2018-2023 CONSERVANCY LANDS PLAN

FOR THE

CITY OF MIDDLETON

DRAFT


ADAPTIVE
RESTORATION
LLC


MIDDLETON
The Good Neighbor City

May 2018

CONSERVANCY LANDS PLAN 2018-2023

Prepared for
CITY OF MIDDLETON, WISCONSIN

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EXECUTIVE SUMMARY

The Conservancy Lands Plan 2018-2013 is a guiding document for City of Middleton's land stewardship activities on its conservancy lands.

PLAN OBJECTIVES

The Plan intends to:

- Incorporate changes to conservancy lands since 2011
- Document past land stewardship activities in conservancies and summarize general conditions
- Update system-wide map of Middleton's conservancies
- Provide recommendations for management, policy, funding, development and staffing
- Help City staff focus management priorities
- Highlight opportunities for enhancement
- Seek and incorporate public input about conservancy lands

The Plan does not intend to:

- Replace individual conservancy area Master Plans
- Provide recommendations related to Middleton's parks and recreation facilities (e.g. sports fields, playgrounds).

STATEMENT OF NEED

The prior Conservancy Lands Plan expired in 2016, therefore, a five-year update is overdue. An up to date plan is a standard component for grant eligibility.

SUMMARY OF THE CONSERVANCY LANDS SYSTEM

Middleton's conservancy lands system provides over 835 acres of open space and represents approximately 14 percent of land within the City. The conservancy system includes both conservancy lands and the trails within these lands.

Conservancy lands are public lands managed for natural vegetation, habitat, water quality and passive recreation. Although conservancy lands vary in size, vegetative communities, landscape features, management priorities, and uses, most conservancies share some or all of the following characteristics:

- Unique plant communities, wildlife, and/or geology.
- Ecological function, such as protecting water quality or preserving wildlife habitat.
- Maintained as natural area and restored to native plant community.
- Provides opportunities for passive recreation, education, and volunteering.

VALUES OF CONSERVANCY LANDS

Conservancy Lands provide numerous benefits to Middleton and the surrounding community. Values of Middleton's conservancy lands include ecological services, recreation, education, economic benefits, and public health.

PUBLIC INTEREST AND PUBLIC SUPPORT

The conservancy lands system is a defining feature of the Middleton and contributes to the quality of life for Middleton residents.

Conservancy lands are used and enjoyed by residents of all ages and abilities, ranging from Middleton's elementary school children to seniors, and from active exercisers to individuals with mobility impairments.

Conservancy lands additionally provide cultural, spiritual, and aesthetic values, such as the enjoyment of "spending time in nature" and providing scenic vistas throughout the city.

> *The beauty and accessibility of the conservancy lands are a key element of what makes Middleton such as desirable place to live – Survey respondent, 2018*

The Conservancy Lands Plan Update Survey and public meetings conducted for this Plan indicated that Middleton residents and other conservancy lands users support active restoration of conservancy lands and advocate for the protection of these areas and the wildlife and birds they support.

RECREATION AND PUBLIC HEALTH

Restored natural communities provide unique recreational opportunities such as wildlife viewing, birdwatching, nature photography, interpretation, education and volunteering. Natural areas also promote physical activity and enhance enjoyment of such activities, like walking, running, biking, mountain biking, and cross-country skiing, by providing an "in nature" experience.

Recreating in nature, or simply having access to nature provides physical and mental health benefits.

ECONOMIC BENEFITS

Public lands have an immensely positive impact on Middleton's economy through direct spending, attracting and retaining businesses and residents, increasing property values, and promoting recreation-related expenditures. Conservancy lands additionally provide economic benefits through the provision of ecological services such as water quality protection, air quality protection, storm and flood water management, and mitigation of climate change impacts.

ECOLOGICAL SERVICES

Protection of Middleton's conservancy lands preserves the value of these natural areas into the future. The upfront expenses of managing conservancy lands for restored native communities are offest by the values provided by restored land. These values include inherent ecological value, provision of ecological services, water and air quality, climate change mitigation, and increased public interest.

Inherent ecological value	Nature has intrinsic value beyond the value that it provides to people. Wisconsin's endemic native communities demand protection due to their irreplaceability and rarity. Less than 0.01% of Wisconsin's original (remnant) prairie and oak-dominated communities remain to this day.
Water quality enhancement and mitigation of flood water	Services provided by native communities exceed services provided by degraded (human-modified) landscapes. Services provided by Middleton's natural areas include protection of water quality through uptake of excess nutrients and sediment in surface water, mitigation of flood water impacts, and mitigation of streambank erosion.
Protection of critical wildlife habitat	Middleton's conservancy lands protect native plant communities and associated wildlife. Conservancy lands support a variety of wildlife, including grassland birds and pollinator species.
Climate change mitigation	Biodiversity lends to greater adaptability in response to pressures including climate change and human influence. Native species have superior resilience to conditions of flooding and/or drought.
Air quality	Middleton's conservancy lands release oxygen and reduce carbon dioxide and other air pollutants.

THE FUTURE OF CONSERVANCY LANDS

This Plan seeks to incorporate past changes to Middleton and its surrounding community as well as plan for projected future changes. Trends include population growth in Middleton and its surrounding communities, increasing infrastructure and reduction of undeveloped land, and increasing demands for outdoor recreation. Such trends are occurring while the need for preserving ecosystem services, such as clean water, is increasingly imperative. Expected stagnant funding and staffing levels put additional pressure on managing conservancy lands. Ecological and economic sustainability are therefore key components of preserving conservancy lands into the future.

