment of Mount Tom State Reservation in 1903, tourism and recreation focused on this hotel and catered to its railroad-supplied clientele. The Eyrie House was one of two hotels on greater Mount Tom that were associated with railroad tourism, and many hotel guests arrived by train from the small Smith's Ferry station located east of the reservation. Guests were then transported up Mount Nonotuck and throughout the mountaintop in horse-drawn wagons. An easement for an incline railway up the northern slope of the peak was prepared, but the rail never installed.

Across Christopher Clark Road from the Visitor Center is a concrete foundation slab with low perimeter walls that once supported a storage building that was moved from the site in 1934. In the slope below the slab on the east-facing side (i.e., the side facing Elder Field) is a low, stone-lined hatch door that provides access to a crawlspace, widely attributed to be an explosives storage bunker built by the CCC. A known dynamite bunker, not field verified, exists on the Dynamite Trail. Given its similarity in appearance to the known dynamite bunker, the crawlspace beneath the foundation may have performed a similar function. More research is necessary to fully interpret this structure.

Approximately 650 feet east of the Visitor Center, set back from the south side of Smith's Ferry Road, is the Robert S. Cole Museum. Construction of this small, two-room building on a concrete foundation was initiated by the CCC in 1940 and completed by park staff in 1942. Its "wavy" board siding is typical of the CCC era, and it currently has an asphalt shingled gable roof. It was originally built as a natural history museum, and was open to the public as such until 1989. The building is now used for storage and to house pumping equipment for a

public water supply well that was drilled behind the building in the 1990s. Window and door openings are currently boarded up as an anti-vandalism measure. The wood siding is rotting at the foundation level. The heavily shaded nature of the building site encourages deterioration of the wood.

Just off the access road to the Cole museum is a square concrete slab at grade level that was once the foundation for the CCC-era blacksmith shop, said to have been constructed in the 1930s during their infrastructural improvements on the reservation. The building was demolished in 1980. The slab is partially covered by a thin layer of soil and organic growth.

Behind the slab to the east, in a forested area, is a natural depression edged by exposed rock that was converted for use as an outdoor amphitheater by the CCC in the 1930s. At the time, seating was provided by logs laid into the ground in tiers up the slope. The site is being overtaken by vegetative growth and littered with fallen tree trunks and branches.

To the south of the Visitor Center, on a spur road off Christopher Clark Road, is the former reservation headquarters, now used as a maintenance shop. The southern section of the building was built by the CCC between 1936 and 1941, evidenced by the stone side and rear walls and "wavy" board siding on the south gable end. This section features a corrugated metal roof and six bays of garage openings, five of which still feature original wood swinging doors with cast iron strap hinges. These are still operational, but the doors are heavily worn and rotting at their bases. The northernmost section of the building is a modern addition built in 1988, featuring vertical wood siding and an asphalt shingle roof. A one-story wing at the south end of the building, built in 1941–42, was demolished in 1999 after snow loads collapsed the roof.

Along the west side of Christopher Clark Road between Route 141 and the Visitor Center Area, spaced at regular intervals, are four scenic overlooks that offer westward views to the Berkshire Hills, across Easthampton in the valley below. They were constructed by the CCC, but they have been altered with modern wood guardrails and no longer retain distinctive CCC workmanship. Although the views remain largely open, vegetative growth below and to the sides of each overlook are hemming in the views.

At the northernmost overlook, on the east side of the roadway, may be found the remains of equipment used by the CCC to crush rock for roads and other recreation-related construction. It may have been built as early as 1928 for use by the Civilian Works Administration of Chicopee. Ruins include a cast iron flywheel, crushing mechanism, and chute mounted atop a poured concrete pier, with an earthen ramp for loading crushed stone onto trucks or wagons and a level platform on the uphill side that may have supported a steam-driven tractor or engine.

At the southern end of Christopher Clark Road, at its junction with Route 141/Easthampton Road, stands the south entrance gate. It is the only one of the three entrance gates located on the reservation. The mortared fieldstone gate, said to have been constructed in 1928, consists of two square pillars flanking the roadway, constructed of large stones capped with a spherical concrete finial atop a square concrete slab. From each pillar extends a curving stone wall tapering down in height, featuring a picketed finish of vertical stones jutting above the top of the wall. Some stones have fallen out and need to be re-set.

Christopher Clark Road, named after the primary advocate for the state reservation, is itself a historic resource. It provides vehicle access to the reservation at the southwestern corner and extends northeast to just below the summit of Mount Nonotuck. The roadway was constructed after the establishment of the state reservation in 1908, and later improved by the CCC. Only the section between the south entrance gate and the Visitor Center Area is currently open to the public.

Lake Bray Area. This area includes the Warming Hut, Lake Bray Dam, Reservation Headquarters, and associated buildings and structures. A map of this area is provided in Figure 2.5.2.

Lake Bray was created in 1912–13 through the construction of an earthen dam on Bray Brook that flooded a wetland. The lake subsequently became a popular recreation resource for fishing and ice skating. The dam, rebuilt on many occasions over the years, was largely reconstructed in 2002.

On the northern side of Lake Bray is the concrete Warming Hut, constructed in 1969 and designed by Bednarski Stein Architects of Greenfield. It consists

of a shed-roofed central block that contains a warming area, featuring a wall of windows providing a view out to the lake and a walk-in nook containing a large fireplace. Extending out to the south is an open-air, raised concrete platform for picnicking. The central block is flanked by two shed-roofed wings to the east and west that house restroom facilities. Except for two upper sections of the central block's exterior that have wood vertical siding, the building's inside and outside walls feature a smooth concrete surface with irregular projecting vertical striations formed by concrete extending into the voids between the 2- by 4-inch formwork during the construction process. The Warming Hut is a rare example of Brutalist style architecture in the Massachusetts state parks system, and its monolithic design and concrete ribbing detail appears to have been inspired by the internationally renowned work of architect Paul Rudolph from the 1960s. The asphalt shingle roofs of the building have an accumulation of organic debris that is deteriorating the roof material and impeding drainage.

Immediately west of the Warming Hut are features associated with Cascade Brook that date from the post-CCC era. A series of culverts with stone headwalls exist in the parking lot area, most of which require extensive rebuilding and masonry repointing. A concrete vehicular bridge with stone veneer crosses Cascade Brook near its terminus at Lake Bray. This structure, constructed in the latter half of the 20th century to replace an earlier structure, is in the style of CCC-era construction. The masonry joints have been repointed in the past, and many require new mortar.

Farther upstream, Cascade Brook passes under Smith's Ferry Road, the main east-west roadway traversing the reservation. The roadway crosses a number of small streams along its length, which are directed under the road via culverts with rubble stone or concrete headwalls, some of which may have been constructed by the CCC. The most elaborate of these structures is located at the Cascade Brook crossing, where the brook is diverted through stone-lined channels on either side of the roadway, and directed beneath through a concrete-lined culvert. Constructed in 1934, it features concrete sidewalls with a rectangular recessed panel detailing.

Place Holder for Figure 2.5.2. Mount Tom State Reservation: Lake Bray Area

At the eastern end of Reservation Road, at its intersection with Route 5 (i.e., Northampton Street), stands the east entrance gate; it is located off the reservation. This gate is said to have been the first to be built at the reservation in 1915. Today the gate consists of two square pillars, one on each side of the roadway, constructed of yellow tapestry brick with panels of bricks arranged in a herringbone pattern. Each pier is topped with a spherical concrete finial on a square concrete slab entablature. A newspaper account indicates that these were originally the end piers of a more elaborate gate consisting of taller piers connecting to these existing piers by a curved brick wall. The gate was dismantled in 1935 in order to provide safer sight lines for traffic exiting onto Northampton Street; a bronze plaque that was mounted on one of the tall piers is now located in the Visitor Center. While the brick work and masonry joints of the existing piers remain in good condition, the decorative concrete finials and entablatures are badly eroded in sections and are in need of restoration.

Mountain Park. South of the reservation, is the former site of Mountain Park, a trolley park developed on the eastern slopes of Mount Tom by the Holyoke Street Railway Company in the 1890s. It evolved into a popular amusement park in the 20th century, eventually closing in 1987. By 2003, all of its rides, buildings, and structures had been cleared from the site. The historic carousel, installed at the park in 1929, was saved through a grassroots fund raising campaign led by John Hickey of the Holyoke Water Power Company and relocated into a new building in 1993 at Holyoke Heritage State Park. (See Section 2.6 for additional information on the carousel.)

Several sites related to Mountain Park still exist on DCR-owned property to the southeast of Mountain Park, between Interstate 91 and Route 5. These include two dumps where Mountain Park-related debris is still visible in wooded areas, including the frames of vehicles, and remnants of a brick chimney stack, said to be an incinerator for the park.

Still quite visible on the landscape are the roadbeds of the original entrance roads to the park off of Route 5, north of the intersection with the present-day Mountain Park Access Road. On each road are the original stone entrance gates to Mountain Park. The northernmost gate consists of two square pillars

flanking the roadway with brick and concrete caps, connected to shorter pillars by curving stone walls. The gate's masonry needs repointing, and they have been damaged by falling branches and trees, including a large trunk that currently lies atop both sides of the gate. The stone gate on the southern entrance road features a very similar design, except it is enhanced by an open steel frame structure that spans the road, which once supported a sign board. The masonry is in need of repointing.

Just to the east of Mountain Park Access Road is a series of ten tall concrete slab pillars, part of a railroad trestle that was on a spur off the main railroad to the park and a quarry beyond. These pillars appear to date from the 1920s, and are said to have been a part of a commercial trap rock storage facility where railroad cars from the quarry would unload their ore from the railroad atop the trestle structures down to the ground where it would be loaded onto trucks for shipping.

Vegetation on and around the incinerator, gates, and trestle pillars needs to be cleared to avoid undermining of, or further damage to, these structures. This will also increase their visibility for interpretive purposes.

2.5.3. RECREATION RESOURCES

Mount Tom's recreation resources are similar to those of parks elsewhere in the planning unit. What distinguishes this park from the others is its combination of resources and the availability of accessible recreational opportunities. Facility-based recreation is located near the Visitor Center (i.e., at Elder Field) and at Lake Bray; trail-based recreation is available throughout the reservation.

Attendance

Mount Tom has two entrances for motor vehicles, the east entrance on Reservation Road and the south entrance at the intersection of Route 141 and Christopher Clark Road. These are seasonally staffed on weekends, between late May and early October. As a result, the actual number of vehicles entering the reservation is unknown. In FY 2012, day use fees were collected from 7,729 vehicles. The average number of people per vehicle is estimated at 2.7; based on this multiplier, the number of fees paid represents an estimated 20,878 visitors. The Forest and Park Supervisor estimated an additional 53,435

non-paid totals, for an estimated total of 74,313 attendees (Carr 2012).

Visitor Center Area

Elder Field is the one of the reservation's two main recreation areas. Resources include a group picnic pavilion with a water fountain and large grill; playground; open grassy area for field day games and events; and nearby portable toilets. There is no accessible parking, nor are there accessible picnic tables, at Elder Field.

In 2012, the pavilion was reserved on 55 occasions. Thirty-nine reservations were for the general public, whose group size ranged from 20–40 people. The remaining 16 reservations were for the Holyoke Schools' summer program, whose group size ranged from 80–160 students and teachers. This results in a total use estimate of 2,060–4,120 people. These numbers are imprecise because those renting the pavilion provide use estimates in advance of their events.

The Elder Field playground has been a feature of Mount Tom State Reservation since the late 1930s. Existing playground equipment was removed in the fall of 2012, and a new playground was installed in 2013. This new playground was designed to blend into the landscape; constructed of wood and artificial materials manufactured to resemble stone and logs. It will include: a 4,798 square foot play area bordered by timber and filled with wood fiber safety surface material; two rock climbers with slides; two swing sets, including four bucket swings and six belt swings; a balance log; a "hollow log;" two 8-foot-long log benches; and a stone dust path connecting to the parking area.

The New England Orienteering Club runs a two-day event called the Western Massachusetts 5 Day. Stage five is based at Elder Field. There were approximately 110 participants in 2012.

Immediately east of Elder Field is the Hampden Area, which has individual picnic sites with grills and tables, additional open grassy areas for games and events, and an additional water fountain.

There are two observation towers, one to the west (i.e., Bray Tower) and one to the north (i.e., Goat Peak Tower) of Elder Field; they are both open to the public. Goat Peak Tower provides a platform for observing migrating hawks, often getting crowded

on peak migration days in the fall. Bray Tower is also used for hawk watching, primarily during the northward spring migration.

Lake Bray Area

The reservation's other main recreation area is along the shore of Lake Bray. This area provides universally accessible recreation with an accessible picnic site, fishing pier, hiking trail, restrooms, and parking. A 1.6-mile long Healthy Heart Trail circles the lake. Several non-accessible picnic sites are located next to the Warming Hut. The lake is used for both fishing and ice skating (January–February).

Trail-based recreation includes hiking and running; dog walking; cross-country skiing, and snowshoeing. The University of Massachusetts Outing Club conducts an annual evening hike along the cliffs east of Christopher Clark Road on the Tuesday closest to the summer solstice (University of Massachusetts Outing Club 2012). The DCR's Universal Access program periodically offers accessible recreation programs at Mount Tom; past programs have included hiking, cross-country skiing, snowshoeing, and kick sledding. Geocaching occurs throughout the reservation, with participants both on and off trails. As of April 2013, there were 25 known geocaches. The park's trails are closed to mountain bikes, hunting, and OHV use; all three activities are known to occur.

2.5.4. INFRASTRUCTURE

Mount Tom has the most infrastructure of any property in the planning unit; much is historic. (Appendix H, Table H3) As a result, there is significant overlap between the reservation's infrastructure and its cultural resources. This section describes only that infrastructure, either historic or non-historic, in current use by park visitors or staff.

Property Boundary

The reservation is located within an area approximately bounded on the north and east by Interstate 91, on the south by Route 141, and on the west by East Street, Easthampton. However, only about 53% of this area is the reservation, and additional sections of the reservation occur east of I-91. Private, federal, municipal, and non-profit lands also occur within this area and the actual reservation boundary abuts all of these types of properties.

There are two Conservation Restrictions associated with the reservation; they are identified in Table 2.5.4. Both are located near the former Mount Tom Ski Area and are on lands owned by non-profit organizations.

Table 2.5.4. Conservation Restrictions associated with Mount Tom State Reservation.

Land owner(s), in fee	Acres ^a
Boys and Girls Club of Greater Holyoke	21.75
The Trustees of Reservations	73.40
Total	95.15

a. Number of acres as calculated by GIS; this value may differ from the number of acres on the deed, if listed.

There are several easements on the property. The two most prominent are tower easements located near the top of the former Mount Tom Ski Area. These easements, referred to as Easement Area #1 and Easement Area #2, are for communication infrastructure present at the time that the DCR acquired the property. Easement Area #1 contains approximately 0.19 acres and #2 contains about 2.16 acres. (See Section 3.5.4 for restrictions on development in these easements.)

In 1964, the Massachusetts Department of Public Works established five drainage easements along I-91 through a taking. Three of these easements, parcels 3-D-2, 3-D-3, and 3-D-5, are now on the reservation. Their total area is 0.27 acres. A fourth parcel is located off the reservation, on the grounds of Mountain Park. It is unclear if the fifth parcel (3-D-4; 0.06 acres) is on the reservation or on an adjacent parcel owned by The Trustees of Reservations. These easements provide MassDOT the right to enter the property at any time; to construct, use, and maintain drainage structures “comprising paved waterways;” and to discharge surface water for the purpose of draining and maintaining I-91.

A utility line corridor runs near the northwest corner of the reservation. Although largely on private land, it crosses a small strip of the reservation that extends to East Street, Easthampton. Western Massachusetts Electric Company (WMECO) holds a 150-foot-wide easement through this portion of the park.

The DCR has legal interests in two potential acquisitions that would result in changes to the property boundary. Both acquisitions are being pursued by the DCR; neither is a certainty.

In 2002, a consortium of governmental and non-profit groups (i.e., the Mount Tom Partners) purchased the former Mount Tom Ski Area and forest lands to the east of the ski area. At that time, the DCR acquired an exclusive irrevocable option to purchase the 16.14-acre Mount Tom Quarry. This option identifies specific criteria to be met by the landowner prior to the DCR acquiring the property.

In 2009, the DCR entered into an agreement with the Massachusetts Technology Collaborative (MTC) and the City of Holyoke Gas and Electric Department (HG&E) to purchase two parcels of land south of the reservation’s current boundary. One parcel is subject to a lease and both are subject to multiple easements. Through the agreement, HG&E granted both the DCR and MTC the right to purchase the property “subject to the terms, conditions, and obligations set forth in that certain unrecorded Development Agreement.” These terms, conditions, and obligations are unusually complex. In addition, a portion of one parcel has been developed since the agreement was signed. Both factors increase the complexity of acquisition.

Buildings and Structures

Mount Tom’s buildings and structures primarily occur in two general areas: the Visitor Center Area, which is centered on the intersection of Christopher Clark, Reservation, and Smith’s Ferry roads; and the Lake Bray Area, along Reservation Road. Locations of the reservation’s buildings and structures are described in relation to these two locales.

Combined information on the park’s cultural resources and major infrastructure is presented in Appendix H, Table H3. Information on the cultural resources aspects of these buildings and structures was presented in Section 2.5.2.

Visitor Center Area. This area includes the Visitor Center, Bray Tower to the west, and buildings to the east and south. A map of this area was presented in Figure 2.5.1.

The Mount Tom Visitor Center measures 14- by 34-feet. Its stone and masonry walls sit atop a concrete slab; the building is capped with a steeply raked slate roof. The building is heated with a wood burning stove and has electricity, but is without running water and bathrooms (DEM 2001). Its landscaping includes turf grass and several mature conifers. Many of the roof shingles are missing or

heavily weathered. There are a few minor maintenance needs, such as repainting the floor. Only the back entrance is universally accessible. The condition of the Visitor Center is classified as Good.

Approximately 500 feet southwest of the Visitor Center is the Bray Tower. This 24-foot-high tower is constructed of structural steel, with an 8- by 8-foot wooden floor of the viewing platform. A 6-foot high-steel “cage” with railings surrounds the viewing platform. This tower is anchored to four concrete footings, and the staircase is anchored to a small set of concrete stairs. It is painted green, but has numerous small rust spots. The tower appears to be in Adequate condition, but it has not been assessed by an engineer.

A second observation tower is located north of the Visitor Center on the summit of Goat Peak. It is of similar design and construction to the Bray Tower. The legs of this tower are anchored to four concrete footings, while the ladder is anchored to a concrete pad poured atop ledge. A series of concrete steps located at the base of the tower are largely missing, making passage difficult. The rust on this tower is more extensive than that on the Bray Tower. Its condition appears to be Adequate, but it has not been assessed by an engineer.

At the northern limit of Christopher Clark Road is Mount Nonotuck; two buildings and one structure are located on or near its summit. The Eyrie House Ruins are the remains of a historic building; information on which was presented in Section 2.5.2. South of the Eyrie House Ruins are a radio building and tower; both are enclosed by a chain link fence. The radio building, which is believed to be owned by MassDOT (Demas 2013), is an 8- by 12-foot metal building atop a concrete foundation. A second roof, constructed of wooden rafters and metal street signs sits on top of the radio building, presumably constructed in response to leaks in the original roof. The rafters of this second roof are rotted. Electricity for this building’s equipment comes from an adjacent utility pole and transformer. An approximately 30-foot-high tower, constructed in 1944 to support an aviation navigation beacon, now supports two communications antennas. The tower, its stairs, and platform have extensive rust. Its condition appears to be Fair, but it has not been assessed by an engineer. The chain link fence that surrounds the building and tower has been

vandalized so that the public may enter the compound and access the tower.

The purpose(s) of the Mount Nonotuck antennas could not be conclusively identified during the preparation of this RMP. A DEM (1991) report indicated that the “Mass DPW and state police maintain a relay tower for motorist assistance telephones along portions of the Mass Pike.” However, the site is not listed in the MOU between the DCR and the Massachusetts State Police, and call boxes are being phased out along Massachusetts’ highways, making it unlikely that the facility currently serves either of these purposes. In 1998, an Antenna Structure Registration (# 1037849) was issued by the Federal Communications Commission to the Department of Environmental Management (now the DCR) for the tower; the listed point of contact is a now retired.

Across Christopher Clark Road from the Visitor Center is Elder Field. A picnic pavilion, constructed in 1999, is the only building in this area. This 20- by 44-foot building sits atop a concrete slab. It has stone and mortar half-height walls, above which are exposed framing timbers that support a wood framed and sheathed roof that is covered with asphalt shingles. The southeast corner of the pavilion has tree limbs abrading the roof and moss-covered shingles. It has eight electric outlets, three interior lights, and three exterior lights. Water is available from an adjacent drinking fountain. The condition of this building is classified as Good, with only the roof in need of maintenance.

The Robert S. Cole Museum is located on the south side of Smith’s Ferry Road to the east of the Free Orchard area. It consists of two parts, a 15- by 29-foot museum area and an attached 9- by 10-foot office (DEM 1991). The wood framed and sided building sits atop a concrete slab. Nearly all wood that contacts the slab is rotted, as is the siding where the roof of the office attaches to the museum portion of the building. It has an asphalt shingle roof. There is no plumbing or heat; electric service still runs to the building. The building is currently used to house equipment associated with the park’s public water supply and for storage; including the storage of power equipment. Its condition is classified as Poor.

Because the reservation’s public water supply well is located adjacent to the museum, the building occurs entirely within a Zone I wellhead protection area.

The DEP generally recommends keeping non-water supply activities out of Zone I areas (DEP 2001). However, resuming interpretation at the building would be allowed, provided that vehicles and picnic areas are kept outside the Zone I (Laprade 2012).

Approximately 900 feet south of the Visitor Center is an operations yard with two buildings: a maintenance shop and a sand shed. This area is collectively referred to as the Wood Yard.

The maintenance shop was constructed as an approximately 25- by 77-foot six bay garage. In 1988, a 22- by 16-foot addition was added to the north end; this was to serve as a locker room. Stone and mortar walls, similar in appearance to those of the Visitor Center, serve as the building's original exterior walls and also divide it into two sets of three bays. Five of the six bays have hinged, outward-opening wooden doors; the sixth has a roll-up metal door. This portion of the building has a corrugated metal roof. The locker room portion is constructed of wood framing and sheathing, and has T-11 siding and asphalt roofing shingles. The entire building sits atop a concrete slab. There are two masonry block chimneys, one for the garage and the other for the office; the latter has extensive cracks. The locker room's siding is rotting where it contacts the ground, due to accumulations of organic matter (i.e., leaves, stacked firewood) and soil (i.e., a flower garden) against the building's base. The wooden garage doors are rotted at the bottom. Now heated solely by a wood stove, the maintenance shop was once heated by a downdraft oil furnace (DEM 1991). The 275-gallon oil tank associated with that furnace remains housed in an enclosure attached to the back of the building. The condition of this building is classified as Fair.

A 22- by 29-foot salt shed is located adjacent to the maintenance shop. It has a wood frame, corrugated metal roof, and no sheathing or siding. This building is currently used to store a variety of materials and equipment, not just road salt or sand. The condition of this building is classified as Adequate.

Farther south along Christopher Clark Road, near its intersection with Route 141, are historic entrance gates and one of the reservation's two contact stations. The gates consist of stone and mortar pillars and attached, curving, stone walls. The contact station is a hexagonal building, measuring five feet on a side. It has wood framing, sheathing, and

siding, and asphalt roofing shingles. There is no foundation; the building sits atop cement paving blocks. It has electricity. The condition of this contact station is classified as Good.

South of the Visitor Center, and east of Christopher Clark Road, are two easements that contain private communications towers and associated infrastructure. (Locations of these easements are identified in Section 4, Figure 4.3.3.) The first, Easement Area #1, has a triangular communications tower and three associated buildings. This entire easement is surrounded by a chain link fence. The second easement, Easement Area #2, has one large monopole communications tower, two smaller towers, and three associated buildings. A chain link fence surrounds this infrastructure, but not the entire easement. Because infrastructure associated with these easements is privately owned, their conditions have not been assessed. A shed, associated with the former Mount Tom Ski Area, is located within Easement #2. It is framed and sheathed with wood, and has asphalt shingles. The dimensions and conditions of this shed were not assessed.

West of Easement Area #1, on Holyoke Gas and Electric property, is a small turbine and associated infrastructure. A portion of the northernmost building at this site encroaches on the reservation.

Lake Bray Area. This area includes the Warming Hut, Lake Bray Dam, Reservation Headquarters, and associated buildings and structures. A map of this area was presented in Figure 2.5.2.

The Warming Hut is located along the northwest shore of Lake Bray; it was designed as a place where ice skaters could come inside to warm up by a fire. This three-room structure has a shed-roofed central block and shed-roofed additions on both its east and west sides (Binzen et al. 2005). It is constructed of poured concrete and has a wooden roof with wooden rafters and asphalt shingles. The central block has a wall of windows that face the lake; a 22-foot by 14-foot concrete deck extends toward the lake. The north wall of the building has a large fireplace that is no longer in use. The west wing contains the women's bathroom and the east wing the men's. Each bathroom has its own electric heat and water heater. Bathroom stall dividers are rusted, and despite regular repainting, are in need of replacement. The Warming Hut is served by municipal water and sewer. Floor drains, located in

each bathroom connect to an oil-water separator before entering the sewer system (Weston & Sampson Engineers, Inc., and ATC Associates, Inc. 1998). Paint is peeling from the floor throughout the building. Moss and accumulations of organic material are damaging the roofing shingles of both wings and beginning to damage the central block's siding. Despite repairs, there are multiple leaks in the roof. Such leaks have been noted for at least 30 years and are likely due to the roof's pitch, "which makes the rain water settle in the center of the roof and leak during wet seasons" (Hansen et al. 1982). As a result, the sheathing in the main block's roof has begun to rot. Its condition is currently classified as Fair, but continues to degrade.

A small, wooden pump house is located next to the Warming Hut. This building was constructed in 1980 to house two pumps that move waste water from the Warming Hut to a municipal sewer line east of the reservation's entrance. This 80-inch by 103-inch building is wood framed and sheathed, with painted wooden shakes for the siding. It has a moss-covered asphalt shingle roof. The condition of this building is classified as Adequate.

A 16-foot-long auto bridge crosses over Cascade Brook just west of the Warming Hut. This bridge was constructed in the late 20th century in the style of the CCC. Its south side has a 3-foot-wide sidewalk that allows pedestrians to walk from the Lake Bray parking lot to the Warming Hut. There are numerous cracks in the mortar and evidence of previous repairs. The condition of the bridge is classified as Adequate.

Three 48-inch diameter corrugated metal culverts are located along Cascade Brook, beneath the northern exit of the Lake Bray parking lot. Records indicate that culverts were installed at this location in 1956; it is unclear if the current culverts are the originals or replacements. Their condition is classified as Good.

Farther upstream, Cascade Brook passes under Smith's Ferry Road through a historic culvert. This culvert is 10-foot-wide and constructed of concrete. Its sides extend two feet above the road's surface to create a safety curbing. Its condition is classified as Good.

Approximately 225 feet southeast of the Warming Hut, along the shore of Lake Bray, is a 12- by 12-foot accessible fishing platform. A 40-foot-long by

6-foot-wide accessible ramp leads to the platform. This structure, which was constructed in 1998, is made of plastic lumber. It has two built in benches. The condition of this platform is classified as Excellent.

East of the fishing platform, along Reservation Road, is the Lake Bray Dam (MA-00537). This dam, which was substantially reconstructed in 2002, is approximately 520 feet in length and has a structural height of 13 feet (Lenard Engineering, Inc. 2006). A 14-foot-wide by 15-foot-long concrete drop-inlet serves as the primary spillway. A series of 4- by 6-inch pressure treated stop logs allow for the manipulation of lake level. A 49-foot-long, 8- by 12-foot box culvert conveys spillway discharge beneath Reservation Road. The dam is classified as a small sized dam with a significant hazard potential; it is currently in Satisfactory condition.

The Reservation Headquarters, constructed in 1995, is located east of Lake Bray at 125 Reservation Road in the City of Holyoke. This 48-foot-wide by 38-foot-deep building has wood framing, sheathing, and siding, and asphalt roofing shingles. This building is constructed atop a concrete slab. The entrance (i.e., west) side of the building has two metal entrance doors, one on each end, and two roll-up metal garage doors in the middle of the west wall. An administrative office, located on the north side of the building, has an accessible restroom and a pitched entrance walkway to provide universal access. The building has municipal water and sewer, and is heated by a propane-fired furnace; three propane tanks are located behind the building. Communications are provided by phone, Internet, and a DCR base station radio. Although generally in good repair, this building's rake boards are heavily damaged by insects. It is unknown if this insect damage is more extensive. The condition of this building is classified as Adequate, indicating that corrective maintenance is required.

A contact station is located in the center of Reservation Road, to the east of the headquarters. This building has wood framing and siding, and an asphalt shingle roof. Its dimensions are 91- by 94-inches. It was constructed in 2008, to replace a previous contact station that had burned down. There is no electricity, water, or heat. The building appears to be in good repair, although its siding, trim, and floor joists are all in contact with Reservation Road.

The condition of this building is classified as Adequate, indicating that corrective maintenance is required.

In 2012, a new wooden foot bridge was constructed over Bray Brook, just upstream of Lake Bray. It is 60-feet-long by 5.75-feet-wide. The reservation's Healthy Heart Trail crosses this bridge. Its condition is classified as Excellent.

Off the reservation, at the Connecticut River Boat Ramp, is an 87-foot-long by 37-foot-wide by 0.5-foot-thick concrete slab. This slab leads from the boat ramp's access road into the Manhan River. Its slope varies from 0% at the parking lot to 33.3% under the river. The condition of this slab has not been assessed. An accessible portable toilet is located in the southeast corner of the parking lot.

Berchulski Fisherman Access Point has a small, prefabricated textured concrete "plank system" access ramp. This system is suitable for launching small boats; it appears to be in Good condition. A concrete wall extends along much of the parcel's eastern boundary; it is unknown if this wall is on DCR property or the right of way for Syrek Street. Toward the north end of the property, a combined sewer overflow pipe discharges storm water into the Connecticut River; this system is owned, operated, and monitored by the City of Chicopee. There are no portable toilets on site.

Roads

There are two main public roads in the park. The first, Christopher Clark Road, runs from the park entrance on Route 141 to the Mount Nonotuck overlook. Approximately 1.21 miles (34.48%) of this road, from the Visitor Center northward, has been closed to the public. The second road runs from the park's western boundary in Easthampton to its eastern boundary in Holyoke. At both ends it is referred to as Reservation Road, while the middle segment is referred to as Smith's Ferry Road. Among the other public and private roads on the reservation are the road to the Bray Tower; access roads to the Wood Yard area, Cole museum, and park headquarters, and other similar roads.

There are approximately 6.44 miles of public and administrative roads; most (6.37 miles; 98.9%) are legal. Of these legal roads, 4.60 miles (72.2%) are in Good condition, 0.41 miles (6.3%) are in Fair condition, and 1.37 miles (21.5%) are in Poor

condition. The worst conditions occur on the section of Christopher Clark Road closed to the public (i.e., from the Visitor Center northward). Problems include potholes, broken pavement, and in some instances, bedrock projecting through the pavement. An additional 0.11 miles of roads occur on associated Conservation Restrictions; all are legal and in Good condition.

A paved entrance road, approximately 0.02 miles long, leads from Syrek Street to the Berchulski Fisherman Access Point's boat ramp and parking area.

Parking

Public parking is largely concentrated in three areas of the park, the Visitor Center, Hampden, and Lake Bray. (Table 2.5.5.)

Table 2.5.5. Number of public parking spaces, by location and type, at Mount Tom State Reservation.^a

Location	HP	Other	Total
South entrance (Route 141) ^b	0	4	4
Overlook D ^c	0	7	7
Overlook C ^c	0	5	5
Overlook B ^c	0	5	5
Overlook A ^c	0	4	4
Wood Yard – Quarry Trail	0	8	8
Visitor Center Area – paved ^d	2	2	4
Visitor Center Area – unpaved ^b	0	8	0
Bray Lookout Tower ^d	0	9	9
Goat Peak lot ^b – along	0	31	31
Christopher Clark Road			
Dryknoll Vista ^b	0	13	13
Mount Nonotuck lot ^d	0	11	11
Elder Field lot ^b	0	14	14
Hampden Area lots ^b	0	90	90
Lake Bray ^b	3	91	94
Warming Hut ^d	2	0	2
Connecticut River (Oxbow) boat ramp ^{d, e}	1	22	23
Berchulski Fisherman Access Point ^f	1	9	10
Total	8	336	344

- This table does not include roadside parking.
- Number of spaces is based on the number of potential 9-foot wide, perpendicular parking spaces
- Number of spaces is based on the number of potential 9- x 24-foot, parallel spaces.
- Number of spaces is based on pavement markings.
- Plans for this boat ramp indicate a total of 32 marked spaces; only 23 are marked.
- Number of spaces is based on OFBA (2013).

Parking near the Visitor Center is allowed both on the road, in marked spaces, and off road on gravel lots near the gate to the northern portion of Christopher Clark Road. Two designated HP spaces are located adjacent to the park's portable toilets. Immediately east of the Visitor Center is Elder Field. A gravel lot provides parking for the Elder Field pavilion and playground; there are no designated HP spaces. There is no bicycle parking at either the Visitor Center or Elder Field. South of the Visitor Center, at the Quarry Trail's trailhead, is a paved lot for approximately eight vehicles. To the west of the Visitor Center is the Bray Tower, the paved lot for which can accommodate nine vehicles.

Approximately 1,400 feet east of the intersection of Christopher Clark and Smith's Ferry roads is the Hampden Area. This area has two parking lots with a combined capacity of 90 vehicles. One of these lots was repaved in 2013.

The reservation's largest capacity parking lot is located at Lake Bray. It is paved and, with the exception of three HP spaces, unstriped; these three spaces provide trailhead parking for the Lake Bray accessible trail. The northern entrance to this lot was repaved in 2013. A small paved lot is located opposite the entrance to the Warming Hut; it has two marked HP spaces and one marked staff parking space. There is no painted aisle connecting these spaces to the entrance of the Warming Hut. There is no bike parking at the Warming Hut.

Additional parking is located along the southern end of Christopher Clark Road. A small lot is located outside the gate at the Route 141 entrance to the park; it was paved in 2013. Four scenic overlooks along Christopher Clark Road provide both views and parking; they too were paved in 2013.

Three parking areas are located along Christopher Clark Road north of the Visitor Center; these are the Goat Peak, Dryknoll Vista, and Mount Nonotuck lots. Collectively, these lots can provide parking for 55 cars. However, because this end of Christopher Clark Road is closed to the public, at Gate 6, these spaces are unavailable.

In addition to these formal parking areas, roadside parking is available throughout the reservation. Pull-offs are commonly associated with current or historic picnic areas, streams, and most any area

where the road shoulder is level and large enough to fit a vehicle.

Staff parking areas include: paved areas of the Wood Yard; the Reservation Headquarters' lot, which has 13 spaces, including one designated and striped HP space; and the previously mentioned designated staff space in the small lot opposite the Warming Hut.

The gravel parking lot on Reservation Road, adjacent to Interstate 91 and the park's east entrance is located on private property and is not maintained by the DCR.

There are 23 marked spaces at the Connecticut River boat ramp, and room for an additional nine vehicles. Twenty-one of these spaces, including the designated HP space, are restricted for use by vehicles with trailers. The remaining two spaces are limited to "parking by vehicles with cartop boats." All spaces are paved and striped. No general public parking is permitted in this lot.

There are 10 spaces, including one designated HP space, at the Berchulski Fisherman Access Point's gravel parking area. All are restricted for use by vehicles launching or retrieving watercraft. No general public parking is permitted in this lot.

Trails

The reservation's trail system is one of its great amenities. At different points along the NET hikers may look east upon the Connecticut River Valley and the Mount Holyoke Range, or west toward views of the City of Easthampton in the foreground and the Berkshires in the distance. The reservation's other trails provide access to, and views of, the park's natural and cultural features and landscapes.

Two specialized trails are located along Lake Bray. The first is a universally accessible trail along a portion of the lake's western shore. This trail has a level to gently sloping hardened tread, and level, hardened overlooks. It is part of a series of accessible features located at the lake's northern end. Other accessible features in this area are discussed in Section 2.5.3. Overlapping a portion of the accessible trail is the reservation's 1.6-mile-long Healthy Heart Trail. Such trails are pathways used for hiking or walking that are easy to moderate in activity level, and are intended to help build a healthy heart through routine use.

There are approximately 24.56 miles of trails within the reservation. Most trails (21.68 miles; 88.3%) are official, but 2.87 miles of trails are not. An assessment of trail condition, conducted in 2009, indicated that 94.4% of legal trails were in Good or Fair condition and only 1.2 miles (5.6%) were in Poor condition.

An additional 0.87 miles of trails are located on Conservation Restrictions associated with the park; all are official trails. Most (92.4%) were classified as being in either Good or Fair condition, with only a small amount (0.07 miles; 7.6%) in Poor condition.

In an on-line survey conducted in the fall of 2012, 14 of 23 respondents (60.8%) identified the reservation's trail system as the aspect of the park that they liked best. Among the ways that the park could be improved, respondents indicated creating better maps and more trails, improving trail maintenance, patrolling for illegal trail construction, enforcing regulations regarding dogs, and opening the trails to mountain bike use.

Kiosks and Signs

There are four kiosks on the reservation and one at the Connecticut River Boat Ramp. Kiosks at the Visitor Center and the trail head at the Lake Bray parking lot provide visitors with general information on the reservation. Both kiosks may also be considered Welcome Wayside Signs (DCR n.d.). Bulletin boards containing park information are present in the lobby of the Warming Hut. Kiosks at Bray Tower and Goat Peak present information on the hawks of Mount Tom and their migration. The kiosk at the boat ramp presents non-DCR information related to use of the boat ramp and stopping the spread of aquatic invasive plants and animals.

Main Identification Signs are posted just outside the south gate and just inside the east gate. These signs meet DCR graphic standards (DCR n.d.). A large wooden sign, bearing the name of the Mount Tom State Reservation and identifying the DCR as the land manager, is located outside the park at the intersection of Route 5 and Reservation Road. This sign does not match any format currently in use by the DCR. Internal Park Information Signs (DCR n.d.) are located near the contact stations at both entrances; at the intersection of Christopher Clark and Smith's Ferry roads; at the internal gate on

Christopher Clark road to the north of the Visitor Center; and in the Mount Nonotuck parking lot. The number and location of these signs are appropriate to guide visitors. Similar format signs are installed at the north entrance to the Wood Yard, at the Visitor Center, on the sides of the contact stations, to identify the historic stone crusher, and at the entrance to the Park Headquarters parking lot. Regulatory signs (e.g., HP Reserved parking) are used sparingly and appropriately throughout the reservation, but are abundant at the Connecticut River Boat Ramp and at the Berchulski Fisherman Access Point. A wooden sign, bearing the inscription "*Stanley Berchulski, sportsman-outdoor writer, Connecticut River Fisherman Access Area, Public Access Board, Dept. of Fisheries and Wildlife*" is located at the entrance to this area. A bulletin board, bearing contact information for, and water sampling results from, Chicopee Water Pollution Control is located immediately uphill of the boat ramp.

Signs lead visitors from Interstate 91 to the reservation's main entrance on Route 5. A generic "Mt Tom Exit 17A" is located immediately south of Exit 17A on I-91 northbound. It does not identify the park or DCR, and presumably refers to the entire Mount Tom area. Exit 17A merges with Route 141; a sign at the base of the ramp indicates the appropriate turn onto Route 5 north. At the intersection of Route 5 and Mountain Park Road, a sign indicates that the state reservation is farther north on Route 5. From Route I-91 southbound, a sign ("Mt Tom") directs drivers to Exit 18. Upon reaching the end of the ramp, there is no sign indicating that drivers need to turn right to reach the reservation. A joint DCR, Public Access Board, and Division of Fisheries & Wildlife Lead-in Sign is located on Syrek Street, Chicopee opposite the entrance to the Berchulski Fisherman Access Point.

Wildlife viewing signs, which consist of a silhouette of a binocular, the words "Wildlife Viewing Area," and a directional arrow (http://www.watchablewildlife.org/publications/sign_specs.htm), are located on the shoulders of Route 5 north and south bound, immediately prior to its intersection with Reservation Road. The Main Identification sign at Route 5 and Reservation Road is visible to drivers as they approach Reservation Road from either direction.

Memorials and Markers

An inscribed stone, measuring 46-inches-wide by 20-inches-deep by 34-inches-high is located at the northern edge of the scenic overlook at the Bray Tower. The inscription reads “*Roy E. Goodreau; 1928–1994; Memorial Overlook.*” This memorial is bordered with non-native ornamental flowers.

2.6. HOLYOKE HERITAGE STATE PARK

In 1976, the DEM established the state’s first heritage state park in the City of Lowell. A second was established in Fall River in 1978. The following year, the DEM conducted a study of the feasibility of establishing an entire system of state-funded urban heritage parks (DEM 1979). This study revealed that: new parks built around the heritage of older cities were feasible; proposed parks should be generated by local, not state, officials; and parks should be identified through a competitive process. This competitive process ranked cities on the basis of: historic preservation benefits, recreation benefits, revitalization benefits, and the amount of private investment in the project. Six cities, including Holyoke, were selected for the creation of the heritage state park system.

The Commonwealth acquired the land for Holyoke Heritage State Park in 1982 through two takings; one from the City of Holyoke and the other from Consolidated Rail Corporation. Construction of the park’s buildings, hardscaping, and landscaping followed shortly thereafter.

Since its creation in the mid-1980s, Holyoke Heritage State Park has provided green space in the city’s downtown, educated visitors about the city’s history with a focus on the canal system and associated mills, and become an important venue for a variety of civic and social functions. It has become an important part of life in Holyoke.

2.6.1. NATURAL RESOURCES

Physical Features

Topography. Crafts Hill (554 feet) is located off the park, west of downtown Holyoke. From its peak, the elevation drops over 1.75 miles, reaching an elevation of approximately 100 feet at the canals. The park is at the bottom of this slope. Within the park, the elevation drops approximately 10 feet from Heritage Street to the canal.

Geology. All of downtown Holyoke, including the heritage state park, is located atop Portland arkose, a sedimentary rock. There are no rock outcrops at the park. All of the soils are classified as “urban land” (<http://websoilsurvey.nrcs.usda.gov>).

Water Resources

Ponds. There are no ponds.

Wetlands. There are no wetlands.

Vernal Pools. There are no vernal pools.

Streams. There are no streams; the First Level Canal is outside of the park.

Groundwater. The entire park sits atop a medium-yield aquifer. Domestic water for the park is provided by the City of Holyoke Water Department, and does not originate in this aquifer. Effluent discharges into the city sewer.

Flood Zones. The park is not located in either a 100- or 500-year flood zone.

Rare Species

The NHESP has indicated that there are no known records of state-listed species (Maier 2012), nor has any of the park been designated Priority Habitat. However, Priority Habitat occurs adjacent to the park in the First Level Canal. The canal has also been identified by BioMap 2 as both Core Habitat and Critical Natural Landscape.

Vegetation

The park’s vegetation, including all grasses, flowers, shrubs, and trees, was planted following construction of buildings, parking areas, and sidewalks. It consists of sections of lawn, with shade trees interspersed. Less frequently, trees are used for screening walls and defining space. Shrubs provide seasonal color and help screen infrastructure. Flowers are largely limited to well-defined beds around the Visitor Center and Carousel Building. A list of species is included in Appendix G, Table G.1.

Some of the park’s original plantings have died. Dead shrubs have been replaced, sometimes with species not included in the original landscape design. Dead trees were removed, leaving gaps in the ornamental plantings.

Invasive Species. Winged euonymus, also known as burning bush, is present among the park’s

ornamental plantings. It is classified as Invasive (MIPAG 2005).

Natural Communities. There are no natural communities present.

Forests. The park is not forested, and it does not occur within an area identified as Forest Core Habitat.

Wildlife

Urban parks often include a surprising array of wildlife. Migratory and resident birds may find perches, nest sites, and food among the vegetation and mammals may find both food and shelter. Unfortunately, the wildlife of Holyoke Heritage State Park has not been surveyed and species' presence is largely speculative.

Birds. There is little information on the use of the park by birds. Fruit bearing trees and shrubs, such as crab apples, attract both resident and migratory species. Red-tailed and Cooper's hawks have been observed hunting the park's squirrels and rock pigeons.

Mammals. There is no information on the park's mammals. However, mammals with the potential to occur in the park are identified in Appendix G, Table G.3.

Reptiles. There is no information on the park's reptiles. However, reptiles with the potential to occur in the park are identified in Appendix G, Table G.4.

Amphibians. There is no information on the park's amphibians. However, amphibians with the potential to occur in the park are identified in Appendix G, Table G.5.

Fish. There are no water bodies or streams within park boundaries, so no fish are present.

Invertebrates. There is no information on the park's invertebrates.

2.6.2. CULTURAL RESOURCES

Archaeological Resources

There is one known archaeological resource, a dump site containing domestic refuse from construction or factory workers of the Early Industrial Period (McArdle 1981). It was identified during park construction and is believed to remain on site.

General information on the archaeological resources of the Connecticut River Valley was presented in Section 2.2.2.

Historic Resources

The city block occupied by the Holyoke Heritage State Park, surrounded by Appleton, Heritage, and Dwight streets and the First Level Canal, was once the site of several industrial operations. (See Figure 2.6.1 for a map of the park.)