Since 2010 Middleton's population has grown 15%, with continued expected population growth through 2040[1]. At the same time that Middleton grows, it also ages. At the County scale, the population of residents over 65 is expected to increase at three times the rate of youths under 19. Middleton seeks to improve user experience for aging seniors through its ongoing accessibility initiatives later discussed in the Plan.

Population growth in Middleton and adjacent municipalities is correlated with increased urbanization and new building development. Development of previously agricultural or open space areas creates new demands for storm water management and reduces wildlife and bird habitat. Anticipating landscape changes in Middleton and the surrounding region is necessary for envisioning the future of Middleton's conservancy lands system, its connectivity to other regional public lands, and its ability to serve ecosystem functions.

At a regional and national scale, interest in outdoor recreation and fitness is experiencing a sustained upward trend[2]. The positive health effects of exercise are well documented and more recently, the positive health effects of spending time in nature are being elucidated. Providing opportunities for exercising concurrently with experiencing nature is an essential element of Middleton's conservancy lands system.

Future funding

Current staffing and funding levels are a constraint on conservancy lands management and enhancement. Future funding, staffing levels, and staff expertise will need to adjust to demands of the conservancy lands system. Future funding of conservancy lands will require contributions through grants and donations, including the Middleton Area Public Lands Endowment (MAPLE).

Land management strategies

Land management strategies guiding recommendations in this Plan include maximizing return on investment of past management efforts, developing and maintaining connections between conservancy lands, protecting vulnerable and ecologically significant areas and incorporating stakeholder investment in restoration and management.

1 Wisconsin Demographic Services Center. 2013. Population and Household Projections, produced in 2013, based from 2010 Census. Wisconsin Department of Administration. Accessed January 1, 2018.https://doa.wi.gov
2 Outdoor Industry Association. 2017. Wisconsin Outdoor Recreation Economy Report. Accessed February 2, 2018 https://outdoorindustry.org/resource/wisconsin-outdoor-recreation-economy-report/)

SUMMARY OF CONSERVANCY LANDS GOALS

Conservancy Lands Goals were established in the 2011-2016 Conservancy Lands Plan and updated as part of this Plan process to reflect the changing role of the conservancy lands system. A complete description of the Conservancy Lands Goals and Objectives is listed in Chapter 3.

GOAL 1	Protect and restore native landscapes and designated conservancy lands to maintain and improve natural habitat, scenic beauty, passive recreation and outdoor education for persons of all ages and abilities.
GOAL 2	Expand partnerships for maintenance of conservancy lands and hands-on restoration and learning opportunities for the residents of Middleton.
GOAL 3	Improve water quality within the conservancy lands properties.
GOAL 4	Increase connections between Middleton's conservancy lands and other adjacent and regional conservation areas including corridors and linkages with other government/municipal lands of similar management.
GOAL 5	Provide adequate funding, management and staffing to oversee the maintenance of conservancy lands.
GOAL 6	Promote conservation of wildlife and wildlife habitat in Middleton's conservancy lands.

PLANNING PROCESS

The planning process was guided by the Public Lands, Recreation and Forestry Department and the Conservancy Lands Committee.

The process involved stakeholder engagement, solicitation of public input through a formal public meeting and a dedicated Conservancy Lands survey. The survey reached 419 respondents.

November 7, 2017	Award of Service approved by Common Council
November 15, 2017	Kick-off meeting with project team including Adaptive Restoration LLC (AR), Resolution Studio, LLC (RS), the Director of Public Lands, Recreation and Forestry, and the Assistant Director of Public Lands and Forestry/Forester. Timeline of project and project scope was discussed.
December 12, 2017	Stakeholder Meeting: AR and RS presented to the Friends of Pheasant Branch Board. Discussed project goals and timeline, and solicited input from the Friends.
December 16, 2017	Stakeholder Meeting: AR and the Director of Public Lands, Recreation and Forestry hosted a walk and talk with the Friends of Kettle Ponds and other interested residents at Tiedeman Pond. The walk and talk provided an open forum for public comment and discussion.
January 1, 2018 - January 31, 2018	The Conservancy Lands Plan Update Survey was open for response through Polco's online platform or printed surveys available at the Middleton Senior Center. Public written comments were solicited and received.
January 20, 2018	Public Input Meeting: AR and the Assistant Director of Public Lands and Forestry/Forester hosted a 2-hour public meeting at the Middleton Public Library, Central Library.
January 24, 2018	AR and RS provided a project update to the Conservancy Lands Committee (CLC). The CLC provided input regarding Conservancy Lands goals and objectives and system facilities maps.
February 28, 2018	AR and RS provided a project update to the CLC. The CLC provided input regarding prioritization of conservancy land areas.
April 11, 2018	A draft Plan was made available to the CLC and the public for review.
April 25, 2018	AR presented a draft Plan to the CLC for approval.
May 15, 2018	AR presented Plan to the Common Council for approval.