Three of Holyoke's largest industries had mills along the First Level Canal, along the park site and across from it: the William Skinner Manufacturing Company, the American Thread Company, and the American Writing Paper Company. The Skinner Company purchased land along the canal from 1903 to 1914. Later, its mills stretched from Dwight to Appleton streets. Known for fine silks in Holyoke from 1874, Skinner still employed 500 people in the 1950s making synthetics. The mills closed in 1963 and all of the buildings, except the 1949 addition (i.e., the Children's Museum), were destroyed by fire in 1980. Of note is the fact that Joseph Allen Skinner, who donated the land that became the core of state park that bears his name, was one of the sons who ran the company at the turn of the century. At the corner of Dwight and Heritage (then Railroad) streets were buildings associated with the William B. Whiting Coal Company. The rest of the block was used as a freight yard for the New York, New Haven and Hartford Railroad (formerly the Holyoke and Westfield Railroad), including an engine house, coal house, turntable, freight house, and passenger station.

Few resources from the earlier era of industrial use remain on park property. Two lines of railroad track lie intact in the heart of the park; remnants of the railroad that once extended north to access the freight house, passenger depot, and mill buildings that lined the canal. A cast iron signal gate also stands beside the tracks next to Appleton Street. However, the "railroad track and appurtenant devices" were not transferred in the property deed in 1982 from the Consolidated Railroad Company to the Commonwealth, so the DCR has no maintenance responsibilities for these historic resources.

A 1929 carousel that once operated at Mountain Park near Mount Tom was relocated to Holyoke Heritage State Park in 1993. It is owned and

Place Holder for Figure 2.6.1. Holyoke Heritage State Park

operated by the Friends of the Holyoke Merry-Go-Round, a non-profit organization.

The lone cultural resource at Holyoke Heritage State Park under the DCR's control is a large cast iron flywheel mounted in the middle of a plaza along the First Level Canal. It was likely employed in a local mill to transfer water power in one of the canals to usable mechanical power. A 1981 report references a steam flywheel and turbine donated to the Heritage State Park by the A.W. Jolly Company, a local manufacturer that historically specialized in waterwheels and turbines, so this may be the source of the artifact (Boston Affiliates, Inc. 1981). Frames for interpretive wayside panels stand on either side of the wheel, but they are missing their informational panels.

Three historic rail coaches associated with the park are located off-site at the Berkshire Scenic Railway Museum in Lenox. Two of these coaches are operational, one is not. The first operational coach (#3204) is a low-roof coach built in 1925 and the second (#4301) is a high-roof coach built in 1911. Both were built by the Pullman-Standard Company for the Delaware, Lackawana & Western Railroad (www.berkshirescenicrailroad.org/aboutus_coaches_dlw.php). They are in Federal Railroad Administration serviceable condition, and both underwent significant repairs to their interiors in 2011 and 2012. The third coach (#3224) is a low-roof coach built in 1925; its condition is "stable but not serviceable" (Chittenden 2012). As of fall 2012 none of these coaches were in use.

2.6.3. RECREATION RESOURCES

Recreation resources are typical of those found at urban parks throughout the Commonwealth: a playground, park benches, and picnic tables.

The playground, which is located along the canal, is a Columbia Cascade play structure constructed of Douglas fir. It was installed c. 1984, during park construction. Playground elements include four platforms, a ladder, a metal double-width slide, an enclosed slide, a hanging bridge (inches above the ground), and a "ship's wheel." The surface of the play area is sand. In addition to providing a safe play surface, the sand is also used as a recreational amenity, functioning as a large sandbox. Although dated in design, the playground is heavily used by family groups and day care centers. It is scheduled to

be renovated in early 2013. Park benches border two sides of the playground, providing opportunities for adults to sit while supervising children's play. Additional metal-framed wooden benches are located along the edges of most of the park's brick or concrete pathways. Picnic tables are located on grassy areas near the Visitor Center and the Carousel Building; none are accessible.

Holyoke Heritage State Park is one of three DCR properties with a carousel. This example was constructed in 1929 by the Philadelphia Toboggan Company. It is owned and operated by the Friends of the Holyoke Merry-Go-Round, Inc. and provides visitors an uncommon recreational experience. (See Section 3.6.4 for additional information.)

The Holyoke Rotary Club sponsors a series of six summer concerts, known as Positively Holyoke, at the park. These concerts take place on a temporary stage set up on the park's lawn, in front of the neighboring Volleyball Hall of Fame.

A temporary volleyball court is set up on the park's lawn, as needed, in front of the Volleyball Hall of Fame.

Each year the park hosts approximately six one-day festivals. They are organized solely by the venues in or adjacent to the park (e.g., Holyoke Merry-Go-Round, Volleyball Hall of Fame) or in collaboration with the City of Holyoke or community groups. Each festival attracts 500 to 1,200 visitors.

In addition to the intended recreation resources, much of the park has become an unintended recreation resource for skateboarders and practitioners of parkour. Skateboarders use the park's stairs, railings, and accessible ramps as skating surfaces. They also use the park's picnic tables, which they relocate from the lawns to areas better suited for skateboarding. In good weather, skateboarders arrive at the park after 4:00 P.M.

Parkour, or free running, involves "moving rapidly and fluidly through the urban environment" while reinterpreting "material-spatial restrictions upon public behavior to facilitate unscripted leisure and creative play" (Bavinton 2007). Participants known as traceurs, pass over, under, and through barriers such as railings and walls, typically in public urban spaces. Individual traceurs are present daily; groups are present once or twice per week. A group of traceurs, calling themselves Heritage-Parkour,

invites individuals to the park for training and solicits donations for the park (<http://betterfly.com/ma/holyoke/parkour-teachers/user-62090>). However, the park manager is unaware of any donations from this group. Activities are scheduled through their Facebook group page; as of April 2013 there were 46 members.

Attendance

In FY 2012, an estimated 231,910 people visited the park, more than the combined visitorship of the three other parks in the planning unit. This level of use reflects the park's role as a community gathering place and venue for events and meetings, and also the high number visitors drawn to the park by the Holyoke Merry-Go-Round, Holyoke Children's Museum, and the adjacent Volleyball Hall of Fame. Peak use was in June, July, and August and lowest use was in January. The high summer numbers represent park use during fair weather; increased visitation to the carousel, children's museum, and Volleyball Hall of Fame during summer vacation; and crowds attending the Positively Holyoke concert series. There are no entrance fees for the park; the Holyoke Merry-Go-Round and adjacent museums charge admission.

2.6.4. INFRASTRUCTURE

Property Boundary

In general, the park is bounded by municipal sidewalks along Appleton, Heritage, and Dwight streets to the south, west, and north, respectively and on the east by the First Level Canal. The northeast corner of the park is bounded by the building shared by the Volleyball Hall of Fame and the Children's Museum at Holyoke.

The land taking that created the park excepted a number of easements. Most are associated with utilities, including: "all...wires, pipes, conduits, poles and other appurtenances for the conveyance of water, sewage, gas, oil, electricity and telephone communication now lawfully in or upon the premises" (Order of Taking; Book 7622, Page 547). The Holyoke Water and Power Company retained an easement "for access and maintenance to the canal wall." This Order of Taking also excluded the "Skinner Silk Mill," now the Volleyball Hall of Fame/Children's Museum at Holyoke building, "and the concrete stairs and walls abutting said building."

Finally, the Consolidated Rail Corporation retained "all existing railroad track and appurtenant devices and facilities in connection with the same located on the extreme southeasterly 30 feet of the parcel of land hereinbefore described with the right, liberty and privilege of maintaining, repairing, renewing, operating and using the same and with the free and uninterrupted right, liberty and privilege of passing at all times hereafter over and upon the same with or without locomotives, freight, or other cars" (Order of Taking; Book 5251, Page 92).

Buildings and Structures

There are three buildings in the park, the Visitor Center, Carousel Building, and Boarding Platform/Storage Shed. The nearby Volleyball Hall of Fame/Children's Museum at Holyoke building is not located in the park, although the park abuts it on three sides. Locations of these buildings are identified in Figure 2.6.1. Combined information on the park's cultural resources and major infrastructure is presented in Appendix H, Table H.4.

The Visitor Center was designed by City Design Collaborative, Inc., and constructed in 1984. It is a brick building constructed in two distinct sections. The first is an 80-foot-wide, three-story high octagonal rotunda that houses interpretive displays. This section is constructed atop a traditional concrete foundation. The second is an approximately 74- by 52-foot single-story rectangle constructed atop a concrete slab; it provides administrative (e.g., office), operations (e.g., a one-car garage), and visitor services (e.g., information desk, restrooms) space. Glass panels, part of the building's solar heating system, projected at a 45-degree angle from the southeast corner, create an irregularly shaped footprint. These panels were vandalized and have been replaced with plywood. Visitors enter through a glass-roofed atrium at the junction of the building's two sections. The roof's shingles evoke the appearance of slate and include bands of scalloped red shingles among the predominantly gray shingles.

The building's mechanical systems are original and reflect mid-1980s technology. Heating and cooling is chiefly provided by four heat pumps; two serve the rotunda, one the office space, and the other the atrium. All heat pumps were serviced in 2012 and are operational. A variety of solar technologies, including a heat recovery system, active sun space, solar hot water, and ground tube cooling are used to

provide supplemental heat or cooling. These technologies are controlled by pre-computer electronics. Most of the system is functional, although a combination of vandalism and equipment failure have made portions inoperable. An electric heater provides supplemental heat in the garage. An electric 15-gallon water heater failed in 2012; there is no longer any hot water in the building. Two lifts provide universal access to all levels of the rotunda. Electricity, domestic water, and waste water disposal are all provided by municipal departments. There are three floor drains, one in the mechanical room and one in each bathroom; all connect to the building's waste water system. The building is equipped with an alarm system. Communications are provided by a phone line and Internet connection. Its overall condition is classified as Adequate, indicating the need for some repairs and preventative maintenance.

The park's irrigation system's controls are located in the Visitor Center. The control panel does not work, likely due to a lightning strike. In addition, many of the irrigation system's valves have failed. Irrigation is now performed manually with hoses and sprinklers.

The Carousel Building is similar in design to the Visitor Center. Constructed in 1993 and designed by local architect Timothy Murphy, it consists of a 92-foot-wide, two-story high octagonal rotunda with a 32- by 32-foot, single-story wing on its south side. It was constructed with funds contributed by the DCR, Friends of the Holyoke Merry-Go-Round, Inc., and the City of Holyoke in order to house an antique carousel, which is located in the building's rotunda. Although similar in design to the Visitor Center, the Carousel Building's construction materials and appearance are quite different. It is wood-framed, sheathed, and sided; the latter of which is painted yellow. The building's red asphalt shingles and red, yellow, and green trim and details contribute to a festive appearance. It is heated by a natural gas fired, forced air furnace. Electricity, domestic water, and waste water disposal are provided through municipal departments. This building's condition is classified as Good, needing only routine maintenance.

The Boarding Platform/Storage Shed is a free-standing, single car garage that has been trimmed to evoke the appearance of an old train station; it was constructed in 1984. This building is wood framed, sheathed, and sided; constructed atop a poured

concrete slab. It has an electric heater and an alarm system. There is no plumbing. This building is used for storage, including storage of power equipment; it is currently at capacity. The condition of this building is classified as Adequate.

A large steel structure and fountain are located outside the Visitor Center's entrance, along the top of a ridge. The structure is a representation of the paper mills that once occurred here. It consists of an approximately 36- by 12-foot skeletal framework of 4- by 6-inch tubular steel, which creates the appearance of the outline of a mill. Within this structure is a 12- by 18-foot brick patio that is accessed via three steps. An ornamental fountain, which is no longer in use, surrounds three sides of this structure. It was designed so that the flow of water through the fountain mimicked the flow of the Connecticut River through Holyoke. From its source, water could flow around the skeletal mill through a main channel shaped like the river's bend in Holyoke. Alternatively, water could flow under the mill through two channels that represented the city's First and Second Level canals. Regardless of path, the water dropped several feet in elevation and gathered in a triangular pool at the base of the mill. From here it was pumped back to the top of the fountain and the cycle repeated. The steel structure is beginning to rust and is in need of maintenance. The fountain was shut down several years ago following a drowning; its pumps and piping are corroded. Subsequent attempts to fill, run, and drain the fountain on a daily basis were discontinued because it took two employees approximately two hours per day.

There are three rectangular utility structures on park grounds along Dwight Street. They are believed to belong to Holyoke Gas and Electric. When the parcel upon which these structures are located (parcel 021-01-12) was acquired in 1982, "all easements for wires, pipes, conduits, poles and other appurtenances for the conveyance of water, sewage, gas, oil, electricity and telephone communications now lawfully in or upon the premises" were excepted from the rights taken by the Commonwealth (Order of Taking; Book 5251, Page 92). It is believed that the three current utility structures are located within historic easements.

Roads

The park is bordered on the south by Appleton Street, on the west by Heritage Street (formerly known as Railroad Street), and on the north by Dwight Street; all three are municipal roads. A single road, from the park entrance to the back of the Visitor Center, is present in the park; it is 0.05 miles long.

Parking

A single public parking lot is located immediately inside the main park entrance. It provides free parking for 41 cars, including three designated accessible spaces. (Table 2.6.1) There is no painted aisle connecting the designated spaces to the path to the park's buildings. Parking space for three buses is provided along the western edge of the lot. Merry-go-round and DCR employees park along the access road to the Visitor Center. There is no bike parking. Employees of the Volleyball Hall of Fame and Children's Museum at Holyoke park in a small paved area of the park, adjacent to both their building and Dwight Street. Pay parking is available adjacent to the park on Appleton, Heritage, and Dwight streets and in municipal parking garages on Heritage and Dwight streets.

Trails

There are no trails in the park. However, there is 0.87 miles of sidewalk. (Figure 2.6.1)

Table 2.6.1. Number of public parking spaces^a, by location and type, at Holyoke Heritage State Park.^a

Location	HP	Other	Total
Main lot	3	38	41

a. Number of spaces is based on pavement markings.

Kiosks and Signs

A single kiosk is located near the Carousel Building, along the main sidewalk to the parking lot. It is constructed of wood framing and has a wood shingle roof; this kiosk is in good repair. The main display area is located behind a locking Plexiglas door. A small locking display case, with directions to the park's recreation facilities, is attached to the side of this kiosk. There are two Main Identification Signs, one along Appleton Street at the parking lot entrance and the other on the lawn near Dwight Street. Both are made of wood and in good condition; they do not

meet DCR's current sign standards (DCR n.d.). Internal Park Information Signs, consistent with DCR's standards, are located throughout the park.

A series of signs guide visitors from Exit 4 of the Massachusetts Turnpike to the park. A Road Marker/Lead-in Sign is located just past the toll booths; it directs visitors to I-91 north. Specific Service Signs, which identify the park among the area's attractions, are located one mile and one-quarter mile before Exit 16. A Recreational and Cultural Interest Guide Sign (FHA 2009), bearing the text "Heritage State Park" is located at the entrance ramp to Exit 16 of I-91 northbound. From the north, a sign on I-91 southbound identifies Exit 16 as the turn for heritage state park. Road Marker/Lead-in Signs are located at the intersection of Routes 202 and 5, and also at the intersection of Route 202 and Appleton Street.

Memorials and Markers

The Holyoke Police Memorial is located on DiNapoli Plaza, directly across Appleton Street from the Holyoke Police Station. It honors those officers who "have given their lives in service to the citizens of Holyoke." Three metal figures, Officer John A. DiNapoli, flanked by a young boy and girl, sit atop an approximately 7-foot-wide by 2.5-foot-high by 1.5-foot-deep pink granite memorial stone mounted on a matching stone base. Behind Officer DiNapoli are metal representations of his fly fishing rod and favorite books. There are no other memorials in the park.

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Eyrie House ruins at Mount Nonotuck, Mount Tom State Reservation.

SECTION 3. MANAGEMENT RESOURCES AND PRACTICES

3.1. INTRODUCTION

Management of the planning unit's natural, cultural, and recreation resources is complex and subject to a variety of laws, regulations, policies, and agreements. It is also subject to available resources and staffing.

This section describes current management practices and identifies relevant regulations, policies, agreements, and legal considerations that guide this management. Select Massachusetts regulations relevant to the management of properties within the planning unit are presented in Appendix F.

3.2. MOUNT HOLYOKE RANGE PLANNING UNIT

3.2.1. NATURAL RESOURCES

Research Permits are required for all ecological research on DCR properties. Prior to research taking place on a Reserve, a proposal outlining the purpose of the research, techniques used, and potential impacts on the land must be submitted to the Forest Reserves Science Advisory Committee for review. Additional state (e.g., Scientific Collecting Permits) and federal (e.g., Bird Banding and Marking) permits may be required, depending on the nature of

research. Research within wetland and river jurisdictional areas may also require regulatory review and approval from the local conservation commission.

Water Resources

Drinking Water. Transient Non-community water systems within the planning unit are operated under contract by Safewaters Environmental, a Massachusetts certified operator. These systems are operated in accordance with applicable regulations (310 CMR 22; Appendix F).

Massachusetts' regulations require a circular protective area around public water supply wells, including TNCs. The radius of this protective area, known as a Zone I, is based on the well's pumping rate. The DEP requires that activities within Zone I be limited to those directly related to the provision of water. Best Management Practices (BMPs) for protecting Zone I areas include the following (DEP 2001):

- Keep out non-water supply activities.
- Do not establish parking areas.
- Do not store or use lawn chemicals, road salt/deicers, motor oil, gasoline or paints.

- Remove or relocate underground storage tanks, hazardous materials, and septic systems, if possible.
- Use propane or natural gas powered pumps.
- Seal floor drains.
- Properly label, store, and dispose of hazardous substances.
- Restrict access to the well and post water supply protection signs.

These are recommendations, and not requirements.

Storm Water Management. Activities on DCR properties that affect the quantity or quality of storm water are regulated by a National Pollutant Discharge Elimination System (NPDES) storm water management plan (DCR 2007a). This plan describes control measures that the DCR uses to satisfy NPDES Phase II permit requirements for transportation and non-traditional Municipal Separate Storm Sewer Systems (MS4s). Although emphasis is placed on parks in the Greater Boston area, the plan is applicable to the entire DCR park system.

The plan identifies Best Management Practices (BMPs) and measurable goals for each of the six following control measures: public education and outreach; public involvement/participation; illicit discharge detection and elimination; construction site runoff controls; post-construction runoff controls; and pollution prevention/good housekeeping. Most BMPs are implemented at the agency-level (e.g., the detection and elimination of illicit discharges, catch basin cleaning), while others are implemented at the facility-level (e.g., the stenciling of catch basins).

Wetlands Protection. Activities within a wetland resource area or buffer are regulated by the Massachusetts Wetland Protection Act. (See Appendix F for additional information.)

Rare Species

The Massachusetts Endangered Species Act protects rare species and their habitats by prohibiting the “take” of any plant or animal listed as Endangered, Threatened, or Special Concern (<http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/mass-endangered-species-act-mesa>). Projects within identified Priority

Habitat of rare species must undergo review by the NHESP, unless otherwise exempted under the law. The term “Project” refers not only to the construction of buildings and infrastructure, but also to activities such as those that involve grading or the destruction of plant life. (See 321 CMR 10.00 for the full definition of “Project.”) Many staff and volunteer activities that take place within the planning unit (e.g., invasive species removal, trail construction and maintenance, and habitat improvement activities) meet the definition of project and must go through regulatory review if they are to occur in Priority Habitat. As indicated in Section 2, much of the planning unit has been identified as Priority Habitat and is subject to MESA review.

State agencies, such as the DCR, have special obligations under MESA. First, agencies are directed to use their authorities in furtherance of the purposes of MESA and “use all practicable means and measures to avoid or minimize damage.” Next, they are required to submit draft management plans, such as RMPs, to the NHESP for review. Finally, state-owned lands “that provide habitat for state-listed species shall be managed for the benefit of such listed species;” agencies “*shall give management priority* to the protection, conservation, and restoration of” state-listed species on state-owned lands. All “practicable means and measures shall be taken to resolve conflicts between the protection, conservation, and restoration of state-listed species ... and other uses of such lands in favor of the listed species.”

These requirements guide operations activities in, and planning activities for, Priority Habitat in the planning unit.

Vegetation

There is no single management plan for the planning unit’s vegetation. The *de facto* management policy is to permit populations of most species of plants to increase or decrease without human intervention. Exceptions include the maintenance of lawns, recreation fields, and other turf areas; removal of hazardous trees; and vegetation cutting associated with the management of plant or wildlife habitat.

Continuous Forest Inventory (CFI) monitoring plots are located in all forested parks in the planning unit (i.e., they are not in Holyoke Heritage State Park).

The number of these one-fifth acre, circular plots varies among properties. A series of forestry related metrics, including the number of trees five or more inches in diameter, tree regeneration, amount of coarse woody debris, presence of invasive plants, and presence of tree diseases are collected at each plot. On average, each plot is visited, and data collected, once every ten years.

Wildlife

There is no single wildlife management plan for the planning unit. The *de facto* management policy is to permit most wildlife populations to increase or decrease without human intervention. The exception is the hunting of game species at Mount Holyoke Range State Park and fishing at both Mount Tom State Reservation and Mount Holyoke Range State Park.

Hunting, trapping, and fishing are managed through a variety of regulations. (See Section 3.2.3, below.)

3.2.2. CULTURAL RESOURCES

The DCR's Office of Cultural Resources (OCR) provides technical assistance on issues relating to archaeology and the preservation of landscapes, buildings, structures, and objects. It conducts a coordinated program of basic and applied research to support planning for, and management of, cultural resources on DCR properties through project management and resource management planning. The OCR also nominates properties for inclusion in the State and National registers. A copy of the DCR Cultural Resources Policy has been included as Appendix D.

The OCR is also responsible for overseeing the historic preservation regulatory compliance responsibilities of the agency. It assesses regulatory needs and, when applicable, notifies the Massachusetts Historical Commission (MHC) through the filing of a Project Notification Form or Environmental Notification Form for any proposed projects undertaken, funded, permitted, or licensed in whole or in part by the agency. This is done so that the MHC may make a Determination of Effect of the project on historic and archaeological resources. Finally, the OCR coordinates all archaeological survey, testing, and excavation with the State Archaeologist at the MHC through an archaeological permit.

Buildings, structures, landscapes, sites, and objects that are a minimum of 50 years old, retain historic integrity, and are of significance on the local, statewide or national level may be listed in the National Register of Historic Places (NPS n.d.a). Repairs, rehabilitation, and other preservation activities on listed and eligible resources follow guidelines in the *Secretary of the Interior's Standards for the Treatment of Historic Properties* (Weeks and Grimmer 1995).

Massachusetts law requires the review of all sub-surface disturbances on state property. Although most projects within the Mount Holyoke Range Planning Unit receive this review some, such as the installation of sign posts or the planting of trees and flowers, often do not. The DCR's archaeologist holds a general archaeology permit from the MHC that allows them to provide initial review of activities that result in sub-surface disturbance. They are the primary reviewer of such projects and activities in the planning unit.

The inspection, investigation, or removal of underwater archaeological resources is also regulated under Massachusetts law (M.G.L. 6:179–180). No person may remove, displace, damage or destroy any underwater archaeological resource except in conformity with permits issued by the Massachusetts Board of Underwater Archaeological Resources. This applies to both coastal and inland waters, such as Lithia Springs Reservoir.

3.2.3. RECREATION RESOURCES

Regulations guiding the recreational use of forests and parks may be found in 304 CMR 12.00. (See Appendix F for a summary of these regulations.)

In general, all public use of reservations must take place from dawn through dusk; nighttime activities are prohibited.