SUPPORTING PLANS

City of Middleton Conservancy Lands Plan (2011-2016)

City of Middleton Comprehensive Park and Open Space Plan (2014-2019)

City of Middleton Comprehensive Plan (2006)

City of Middleton Bicycle and Pedestrian Plan (2009)

Middleton Urban Greenway Area Study, TID#3 (2016)

Dane County Parks and Open Space Plan (2018-2023)

Wisconsin State Comprehensive Outdoor Recreation Plan (2011-2016)

Middleton's Comprehensive ADA Review (2012)

OVERVIEW OF THE CONSERVANCY LANDS SYSTEM

SUMMARY OF THE CONSERVANCY LANDS SYSTEM

Middleton's conservancy lands system includes 835 acres of natural area. The conservancy system includes both conservancy lands and the trails within these lands.

Conservancy Lands are public lands managed for natural vegetation, habitat, water quality and passive recreation. Although conservancy lands vary in size, vegetative communities, landscape features, management priorities, and uses, most conservancies share some or all of the following characteristics:

- Unique plant communities, wildlife, and/or geology.
- Ecological function, such as protecting water quality or preserving wildlife habitat.
- Maintained as natural area and restored to native plant community.
- Provides opportunities for passive recreation, education, and volunteering.

Trails

Middleton contains over 27 miles of trails including shared-use bike/pedestrian, hiking (pedestrian only), mountain biking, and seasonal cross-country skiing trails. The trail system provides a network of trails including trail loops within conservancies and trail corridors connecting public open spaces across the city.

WHAT IS THE DIFFERENCE BETWEEN A PARK AND A CONSERVANCY?

Parks are public areas managed for active recreation such as sports and playground activities. Middleton considers active recreation as structured recreational activities requiring specialized parkland development and intensive maintenance, such as athletic fields (soccer, football, etc.), athletic courts (tennis, basketball, etc.), and swimming facilities. Parks tend to have facilities such as pavilions, shelters, playgrounds, bathrooms, and parking lots. Parks are addressed in Middleton's Comprehensive Parks and Open Space Plan (2014-2019). The City plans to develop a five-year update to the Comprehensive Parks and Open Space Plan in the later half of 2018.

This Plan is specific to Middleton's conservancy lands. Conservancy lands are managed primarily for conservation and outdoor recreation. Middleton's 27 miles of trails provide access into and around conservancies, and facilities are generally limited to benches and waysides. Conservancy lands not only provide ecosystem services, but also offer a range of recreational opportunities including hiking, biking, birdwatching, and cross-country skiing among others. Thus, the Plan primarily addresses natural area management, trails and trail maintenance within conservancy lands, and user experience related to outdoor recreation opportunities in conservancy lands.

Middleton's conservancy lands support both passive recreation and "non-standard active recreation." Passive recreation refers to recreational activities that do not require specialized parkland development or facilities, such as walking and birdwatching. Middleton additional defines "non-standard active recreation" as activities that require some basic infrastructure, such as trail development, but lower maintenance needs than active recreation facilities, as defined in the Middleton Park and Open Space Plan 2014-2019. Activities include mountain biking, cross-country skiing, disc golf, and exercise/fitness trails.

Additional detail on Middleton's classification of parklands and definitions of recreation types is available in the 2014-2019 Comprehensive Parks and Open Space Plan.

LAND AND FACILITY INVENTORY

> 835 acres of conservancy land

> 27 miles of trails

ECONOMIC AND HEALTH IMPACTS OF PUBLIC LANDS

Economic Impact

Middleton's public lands (parks, conservancies and other open space) are a defining feature of the City. These areas are attractions to Middleton residents and visitors alike. Public lands impact local economies through direct spending, by attracting businesses, and increasing property values.

> *The [conservancy system] is one of the top reasons we live in Middleton - Survey respondent, 2018*

In Wisconsin, local and regional park agencies contributed $1.4 billion in economic activity and over 12,000 jobs in 2013[3]. Wisconsin's outdoor recreation industry contributed an additional $17.9 billion, 168,000 direct jobs, and an additional $1.1 billion in state and local tax revenue[4]. The outdoor recreation industry accounted for over 8% of employment in Dane County in 2008[5].

The economic impact of public space including outdoor recreation and conservation is harder to discern. A study sponsored by the National Fish and Wildlife Foundation in 2011 estimated the economic value of all outdoor recreation, nature conservation, and historic preservation activities (excluding motorized activities), at $1 trillion in the United States[6].

3 National Recreation and Park Association. 2015. The Economic Impact of Local Parks: An Examination of the Economic Impacts of Operations and Capital Spending on The United States Economy. George Mason University, Fairfax, VA.

4 Outdoor Industry Association. 2017. Wisconsin Outdoor Recreation Economy Report. Accessed 2/20/2018 https://outdoorindustry.org/resource/wisconsin-outdoor-recreation-economy-report/)

5 Dane County Parks. 2018. Draft Parks and Open Space Plan 2018-2023. Madison, WI

6 Southwick Associates. 2011. The Economics Associated with Outdoor Recreation, Natural Resources Conservation and Historic Preservation in the United States. Prepared for The National Fish and Wildlife Foundation. Fernandina Beach, FL

As of 2011, Wisconsin ranked 9th in the nation for wildlife-viewing related expenditures, at nearly $1.5 billion in direct and indirect expenses related to wildlife viewing. These include trip related expenses, like food and lodging, equipment such as binoculars, cameras and birdhouses, and other items, such as landscaping designed to attract wildlife[7].

Nationally, of the 86.0 million people who engaged in wildlife watching in 2016, 28% participated by taking trips away from home and 94% participated around their home. Away-from-home participants are defined as those who travel a mile or more from home to engage in wildlife watching, and around-the-home participants are those who engage in wildlife watching less than a mile from home.