In accordance with the DCR's Landscape Designation management guidelines, new intensive-use recreation sites, such as picnic areas, may not be constructed in Reserves, but may be constructed in Parklands (DCR 2012d). In addition, these guidelines affect recreational activities, including the use of trails by OHVs, snowmobiles, and non-motorized recreation. An overview of the impacts of Landscape Designations on recreational activities is provided in Appendix N.

Permits

Some recreational and recreation-related activities require DCR-issued permits. Special Use Permits are required for “any commercial or special activity or event upon the lands or waters” of all properties within the planning unit (304 CMR 12.17; Appendix F). Non-commercial activities requiring a Special Use Permit include, but are not limited to: concerts, charity walks, road races, cultural festivals, community service projects, small weddings, and gatherings with amplified sound. Research on recreation and recreationists requires a Research Permit. Commercial filming, photography, and videography are regulated through Filming and Photography Permits. Additional information on these permits, and how they may be obtained, is available on DCR’s web page (<http://www.mass.gov/eea/agencies/dcr/massparks/permits-rentals/dcr-permits.html>).

Camping

Camping on DCR properties is restricted to designated campsites or cabins; there are none in the planning unit.

Geocaching

There is no Massachusetts regulation or agency policy on the placement of geocaches on DCR property. In their absence, geocaches may be placed at any location not identified as closed to the public.

Hunting and Fishing

Hunting is regulated through Massachusetts Regulations (304 CMR 12.00 and 321 CMR 3.00), DCR Forest and Parks Rules (304 CMR 12.00), and also through the official Massachusetts Hunting, Freshwater Fishing, and Trapping Regulations that are promulgated annually. In general, all DCR properties are open to hunting, fishing, and trapping unless otherwise specified in the Forest and Parks Rules (304 CMR 12.00). Summaries of these and other applicable regulations are presented in Appendix F.

Officers from the Executive Office of Energy and Environmental Affairs’ Office of Law Enforcement (i.e., Massachusetts Environmental Police officers) enforce hunting, fishing, and OHV use.

Trail Use

Dogs may accompany trail users provided the animals are kept under control and do not interfere with any other park patron’s enjoyment of DCR property (304 CMR 12.00; Appendix F).

With the exception of DCR, public safety, and utility company vehicles, motor vehicles are generally not permitted on trails in the planning unit. However, snow vehicles (i.e., snowmobiles) may be operated at Mount Holyoke Range State Park under specific conditions. (See Section 3.3.3 for details.)

A March 15, 2011 Department of Justice ruling allows individuals with mobility disabilities to use “other power-driven mobility devices” on trails. Such devices include any device powered by batteries, fuel, or other engines that are used by individuals with mobility disabilities for the purpose of locomotion. Use of such devices may be restricted on trails due to factors such as: the type, size, weight, and speed of the device; the volume of pedestrian traffic; the design and operational characteristics of the device; whether or not the device may be operated safely; and the potential for substantial risk of serious harm to the environment or natural and cultural resources. None of the trails within the planning unit have been assessed for their compatibility with these devices.

3.2.4. INFRASTRUCTURE

Property Boundary

The Management Forester or Assistant Management Forester attempts to locate and mark property boundaries in association with forest inventory activities. They also mark the boundaries of new properties as they are acquired. Boundary marking typically involves locating and painting cement bounds or pipes, and the posting of boundary signs.

Buildings and Structures

The management of DCR-owned buildings is performed by DCR employees or contractors. Minor maintenance and repair is performed by on-site staff. More technical repairs (e.g., plumbing, electrical) are performed by DCR in-house trades staff or by trade or engineering contractors (e.g., well repair) whose activities are coordinated through the DCR’s Park Support Operation Program. Major repairs are performed solely by licensed contractors.

In accordance with the DCR's Landscape Designation management guidelines, new intensive-use recreation sites, such as visitor centers and administrative buildings, may not be constructed in Reserves, but may be constructed in Parklands (DCR 2012*d*).

A new five-year High Ground Special Use Permit, between the DCR and the Massachusetts State Police, is currently under development. When completed, this permit will allow the state police to place radio equipment and antenna systems at various DCR fire and radio tower locations throughout Massachusetts, including the summit of Mount Holyoke. Among the state police's rights and responsibilities identified in the current draft (version 6) are: use of DCR rights of way and easements to gain access; limited right to vehicular, pedestrian, and utility access for the limited purpose of performing installation, maintenance, and repairs to authorized equipment; performing all permitting and engineering studies associated with their equipment; payment of all utility bills; and bearing the sole cost of removing all equipment within 30 days of the termination or expiration of the permit. Among the DCR's responsibilities are assigning antenna locations and regulating the types of communications equipment installed. Access to the site is not guaranteed at all times or seasons of the year; access in periods of inclement weather may be arranged through the DCR at the expense of the state police.

Roads

The DCR maintains and repairs park roads and parkways. Management of traffic and related systems is supervised by the Parkways Section of the DCR's Engineering Bureau, and guided by American Association of State Highway and Transportation Officials standards; the Manual on Uniform Traffic Control Devices (FHA 2009); and the Historic Parkway Preservation Treatment Guidelines (DCR 2006), if applicable. Public roads adjacent to DCR properties are maintained and repaired by either local municipalities or MassDOT.

Snow removal is performed by the DCR, MassDOT, and local municipalities. In general, municipalities or MassDOT plow public roads adjacent to parks and the DCR is responsible for plowing internal park roads.

Parking

The DCR is responsible for maintaining and repairing its parking areas. Most snow removal is performed by the DCR.

In accordance with the DCR's Landscape Designation management guidelines, new parking lots may not be constructed in Reserves, but may be constructed in Parklands (DCR 2012*d*).

Trails

A variety of regulations and policies guide the management of trails. The design, management, and marking of trails are guided by the DCR's *Trails Guidelines and Best Practices Manual* (DCR 2010*a*). Trail work is subject to both the DCR Cultural Resource Policy and 950 CMR 70. (See Appendices D and F for additional information.) Nearly all trails in the Mount Holyoke Range Planning Unit are located within Priority Habitat and all work on these trails must be performed in accordance with guidance and restrictions identified in *Recreational Trail Maintenance and Biodiversity Conservation* (NHESP 2009). For each official trail segment, this report identifies which maintenance activities may be performed without restriction, which may be performed subject to specific restrictions, and which require a full MESA review. Non-maintenance activities in Priority Habitat, including trail reroutes and construction of new trails, must be reviewed in advance by the NHESP. Additional regulations, such as the Massachusetts Wetlands Protection Act may also apply, depending on location. These regulations and policies apply to DCR employee, partner, and volunteer activities.

In accordance with DCR practices, trail maintenance and construction activities should be implemented in the following order, in accordance with the regulations, policies, and guidance identified above:

1. Maintain appropriate existing trails and fire roads.
2. Close or improve existing trails with known public safety hazards.
3. Close or relocate existing trails that adversely impact documented state-listed species, in consultation with DCR Bureau of Planning and Resource Protection and NHESP staff.
4. Close, relocate, or improve existing trails that impact vernal pools.

5. Close, relocate, or improve wetland crossings on existing trails that impact wetlands, streams, or ponds.
6. Close redundant, dead end, and unauthorized trails.
7. Close, relocate, or improve existing eroded and poor condition trail segments.
8. Construct new trail connections to enhance desired authorized recreational experiences, create additional loop opportunities, and form new connections between access points and important features.

The New England National Scenic Trail (NET), which passes through the planning unit's three largest parks, is a multi-state trail. Its governance is coordinated through the National Park Service (NPS) and two stewardship councils, one for Connecticut and one for Massachusetts. The NPS assists the stewardship councils in implementing the "Management Blueprint" and coordinating the expenditure of any federal funds for trail management and protection. The stewardship councils are advisory in nature and bring partners and stakeholders together to discuss trail issues and coordinate management activities. In Massachusetts, including on DCR properties, maintenance of the NET is performed by the Berkshire Chapter of the Appalachian Mountain Club (AMC). The AMC attempts to find "adopters" to assume responsibility for maintaining specific trail segments. They are responsible for overseeing these adopters' activities.

Kiosks and Signs

The format and placement of regulatory and informational signs are governed by the *Manual of Uniform Traffic Control Devices* (MUTCD; FHA 2009) and guided by the *DCR Graphics Standards Manual* (DCR n.d.). The design and construction of kiosks are solely governed by the graphics manual.

Informational kiosks are managed by park staff as new information becomes available; they also perform kiosk installation and repair.

Memorials and Markers

The placement of markers or plaques is not explicitly addressed in the Forest and Parks Rules (304 CMR 12.00; see Appendix F for more information).

3.2.5. INTERPRETIVE SERVICES

Interpretive programming is provided at all parks in the planning unit. However, this programming is largely not coordinated among interpreters and parks. There is no comprehensive interpretive plan for the planning unit, or parks within the planning unit.

Seasonal interpreters are located at Mount Holyoke Range and Skinner state parks, and at Mount Tom State Reservation. These interpreters report to the local property manager and are provided guidance and support by a long-term seasonal interpreter based in the Central Region office. Programming focuses on the sites' cultural histories, geology, and wildlife. Information on programs presented and number of participants are presented by park.

Due to the short, seasonal nature of the positions there is little time to develop new programs. Seasonal interpreters, therefore, tend to present similar programs from year to year. Individual interpreters may modify programming to enhance those that match their own personal interests.

A year-round, Environmental Education Initiative interpreter is based at Skinner state park; they report to the Chief of Interpretive Services. Their primary responsibility is to provide interpretive programming to schools and youth groups. They also provide vacation week programming at parks and supplement seasonal staff at interpretive events and programming.

In addition to DCR interpretive programming, parks within the planning unit are also used as educational labs by the area's schools and colleges. Often, these visitors arrive unexpectedly.

3.2.6. OPERATIONAL RESOURCES

Administrative Structure

All four properties in the planning unit are part of a complex of DCR facilities within the Connecticut River Valley District of the West Region. In addition to properties included in this RMP, the district includes state parks (e.g., Connecticut River Greenway), forests (e.g., DAR), and reservations (Mount Sugarloaf); rail trails (e.g., Norwottuck); pools (e.g., Ludlow), dams (e.g., Robinson Pond Dam), boat ramps (Gill Boat Ramp), and the Elwell Recreation Area.

DCR Staffing

The operation and management of properties within the planning unit requires the participation of regional and district personnel, as well as DCR staff from the Bureau of Forest Fire Control and Forestry, Bureau of Ranger Services, Division of Engineering, Bureau of Planning and Resource Protection, and Office of Partnerships. Supplemental staffing is provided by personnel from the Executive Office of Energy and Environmental Affairs, as well as public safety agencies. Descriptions of these entities and their roles in the Mount Holyoke Range Planning Unit are provided below.

Region. Administrative, clerical, and support functions are performed by the regional staff, which are located in Pittsfield. The Regional Director performs a variety of administrative functions, including supervision of regional staff and District Managers. Clerical and fiscal support (e.g., procurement, payroll, and processing seasonal employee paperwork) is provided by the regional Accountant, Business Management Specialist, Clerk, and Administrative Assistant. A Regional Maintenance Foreman and park operations support personnel provide minor plumbing, electrical, HVAC, fencing, and pool mechanical system repairs. A Regional Mechanic, located at Mount Greylock State Reservation in Lanesborough, services and repairs all vehicles within the planning unit.

District. The Connecticut River Valley District Manager reports to the Regional Director, and is responsible for the management of all properties within the planning unit and the supervision of Field Operation Team Leaders.

Planning Unit/Complex. In 2012, the DCR shifted from a facility-based management structure, where personnel are assigned to a specific park or parks, to a model where personnel are shifted among properties in a complex of parks on an as needed basis. Each complex has a field operation team, comprised of all personnel from properties within the complex, and one Field Operation Team Leader. The team leader for the Mount Holyoke Range Complex is a Regional Facilities Supervisor based at Joseph Allen Skinner State Park. They report to the District Manager, who in turn reports to the Regional Director.

The Field Operation Team Leader has the ability to allocate resources within the complex in order to improve park operations. For example, staff and equipment from Mount Tom may be temporarily sent to Skinner state park to assist with a project that requires staffing levels, skill sets, or equipment unavailable at Skinner. This shared resource approach is relatively new to DCR and has not been fully integrated into park operations. Because of this, information on staffing levels and position titles are presented individually for each park (Sections 3.3–3.6.) rather than for the entire complex.

In addition to maintaining properties within their complex, Mount Holyoke Complex personnel are also responsible for the maintenance of some properties in the Connecticut River Greenway Complex (e.g., the Connecticut River Boat Ramp, Berchulski Fisherman Access Point). The Mount Holyoke Range Planning Unit includes all properties within the complex, as well as some adjacent properties that managerially fall under the Connecticut River Greenway Complex.

Bureau of Forest Fire Control and Forestry. Bureau employees provide technical assistance on forest management and health, and fire control. Representatives of this bureau that contribute to the management of properties in the Mount Holyoke Range Planning Unit include the Assistant Program Manager, Assistant Management Forester, Service Forester, Forest Health Supervisor, District Fire Wardens, and other Fire Control staff.

The Assistant Program Manager inventories resources, analyzes and summarizes forest data through the use of GIS, inventories other resources (e.g., wildlife habitat), creates Forest Resource Management Plans, models potential silvicultural treatments, and manages Continuous Forest Inventory (CFI) data. These services are provided on a statewide basis.

The Assistant Management Forester is responsible for marking property boundaries; conducting CFI inventories; investigating “timber trespass” (i.e., the unauthorized removal of forest resources); overseeing mechanical treatment in preparation for prescribed burns; and developing forest cutting plans. For properties in the Mount Holyoke Range Planning Unit, such plans would likely address storm damage (e.g., post-hurricane clean-up) or managing forests for the purpose of improving

wildlife habitat. All forest cutting plans in the region, including those prepared by the Assistant Management Forester for DCR properties, must be reviewed by the region's Service Forester. Forest cutting on DCR property is done in accordance with Landscape Designations.

The Forest Health Supervisor monitors plant pests and diseases in the region, offers technical assistance on combating these pests and diseases, and is also responsible for the removal of hazard trees from properties in the planning unit.

Finally, Fire Control staff members plan and conduct prescribed burns, identify potentially dangerous forest conditions that may contribute to forest fires, and assist municipal fire departments in responding to fires on DCR properties. Personnel and assets are organized into districts that follow county boundaries. Hampden County, including all of Holyoke Heritage State Park and the Holyoke portion of Mount Tom State Reservation is within District 11, which is based at Chicopee Memorial State Park. All other properties are located in Hampshire County, which is Fire District 10. Staff and assets for this district are based in Amherst, at the Military Road facility.

Bureau of Ranger Services. Rangers are often the public face of the DCR, providing information and assistance to the public and enforcing regulations. As of 2012, there was one full-time Ranger I and one seasonal Ranger assigned to the district and stationed at Skinner state park. In fall 2012, the full-time ranger was made an acting Regional Ranger and relocated to the Moore House at Mount Holyoke Range State Park. They are now one of two Rangers responsible for all of Massachusetts from the Connecticut River Valley to the New York, Vermont, and Connecticut borders.

Division of Engineering. This division is responsible for the engineering, major repair, and construction of parkways, dams, buildings, and park and recreation facilities. It also provides a resident Regional Engineer to oversee maintenance and construction projects in the Connecticut River Valley District. The Regional Engineer and Assistant Regional Engineer for projects in the Mount Holyoke Range Planning Unit are based in Amherst.

The Dam Maintenance Unit is responsible for inspecting, maintaining, and rehabilitating dams located throughout the state park system, including those at Aldrich Lake, Lithia Springs Reservoir, and Lake Bray.

The Lakes and Ponds Program offers technical assistance, monitors water quality, and provides educational materials to the public regarding various issues, such as aquatic invasive species. This office provided oversight for the aquatic vegetation management activities at Lake Bray in 2012.

Storm Water Engineering provides storm water management and drainage maintenance, oversees street sweeping and waste management, monitors construction sites, investigates illicit storm drain connections, and addresses waste load allocations to impaired waters.

Clean State/Environmental Remediation oversees clean-up of contaminated properties.

Bureau of Planning and Resource Protection. This bureau prepares RMPs and Trail System Plans; develops and updates GIS data; provides technical assistance with the management of archaeological and historic resources; identifies and acquires properties to be added to the DCR system; maintains an archive of park documents; provides technical support on ecological resources and the monitoring of CRs; and designs and manages projects to enhance DCR properties.

Office of Partnerships. The Office of Partnerships works to enhance the DCR's constituency of supporters and users by: working in partnership with park users and supporters to develop and sustain community-based stakeholder groups; facilitating external financial assistance for the planning, design, and construction of capital projects; managing the DCR partnerships Matching Funds Program, which leverages private contributions to improve DCR-owned and managed facilities; and serving as a dedicated point of contact for individuals and non-profit, institutional, and community-based organizations. It is this office that is responsible for identifying and coordinating private and institutional giving and partnerships within the Mount Holyoke Range Planning Unit.

Supplemental Staffing

Executive Office of Energy and Environmental Affairs (EOEEA). Information Technology (IT) support is provided by a Network Technician employed by the EOEEA and based at the regional office in Pittsfield.

Partnerships and Volunteers. There are no organized partnerships or volunteer programs that apply to all properties in the planning unit. However, the Appalachian Mountain Club oversees maintenance and repair of the New England Trail (NET), which runs through three of the four properties in the planning unit.

Law Enforcement and Public Safety. The Massachusetts State Police has primary law enforcement authority on state-owned lands. Local police provide additional law enforcement on the reservations, within their respective jurisdictions. The Executive Office of Energy and Environmental Affairs' Office of Law Enforcement (i.e., the Massachusetts Environmental Police) provides primary enforcement of hunting, fishing, boating, OHV, and snow vehicle regulations.

DCR rangers are not law enforcement officers, but have authority to enforce DCR regulations and issue citations (i.e., parking tickets, dogs off leash) on DCR properties. They also coordinate search and rescue activities in parks.

Fire control is provided by municipalities with assistance from DCR Fire Districts 10 and 11. Municipalities also provide emergency fire and medical response. DCR rangers may provide first aid.

Park Operations

DCR personnel perform a variety of activities related to the operation and maintenance of the planning unit's resources and facilities. These activities differ among parks and, within each park, differ from day to day and among the seasons. However, general routines are followed to maintain operations of the properties for visitor use and to protect natural, cultural, and recreation resources. This section provides an overview of planning unit management tasks that generally maximize the use of staff.

Buildings and grounds related activities include: cleaning, painting, minor carpentry, electrical and plumbing tasks, mowing grass, removing leaves, picking up litter, emptying trash barrels, and graffiti removal. An overview of the annual cycle of maintenance activities is presented Table 3.2.1.

Visitor services related activities include: parking fee collection and ParksPass sales and processing, providing interpretive programming, responding to visitor questions, and promoting awareness of park regulations and enforcing those regulations.

Administrative activities include: employee scheduling and supervision, report preparation, revenue processing, coordinating volunteer activities and special events, and budget preparation.

General Budgetary Information

Three major types of funds support the operation, maintenance, and capital improvement of DCR facilities.

Operating Budget. The annual operating budget supports daily operations and maintenance including utilities, supplies, equipment leases, administration, and the maintenance and minor repair of facilities, vehicles, and equipment. All regions and districts receive operations funds.

Operating budgets are calculated at the regional level, rather than the property or complex level. As a result, the annual cost of operating parks within the planning unit cannot be identified (Morin 2012).

Capital Budget. The capital budget supports projects (e.g., construction, repair) and items (i.e., equipment) with a per-unit cost of at least \$5,000 and an expected lifespan of at least seven years.

Capital projects are identified and funded through a five-year capital plan. These plans identify proposed capital projects, their costs, and the year in which they are to be funded. The only recent capital project within the planning unit is the Summit House porch reconstruction and access improvements project at Joseph Allen Skinner State Park. This project cost \$1.1 million in fiscal years 2012 and 2013.

Capital plans are extensively reviewed within the DCR, approved by the Commissioner, and included in the DCR's annual budget. This budget is then reviewed by the Executive Office of Energy and Environmental Affairs, the Executive Office of

Table 3.2.1. Annual cycle of management activities in the Mount Holyoke Range Planning Unit.

Activity	Location ^a	Summer	Fall	Winter	Spring
Cleaning, bathroom(s)	HKSP	Daily	Daily	Daily	Daily
	SKIN	Daily	Daily	N/A	Daily
	MTOM	Daily	Daily	Daily	Daily
	HHSP	Daily	Daily	Daily	Daily
Cleaning, day-use area(s)	HKSP	2 times/day	As needed	As needed	As needed
	SKIN	Daily	Daily	N/A	Daily
	MTOM	Daily	Daily	Daily	Daily
	HHSP	Daily	Daily	Daily	Daily
Cleaning, visitor center	HKSP	Daily	Daily	Daily (When Open)	Daily
	SKIN	Daily	Daily	N/A	Daily
	MTOM	Daily	Daily	Daily (When Open)	Daily
	HHSP	Daily	Daily	Daily	Daily
Litter removal	HKSP	As needed	As needed	As needed	As needed
	SKIN	As needed	As needed	N/A	As needed
	MTOM	Daily	Daily	Daily	Daily
	HHSP	Daily	Daily	Daily	Daily
Mowing and trimming	HKSP	Every 7 days	As needed	N/A	As needed
	SKIN	Every 7 days	As needed	N/A	As needed
	MTOM	Every 10 days	As needed	N/A	As needed
	HHSP	Every 14 days	1 time/month	N/A	1 time/month
Sweeping, walkways	PU	As needed	As needed	As needed	As needed
Trash barrels, empty	HKSP	N/A	N/A	N/A	N/A
	SKIN	N/A	N/A	N/A	N/A
	MTOM	N/A	N/A	N/A	N/A
	HHSP	As needed	As needed	As needed	As needed
Visitor guidance/Information	PU	As needed	As needed	As needed	As needed
Weeding, flower beds	HKSP	N/A	N/A	N/A	N/A
	SKIN	N/A	N/A	N/A	N/A
	MTOM	N/A	N/A	N/A	N/A
	HHSP	Every 10 days	Every 10 days	N/A	Every 10 days
Weeding, paved areas	HKSP	Every 10 days	As needed	N/A	As needed
	SKIN	Every 10 days	As needed	N/A	As needed
	MTOM	As needed	As needed	N/A	As needed
	HHSP	As needed	As needed	N/A	As needed

a. Location of management activity: HHSP = Holyoke Heritage State Park; HKSP = Mount Holyoke Range State Park; MTOM = Mount Tom Reservation; PU = all properties within the planning unit; and SKIN = Joseph Allen Skinner State Park.

Administration and Finance, and the Governor. Additional capital initiatives may be identified and added to the budget by the Commissioner of Conservation and Recreation, Secretary of Energy and Environmental Affairs, or the Governor during this review process.

Deferred Maintenance. These funds are used for infrastructure repair that exceed typical maintenance, but do not rise to the level of a capital project. They may also be used to address emergency capital projects for which funds have not been programmed. Each region is allotted deferred maintenance funds

on an annual basis; the Regional Director determines how these funds are to be used.

There were no deferred maintenance projects in the planning unit in the three most recent fiscal years (FY11–FY13). Proposed projects for FY14 include replacing the Halfway House’s roof and gutters, and repairing the auto road; all projects are located at Joseph Allen Skinner State Park.

Supplemental Funding

In addition to operations, capital, and deferred maintenance funds, DCR facilities may receive funding through grants, legislative earmarks, the State Parks Trust Fund, dedicated funding, or retained revenues.

Grants. Federal and private funds, in the form of grants, are periodically awarded on a competitive basis to the DCR for park maintenance and operation activities (e.g., Recreational Trails Grants). In 2011, two Recreational Trails Grants totaling \$10,500 were awarded to the Mount Tom Advocacy Group for the replacement of the Bray Valley Trail Bridge. The group provided in-kind labor as a match for these funds. (See In-kind Contributions for additional information.) That same year, the DCR awarded a Partnership Matching Funds Grant of \$16,100 to the Berkshire Scenic Railway Museum for the restoration of the interior of a DCR-owned coach; the museum provided an equal match (DCR 2012).

Earmarks. Earmarks are funds directed to specific projects by the Massachusetts General Court via the annual state budget. There have been no recent earmarks for properties in the Mount Holyoke Range Planning Unit.

State Parks Trust Fund. This trust fund uses donations to support special initiatives, within the Division of State Parks and Recreation, above and beyond basic property maintenance. It is funded through charitable contributions to the DCR, including those donations placed into the “iron rangers” (i.e., a secure metal donation box) located near the Mount Tom Visitor Center, Summit House at Skinner State Park, and the kiosk at the Notch Visitor Center. There is approximately \$28,000 in the Conservation Trust Fund for Mount Holyoke Range State Park, \$3,000 for Joseph A. Skinner State Park, and \$6,500 for Mount Tom State Reservation.

Dedicated Funds. Dedicated property funds may come from a variety of sources (e.g., telecommunication tower fees), and are limited to use at the property on which they are derived. There are no known dedicated funds for properties within the planning unit.

Retained Revenues. These funds are generated at a property and deposited in a DCR account for parks statewide. There are no retained revenues associated with any of the properties in the planning unit.

In-kind Contributions. In-kind contributions are the donation of goods or services, rather than funds. In FY 12 and FY 13, the Mount Tom State Reservation Advocacy Group provided 802 hours of labor constructing the new bridge over Bray Creek; this labor was valued at \$21 525 (Finn 2012).

3.3. MOUNT HOLYOKE RANGE STATE PARK

Mount Holyoke Range State Park and Joseph Allen Skinner State Park are managed as a single entity, with shared personnel, equipment, and management resources. Two year-round personnel and six seasonal personnel staff these parks. Titles and numbers of these personnel are identified in Table 3.3.1.

Table 3.3.1. Personnel with direct responsibility for the operation and management of Mount Holyoke Range State Park.^a

Job Title	Number of Positions ^b
<i>Year-round Personnel</i>	
Regional Facilities Supervisor IV	1
Recreation Facility Repairer	1
<i>Seasonal Personnel</i>	
Forest and Park Supervisor I ^c	1
Recreation Facility Supervisor I ^c	1
Interpreter ^c	1
Interpreter ^d	1
Laborer I ^c	2
Ranger ^c	1

a. These personnel are shared among Mount Holyoke Range and Skinner state parks.

b. Based on summer 2012 staffing levels.

c. Long-term seasonal position; employed May–September.

d. Short-term seasonal position; employed June–September.

The Friends of the Mount Holyoke Range is a non-profit organization established to preserve the environment and natural and cultural history of the Holyoke Range. In recent years, the Friends have helped raise money for land acquisition, maintained

trails, offered guided hikes, and sponsored an annual trail run. They largely operate independently of park staff.

In 1989, the DEM issued a *Guidelines for Operations and Land Stewardship* (GOALS) plan for “Holyoke Range State Park” (DEM 1989). Development of this plan was guided by the general land use policy that “management of the range should be one of preservation and careful stewardship of the area’s natural resources and scenic beauty.” This general philosophy has guided park management for over 20 years. Prepared early in the park’s history, the GOALS Plan established 84 management objectives under the headings of Resource Management, Public Access, and Program Resources. Several are no longer applicable due to the prohibition of commercial logging associated with the parks’ Landscape Designations, or are no longer possible given current staffing and funding levels. However, most remain relevant and were considered while developing management recommendations presented in Section 4. Appendix J identifies all of the management objectives in the previous management plan (DEM 1989).

Much ongoing maintenance (e.g., lawn mowing) is similar among the planning unit’s parks. Common, ongoing management activities were previously identified in Table 3.2.1. However, some facilities and resources, such as the Granby Sand Plain, have unique and specific management requirements; these are described elsewhere in this section.

3.3.1. NATURAL RESOURCES

Water Resources

Drinking Water. The Transient Non-community water system is operated under contract by Safewaters Environmental, a Massachusetts certified operator, in accordance with applicable regulations (310 CMR 22; Appendix F).

Rare Species

Detailed recommendations were developed by the NHESP for managing rare species and their habitats at Mount Holyoke Range and Skinner state parks (NHESP 2007a). Management units were delineated on the basis of the management needs of one or more state-listed species. These management units are: Upland Open Woodland; Rare Snake; Mesic Forest; Palustrine; Turtle; Connecticut River

(including tributaries); and Vernal Pool Animals. These units are not spatially exclusive; individual locations may occur in multiple management units. Common management recommendations include actively managing habitat, surveying and monitoring, and following existing Best Management Practices (BMPs) developed by the NHESP. A summary of management recommendations is presented in Appendix K.

Vegetation

There is no park-wide plan for the management of vegetation. However, ongoing vegetation management takes place on, or has been proposed for, some portions of the park.

Forest growth and health are monitored by sampling CFI plots. Of the 22 CFI plots on the range, 9 are located north of the ridgeline and 13 are located south of the ridgeline. There are no plots in the Granby Sand Plain or the 535 Bay Road, Belchertown parcels.

Notch Visitor Center. The landscaped portions of the Notch Visitor Center are cut and weeded on a regular basis, in accordance with the schedule presented in Table 3.2.1.

The Amherst Police Department’s high ropes course is located within Priority Habitat. Because of this, maintenance of this facility is subject to review under MESA. The Amherst Police Department is responsible for ensuring that its maintenance activities are in compliance with MESA and other applicable regulations.

Lithia Springs Reservoir. From 2002, when it was acquired by the DEM, until 2012, vegetation along the downstream embankment of the Lithia Springs Dam went uncut. A 2011 inspection and evaluation of the dam recommended that this vegetation be removed and the embankment maintained on a regular basis to prevent the return of woody vegetation (Tighe & Bond 2011a).

Granby Sand Plain. In 2000, the NHESP visited the Granby Sand Plain parcel and developed biodiversity management goals (Somers et al. 2000). Specific vegetation-related recommendations included:

- Protect, manage, and restore habitats for state protected rare species and priority communities.

- Reduce or eliminate potential damages to biological resources resulting from the invasion of habitat by aggressive non-native species.

These management goals were adopted by the DEM and identified in its application for acquiring this property from the federal government (DEM 2002); they have not been fully implemented due to limited resources. Research recommendations, such as conducting periodic plant surveys and sampling natural communities, were not adopted. The NHESP has indicated that maintaining the remaining sections of grasslands and cutting pines from formerly open areas may be performed under an approved Habitat Management Plan (HMP). Should the DCR have the resources necessary to implement ongoing grassland management, it will need to prepare an HMP.

535 Bay Road, Belchertown. All grasslands at this former equestrian facility occur within Priority Habitat. The NHESP has indicated that maintaining these fields may be performed under an approved HMP. The DCR has not yet begun habitat management at this recently acquired property; it will need to prepare an HMP should it choose to maintain the grasslands. Given their proximity to wetlands and a perennial stream, managing these grasslands will also require review under the Wetlands Protection Act (310 CMR 10.00; Appendix F).

Wildlife

There is no comprehensive plan for managing the park's wildlife.

Hunting, Fishing, and Trapping. In accordance with DCR regulations (304 CMR 12.18; Appendix F), both hunting and fishing are allowed.

Granby Sand Plain. In 2003, high water caused by a beaver dam along Ingraham Brook resulted in flooding low-lying portions of the Granby Sand Plain parcel. At that time, a professional trapper removed nine beaver and the beaver deceiver in the brook was redesigned to prevent future flooding (Sacco 2005). These devices are periodically inspected and accumulated wood is removed as needed.

3.3.2. CULTURAL RESOURCES

There are no cultural resource management activities or policies unique to this park.

3.3.3. RECREATION RESOURCES

Snow vehicles (i.e., snowmobiles) may be used on any unplowed forest road or way at Mount Holyoke Range State Park, provided that: the vehicle is registered; sub-surface soil is "solidly frozen and completely covered with a minimum of four inches of hard packed snow or ice;" and the vehicle is carrying a spare spark plug, flashlight, drive belt, and "sufficient tools to effect minor repairs." Snow vehicles may operate on frozen waters when there are five or more inches of frozen ice and in "fields, gravel banks or similar open areas where such use is permitted by appropriate signage." (304 CMR 12.29; Appendix F)

The ropes challenge course located behind the Notch Visitor Center "is completely run and facilitated by the men and women of the Amherst Police Department" who train a minimum of 80 hours to become facilitators

(<http://www.amherstma.gov/index.aspx?NID=440>).

Use is scheduled through Officer Marcus Humber. This programming is offered free to organizations associated with the Town of Amherst. Other groups, such as private corporations, local colleges, and students from other towns must pay a fee to cover the cost of facilitators and equipment maintenance. This fee varies with group size and type of programming. There is no written agreement between the DCR and Town of Amherst for the use of this course.

There are two large, annual recreation events.

Special Use Permits

Special Use Permits (SUPs) are issued for two large, annual recreation events. The New England Orienteering Club is issued an SUP for its Western Massachusetts 5 Day event, and the second SUP is issued for the 7 Sisters Trail Run. In the past, SUPs have been issued for trail repair conducted by private parties and also for commercial activities (e.g., commercial llama treks).

3.3.4. INFRASTRUCTURE

Property Boundary

In 1982, an "ultimate acquisition boundary" was established for the park (DEM 1989). It was defined as the 450 foot elevation contour, in order "to protect and maintain scenic views from the ridgeline to the

valley floor.” This contour no longer guides land acquisition and protection efforts. Current efforts focus on two objectives: first, protection of inholdings and unprotected lands adjacent to the park; and second, parcels that provide habitat for rare species or have uncommon natural communities.

Mount Holyoke Range State Park consists of multiple parcels of land, many of which have property-specific easements or deed restrictions. An assessment of each parcel’s easements and restrictions is outside the scope of this plan. Those seeking site-specific information are directed to the original deeds and associated legal instruments.

In general, easements and restrictions address accessing private lands by passing through DCR property; the ability to obtain water from streams, springs, or other sources in the park; and the maintenance of utility rights of way. One of the more common easements involves the Western Massachusetts Electric Company (WMECO). Although the width of the easement differs among locations, the reserved rights are standard. WMECO has the right to: make surveys and patrol in connection with, and to construct, maintain, relocate, and operate at any time and from time to time upon, over, and under the surface...lines for the transmission of electricity; cut, trim, burn, and spray with chemicals any and all trees and brush or parts thereof growing within or overhanging the right of way and to cut or trim trees within the parcel but out of the right of way; remove any and all structures now or hereafter standing in the right of way; have approval of any change in grade, filling, or excavating; and reach the right of way in any manner for the purpose of exercising its rights.

Granby Sand Plain. One abutter holds an easement along the existing bituminous road into the parcel, which is to be used “solely and exclusively as a private driveway for access by foot and vehicle from Green Meadow Lane” (Easement Agreement; Book 6031, Page 0348). The easement holder has been provided gate keys for access (Sacco 2005).

Acceptance of the Granby Sand Plain parcel from the NPS, through the Federal Lands to Parks Program, established a variety of management and administrative obligations. These obligations are:

- The property shall be used and maintained exclusively for public park or public recreation purposes.
- That DCR erect and maintain a permanent sign or marker near the principal point of access stating: “This parkland was acquired through the FEDERAL LANDS TO PARKS PROGRAM of the United States Department of the Interior, National Park Service, for use by the general public.”
- The property “shall not be sold, leased, or assigned, or otherwise disposed of except to another eligible governmental agency.”
- Every two years, from 2002 through 2022, the DCR shall submit reports to the NPS “setting forth the use made of this property during the preceding two-year period, and other pertinent data establishing its continuous use” for public park purposes. Additional reports, “as determined by the Secretary of the Interior,” may be required.
- Funds generated on the property may not be expended for non-recreation purposes.
- The NPS, or its representative, shall have continuous right of entry to evaluate the DCR’s compliance with the terms of the land conveyance.
- The DCR agrees to comply with the Clean Water Act of 1977; Architectural Barriers Act of 1968, as amended; Rehabilitation Act of 1973; Americans with Disabilities Act of 1990; Title VI of the Civil Rights Act of 1964; Section 106 of the National Historic Preservation Act of 1966; Archaeological and Historic Preservation Act of 1966; and Executive Orders 11990 (Protection of Wetlands), 11988 (Floodplain Management) and 11593 (Protection and Enhancement of the Cultural Environment).
- The DCR shall “conduct an intensive archaeological survey in consultation with the Tribal Historic Preservation Officer should disturbance of the property be contemplated.”
- Any construction or alteration of the property is prohibited unless a determination of no hazard to navigable airspace is issued by the Federal Aviation Administration.

If the DCR breaches any of these conditions, “all right, title and interest in and to said premise shall revert to and become property of” the NPS.

Buildings and Structures

Military Road. Management of the Moore House is currently divided among park operations, Fire District 10, and Forest Health staff members; there is no formal agreement or management structure. Further coordination, between the Bureau of Forest Fire Control and Forestry and MassParks, is required to clarify management roles and responsibilities.

Lithia Springs Dam. A 2011 inspection/evaluation of Lithia Springs Dam (Tighe & Bond 2011a) recommended the following management actions:

- Remove trees and vegetation growing on the downstream slope of the dam.
- Monitor and investigate seepage near the left abutment.
- Locate the discharge for the six-inch low-level outlet; repair and replace gate operator if necessary.
- Repair eroded area of dam crest and on upstream slope at left abutment.
- Determine if the pipeline connecting the reservoir to the South Hadley Fire District #2 water distribution system has been properly abandoned, permanently abandon the eight-inch water main connection to the public water system and seal and remove the one-inch overflow to the brook.
- Install a toe drain along the left side of embankment.
- Prepare a formal Operations and Maintenance Manual.
- Inspect spillway frequently and remove debris as often as necessary.
- Perform regular maintenance of vegetation on the embankment.

On April 17, 2013, the South Hadley Conservation Commission issued an Order of Conditions (DEP # 288-0422; Book 11297, Page 280) to the DCR’s Office of Dam Safety “for correction of a problem created by an unknown person or persons, and continued maintenance of the dam and road access to the Lithia Springs Reservoir dam.” This order expires on April 17, 2018, but may be renewed

without refiling if “at least four of nine recommendations” are performed. See Section 2.3.4 for information on the current condition of this dam.

Aldrich Lake. A recent assessment of the Aldrich Lake Dam (Tighe & Bond 2012) recommended the following management actions:

- Install a gate or valve on the intermediate outlet to temporarily lower the water level.
- Completely replace, partially breach, or remove the dam in its entirety.
- Develop a formal Operations and Maintenance Manual for the dam.
- Self-inspect the dam on a monthly basis and have inspections by a professional engineer every three months until the dam is repaired or replaced.
- Remove trees and brush from the left abutment.

194 West State Street, Granby. The Granby Police Department occupied the former dinosaur museum building from 1992 through 2010; and the town retained control of the facility after the police relocated to their new station. A five-year Memorandum of Understanding, between the DCR and the Town of Granby, governing the use of the former dinosaur museum, residence, and grounds was signed in July, 2010. This MOU was terminated by the town the following March. As a result, the DCR is now solely responsible for all maintenance and repairs.

Roads

The access road to the Norwottuck Fish and Game Club crosses through the park, just north of the Notch Visitor Center. A Special Use Permit has been used to grant club members permission to cross DCR property to access club property. In consideration for such use the club agrees to:

- Maintain, at their expense, the access road and associated culverts in good condition.
- Assure the proper signage (e.g., Caution: Shooting Range) is in place and visible to park visitors walking near the site.
- Keep state park lands within 500 feet of the fish and game club clean of litter and/or wind-blown debris.

This permit expired in 2004.

Although the Special Use Permit allowed fish and game club members to cross DCR property, it did not grant the same permission to telecommunications companies with equipment located on club property. A Special Use Permit and an MOU have been used to grant these commercial interests permission to cross DCR property. In 2000, a five-year Special Use Permit was issued to Sprint Spectrum L.P. to cross DCR property. In 2005, a five-year MOU was established between the DCR and STC Six Company for use of the access road to the fish and game club property. Both agreements included \$500 annual compensation to the DCR for the right of access, and both have expired. Permits issued by the Town of Amherst indicate that two additional companies, Verizon Wireless and Pocket PCS, also have towers on club grounds. Access permits are also required for these commercial interests to cross DCR property.

Park roads and lots are plowed when there is any accumulation of snow that poses a potential threat to the safety of park users and employees. Because snow removal equipment is stored at the Halfway Area in Joseph Allen Skinner State Park, the first step in snow removal for Mount Holyoke Range State Parks is to access this equipment. Once accessed, the sequence of snow removal is the Notch Visitor Center and Moore House at Mount Holyoke Range State Park, and then the Halfway Area at Skinner state park.

Parking

See *Roads*, above, for information on snow removal.

Trails

Trail maintenance, repair, and creation is performed by a combination of DCR staff, non-profit organizations, and volunteers.

The park staff incorporates trail work into their schedules as time permits. During the recreation season the seasonal Ranger is the primary trail maintainer. Other employees, trained and capable of trail maintenance, provide assistance. In the off season, trail work is chiefly performed by the acting Regional Ranger and an employee of the Bureau of Forest Fire Control and Forestry. Priority is given to maintaining emergency access forest roads and trails.

The AMC is responsible for managing the NET. They have entered into an Adopt A Trail Program volunteer agreement with the Mount Holyoke College Outing Club for section 07 of the NET, which extends from Route 47, in Hockanum, to Route 116 at the Notch Visitor Center. Under the terms of this agreement, the outing club must perform all maintenance work in compliance with AMC trail maintenance standards; perform a minimum of three work trips per year; report problems and requests for help to the NET Planner; and follow all AMC safety procedures.

The Friends of the Mount Holyoke Range State Park maintain and repair trails as part of their activities.

The Pioneer Valley Chapter of the New England Mountain Bike Association performs trail work, including track repair and bridge building for trails in the Bachelor Street area (e.g., Wyman 2010). In the past, this work has chiefly been done in consultation with park staff, a formal agreement for this work is necessary to ensure compliance with any required regulatory reviews.

On the range's north slope, an extensive system of single track and double track bike trails ("Earl's Trails") has been developed. These trails, which are mostly located on private and municipal lands, extend from Hampshire College south to Military Road and west to Parker Reservoir in Hadley. Creation of trail segments on DCR property was not coordinated with the DCR or reviewed to ensure compliance with required regulatory reviews.

All trail work, whether performed by DCR employees or others, must be performed in accordance with general regulations and policies identified in Section 3.2.4.

3.3.5. INTERPRETIVE SERVICES

Two interpreters, one long-term and one short-term, provide programming at both Mount Holyoke Range and Joseph Allen Skinner state parks. They also staff the Notch Visitor Center, recording 3,593 visitors during the summer of 2012.

There is no comprehensive interpretive plan for the park. The GOALS Plan (DEM 1989) recommended natural history of the Mount Holyoke Range as the major interpretive theme at the Notch Visitor Center. Current programming is largely consistent with this recommendation.

Fifty-three interpretive programs or hikes were offered in the park from June through August, 2012. They were attended by 96 children and 115 adults. Among these programs were a series of “kidleidoscope” programs geared toward pre-schoolers. Topics in this series included: bees, squirrels and chipmunks, acorns, leaves, flowers, and rocks. Programming geared toward general audiences included talks on bats, bears, coyotes, deer, owls, and snakes; guest speakers presented on birds of prey and Shay’s rebellion. Guided hikes introduced visitors to Rattlesnake Knob, the Horse Caves, Mount Hitchcock, and the historic trolley bed that runs through the reservation along the east side of Route 116. A “Learn to Fish” program was offered by the seasonal interpreters with the assistance of the regional Environmental Education Initiative interpreter. Additional programming was provided by the Friends of the Mount Holyoke Range who sponsored naturalist-led bird hikes. In general, programming focuses on historic sites and the ecology of common species of wildlife; with limited information on the park’s sensitive resources and their management needs.

In addition to formal programming, seasonal interpreters provided informal interpretation on 721 occasions and answered visitor questions on 1,475 occasions.

3.4. JOSEPH ALLEN SKINNER STATE PARK

Skinner State Park and Mount Holyoke Range State Park are managed as a single entity, with shared personnel, equipment, and management resources. Titles and numbers of these personnel were previously identified in Table 3.3.1.

Much of the ongoing parks maintenance (e.g., lawn mowing) is similar among the planning unit’s parks. Common, ongoing management activities were previously identified in Table 3.2.1. However, some facilities, resources, regulations, and activities are unique to this park; these are described below.

3.4.1. NATURAL RESOURCES

Water Resources

Drinking Water. The Transient Non-community water system at the Summit House is operated under contract by Safewaters Environmental, a

Massachusetts certified operator, in accordance with applicable regulations (310 CMR 22; Appendix F).

Rare Species

The NHESP developed detailed recommendations for managing rare species and their habitats on DCR properties in the Mount Holyoke Range (NHESP 2007a). See Section 3.3.1 and Appendix K for information on these recommendations.

Vegetation

Maintenance of the park’s landscaped areas is performed in accordance with the schedule identified in Table 3.2.1.

There are five CFI plots. Two are located north of the ridgeline, one is located along the ridgeline, and two more are located south of the ridgeline near Dry Brook.

Vegetation management unique to this park includes the maintenance of a hang glider launch area. This maintenance is performed by the hang gliding community and not park staff. There is limited coordination of this activity with park staff.

Wildlife

Hunting, Fishing, and Trapping. In accordance with regulations (304 CMR 12.18; Appendix F), hunting and trapping are prohibited at Skinner State Park; fishing is allowed.

3.4.2. CULTURAL RESOURCES

There are no cultural resource management activities or policies unique to this park.

3.4.3. RECREATION RESOURCES

There are fees for holding events at the Summit House. This includes \$35 for a Special Use Permit, a \$50 rental fee per four hours of use, and any associated staffing costs.

Hang glider and paraglider pilots must be rated at the intermediate proficiency level (H3 or P3, respectively) or higher in order to launch from Mount Holyoke. The DCR requires all pilots to sign a combined annual permit and liability release, and to sign in on the day of their flight. Self-service permits and sign-in logs are available in a locked box affixed to the west side of the Halfway Garage. The lock combination is known to the hang gliding

and paragliding communities. This area is closed from early November through mid-May, when the portion of the park road above the Halfway Area is closed.