On a local scale, public lands can have a positive effect on property values, and can lead to higher tax revenues for local governments. A synthesis of existing economic studies performed by the Active Living Research program in 2010 summarized that property values are greater for houses within 1,500 feet of an open space, and that this effect is greater for larger natural and forested areas compared to urban parks and playgrounds[8]. Open spaces areas in urban areas, such as Middleton, provide greater economic benefits to surrounding properties than open spaces in a rural setting.

Economic valuation of public lands greatly underestimates the inherent value of natural areas, by excluding the nonmarket values associated with passive uses and impacts on public health.

Health Benefits of Public Lands

Middleton's conservancy system and trail system provide spaces for a range of activities supporting physical and mental health. Many outdoor recreation activities are known to have physical health benefits (e.g. walking, biking, running, cross-country skiing, etc). Promoting physical activity through outdoor recreation is a priority topic in the 2011-2016 Wisconsin's Statewide Comprehensive Outdoor Recreation Plan. Additionally, the Wisconsin Department of Health Services listed increased local recreation facilities as an objective for increasing physical activity[9].

Statewide, municipalities account for about 1% of public land ownership; however, urban lands, such as Middleton's parks and conservancies, serve a role in promoting public health for local residents. Walking is the most popular recreational activity in Middleton, and proximity to public lands and trails facilitates this type of exercise. In Dane County, over 50% of residents live within a ½ mile of a park or trail[10]. Dane County boasts the lowest rate of adult obesity in the state, with 24% of adults with a body mass index of 30 or higher[11].

Interestingly, a statewide analysis on the impact of parks on public health found that supply of parks, mileage of trails, and percent walking access were insignificant in explaining local public health and wellness outcomes when education, income, race, and age were ignored[12]. This finding does not suggest that access to public lands and extent of public lands and trails is not related public health. However, serves as a reminder that health outcomes are related to other health determinants, such as socioeconomic factors, health care, health behaviors, and physical environment.

7 Caudill, James. 2014. Wildlife Watching in the U.S.: The Economic Impacts on National and State Economies in 2011. Addendum to the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. Report 2011-2 US Fish and Wildlife Service. Washington, DC

8 Shoup, Lily and Ewing, Reid. 2010. 2010 Report: The Economic Benefits of Open Space, Recreation Facilities and Walkable Community Design. Acting Living Research, a program of the Robert Wood Johnson Foundation, with assistance from San Diego State University. San Diego, CA

9 United States, Department of Health and Human Services. 2011. State Indicator Report on Physical Activity, 2010 Wisconsin Activity Guide. US DHHW Centers for Disease Control and Prevention, Accessed at <https://www.cdc.gov/physicalactivity/downloads/pa_state_indicator_report_2010.pdf> 2/25/2018

10 Ibid.

11 University of Wisconsin Population Health Institute. County Health Rankings Key Findings 2017. Accessed at <http://www.countyhealthrankings.org/content/dane-wisconsin> 3/1/2018As

12 As reported in: Wisconsin, State of. 2011. Statewide Comprehensive Outdoor Recreation Plan 2011-2016. Wisconsin Department of Natural Resources, Bureau of Parks and Recreation. Madison, WI. Sourced from: Marcouiller DW, Prey J, and-Outhavong A. 2011. Outdoor recreation for public health and wellness: A spatial county-level SCORP assessment for Wisconsin. Paper presented to the ISSRM Annual Conference, June 2011, Madison, WI; and Bernardinello M, Glodt T, Maggied T, Outhavong A, and Vondra B. 2010. Outdoor Recreation, Health, and Wellness: Understanding Key Relationships – Final Workshop Report. Madison, WI: Department of Urban and Regional Planning, University of Wisconsin - Madison, Madison, WI

Middleton's conservancy system is unique in offering both physical recreation (e.g. walking, biking, etc.) and nature-based activities (e.g. birdwatching, wildlife viewing, reading interpretive signs, etc.). These activities each have varying levels of physical engagement, and individuals performing these activities can additionally moderate their engagement based on personal health and ability. Recreating in nature can have both physical and mental health benefits. A growing area of research shows the positive impact of spending time in nature on mental health. Some of the benefits of visiting green spaces include mood improvements, positive cognitive effects, lower stress and anxiety, lower levels of depression, increased physical activity, and increased social interaction[13]. The positive mental effects appear to be enhanced when spending time in nature is linked with physical activity[14].

Although the positive impacts of spending time in green space/nature are well documented, little is known about the elements of the landscape that evoke positive mental health impacts nor the comparative health impacts of different types of open space (park v.s. conservancy). Anecdotally, Middleton conservancy users cite the "naturalness" and "natural beauty" of Middleton's conservancies as highlights of user experience.

Middleton conservancy users list "spending time in nature" and "exercise" as the top motivations for visiting conservancy lands, based on responses to the Conservancy Lands Plan Update Survey conducted as part of the plan process.

ECOLOGICAL LANDSCAPE

Topography

Middleton is located on the western edge of the Southeast Glacial Plain ecological landscape, a landscape characterized by glacial topography such as undulating moraines, kettles, drumlin fields and outwash plains[15] (Figure 1-1).

When glaciers flowed southward during the last Ice Age, they picked up and transported enormous quantities of rock and soil. As the climate warmed and the glaciers retreated, this rock and soil was left behind. Hilltops, *moraines*, formed where rocks, soils and boulders were deposited. Depressions, or *kettles*, formed from ice melt where huge ice blocks were lodged into the ground by a receding glacier. Kettle depressions that eventually filled with glacial meltwater are called *kettle ponds*. Middleton has five kettle ponds.