3.4.4. INFRASTRUCTURE

Buildings and Structures

The Summit House's fire suppression system is checked weekly throughout the year. In winter, a snowmobile is used to access the Summit House when snow is too deep for travel by truck or utility vehicle.

Roads

Park roads and lots are plowed when there is any accumulation of snow that poses a potential threat to the safety of park users and employees. Because snow removal equipment is stored at the Halfway Area, the first step is to access this equipment. Once accessed, DCR personnel plow the parking areas and service roads at the Notch Visitor Center and Moore House before returning to Skinner state park to plow the Halfway House area and clean up the park road. Only the portion of the park road from the entrance to just uphill of the Halfway Area is plowed; the upper section, to the Summit House, is not maintained during the winter.

The Town of Hadley plows and sands both the municipal and DCR portions of Mountain Road, from Route 47 to the park's entrance gate.

Parking

See *Roads*, above, for information on snow removal.

Trails

Trail maintenance and repair is performed by a combination of DCR staff, the AMC, and volunteers.

The park staff incorporates trail work into their schedules as time permits. During the recreation season the seasonal Ranger is the primary trail maintainer. Other employees, trained and capable of trail maintenance, provide assistance. In the off season, trail work is chiefly performed by the Regional Facility Supervisor. Priority is given to maintaining emergency access forest roads and trails.

The AMC is responsible for managing the NET. They have entered into an Adopt A Trail Program volunteer agreement with the Mount Holyoke College Outing Club for section 07 of the New England Trail (i.e., the NET). This segment extends from Route 47, in Hockanum, to Route 116 at the Notch Visitor Center. Under the terms of this agreement, the outing club must perform all maintenance work in compliance with AMC trail maintenance standards; perform a minimum of three work trips per year; report problems and requests for help to the NET Planner; and follow all safety procedures.

All trail work, whether performed by DCR employees or others, must be performed in accordance with general regulations and policies identified in Section 3.2.4.

3.4.5. INTERPRETIVE SERVICES

Two interpreters, one long-term and one short-term, provide programming at both Joseph Allen Skinner and Mount Holyoke Range parks.

There is no comprehensive interpretive plan for the park. The GOALS Plan recommended cultural history of the Mount Holyoke Range, with emphasis on the Summit House, as the major interpretive theme at the Summit House (DEM 1989). Current programming is consistent with this recommendation.

From July through early October, 117 interpretive programs or hikes were offered; they were attended by 50 children and 246 adults. Most programming consisted of one of four standard talks on the following topics: History of the Summit House; Stories of the Summit House; Getting up the mountain, tramtastic!; and Hawks over the mountain. The first three talks were presented regularly throughout the summer, often on the same afternoon. Presentations on the fourth topic were offered only in September and October, during hawk migration. A standard hike, focusing on the geology of the park, was also offered regularly throughout the summer. In general, programming focuses on the Summit House, geology of the Mount Holyoke Range, and the ecology of common species of wildlife; with limited information on the park's rare species and their management needs.

In addition to formal programming, seasonal interpreters provided informal interpretation on 757

occasions and answered visitor questions on 1,110 occasions.

The Environmental Education Initiative interpreter offered two programs in 2012: Geology, and Tree Life Cycle. These programs were attended by a total of 74 children and eight adults.

3.5. MOUNT TOM STATE RESERVATION

Mount Tom State Reservation is managed independently of other parks in the planning unit. There are three year-round and four long-term seasonal personnel. Titles and numbers of personnel are identified in Table 3.5.1.

Table 3.5.1. Personnel with direct responsibility for the operation and management of Mount Tom State Reservation.

Job Title	Number of Positions ^a
<i>Year-round Personnel</i>	
Forest and Park Supervisor III	1
Forest and Park Supervisor I	1
Recreation Facility Repairer	1
<i>Seasonal Personnel^b</i>	
Recreation Facility Supervisor I	1
Interpreter	1
Laborer I	2

a. Based on summer 2012 staffing levels.

b. All seasonal personnel are long-term; employed May–September.

Much of the ongoing parks maintenance (e.g., lawn mowing) is similar among the planning unit’s parks. Common, ongoing management activities were previously identified in Table 3.2.1. However, some facilities, resources, and activities (e.g., vegetation management in Lake Bray) have unique and specific management requirements; these are described below.

The Mount Tom Partners are an informal group that developed from a multi-partner land acquisition project. It includes the DCR, Boys and Girls Club of Greater Holyoke, U.S. Fish and Wildlife Service, and The Trustees of Reservations. Representatives of these agencies and organizations meet frequently to address management issues common to their properties on and near the former Mount Tom Ski Area. There are preliminary plans to develop a stewardship agreement and volunteer group to work on each partner’s property at Mount Tom.

An informal friends group, the Mount Tom Advocacy Group, supplements park staff. Members

are present in the Visitor Center on weekends during the fall and winter to greet visitors and answer questions. They also mark hiking trails in accordance with the DCR’s *Trails Guidelines and Best Practices Manual* (DCR 2012a), document the reservation’s history, and provide labor for special activities and events. This group meets every other month, on the reservation. Meetings occur during normal business hours to allow for the presence and participation of park staff.

Other volunteer efforts are infrequent. The Trustees of Reservations provides a volunteer crew about once per year. Boy Scouts volunteer as part of required service projects. AmeriCorps volunteers are occasionally available for work on the reservation. These volunteers approach park staff; they are not recruited by staff. They are often directed toward vista pruning at the reservation’s scenic overlooks.

3.5.1. NATURAL RESOURCES

Some ongoing maintenance activities are subject to review under MESA. Mowing the field behind the Mount Tom Quarry, maintaining the scenic overlooks along Christopher Clark Road, and cutting vegetation around the Goat Peak Tower all take place in Priority Habitat and all require review. However, the NHESP has indicated that these activities may be exempt from full MESA review if they are performed in a manner consistent with approved HMPs (Marrold 2012). Such plans are needed for these ongoing activities.

Water Resources

Drinking Water. The Transient Non-community water system at the Cole museum is operated under contract by Safewaters Environmental, a Massachusetts certified operator, in accordance with applicable regulations (310 CMR 22; Appendix F).

Storm Water. Water quality at Berchulski Fisherman Access Point is tested weekly by the City of Chicopee’s Department of Public Works in accordance with the city’s National Pollutant Discharge Elimination System (NPDES) permit. Sampling results are posted on a bulletin board at the access point.

Rare Species

The NHESP has developed detailed recommendations for managing rare species and

their habitats on Mount Tom and adjacent conservation lands (NHESP 2007b). Management units were delineated on the basis of the management needs of individual, or assemblages of, state-listed species. They are: Upland Open Woodland; Rare Snake; Falcon; Mesic Forest; Riverside Rocky Shoreline; Turtle; Connecticut River (including tributaries); and Vernal Pool Animals. These management units are not exclusive; individual locations in the reservation are often included in multiple management units. Common management recommendations include surveying and monitoring rare species, active habitat management, following BMPs developed by the NHESP, and increased management of recreation. A summary of management recommendations is presented in Appendix L.

Vegetation

Maintenance of the park's landscaped areas is performed in accordance with the schedule identified in Table 3.2.1.

There are 13 CFI plots; they are distributed throughout the entire reservation.

In 2009, the trunk of the reservation's champion eastern hemlock was treated with a single application of the insecticide Safari™. This pesticide, which has Dinotefuran as its active ingredient, was used to combat hemlock woolly adelgid on this individual tree. There has been no funding for additional treatments, or treatment of other trees.

In fall 2012, predatory beetles (*Laricobius nigrinus*) were released at Mount Tom by the DCR's Forest Health Program in an effort to control hemlock woolly adelgid. These beetles are native to British Columbia, where they are a natural enemy of the balsam woolly adelgid and also feed on hemlock woolly adelgid (Cheah et al. 2004.) It is too early to know if these efforts will be successful at Mount Tom.

Visitor Center Area. Maintenance of vegetation downhill of the reservation's five scenic overlooks along Christopher Clark Road is performed infrequently, typically by volunteers. The NHESP has identified the maintenance of these areas as subject to the Massachusetts Endangered Species Act (321 CMR 10.00). It is unclear if such clearing

may be performed under an approved HMP or if more extensive review is required.

Cutting vegetation to maintain the view from the Goat Peak Tower is also subject to MESA. The NHESP has indicated that clearing vegetation at Goat Peak to both maintain the view from the tower and manage Upland Open Woodland habitat (NHESP 2007b) may be conducted under an approved HMP. Similarly, cutting vegetation around the Eyrie House Ruins in order to protect archaeological resources, restore the cultural landscape, and maintain Upland Open Woodland may also be performed under an approved HMP. One or more HMPs plans would need to be prepared, should the DCR decide to implement this vegetation management.

Lake Bray Area. In 2012, the DCR's Lakes and Ponds Program initiated an "integrated aquatic plant management program" at Lake Bray (Aquatic Control Technologies 2011). This program was developed to reduce populations of two overabundant aquatic plants, waterweed and largeleaf pondweed; neither are considered invasive in Massachusetts (MIPAG 2005). The Holyoke Conservation Commission approved the project in an Order of Conditions issued May 11, 2012. One application of Reward® Landscape and Aquatic Herbicide (i.e., diquat dibromide) was applied at the rate of 1.5 gallons per surface acre, in a six-acre treatment area. A post-treatment survey revealed that a "greater than 95% control of the target vegetation was achieved" (Aquatic Control Technologies 2012). The consultant recommended early season vegetation surveys; area-specific applications of Reward®; physical removal of plants, if warranted; and late season vegetation surveys be conducted "over the next few seasons." No funding exists to continue these treatments in 2013.

From 2008 through 2011 the NHESP controlled populations of pale swallow-wort on the reservation through mechanical means and the use of herbicide (e.g., glyphosate, triclopyr; Garrett 2011). Areas treated included a Hickory Hop-hornbeam community along the Lost Boulder Trail and portions of the NET and D.O'C. trails. Control was performed to protect state-listed plants and to prevent the further spread of swallow-wort. No control efforts took place in 2012, although the need for control remains.

Mount Tom personnel mow a field east of the Mount Tom Quarry; this occurs approximately once every three years. It is done to prevent encroachment by woody vegetation. The NHESP has determined that this activity is subject to MESA, but may be conducted in accordance with an approved HMP. Such a plan is needed for this ongoing activity.

Under a draft Memorandum of Understanding between the DCR and The Trustees of Reservations, Mount Tom staff members manage vegetation at The Trustees' Dinosaur Footprints Reservation. This property is located adjacent to Mount Tom Reservation, between Route 5 and the Connecticut River in Holyoke. Vegetation management consists of cutting grass at the reservation's entrance and managing trails. This mowing occurs in Priority Habitat, but is exempt from review under MESA (321 CMR 10.13). The DCR is also responsible for picking up litter. Although the MOU indicates that Connecticut River Greenway State Park personnel are to perform this maintenance, it is performed by Mount Tom staff due to their proximity to The Trustees' property. The MOU also allows the DCR to conduct interpretive programming at the site. Although field staff from both the DCR and The Trustees of Reservations have copies of the draft MOU, and operated under the assumption that it had been signed, there is no evidence that such an agreement was ever established.

Mount Tom staff members manage vegetation at the Connecticut River Boat Ramp and Berchulski Fisherman Access Point. This includes mowing and weeding. They are also responsible for picking up trash at these facilities.

Wildlife

Hunting, Fishing, and Trapping. In accordance with regulations, Mount Tom State Reservation is closed to hunting, but open to fishing (304 CMR 12.18; Appendix F).

Unless otherwise authorized by a special or general permit issued pursuant to 320 CMR 2.03, fishing is prohibited within "a 50 foot radius of any boat launching ramp or associated pier or float system" (i.e., at the Connecticut River Boat Ramp and Berchulski Fisherman Access Point.)

3.5.2. CULTURAL RESOURCES

There are no cultural resource management activities or policies unique to this park.

3.5.3. RECREATION RESOURCES

Special Use Permits

Extensive regulations govern the use of Office of Fishing and Boating Access (OFBA) sites, such as the Connecticut River Boat Ramp (320 CMR 2.00; Appendix F). Use of these sites is restricted to the launching of watercraft and the parking of associated vehicles. No other parking or recreational uses are allowed.

Special Use Permits are required for events (e.g., fishing tournament) at OFBA sites. Issuance of these permits by the OFBA, following DCR review, is for the parking of a specified number of vehicles and is not authorization for an event. In order to ensure public use of the site, permits restrict the number of vehicles at the event to 16 between July 1 and August 31, and 25 between September 1 and June 30. Ceremonies, weigh-ins, and other organized activities remain prohibited from the oxbow boat ramp even after a permit is issued.

3.5.4. INFRASTRUCTURE

Property Boundary

There are no boundary monitoring or maintenance activities unique to this property.

The WMECO easement (Easement Agreement; Book 1259, Page 305) grants the company the rights to: make surveys and patrol in connection with, and to construct, maintain, relocate, and operate at any time and from time to time upon, over, and under the surface...lines for the transmission of electricity; cut, trim, burn, and spray with chemicals any and all trees and brush or parts thereof growing within or overhanging the right of way and to cut or trim trees within the parcel but out of the right of way; remove any and all structures now or hereafter standing in the right of way; have approval of any change in grade, filling, or excavating; and reach the right of way in any manner for the purpose of exercising its rights.

The deed to the Connecticut River Boat Ramp preserves a variety of rights for the property's

previous owner (i.e., WMECO). It has the right to “construct, maintain, relocate, repair, renew, remove and reconstruct upon, over and across...any part thereof, lines for the transmission of electricity, intelligence and energy consisting of supporting towers, poles, wires, cables and conduits with the usual cross arms, insulators and other fixtures and attachments,” to cut or trim brush or trees to ensure the safe operation of lines, and to have no structure erected on the premises.

Buildings and Structures

Visitor Center Area. The portable toilets opposite the Visitor Center are pumped and maintained once per week. This service is provided as part of the rental cost for these units.

There are no standard inspection or maintenance programs for the Bray Tower and Goat Peak Tower.

The fee for the use of the picnic pavilion at Elder Field is \$50 per day. This is consistent with the fee structure established by Massachusetts regulations (801 CMR 4.00) for the use of small pavilions.

Lake Bray Area. A 2011 inspection/evaluation of Lake Bray Dam (Tighe & Bond 2011b) recommended the following management actions:

- Clear and grub trees and brush from the embankments and within 20 feet of the embankment.
- Establish a good stand of grass in the areas of the embankment with sparse vegetation.
- Reset/add rip rap to the sparse area of rip rap near the left abutment.
- Remove vegetation from within the rip rap areas on the upstream slope.
- Repair settled areas adjacent to the spillway structure.
- Repair eroded area near storm drain discharge on left abutment. Install splash pad or other erosion protection.
- Regularly clear the grates on toe drains.
- Monitor wet areas along the right downstream groin. Monitor potential area of settlement observed approximately 75 feet to the left of the spillway.
- Repair concrete spalling at each fence post on spillway structure.

- Repair pavement crack on dam crest.
- Develop a formal Operations and Maintenance Manual.

Ongoing management of the dam includes the regular mowing of vegetation during the growing season and periodic inspection and clearing, if needed, of the toe drains.

An energy audit was recently conducted for the reservation’s buildings (Energy Engineering & Design, Inc. 2012). Upgrades to lighting, lighting controls, HVAC controls, replacement of a refrigerator, and improved insulation and weather stripping are projected to result in annual savings of 15,531 kWh of electricity, for a cost saving of \$1,952 per year. These upgrades are expected to pay for themselves in 1.7–5.6 years, depending on the building. Replacement of the Warming Hut’s toilets with more efficient models is projected to save 79,288 gallons of water per year, thereby decreasing annual costs by \$427. Water conservation upgrades are projected to pay for themselves in 1.9 years.

Roads

The reservation’s main roads were resurfaced in 2013; there are no site-specific plans for additional repairs.

During the winter, both roads and the scenic overlooks along the public section of Christopher Clark Road are kept open. Reservation staff members perform the snow plowing.

Parking

There is no program, unique to this property, to repair parking areas.

Reservation staff performs snow plowing. Priority is given to the Park Headquarters, Lake Bray, and Bray Tower lots, as well as marked parking areas in front of the Visitor Center.

Construction of the Connecticut River Boat Ramp and the ramp at the Berchulski Fisherman Access Point were funded by the Public Access Board, the predecessor to today’s OFBA. The DCR owns the land and handles normal maintenance and minor repairs, while the OFBA is responsible for major repairs.

Trails

Trail maintenance and repair is performed by a combination of DCR staff, non-profit organizations, and volunteers. Mount Tom employees perform trail maintenance as their schedule permits, including patrolling trails for blow downs, and removing these trees or limbs with chain saws. They also perform a limited amount of tree pruning, bridge repair, sign work, and litter removal. The park staff relies on the Mount Tom Advocacy Group for assistance in trail maintenance and repair. This group is largely responsible for the recent construction of a trail bridge over Bray Brook. As mentioned previously, the AMC is responsible for managing the NET. Their work involves paid staff, volunteers, and occasionally technical experts (e.g., Trailwrights 2012). All trail work, whether performed by DCR employees or volunteers, must be performed in accordance with general regulations and policies identified in Section 3.2.4.

3.5.5. INTERPRETIVE SERVICES

In FY 2012, the seasonal interpreter offered 101 programs that were attended by a total of 738 participants. Thirty-three different programs, 12 different hikes, Explorer's Club programming, Junior Naturalist Club programming, and a celebration of the Eyrie House were offered. Programs included such topics as amphibians, birding, candle making, hawk watching, frogs, Native American lifestyles, owling in the afternoon, plants, salamanders, signs of the seasons, snakes, vernal pools, and wildflowers. Programs originated at both the Visitor Center and Lake Bray. Food was incorporated into three programs, including the weekly Teatime at Tom and Lunch and a Story programs; it was also the main draw for the Nature BBQ, which combines a meal and a nature hike. Programs emphasized the reservations historic structures and the ecology of common plants and animals; with limited information on the park's sensitive resources and their management needs.

Interpreter-led hikes took place on a number of trails and also Smith's Ferry Road; special hikes were regularly offered for senior citizens and mothers with infants.

In calendar year 2011, the Environmental Education Initiatives interpreter provided 42 programs. (Table 3.5.2.) These are group programs that are booked by

appointment and are not part of the reservation's general interpretive programs.

The reservation is also a common destination for university field trips, which often show up without advanced notice.

Table 3.5.2. Interpretive programs conducted at Mount Tom State Reservation by the Environmental Education Initiatives Program in 2011.

Program Name	# Programs	# Children	# Adults
Beaver pond ecology	6	146	45
Campfire cooking	1	25	6
Field trip preview ^a	5	0	9
Geology	13	343	80
Nature walks	12	215	58
Nature walk-UA ^b	2	0	11
Project Learning Tree	1	0	9
Soils	1	26	3
Teacher workshop	1	0	17

a. Preliminary visit to prepare teachers for field trips.

b. Conducted in association with DCR's Universal Access (UA) Program.

3.6. HOLYOKE HERITAGE STATE PARK

Holyoke Heritage State Park is managed independently of other parks in the planning unit. There are two year-round and three long-term seasonal personnel. Titles and numbers of these personnel are identified in Table 3.6.1.

Table 3.6.1. Personnel with direct responsibility for the operation and management of Holyoke Heritage State Park.

Job Title	Number of Positions ^a
<i>Year-round Personnel</i>	
Forest and Park Supervisor III	1
Recreation Facility Repairer ^b	0.6
Forest and Park Supervisor I ^b	0.4
<i>Seasonal Personnel</i>	
Laborer I ^c	2
Summer Worker ^d	1

a. Based on summer 2012 staffing levels.

b. During the months that seasonal employees are on staff, the Recreation Facility Repairer temporarily becomes a Forest and Park Supervisor I.

c. Long-term seasonal position; employed May–September.

d. Short-term seasonal position; employed June–September.

Much of the ongoing parks maintenance (e.g., lawn mowing) is similar among the planning unit's parks. Common, ongoing management activities were previously identified in Table 3.2.1. However, some

facilities, resources, and activities have unique management requirements; these are described below.

There is no formal or informal friends group for the park, in general. The Friends of the Holyoke Merry-Go-Round, Inc. exists specifically for the historic carousel, which they own and operate on park grounds.

3.6.1. NATURAL RESOURCES

Water Resources

Drinking Water. Drinking water is supplied by the City of Holyoke, there is no site-specific management.

Storm Water Management. There is no site-specific management.

Wetlands Protection. Massachusetts' wetland protection regulations (310 CMR 10.58(2)g) specifically exempt the manmade canals in Holyoke from being regulated as riverfront areas.

Vegetation

A few times each year, AmeriCorps VISTA volunteers provide support weeding and raking leaves. Volunteers from Wisteriahurst Museum, a historic home in Holyoke, also provide occasional support.

Wildlife

Hunting, Fishing, and Trapping. In accordance with regulations (304 CMR 12.18; Appendix F), hunting is prohibited at all Urban Heritage State Parks and fishing is specifically prohibited at Holyoke Heritage State Park.

3.6.2. CULTURAL RESOURCES

An agreement exists between the DCR and the Berkshire Scenic Railway Museum, Inc. for the maintenance and operation of three historic railway coaches in a manner that maintains their functional and historic integrity while providing for their safe enjoyment by the public. Signed in 2004, the initial term of this agreement was five years. However, it continues "in effect after such an initial term unless and until either party terminates the agreement." This agreement: provides for the transfer of the coaches to Lenox; requires that coaches 4301 and 3204 be maintained "in good condition consistent

with established standards of rail vehicles and any applicable US laws, regulations, and standards regarding tourist rail passenger cars;" recognizes that coach 3224 "is in inoperable and irreparable condition" and that "parts and equipment" from this coach may be used by the museum to maintain coaches 4301 and 3204; and that "DCR agency identification is prominently displayed and maintained on coaches." In the event that the agreement is terminated by the museum, it is solely responsible for returning all three coaches to Holyoke Heritage State Park. If the DCR terminates the agreement, it is the DCR's responsibility to claim the coaches "as is where is."

3.6.3. RECREATION RESOURCES

In 1983, Holyoke Heritage Park Railroad, Inc. was incorporated to:

- Promote and manage the Holyoke Heritage State Park rail excursion.
- Promote the use and enjoyment of the Holyoke Heritage State Park rail excursion.
- Generate and account for revenue and other income required for the operation of the Holyoke Heritage State Park rail excursion.
- Promote the knowledge, understanding and appreciation of the history of the City of Holyoke consistent with the purposes of the Holyoke Heritage State Park.

Although this group is still a registered non-profit organization, it is inactive and does not conduct any activities or events at the park. Its operation was highly dependent on funding received through various Acts of the Massachusetts Legislature (Appendix M).

The DCR currently has no specific policy on, or regulations regarding, the practice of parkour. However, existing regulations (304 CMR 12) prohibit "rough play," the damaging or removal of "any department property real or personal," and games that "may cause or tend to cause discomfort, fear or injury to any person or property."