13 Townsend M and Weerasuriya R. 2010. Beyond Blue to Green: The benefits of contact with nature for mental health and well-being. Faculty of Health, Medicine, Nursing and Behavioural Sciences, Deakin University, Geelong, Victoria, AU.

14 Keniger L, Gaston K, Irvine K, Fuller R. 2013. What are the Benefits of Interacting with Nature? International Journal of Environmental Research and Public Health. 2010(3):913-935. doi:10.3390/ijerph10030913.

15 Finley RW. 1976. Original vegetation cover of Wisconsin. Map (scale1:500,000) and accompanying text. North Central Forest Experiment Station,U.S. Department of Agriculture, Forest Service, St. Paul, Minnesota.

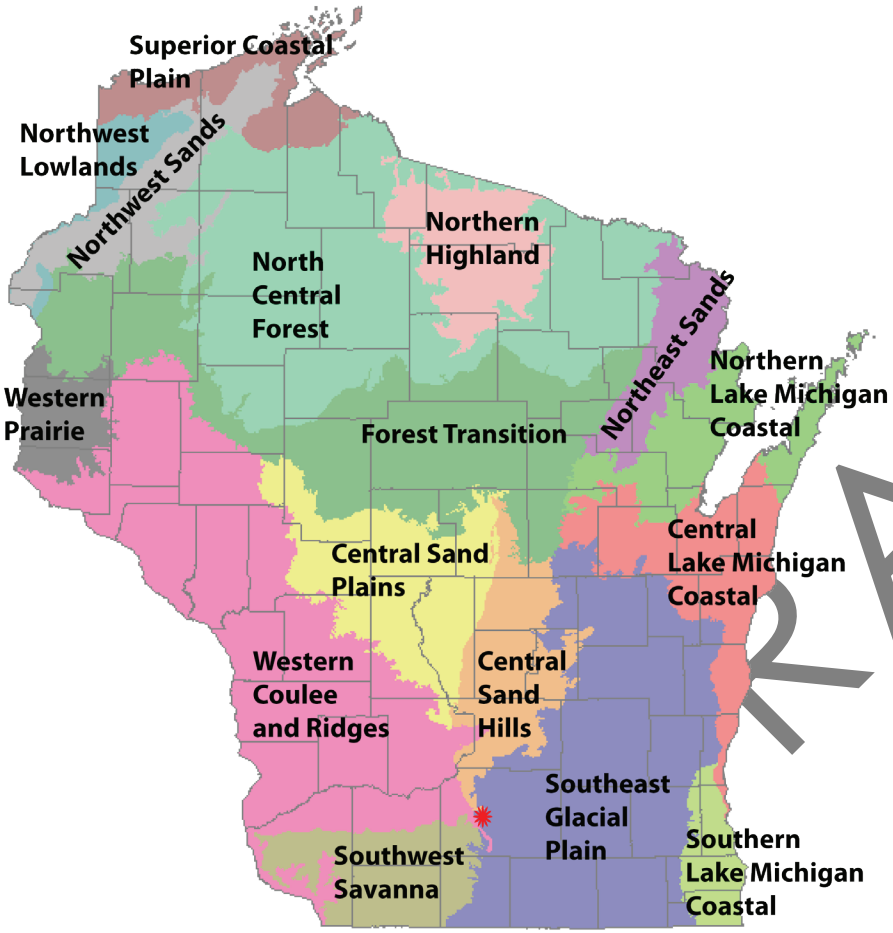

Figure 2-1. Wisconsin Ecological Landscapes. Middleton is located at the intersection of three ecological landscapes: Southeast Glacial Plain, Southwest Savanna, and Central Sand Hills. Data provided by the WDNR, 2014.

Hydrology

Middleton is in the Lake Mendota watershed, which is a sub-watershed of the Yahara River, which drains into the Upper Rock River. The Rock River is a tributary of the Mississippi River. Non-point source runoff, especially nutrient and sediment storm water runoff, is a major pollutant of these waterways. Excess nutrients create conditions that impair water quality and encourage blue-green algae blooms, which are a human health hazard.

Conservancy lands protect Middleton's water resources such as undisturbed wetlands, kettle ponds and creeks. Middleton is geographically bordered to the east by Lake Mendota, and the Pheasant Branch Creek and its tributaries flow into the Lake. The Pheasant Branch Creek, its source springs and seeps, and its tributaries (North Fork, South Fork) are protected by four conservancies: the Pheasant Branch Conservancy, the Pheasant Branch Creek Corridor, the North Fork of the Pheasant Branch Creek and the South Fork of the Pheasant Branch Creek. Middleton's five glacial kettle ponds are additionally protected as conservancy areas (Sticker Pond, Tiedeman Pond, Graber Pond, Esser Pond, and Middleton Hills Pond).

Vegetation

Historically, southern Wisconsin supported a mosaic of prairie, oak savanna, oak woodlands and wetlands. Today, less than 0.1% of original prairie and oak-dominated communities remain.

Middleton's conservancy system contains a variety of habitats and landscape features. Conservancy lands include areas of remnant and restored native plant communities, including prairie, sedge meadow, oak savanna and oak woodland.

HISTORY OF CONSERVANCY LANDS

A history of the conservancy lands system was detailed in the 2011-2016 Conservancy Lands Plan (Box 2-1)[16].

16 Schreiber Anderson Associates. 2010. 2011-2016 Conservancy Lands Plan for the City of Middleton, Wisconsin.

BOX 2-1: THE HISTORY OF MIDDLETON'S CONSERVANCY SYSTEM

from the Schreiber Anderson Associates 2011-2016 Conservancy Lands Plan

The City of Middleton has a long history of preserving its significant environmental and natural resource areas. In the early 1960's, Walter Bauman, former mayor of Middleton, realized the value of the City's unique resources, especially the Pheasant Branch Watershed. He recognized the important of this special natural area in the midst of the rapidly urbanizing Madison Metropolitan Area. He and others on the Public Lands, Recreation and Forestry Committee (PRFC) and the Water Resources Management Commission (WRMC) worked hard to provide for the protection and eventual acquisition of the Pheasant Branch Conservancy and the surrounding conservancy lands. A Conservancy Zoning District was created to provide legal protection to sensitive natural areas such as the Pheasant Branch Conservancy. This zoning designation also helped the City create and protect additional conservancy areas like Tiedeman Pond, Graber Pond, Esser Pond and Stricker Pond.

In 1966, the PRFC created Middleton's first Park and Open Space Plan, which identified the need to protect the Pheasant Branch Conservancy. The Lakeshore Problems Committee formed that year to address siltation problems in Lake Mendota. The committee quickly recognized the problems that development and farming practices were causing and created the Pheasant Branch Rehabilitation Master Plan in 1967, which included a variety of erosion protection and bank stabilization projections for the Pheasant Branch Creek and Conservancy Area.

In 1968, the Middleton Conservation Committee, a citizen group, also became active in work projects in the area. In 1969, 15 acres of wetlands were purchased for what later became the Pheasant Branch Nature Preserve (synonymous with Pheasant Branch Conservancy). Around this time, the PRFC increased its interest in nature preserves. In 1970, the Pheasant Branch Nature Preserve was created by a resolution of the PRFC and the Middleton Common Council. The 1972 Park and Open Space Plan described guidelines for Pheasant Branch Conservancy and recommended increasing its boundaries significantly. The PRFC recognized the need to preserve lowlands, natural waterways and wetlands in their natural state to ensure their maintenance as wildlife and fish habitats, natural drainage areas, and areas of passive outdoor recreation. The PRFC also recognized that citizens will respect and protect natural areas when they are made aware of their natural values.

The City of Middleton created the WRMC in the early 1970's to oversee the protection of the City's streams, lakefront, ponds and marshes. The committee was instrumental in creating the Pheasant Branch Marsh Environmental Study and Acquisition Plan in 1973 (updated in 1982); the plan outlined a strategy for preserving the Pheasant Branch Nature Preserve and with the assistance of local, state and federal funds, the first 100 acres of land in the marsh were acquired in 1975.

The Conservancy Lands Committee (CLC) has also been instrumental in protecting Middleton's important natural resources. The CLC began as an ad hoc committee in May of 1997, and was formally established by the Middleton City Council by ordinance in 1998 to further the City's interests in the management of its community forests, fields and wetlands for conservation purposes under state law. The CLC plans and implements programs designed to restore and develop such land so as to accomplish ecological restoration and natural scenic beauty as well as opportunities for education and recreation for the residents of the City. It also recommends to the Common Council adoption of ordinances to further the above goals, as well as to further the general health, safety and welfare of the public. Working closely with the City's Public Lands Manager in these efforts and under the general direction of the Middleton Common Council, the CLC advises the Council and City staff concerning environmental policy on conservancy lands in the community.

With the extensive planning and protection work of the 1960's and continuing today, the Pheasant Branch Conservancy and Middleton's other conservancy lands have been preserved for the benefit of all people, wildlife and the natural environment.

CONSERVANCY LANDS ZONING

Conservancy lands are designated as Conservancy District (CO). Permitted and conditional uses are defined in Middleton's City Code of Ordinances Sections 10.74-10.79. Regulations of conservancy lands are described in Middleton's City Code of Ordinances Section: 21.03 CONSERVANCY LANDS REGULATIONS.

The term "conservancy" or "conservancy lands," notwithstanding any designation of land pursuant to the City of Middleton zoning Code or designation of lands by any other authority, shall include only those public lands of the City of Middleton designated as conservancy on the official Park System Map on file in the offices of the City Clerk and Public Lands Manager as approved by the Common Council.

CONSERVANCY LANDS GOALS AND OBJECTIVES

Conservancy Lands goals and objectives were established in the 2011-2016 Conservancy Lands Update, and updated by the Conservancy Lands Committee and City staff in January, 2017.

A *goal* is a long term achievement and something to be worked on over a period of time. An *objective* states a component of a future desired condition and can serve as a milestone to measure whether or not the goal is being achieved. Objectives are the basis for *recommendations*; recommendations are suggested specific actions. Conservancy lands goals and objectives are nonhierarchical.

GOAL 1: PROTECT AND RESTORE NATIVE LANDSCAPES AND DESIGNATED CONSERVANCY LANDS TO MAINTAIN AND IMPROVE NATURAL HABITAT, SCENIC BEAUTY, PASSIVE RECREATION AND OUTDOOR EDUCATION FOR PERSONS OF ALL AGES AND ABILITIES.