3.6.4. INFRASTRUCTURE

Property Boundary

Because the park's boundaries are readily recognizable (i.e., sidewalks or canal) there are no

park-specific activities regarding the monitoring or marking of boundaries.

Buildings and Structures

A five-year permit (January, 2009–December, 2013) governs the management of the Carousel Building and associated grounds. The purpose of this agreement is to operate and maintain the “carousel...for the use and enjoyment of the general public” at a reasonable fee.

The Permittee (i.e., Friends of the Holyoke Merry-Go-Round, Inc.) “at its sole costs and expense” is responsible for keeping the Carousel Building in “good repair...including the roof, exterior and interior walls, and foundation.” In addition, the Permittee is also responsible for the building’s “heating, ventilating, air conditioning, mechanical, electrical and plumbing systems and other fixtures and appurtenances.” They are also responsible for “all litter pickup, trash disposal, cleaning, housekeeping and sanitation” for the building and the “flower beds and walkways” immediately adjacent to the building. Utility costs are also the responsibility of the Permittee. Numerous additional conditions, covering such topics as insurance and funding, are also specified in the agreement.

An energy audit was recently conducted for the Visitor Center, Carousel Building, and Boarding Platform/Storage Shed (NXEGEN 2012). Recommendations included upgrading lighting to more current, energy efficient styles; installing wireless lighting controls in the Visitor Center’s bathroom and retrofitting faucets to current 0.5 GPM models; installing a “vending miser” for the soda machine in the Carousel Building; replacing broken windows in the Visitor Center; and replacing the “late 1980’s” refrigerator in the Visitor Center’s kitchenette. If implemented, these changes will save 3,182 gallons of water and 77,000 BTUs. Estimated annual savings are \$3,370, with the upgrades paying for themselves in 6.2 years.

A few times each year, AmeriCorps VISTA volunteers provide support for painting.

Roads

Roads and sidewalks surrounding the park are maintained and repaired by the City of Holyoke’s Department of Public Works.

Parking

The DCR is responsible for the maintenance and repair of the parking lot. It is also responsible for snow removal. (See Walkways, below, for additional information.)

Walkways

The DCR is responsible for the maintenance and repair of the service paths and sidewalks through the park.

Snow removal, which is the sole responsibility of the DCR, is performed in accordance with a prioritized plan. This plan identifies the sequence of snow removal activities in the first 32 hours following the start of clean up. Highest priority is given to clearing the park entrance and parking lot; service paths to the Visitor Center and Boarding Platform/Storage Shed; and the sidewalk from the Carousel Building to the Children’s Museum/Volleyball Hall of Fame to Dwight Street. These areas are to be cleared within the first two to four hours. The next highest priorities are the clearing of the Appleton, Heritage, and Dwight streets’ sidewalks and clearing the accessible pathways to the front of the Visitor Center. It takes the two year-round employees approximately two days to complete the prioritized clean up of six inches of snow. If either year-round employee is unavailable (e.g., on leave), staff from Mount Tom provide assistance.

Kiosks and Signs

Kiosk and sign maintenance and repair is provided by the DCR.

Memorials and Markers

Chapter 175 of the Acts of 2002 directed the DEM to enter into a memorandum of agreement with the City of Holyoke in order to establish DiNapoli Plaza and “suitable markers” bearing this designation. (See Appendix M for additional information.) The DCR has no record of this agreement. In the absence of an MOU, the roles of the DCR and the City of Holyoke in managing the plaza are unclear.

3.6.5. INTERPRETIVE SERVICES

The Visitor Center contains a combination of static and interactive displays; most date to 1984, but some were updated within the past three years. These exhibits present information on the area’s settlement,

creation of the city's canals and dams, the advent of water power, and the production of paper and fabrics. A companion guide, *A Brief History of Holyoke*, includes interpretive information that both explains and supplements the static exhibits. A second guide, *Self-guided Walking Tour: Holyoke Mills and Canals*, takes interpretation of the city's past out of the Visitor Center and onto nearby canals and streets. Both guides are available only in English.

The Visitor Center's rotunda is used for both interpretive programming and social events. It is equipped with its original dual slide projector presentation system. This hardware prohibits the use of digital media in interpretive presentations.

Holyoke Heritage State Park is unique among properties in the planning unit because much of its programming is collaborative community events, such as summer concerts, a block party, and Christmas festivities.



Holyoke Heritage State Park, showing DiNapoli Plaza (foreground) and Carousel Building (background).

SECTION 4. RECOMMENDATIONS

4.1. INTRODUCTION

The DCR has a broad and dynamic mission that encompasses resource protection, providing public access to recreational opportunities, and active forest management. This multi-faceted mission often results in complex management challenges. These responsibilities are central to the agency's mission and statutory charge.

To help meet this broad mission, the DCR has developed a two-tier system for guiding the management of all state forest and park properties under its care. The two systems, known as Landscape Designation and Land Stewardship Zoning, work in an integrated fashion to accommodate primary ecosystem services while recognizing and providing site-specific resource protection.

Application of Landscape Designation and Land Stewardship Zoning to properties within the Mount Holyoke Range Planning Unit is summarized below.

4.2. LANDSCAPE DESIGNATION

Applied statewide to assess and guide management activities throughout the DCR system, Landscape Designations are based on primary ecosystem services, and guide management decisions based upon these services. The designations also communicate the agency's landscape-level management objectives to the public.

As a result of a robust public process called Forest Futures Visioning, the DCR established the following designations for its properties under its jurisdiction:

Reserves. Properties designated as Reserves provide backcountry recreational experiences and protect the least fragmented forested areas and diverse ecological settings. Successional processes are monitored to assess and inform long-term forest stewardship.

Woodlands. Woodlands demonstrate exemplary forest management practices for landowners and the general public, while supporting the range of ecosystem services that sustainably-managed forests offer, including a diversity of native species and age classes and compatible recreational opportunities.

Parklands. Areas designated as Parklands focus on providing public recreational opportunities while protecting resources of ecological and cultural significance.

Selection criteria and management guidelines for all three Landscape Designations are described in *Landscape Designations for DCR Parks & Forests: Selection Criteria and Management Guidelines* (DCR 2012c). Select excerpts, regarding recreation, public access, and habitat protection, are presented in Appendix N.

4.2.1. APPLIED LANDSCAPE DESIGNATION

All properties within the planning unit are designated as Reserves, Parklands, or a combination of the two.

Mount Holyoke Range State Park

Mount Holyoke Range State Park is largely classified as Reserve, with six pockets of Parkland totaling 152 acres. Parklands are located at Military Road; the Notch Visitor Center, including the ropes course; Bachelor Street, including the gravel parking lot and adjacent forested buffer; the Granby Sand Plain, in its entirety; the former dinosaur museum and residence in Granby; and the former location of the Buttery Brook Memorial Swimming Pool in South Hadley.

Joseph Allen Skinner State Park

Joseph Allen Skinner State Park is largely classified as Reserve, with a 142-acre section designated as Parkland. The Parkland is located on or near the summit of Mount Holyoke and includes the Halfway Area, Summit House and associated parking, picnic area, and hang glider launch area.

Mount Tom State Reservation

Mount Tom State Reservation has been designated as Parkland, as have the Connecticut River Boat Ramp and Berchulski Fisherman Access Point.

Holyoke Heritage State Park

Holyoke Heritage State Park is classified as Parkland.

4.3. LAND STEWARDSHIP ZONING

Land Stewardship Zoning and the resource management planning process of which it is a part, addresses the agency's statutory responsibilities in M.G.L. Chapter 21: Section 2F. The legislation requires the DCR prepare management plans that encompass all reservations, forests and parks; provide for the protection and stewardship of natural, cultural, and recreation resources under the agency's management; and ensure consistency between recreation, resource protection and sustainable forest management.

Land Stewardship Zoning Guidelines

Land Stewardship Zoning Guidelines define three types of zones to ensure resource protection based upon site-specific field data, and provides guidance for current and future management based upon resource sensitivities. The inventory and assessment of resources during the preparation of an RMP is factored into land use management and decision-making, and provides guidance for stewardship of these resources. The process results in zoning of areas and specific sites within DCR properties based on their sensitivity to recreation and management activities that are appropriate for each facility as recognized during the RMP process. In this way, the Land Stewardship Zoning system helps to ensure that recreation and management activities do not degrade various resources and values.

The three land stewardship zones provide a general continuum to categorize resources (relative to potential degradation from human activities) from undisturbed sites with highly sensitive resources, through stable/hardy resources, to sites that have been developed and consistently used for intensive recreation or park administration purposes. The Land Stewardship Zoning system also includes Significant Feature Overlays that may be applied to highlight resource features that have been assessed and documented by professional resource specialists.

Below is a description on the various zones used for Land Stewardship Zoning.

Zone 1

Management Objective. Protection of sensitive resources from management, or other human activities, that may adversely impact the resources.

General Description. This zone encompasses areas with highly sensitive ecological and cultural resources that require additional management approaches and practices to protect and preserve the special features and values identified in the Resource Management Plan. Zone 1 areas are not suitable for future intensive development.

Examples. Examples identified as being highly sensitive to human activities include rare species habitat or natural communities, areas with concentrations of sensitive aquatic habitats, excessively steep slopes with erodible soils, archaeological sites or fragile cultural sites, where stewardship of these resources must be the primary consideration when assessing management and recreational activities in these areas.

Zone 2

Management Objective. Provide for a balance between the stewardship of natural and cultural resources and recreational opportunities that can be appropriately sustained.

General Description. This zone encompasses stable yet important natural and cultural resources. Zone 2 is a very important component to the DCR's management responsibilities, because the protected landscape within this zone provides a buffer for sensitive resources, recharge for surface and groundwater, and large areas where existing types of public recreational activities can be managed at sustainable levels.

Examples. Examples include areas of non-intensive use that contain diverse ecosystems, rare species habitat that is compatible with dispersed recreation and sustainable management practices, and cultural resources that are not highly sensitive to human activities.

Zone 3

Management Objective. Provide public access to safe and accessible recreational opportunities, as well as administrative and maintenance facilities that meet the needs of DCR visitors and staff.

General Description. This zone includes altered landscapes in active use, and areas suitable for future administrative, maintenance and recreation areas. The resources in this zone can accommodate

concentrated use and require regular maintenance by DCR staff.

Examples. Examples of areas of concentrated use include park headquarters and maintenance areas, parking lots, swimming pools and skating rinks, paved bikeways, swimming beaches, campgrounds, playgrounds and athletic fields, parkways, golf courses, picnic areas and pavilions, and concessions. Examples of future use areas include disturbed sites with no significant ecological or cultural values that are not suitable for restoration, identified through the RMP or in a Master Plan as being suitable for intensive recreation or park administration sites. Note that development would be preceded by detailed site assessments to ensure protection of natural and cultural resources.

Significant Feature Overlays

Management Objective. Provide precise management guidance in order to maintain or preserve recognized resource features, regardless of the zone in which they occur.

General Description. The three land stewardship zones may be supplemented with Significant Feature Overlays that identify formally designated or recognized resources. These resource features have been recognized through research and assessment by professional resource specialists. Information on the significant features is brought into the RMP process via review of previous research projects and associated designations.

Examples. A natural or cultural resource, recognized through professional inventory or research, which is located in an area characterized by intensive visitor use. In these cases, the Significant Feature Overlay is used to highlight the potential conflict between resource stewardship and ongoing visitor use, and provide mitigation strategies. Examples include:

- National Register Historic District.
- Areas subject to public drinking water regulations.
- Priority Habitat for species that are not sensitive to human activities.
- BioMap 2 Core Habitat.
- Designated Areas of Critical Environmental Concern.

- A NHESP Priority Natural Community associated with a summit that is also a popular destination for hikers.
- A barrier beach that provides habitat for rare shorebirds, and is subject to CZM barrier beach management guidelines and coastal wetlands regulations, but also supports thousands of visitors during the summer season.
- A significant cultural site such as Plymouth Rock that is subject to ongoing, intensive visitation.
- A natural or cultural resource, recognized through professional inventory or research, which is located in an area characterized by intensive visitor use.

4.3.1. APPLIED LAND STEWARDSHIP ZONING

The following Land Stewardship Zoning is recommended for properties in the Mount Holyoke Range Planning Unit.

Mount Holyoke Range State Park (Figure 4.3.1)

Zone 1. No sections of the park have been designated Zone 1.

Zone 2. Most of the park has been designated as Zone 2. The entire Granby Sand Plain parcel has also been designated as Zone 2.

Zone 3. Areas designated as Zone 3 include the Military Road facilities and Notch Visitor Center, both in Amherst; the former dinosaur museum and residence, Granby; and the former site of the Buttery Brook Memorial Pool, South Hadley. Each has a landscape designation of Parkland.

Significant Feature Overlay. There are two types of overlays for this park; one for a wellhead protection area and the other for areas associated with state-listed vernal pool animals and aquatic plants that are sensitive to disturbance.

The Wellhead Protection Area overlay corresponds to the DEP Zone I wellhead protection area surrounding the TNC at the Notch Visitor Center. It is circular, with a 100-foot radius centered on the well located in the northeast corner of the employee parking lot. Best Management Practices, as identified by the DEP, are recommended within this overlay (DEP 2001).

The second type of overlay represents habitats, both aquatic and terrestrial, that are important to state-listed aquatic organisms that are sensitive to disturbance. This overlay, Sensitive Aquatic and Vernal Pool Organisms, includes areas critical to these species during all life stages. For the state-listed marbled and blue-spotted salamanders, this includes contiguous forested areas surrounding breeding ponds. This overlay was developed from state-listed vernal pool animal and aquatic plant data provided by the NHESP.

There are two Sensitive Aquatic Organism and Vernal Pool Animal overlays. The first is located in the vicinity of Lithia Springs Reservoir and the second is located between the Notch Visitor Center and Bachelor Street, Granby.

Recommended Best Management Practices for areas within these overlays are: remove or relocate existing trails that are located within certified or potential vernal pools; remove trails contributing sediments to certified or potential vernal pools; prohibit new trails within 100 feet of wetlands and vernal pools, both certified and potential; and increase enforcement, during periods of peak salamander migration, of existing regulations that prohibit night time use of parks. For the purpose of these BMPs, peak marbled salamander migration is considered to be rainy nights in June–July (young emerging from breeding pools) and August 16–October 14 (adults moving to breeding pools; McGarigal 2008, NHESP 2007a, Petranka 1998). Peak blue-spotted salamander migration is considered to be from mid-March to late April (NHESP 2007c). Authorized recreational activities, taking place on appropriate trails during daylight hours, are not considered a threat to these species.

Joseph Allen Skinner State Park (Figure 4.3.2)

Zone 1. Nearly the entire park has been designated as Zone 1. This is based on the presence of rare plants, animals, and natural communities that are sensitive to human activities. Information on the DCR's coordination with the NHESP regarding this zoning is presented in Appendix C. This zoning may be considered the north and eastward extension of the Mount Tom Zone 1, just as the Mount Holyoke Range is the north and eastward extension of the

Place holder for Figure 4.3.1. Mount Holyoke Range State Park LSZ

Place holder for Figure 4.3.2. Joseph Allen Skinner State Park LSZ

larger range that includes both the Mount Tom and Mount Holyoke ranges.

Zone 2. Sections of Skinner state park north of Route 47 have been designated Zone 2, as have those areas east of the Taylor Notch and Dry Brook trails.

Adjacent portions of the Connecticut River Greenway State Park have been given a preliminary designation of Zone 2. This zoning level may change during the preparation of an RMP for the entire greenway state park as more information is available and the zoning considers a broader geographic area.

Zone 3. A single Zone 3, including all developed portions of the park, is recommended. This includes the entire Halfway Area, from the existing southern and eastern tree lines, to a line running 50 feet north of, and parallel to Skinner Park Road. It also includes all developed portions of the summit, including the Summit House, upper and lower parking lots, and the picnic area. Finally, this zone also includes a 150-foot-wide corridor between the summit and halfway areas that includes the path of the historic tramway and contemporary utility lines to the Summit House. This Zone 3 is located in a portion of the park designated as Parkland.

Significant Feature Overlay. Two overlays were developed for this park.

The first overlay corresponds to the DEP Zone I wellhead protection area for the TNC located at the Summit House. This overlay is circular, with a 136.5-foot radius centered on the well. Best Management Practices, as identified by the DEP, are recommended within this overlay (DEP 2001).

The second overlay is for the Hockanum Rural Historic District, which is listed on the National Register of Historic Places. Information on this district was provided in Section 2.4.2.

Mount Tom State Reservation (Figure 4.3.3)

Zone 1. All contiguous reservation lands between Interstate 91 to the north and east, Route 141 to the south, and East Street to the west, are identified as Zone 1. This designation is based on populations of three state-endangered animals throughout the reservation. One of these data-sensitive species has fewer than nine populations in Massachusetts; the

other two have fewer than five. The occurrence of all three species within a single DCR property exemplifies the “highly sensitive natural and cultural resources that require special management approaches to protect and preserve their features and values” that defines Zone 1 areas. Information on the consultation with the NHESP that led to this designation is presented in Appendix C.

Included within the Zone 1 area are sensitive archaeological sites; individual locations of which are not identified.

Zone 2. Those portions of the reservation located between Interstate 91 and Route 5 have been designated Zone 2. Those state-listed species in this portion of the reservation are not highly sensitive to human activities.

Zone 3. There are seven areas designated Zone 3. The first is the Visitor Center Area, including: Bray Tower and the associated parking lot; the Visitor Center building, traffic circle, associated parking areas, and portable toilet areas; and Elder Field including the playground, pavilion, field, and parking lot. East of the Visitor Center is the Hampden Area. This area, including the parking lots, picnic facilities, associated roads, and open section of lawn have been designated Zone 3. South of the Visitor Center, the Wood Yard, from Christopher Clark Road eastward to the existing tree line behind the maintenance shop and salt shed, has also been designated as Zone 3. On the east side of the reservation, the Warming Hut area, including associated parking lots, picnic areas, and accessible fishing pier constitute the fourth area designated as Zone 3. The fifth Zone 3 is the Reservation Headquarters and associated grounds, to the existing tree line. The entire extent of the Connecticut River Boat Ramp and the Berchulski Fisherman Access Point have also been designated as Zone 3. All of these proposed Zone 3 areas are located in Parkland.

Significant Feature Overlay. A single overlay, corresponding to the DEP Zone I wellhead protection area, was developed. This overlay is circular, with a 250-foot-radius centered on the well located at the southwest corner of the Cole museum. Best Management Practices, as identified by the DEP, are recommended within this overlay (DEP 2001).

Place holder for Figure 4.3.3. Mount Tom State Reservation LSZ

Holyoke Heritage State Park (See inset map, Figure 4.3.1)

Zone 1. No sections of the park have been designated Zone 1.

Zone 2. No sections of the park have been designated Zone 2.

Zone 3. Given its history as a brown field and the level of development, the entire park has been zoned as Zone 3.

Significant Feature Overlay. There are no Significant Feature Overlays.

4.4. MANAGEMENT RECOMMENDATIONS

Management Principle

The resource management planning process for the Mount Holyoke Range Planning Unit resulted in the following management principle:

To conserve the natural and cultural resources of the Mount Holyoke and Mount Tom ranges for future generations through informed management; recreational activities respectful of these resources and the landscape contexts in which they occur; and interpretive programming that connects the public to their natural and cultural heritages.

Management Goals

The following five management goals have been identified to achieve the management principle. These goals are of equal importance, and are not presented in order of priority.

Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.

Goal 2. Preserve distinct scenic and cultural resources.

Goal 3. Promote appropriate recreational activities and use levels compatible with resource protection and an enjoyable experience for all visitors.

Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.

Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff,

park visitors, area residents, and the local academic community.

Recommendations

These management recommendations have been organized first by the planning unit in its entirety, for those that apply to all or most of the four parks, and then by individual facility. The set of recommendations that apply to each are presented by the five management goals identified for the Mount Holyoke Range Planning Unit.

Recommendations are also characterized on the basis of priority (i.e., High, Medium, or Low) and resource availability. High priority recommendations are those that address regulatory compliance or public health and safety; prevent immediate damage to, or loss of, resources; or repair or replace damaged equipment or systems critical to park operations. They are typically time sensitive. Medium priority recommendations maintain existing resources and visitor experiences. Low priority recommendations enhance resources or visitor experiences; they are not time sensitive.

Resource availability considers both funding and labor. A resource availability of one indicates that funding and/or labor are available to implement the recommendation. A resource availability of two indicates that funding and/or labor are not currently available but may become so in the near future (i.e., the next five years). A resource availability of three indicates that funding and/or labor are not anticipated in the next five years. Resources to implement these recommendations may, or may not, become available after five years.

Mount Holyoke Range Planning Unit. Management recommendations applicable to the entire planning unit are presented in Table 4.4.1.

Mount Holyoke Range State Park. Management recommendations for Mount Holyoke Range State Park are presented in Table 4.4.2.

Joseph Allen Skinner State Park. Management recommendations for Joseph Allen Skinner State Park are presented in Table 4.4.3.

Mount Tom State Reservation. Management recommendations for Mount Tom State Reservation are presented in Table 4.4.4.

Holyoke Heritage State Park. Management recommendations for Holyoke Heritage State Park are presented in Table 4.4.5.

Table 4.4.1. Recommendations for the Mount Holyoke Range Planning Unit.^a

Recommendation	Priority^b	Resources^c	Implementation^d
<i>Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.</i>			
Manage and interpret natural resources at the planning unit (i.e., management complex) level.	H	3	B, F, P, R, V
Follow NHESP guidelines when mowing in the Turtle Management Unit, as identified by the NHESP. ^e	M	1	P, R
Develop an invasive species monitoring and response program, with emphasis on NHESP identified Upland Open Woodland, Mesic Forest, and Palustrine management units. ^e	M	2	P, V
Develop a combined vegetation management and prescribed fire/wildfire response plan for the Mount Tom and Mount Holyoke ranges in accordance with NHESP identified rare species habitat management needs in order to promote the health and persistence of natural communities that support rare species. ^e Include “free standing” sub-plans for each fire management unit.	M	3	F, P, R
Monitor DCR-held Conservation Restrictions on an annual basis.	M	3	P
Document occurrences of all wildlife taxa in order to develop current, verified species lists.	L	2	O, R, V
Survey potential vernal pools; submit certification paperwork to the NHESP for qualified pools.	L	2	V
Document and report all state-listed species encountered. ^e			
In appropriate habitat, survey for the eastern whip-poor-will.	L	2	P, V
Create nesting habitat in the Turtle Management Unit, in accordance with guidance from the NHESP. ^e	L	3	P, F, R
Establish a regular survey and monitoring program for rare plants and moths in the Upland Open Woodland, Mesic Forest, and Palustrine management units identified by the NHESP. ^e	L	3	P, V
<i>Goal 2. Preserve distinct scenic and cultural resources.</i>			
Manage and interpret cultural resources at the planning unit (i.e., management complex) level.	H	3	B, F, P, R, V
With the exception of public safety needs, limit new development along ridgelines to below tree canopy level.	M	1	O, P, R
<i>Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.</i>			
Convene a meeting of the DCR, NHESP, and representatives of trail user stakeholder groups to discuss existing regulatory review requirements and processes for trail maintenance or creation.	H	1	P, R, V
Assess the Department of Justice’s ruling on the use of “other power-driven mobility devices” on trails on a statewide basis. Propose specific recommendations for the planning unit (i.e., management complex) following this statewide assessment.	M	1	L, U
Update trail maps and make available in both printed and electronic formats.	M	2	B, R, P
Obtain demographic and visitor preference data to better understand and meet visitor needs.	M	3	C, P
Explore issues around geocaching on DCR properties.	L	1	O, L
Promote the National Scenic Trail segments that pass through the planning unit (i.e., management complex).	L	2	P, R
Install bike racks at all visitor centers, and at the Summit House.	L	3	R
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.</i>			
Post perimeter of Zone I wellhead protection areas with signs.	H	1	R

Continued on next page.