GOAL 1: OBJECTIVES

1.1	Natural vegetative communities within the City are identified and protected. These include uplands, lowland forests, wetlands, sedge meadow and oak savanna areas.
1.2	Invest in and develop facilities that will maximize the health and appreciation of conservancy lands.
1.3	Preserve the role of wetlands, prairies, savannas and woodland as essential components of the hydrologic system and valuable wildlife habitat. Protect shoreland and floodplain areas accordingly.
1.4	Reduce abundance and spread of exotic and invasive species while promoting native vegetative communities.
1.5	Establish development policies and standards related to trails, kiosks, shelters, benches and diverse uses of conservancy land areas, including such uses as canoe access, sediment basins, and others.
1.6	Use a scientific and data-driven approach to management. Establish data collection and monitoring systems to inform management.

GOAL 2: EXPAND PARTNERSHIPS FOR MAINTENANCE OF CONSERVANCY LANDS AND HANDS-ON RESTORATION AND LEARNING OPPORTUNITIES FOR THE RESIDENTS OF MIDDLETON.

GOAL 2: OBJECTIVES

2.1	Promote conservancy lands through multimedia campaigns.
2.2	Support conservation programming, like ecological tours, sensory walks, or birding events that draw public interest and enthusiasm. Maintain and update interpretive media in conservancies.
2.3	Collaborate and coordinate with friends groups and local, county, regional and state entities.
2.4	Provide opportunities for citizen involvement such as citizen monitoring, educational programs for youth and adults, and facilitated volunteering.

GOAL 3: IMPROVE WATER QUALITY WITHIN THE CONSERVANCY LANDS PROPERTIES.

GOAL 3: OBJECTIVES	
3.1	Improve water quality of all lakes, creeks and kettle ponds within Middleton's conservancy lands system by providing a shoreland buffer zone of diverse native vegetation 100-300ft in width along the edges of streams, wetlands and ponds.
3.2	Consider impacts to the greater Yahara watershed.
3.3	Coordinate with Water Resource Management Commission regarding management of stormwater features.

GOAL 4: INCREASE CONNECTIONS BETWEEN MIDDLETON'S CONSERVANCY LANDS AND OTHER ADJACENT AND REGIONAL CONSERVATION AREAS INCLUDING CORRIDORS AND LINKAGES WITH OTHER GOVERNMENT/ MUNICIPAL LANDS OF SIMILAR MANAGEMENT.

GOAL 4: OBJECTIVES	
4.1	Increase connections to regional trails and greenways.
4.2	Provide barrier-free access to trail facilities.
4.3	Consult with similar agencies from neighboring cities, towns and counties to develop a regional response to issues concerning land conservation.
4.4	Maintain "green space" corridors between the communities of Middleton, Westport/Waunakee and Madison.
4.5	Mark conservation boundaries to inform the public, to delineate management responsibilities, and to prevent unintended encroachment.
4.6	Consider strategic acquistion of new lands.

GOAL 5: PROVIDE ADEQUATE FUNDING, MANAGEMENT AND STAFFING TO OVERSEE THE MAINTENANCE OF CONSERVANCY LANDS.

GOAL 5: OBJECTIVES	
5.1	Sufficient staff and funding to execute plan objectives and respond to conservation priorities.
5.2	Expenditures commensurate with expected levels of maintenance.
5.3	Equitable distribution of funding relative to the scale and importance of conservation lands to quality of life, stormwater management and property values.
5.4	Pursue state, federal and private funding.

GOAL 6: PROMOTE CONSERVATION OF WILDLIFE AND WILDLIFE HABITAT IN MIDDLETON'S CONSERVANCY LANDS.

GOAL 6: OBJECTIVES	
6.1	Maintain and enhance habitat for resident and migratory wildlife.
6.2	Establish data collection and monitoring systems to inform wildlife management.
6.3	Protect rare and threatened species and communities.
6.4	Consider wildlife impacts when developing trails and trail use policies.

PUBLIC OUTREACH

A distinguishing feature of this Plan is the incorporation of public outreach. The public input process had five components:

- Review of past Citizen Satisfaction Surveys as relates to Public Lands.
- The Conservancy Lands Plan Update Survey – the first dedicated survey assessing visitation, usage, and satisfaction with the conservancy land system.
- Stakeholder engagement – engagement with Middleton's two Friends Groups: the Friends of Pheasant Branch and the Friends of Kettle Ponds.
- Public input meeting – a public meeting dedicated to the topic of conservancy lands.
- Communications plan – a conservancy lands plan-dedicated website providing a mechanism for written or verbal input.

CITIZEN SATISFACTION SURVEY: PUBLIC LANDS

The City conducts an annual Citizen Satisfaction Survey to inform budget decisions for the coming year and beyond. Relevant findings from surveys from 2012-2017 are highlighted below. Due to changes in question design in different iterations of the survey, year-to-year response rates cannot be compared. However, several themes regarding conservancy lands were consistent across all years of the survey.

All years of the survey (2012-2017) satisfaction with Public Lands, Recreation and Forestry (Public Lands and Forestry) and Conservation and Planning (Planning, Forestry, Public Lands) ranked greater than 80%.

For short- and long-term staff attention and funding, citizens ranked Public Lands, Recreation and Forestry in the top four priorities or higher. The services/departments that ranked above PLRF were limited to Street Maintenance, Public Works (excluding street maintenance), and in some years, Planning and Community Development (City planning, community development, economic development, sustainability), and Police.