Table 4.4.1. Recommendations for the Mount Holyoke Range Planning Unit.^a (Continued)

Recommendation	Priority^b	Resources^c	Implementation^d
<i>Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.</i>			
Educate park staff about data-sensitive rare animals, their conservation needs, and appropriate staff responses when encountering these animals. ^e	M	1	P, R, V
Search for, and monitor, winter habitat used by data-sensitive rare animals. ^e	M	1	P
Develop an interpretive plan for the entire planning unit (i.e., management complex).	M	2	B
Advocate for the creation of a year-round Visitor Services Supervisor position for the complex of properties in order to oversee seasonal interpreters and interpretive programming, increase hours of operation at the Notch Visitor Center, recruit and supervise volunteers and volunteer projects, serve as a liaison to friends groups, and establish and maintain ongoing relationships with local academic institutions.	M	2	R
Develop interpretive programs that focus on the management of sensitive natural and/or cultural resources, and what visitors can do to help protect these resources.	M	2	B, R
Establish the Notch Visitor Center as the main contact station for the planning unit; provide informational displays on the other three parks.	L	2	B, R
Actively promote the parks to local academic institutions as appropriate and desirable locations for a variety of natural and social science field exercises and research.	L	2	B, O, P
Establish and cultivate relationships with local arts communities in order to use the arts as a medium through which connections between the parks, their resources, and the public are strengthened.	L	2	R, V, X
Conduct a year-round survey of the number of park users to better understand the seasonality and timing of visitation as it relates to operation of the park visitor centers and timing of interpretive programming.	L	3	C, P

a. These recommendations apply to all, or most, properties in the planning unit.

b. Priorities are High (H), Medium (M), or Low (L).

c. Availability of resources for implementing recommendations: 1 = funding and/or labor is currently available; 2 = funding and/or labor is currently unavailable, but may become so in the near future; and 3 = funding and/or labor is currently unavailable, but may become so in more than five years.

d. The following codes identify the party or parties responsible for implementing the recommendation: B = Ranger Bureau; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning and Resource Protection; R = Regional and district staff; U = Universal Access Program; V = Volunteer or partner; W = Waterways; and X = Office of External Affairs and Partnerships.

e. Recommendation from NHESP; see Appendices K and L for more information.

Table 4.4.2. Recommendations for Mount Holyoke Range State Park.

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.</i>			
Develop a wildfire response plan. ^d	H	2	F
Continue efforts to expand the park by acquiring adjacent unprotected lands, inholdings, and other parcels that provide habitat for rare species or have uncommon natural communities.	M	1	P
Prepare a Habitat Management Plan for maintaining existing areas at the Granby Sand Plain parcel, submit to the NHESP for review and approval, and implement the plan.	M	1	P, R
Prepare a Habitat Management Plan for maintaining existing grasslands at the former equestrian center at 535 Bay Road, Belchertown and submit to the NHESP for review and approval. Prepare associated Notice of Intent and submit to the Belchertown Conservation Commission for review under the Wetlands Protection Act. Once approved, implement the plan.	M	1	P, R
Delineate the boundaries of the New England Trail, and other major trails, passing through priority natural communities (i.e., those with S1-S3 ranks) and post signs asking visitors to stay on trails.	M	2	O, P, R, V
Survey for the state-endangered Appalachian fir-moss.	L	2	V
Establish and monitor CFI plots on the 535 Bay Road, Belchertown parcel, Granby Sand Plain parcel, and future acquisitions, as appropriate.	L	2	F
<i>Goal 2. Preserve distinct scenic and cultural resources.</i>			
Mothball the Lithia Springs gate house, in accordance with NPS standards.	M	2	P, R
Conduct a reconnaissance archaeological survey.	M	3	C, P
<i>Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.</i>			
Post Lithia Springs Reservoir and Aldrich Lake as closed to swimming.	H	1	R
Establish an agreement with the Amherst Police Department for the operation and maintenance of their ropes course.	H	1	O, L, R
Update GIS data to reflect trails, both authorized and unauthorized, on the entire park. Rank trails according to the International Mountain Bicycling Association's (IMBA) Trail Difficulty Rating System.	H	1	F, R, V
Permit trail construction or relocation only after the proposed trail has been reviewed by DCR staff using guidance and procedures established by the <i>DCR Trail Guidelines and Best Practices Manual</i> .	H	1	P, R
Actively discourage the creation of unauthorized trails, and enforce applicable regulations and laws as needed. Close new unauthorized trails as encountered and, if needed, existing trails that contribute to the creation of unauthorized trails.	H	1	B, O, P, R
With input from the NHESP, DCR Archaeologist, and representatives of trail user groups, identify trail segments incompatible with resource protection and close or relocate incompatible segments as appropriate.	H	1	P, R, V
With input from representatives of trail user groups, use IMBA trail difficulty data to identify opportunities to reduce trail density in areas of high density by identifying those trails, if any, that are redundant from the perspectives of location and recreational experience.	M	1	P, R, V
Solicit input from representatives of trail user groups on which unauthorized trails, if any, should be evaluated for official status. Add intersection markers to trails that are officially recognized.	M	1	P, R, V

Continued on next page.

Table 4.4.2. Recommendations for Mount Holyoke Range State Park. (Continued)

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors. (Continued)</i>			
Due to the park's designation as a Reserve, construction of new trail technical features for the purpose of increasing the technical challenge for mountain bike riders should be prohibited and the features removed by park personnel as encountered.	M	1	R, V
In association with representatives of trail user groups, close trail segments located along fall lines; relocate following appropriate review.	M	2	P, R, V
Close dead end trail segments not associated with official destinations (e.g., scenic vistas); work with representatives of trail user groups to identify these segments.	M	2	P, R, V
Close trail segments leading off the park, unless such trail connections are approved in writing by the owner of the adjacent property.	M	2	R, V
Prepare an updated trails map to reflect changes brought about by the implementation of trail-related recommendations in this RMP.	M	2	B, P, R, V
Conduct ecological and cultural assessments of the property at 535 Bay Road, Belchertown to identify those areas suitable for potential trail development.	M	2	P, O, V
Explore establishing a connecting trail, or series of trails, to allow mountain bike access to the Bachelor Street area from the Notch Visitor Center parking lot.	M	2	O, P, R, V
Explore creating a trail along the historic trolley car bed on the east side of Route 116, and a series of nested loop trails in the Aldrich Lake area.	M	2	O, P, R, V
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.</i>			
Close the staff parking lot behind the Notch Visitor Center to prevent vehicles from parking within the Zone I wellhead protection area. Relocate dumpster outside of this area.	H	1	R
Seal floor drains at the Notch Visitor Center.	H	1	C, E
Establish a new agreement with the Norwottuck Fish and Game Club to allow members to drive across DCR property to access club facilities.	H	2	L, R
Establish agreements with all telecommunications companies that cross park property in order to access communications equipment installed on Norwottuck Fish and Game Club property.	H	2	L, R
Mothball the stable at 535 Bay Road, Belchertown, in accordance with NPS standards.	H	2	E, R
Install a radio base station with antenna at the Notch Visitor Center to permit range-wide radio communication.	H	2	F, R
Establish two HP parking spaces adjacent to the south end of the Notch Visitor Center, outside the Zone I wellhead protection area.	H	3	C, E, U
Create an accessible picnic site adjacent to the new HP parking spaces constructed at south end of visitor center.	H	3	C, E, U
Implement management recommendations for Aldrich Lake Dam, as indicated in Tighe & Bond (2012).	H	3	C, D
Establish permanent school bus parking spaces at the Military Road facility.	M	1	F, R
Convene a meeting of the Bureau of Forest Fire Control and Forestry and MassParks staffs to clarify management roles and responsibilities for the Moore House.	M	1	F, R
Demolish and remove, or relocate, the cabin at 535 Bay Road, Belchertown.	M	2	R

Continued on next page.

Table 4.4.2. Recommendations for Mount Holyoke Range State Park. (Continued)

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs. (Continued)</i>			
Mothball the former dinosaur museum and demolish the former residence, in accordance with NPS standards.	M	2	C, P, R
Perform minor siding repairs on Halfway Garage and paint the building.	M	2	C, E, R
Survey the southeastern boundary of the Granby Sand Plain parcel and install posts and boundary signs behind residences on Green Meadow Lane. Notify landowners of any encroachments coming from their properties.	M	2	C, L, R
Acquire parcels of Parkland to provide new trailhead parking.	M	2	P
Develop a joint master plan for the Notch Visitor Center and Military Road facilities.	M	3	C, P
Replace failing culverts and beaver deceiver at the Granby Sand Plain parcel with a concrete box culvert and a new beaver deceiver.	M	3	C, E
Implement management recommendations for the Lithia Springs Reservoir Dam, as indicated in Tighe & Bond (2011a).	M	3	C, D
Repair or replace leaking roof on the Notch Visitor Center.	M	3	C, E
Request that MassDOT install a Road Marker/Lead-in Sign at the new traffic circle at the intersection of Route 116 and Bay Road, in Amherst.	L	1	P, R
Construct or install a storage shed near the Notch Visitor Center, outside of the Zone I wellhead protection area.	L	2	R
<i>Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.</i>			
Meet with members of the Mount Holyoke Range Advisory Committee and Friends of the Mount Holyoke Range to identify volunteer projects, interpretive programming, and events of mutual interest for the calendar year.	L	1	R
Install digital projector, computer, and screen in the Notch Visitor Center.	L	2	O

a. Priorities are High (H), Medium (M), or Low (L).

b. Availability of resources for implementing recommendations: 1 = funding and/or labor is currently available; 2 = funding and/or labor is currently unavailable, but may become so in the near future; and 3 = funding and/or labor is currently unavailable, but may become so in more than five years.

c. The following codes identify the party or parties responsible for implementing the recommendation: B = Ranger Bureau; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning and Resource Protection; R = Regional and district staff; U = Universal Access Program; V = Volunteer or partner; W = Waterways; and X = Office of External Affairs and Partnerships.

d. Recommendation from NHESP; see Appendices K and L for more information.

Table 4.4.3. Recommendations for Joseph Allen Skinner State Park.

Recommendation	Priority^a	Resources^b	Implementation^c
Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.			
<i>There are no recommendations associated with this goal.</i>	-	-	-
Goal 2. Preserve distinct scenic and cultural resources.			
Complete exterior repairs to the Summit House by replacing the membrane roof of the main structure and the porch's wood shingle roof.	H	3	C, E, P
Develop a Vegetation Management Plan for the Summit House area to allow unimpeded access to utility lines and sewage pipes in the Tramway area; maintain the visual corridor from the Halfway Area to the Summit House, and maintain open views from the porch of the Summit House.	H	3	E, P, R
Stabilize the tobacco barn, remove vegetation growing on and around the structure, and seal to the elements.	H	3	C, E, P
Identify a farmer to keep the land surrounding the tobacco barn in active agriculture, and establish a contract.	M	2	L, R
Repaint the pump cove.	M	2	C, E, P, R
Repair structural crack in the pump house masonry.	M	3	C
Stabilize the foundation of the presumed 1821 summit cabin.	M	3	C, P
Reset loose stones in L-shaped retaining wall at the Halfway Area.	M	3	C, E, P
Conduct a reconnaissance archaeological survey.	M	3	C, P
Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.			
Meet with representatives of the New England Hang Gliding Association and the NHESP to discuss regulatory requirements for vegetation control at the hang glider launch area.	M	1	O, P, R
Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.			
Install a radio base station with antenna at the Summit House to permit range-wide radio communication.	H	2	F, R
Conduct a full engineering analysis of the Skinner Park Road structure, retaining walls, culverts, and guardrails along the full length of the road, including both the upper and lower summit parking lots.	H	3	C, E, P, R
Repair the Halfway House roof and replace rotted siding.	H	3	C, E, P
Request that the Massachusetts State Police repair and paint their radio building and antennas.	M	1	L, R
Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.			
<i>There are no recommendations associated with this goal.</i>	-	-	-

a. Priorities are High (H), Medium (M), or Low (L).

b. Availability of resources for implementing recommendations: 1 = funding and/or labor is currently available; 2 = funding and/or labor is currently unavailable, but may become so in the near future; and 3 = funding and/or labor is currently unavailable, but may become so in more than five years.

c. The following codes identify the party or parties responsible for implementing the recommendation: B = Ranger Bureau; C = Contractor; D = Office of Dam Safety; E = Division of Engineering; F = Bureau of Forest Fire Control and Forestry; L = Legal Services; O = Other; P = Bureau of Planning and Resource Protection; R = Regional and district staff; U = Universal Access Program; V = Volunteer or partner; W = Waterways; and X = Office of External Affairs and Partnerships.

Table 4.4.4. Recommendations for Mount Tom State Reservation.

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.</i>			
Prepare a Habitat Management Plan for mowing the field east of the Mount Tom Quarry, submit to the NHESP for review and approval, and implement.	H	1	O, P, R
Prohibit rock climbing in areas where peregrine falcons are actively nesting. ^d	H	1	P, R
Close trail segments immediately above peregrine falcon nest sites for the entire nesting season.	H	1	P, R, V
In association with the Mount Tom Partners and the NHESP, continue to monitor and manage pale swallow-wort.	H	2	O, R
Develop a wildfire response plan. ^d	H	2	F
Conduct a Phase I site investigation of both Mountain Park landfills.	H	3	C, E
Continue efforts to expand the reservation in order to acquire adjacent unprotected lands and inholdings that provide habitat for rare species or have uncommon natural communities.	M	1	P
Continue to support the Mount Tom Partners efforts to coordinate resource management and provide recreation and interpretive programming at the former Mount Tom Ski Area.	M	1	P, R, V
Prepare a Habitat Management Plan for the future management of Upland Open Woodland habitat from Mount Nonotuck southward through Goat Peak; submit to the NHESP for review and approval. Implement the plan and use actions as a demonstration project to educate the public about rare species management needs. Export lessons learned to other areas of Upland Open Woodland throughout the Mount Tom and Mount Holyoke ranges.	M	2	B, F, P, R
Remove invasive plants at the location of the former Mountain Park incinerator and landfill.	M	2	O, P, R, V
Continue the aquatic plant management program at Lake Bray, as warranted and as funding permits.	M	2	C, O
Establish a Memorandum of Understanding with The Trustees of Reservations so that the DCR may continue to manage vegetation at The Trustees' Dinosaur Footprints Reservation and The Trustees may continue to provide periodic volunteer support on the reservation.	L	2	L, R, V
Inventory and map the reservation's natural communities.	L	2	P, O, V
Conduct an inventory of the reservation's plants.	L	3	O, V
<i>Goal 2. Preserve distinct scenic and cultural resources.</i>			
Continue discussions with the NHESP regarding the potential to develop a Habitat Management Plan for maintaining vegetation at the historic overlooks along Christopher Clark Road.	H	1	O, P, R
Prepare a Habitat Management Plan for maintenance of vegetation around the Goat Peak Tower, submit to the NHESP for review and approval, and implement.	H	2	F, P, R
Replace rotted siding on the Cole museum.	H	2	E, P, R
Trim vegetation around the Cole museum to increase the amount of sunlight reaching the building.	M	2	P, R
Remove fallen tree from northern Mountain Park entrance gate.	M	2	P, R
Clear vegetation from on or around the incinerator, Mountain Park gates, and trestle pillars to avoid undermining or other damage to these structures.	M	2	P, R
Repoint masonry on both Mountain Park entrance gates.	M	3	C, E, P
Replace fallen stones and repoint entrance gate at Route 141.	M	3	C, E, P
Construct a protective structure (i.e., pavilion) over the stone crusher, similar to that over the tramway steam engine at Skinner state park.	M	3	P, R

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Table 4.4.4. Recommendations for Mount Tom State Reservation. (Continued)

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 2. Preserve distinct scenic and cultural resources. (Continued)</i>			
GPS locations of resources identified in the Schwobe collection; create a GIS layer from these data.	L	2	P, R, V
Create a digital version of the Schwobe collection.	L	3	P, V
Develop and implement a Vegetation Management Plan for the CCC amphitheater.	L	3	C, E, P, R
Repair cracks in the mortar of the bridge over Cascade Brook, at the Lake Bray parking area.	L	3	C, E, P
<i>Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.</i>			
Add accessible picnic tables and an accessible grill to the Elder Field pavilion.	H	2	R, U
Mark pavement in front of the Warming Hut to create an accessible route between designated HP parking spaces and walkway to building.	H	2	R, U
Replace outdated playground equipment at Elder Field.	M	1	E
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.</i>			
Conduct annual safety inspections of the Bray and Goat Peak observation towers.	H	1	E
Remove all power equipment, petroleum products, and chemicals from the Cole museum in accordance with BMPs for protecting Zone I areas.	H	1	R
Construct or install a storage shed near the Reservation Headquarters, for the purpose of storing power equipment and associated supplies relocated from the Cole museum.	H	2	R
Add a designated HP parking space directly adjacent to the Elder Field pavilion and construct an accessible path from that space to the pavilion.	H	2	E, R, U
Remove conifers with the potential to fall on the Visitor Center.	H	2	F, P
Repair the perimeter fence around the Mount Nonotuck radio building to prevent public access to tower.	H	2	C, E, F, O
Replace the Warming Hut's roof, and any associated rotted sheathing or structural elements.	H	3	C, E
Repair Christopher Clark Road, from the park entrance to the rotary at the Visitor Center.	H	3	C, E
Replace or supplement the concrete steps at the base of the Goat Peak Tower.	H	3	C, E, P
Remove leaves and stacked wood from the back of the maintenance shop to prevent insect damage and rot; repair or replace siding as needed.	M	1	R
Remove soil from the flower beds in front of the maintenance shop's office so that wood is not in contact with the soil; repair siding as needed.	M	1	R
Elevate the Reservation Road contact station off the pavement to prevent rot.	M	1	R
Trim the tree limbs that are abrading the roof of the Elder Field pavilion.	M	1	R
Conduct an annual inspection of the Mount Nonotuck tower.	M	1	E
Implement recommendations in energy audit report.	M	1	P
Trim trees over Warming Hut to decrease accumulations of organic material on roof, and to increase the amount of sunlight reaching the roof.	M	2	E, P, R
Develop and implement an Operations and Maintenance Plan for the Lake Bray Dam.	M	2	D
Replace the rotted bathroom stall dividers in the Warming Hut.	M	2	R
Replace slate roof on the Visitor Center.	M	3	C, E, P, R

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Table 4.4.4. Recommendations for Mount Tom State Reservation. (Continued)

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs. (Continued)</i>			
Repave Christopher Clark Road from the rotary at the Visitor Center to the Mount Nonotuck parking lot in order to restore visitor access to the Goat Peak Tower and Eyrie House Ruins.	M	3	C, E
Repair Reservation and Smith's Ferry roads, from the reservation's east entrance to the intersection with Christopher Clark Road.	M	3	C, E
Repair broken pavement and fill potholes at the north entrance to the Lake Bray parking lot.	M	3	C, E
Repair cracks in the masonry of the bridge over Broad Brook, in the Lake Bray parking lot.	M	3	C, E, R
Repair cracks in the masonry block chimney on the north side of the maintenance building.	M	3	C, E, R
Repair or replace rotted garage doors on the maintenance shop.	M	3	C, R
Replace the roof of the Mount Nonotuck radio building.	M	3	C, E, F, O
Work with Holyoke Gas & Electric to pursue removal of the building, associated with the wind turbine located on their property, from the reservation.	L	1	L, R
Request that MassDOT install a Lead-in Sign at the end of the Exit 18 ramp on I-91 south.	L	1	P, R
<i>Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.</i>			
Continue to support the efforts of the Mount Tom Advocacy Group in their role as the reservation's friends group; include group members in appropriate training.	M	1	R, X
Develop interpretive panels for the CCC amphitheater and adjacent nature trail.	L	3	B, P, R

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d. Recommendation from NHESP; see Appendices K and L for more information.

Table 4.4.5. Recommendations for Holyoke Heritage State Park.

Recommendation	Priority^a	Resources^b	Implementation^c
<i>Goal 1. Manage natural resources at the landscape level, with an emphasis on protecting and enhancing state-listed species and their habitats.</i>			
<i>There are no recommendations associated with this goal.</i>	-	-	-
<i>Goal 2. Preserve distinct scenic and cultural resources.</i>			
<i>There are no recommendations associated with this goal.</i>	-	-	-
<i>Goal 3. Promote appropriate recreational activities compatible with resource protection and an enjoyable experience for all visitors.</i>			
Add an accessible picnic table at a location with an appropriate substrate.	H	1	R, U
Explore issues around the practice of parkour in state parks.	H	2	L, O
Replace outdated playground equipment.	M	2	E
Investigate adding limited skate park features along adjacent stairs, ramps, and walkways.	L	3	E
<i>Goal 4. Repair, maintain, and enhance park infrastructure in order to improve the visitor experience and park operations, and to reduce future capital costs.</i>			
Establish a Memorandum of Understanding with the Holyoke Police Department for DiNapoli Plaza, as directed by Chapter 175 of the Acts of 2002.	H	1	O, L, R
Repair or replace the irrigation control panel and faulty valves.	H	2	C, E
Paint crosswalk on pavement between accessible parking aisle and ramp to sidewalk.	H	2	E, U
Implement recommendations in energy audit.	M	1	P
Identify opportunities to install state of the art renewable energy systems to replace or supplement existing systems installed in the 1980s.	M	2	E, P
Restore and maintain the original landscape design by replacing dead or missing trees and shrubs with equivalent native plants.	M	2	R
Replace temporary plywood panels on the southeast corner of the building with appropriate damage-resistant windows.	M	3	C, E
Assess the condition of the fountain's pipes and pumps, and estimate the cost of modernizing the system to decrease the amount of labor associated with the daily filling, operation, and draining of the fountain.	M	3	C, E
<i>Goal 5. Increase awareness of, and appreciation for, natural and cultural resources among DCR staff, park visitors, area residents, and the local academic community.</i>			
Prepare Spanish language versions of the guides <i>A Brief History of Holyoke</i> and <i>Self-guided Walking Tour: Holyoke Mills and Canals</i> ; make available at the park and on-line.	M	2	B, O, X
Replace the current slide projector in the rotunda with a digital projector, computer, and screen.	M	2	R
Investigate the development of a formal friends group for the park.	L	1	R, X
Install new multi-lingual interpretive panels at the industrial flywheel display on park grounds.	L	2	B, P, R
Update the permanent displays to include more information on the Native American use of the Holyoke area, including at other properties in the planning unit.	L	3	C, P, R

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