The most frequently received comments were noting the positive contribution of the conservancies and trails to Middleton. Many comments were some variation of, "I love the conservancies," "I love the [Pheasant Branch] Conservancy," or "I love the trails".

> *LOVE LOVE LOVE our free parks and walking/hiking/bike paths. The Public Lands make Middleton an absolute gem – Resident, 2012*

In 2017, 95% of residents rated the City of Middleton as a "good" or "very good" place to live. When asked, "What do you wish Middleton had that it doesn't have now?" the most popular responses included: more bike paths and/or bike lanes, more pedestrian trails and trail connections, and more connections to communities outside of Middleton. Responses in 2017 were the first to mention accessibility. Current and future initiatives by the City of Middleton are responding to the need for improved accessibility in public lands.

> *We have great trails, conservancy, park lands. I only wish we had better connectivity to other communities – Resident, 2015*

Another hot topic was trails including: trail surfacing, trail maintenance, trail conditions, and trail connectivity. Trail condition ratings, preferences, and conditions were further explored in the Conservancy Lands Plan Update Survey (2018).

CONSERVANCY LANDS PLAN UPDATE SURVEY, 2018

Objectives of Survey

The goal of the survey was to gather information about conservancy usage, user preferences and access to conservancies, and to identify opportunities for improvement. To date, this was the first Middleton survey dedicated to conservancy lands. Its results not only serve to inform policy recommendations in this Plan, but also function as baseline data for future polling.

Methods of Survey

The survey was conducted with Polco, a Wisconsin-based civic participation technology platform. The City has used Polco for polling services since 2017. Benefits of using Polco include their online platform and their ability to verify responses using an account system and referencing available voter registration information. In order to verify individual responses, respondents must create a Polco account prior to submitting the survey. Polco's system helps the City have more confidence that results are not unduly influenced by respondents out of state or respondents in the area who "stuffed the ballot" with multiple entries.

Some residents expressed concern regarding the need to create an account to participate in the survey. Polco's privacy policy commits to never sharing individual data or individual responses with the City or any third party. We additionally made available physical copies of the survey that could be submitted anonymously.

The Conservancy Lands Plan Update Survey was advertised through online and social media outlets. A link to the online survey was advertised on the Conservancy Lands Plan Update information web page (adaptiverestoration.com/clplan), on the Middleton Public Lands, Recreation and Forestry website, through Middleton Parks and Rec government list serve, on the Parks, Recreation, Forestry and Youth Center Facebook page, and was distributed to the Middleton Cross Plains Area School District (MCPASD), the Friends of Pheasant Branch, the Friends of Kettle Ponds, and the Capital Off Road Pathfinders.

Physical copies of the survey were available at the Middleton City Hall, the Middleton Public Library (Central Library), and the Middleton Senior Center.

A total of 419 respondents completed the survey between January 1–31, 2018. Online responses (405) exceeded paper survey responses (14). Roughly 50% of respondents (208) were verified Middleton residents, as determined by voter identification information. Non-verified responses did not necessarily indicate that respondents were non-residents of Middleton; instead it indicated a lack of information, such as address, resulting in an inability to verify voter registration in Middleton. For verified respondents, available demographic information included age, gender and precinct.

Respondents are separated in the following categories:

All respondents – total number of respondents (all categories)

Registered voters in Middleton – respondents who are registered voters in Middleton. Name and address used to create a Polco account matched with available voter information. Also referred to as *verified Middleton residents*.

Registered voters – includes all registered voters, not just residents of Middleton.

Live in Middleton, self-reported – respondents with a self-reported Middleton address. These respondents did not match with available voter information. The most common reason for unmatched information is a discrepancy between self-reported address and address as listed on voter identification.

Subscribers to Middleton – respondents who regularly respond to Middleton questions on Polco. This includes registered voters, self-reported Middleton residents, and others who may not report an address in Middleton but that regularly participate in Middleton questions.

Abstained – number of online respondents who did not respond to a question.

Anonymous – the number of respondents who submitted paper surveys.

Survey respondents included individuals from multiple age groups ranging from 18-79. The lowest engagement was from the 18-29 age group. In future surveys Middleton should seek increased participation from the 18-29 age group and respondents less than 18. Since minors under the age of 18 are not registered voters, we were unable to determine the number of respondents in this age category.

Following completion of the survey, respondents were able to view results of the survey through the Polco website platform. Responses and comments were displayed as anonymous unless the respondent has a public Polco account (user selects "use my name on comments" under profile settings).

For all questions, the total number of respondents meet the criteria for >90% confidence for statistical significance. For verified respondents (registered voters), all questions meet an 80% confidence interval for statistical significance.

Results

Similar to the Citizen Satisfaction Survey results, the Conservancy Lands Plan Update Survey respondents provided many comments applauding the conservancy lands system and its variety of trails and habitats.

> *The beauty and accessibility of the conservancy lands are a key element of what makes Middleton such as desirable place to live*

Responses to the question, "What do you enjoy about Middleton's conservancy lands," highlighted the naturalness of the conservancy system, its proximity to residences, opportunities for outdoor recreation, and aesthetics (Figure 4-1).

> *[I enjoy] being able to spend time in nature so close to where I live and work. Also, being able to travel using the conservancy trails*

> *I appreciate [conservancy lands] very much and feel fortunate to partake in the parks and trails*

Figure 4-1. Visualization of responses to, "What do you enjoy about Middleton's conservancy lands?" The word cloud gives greater prominence to more frequently used words in survey

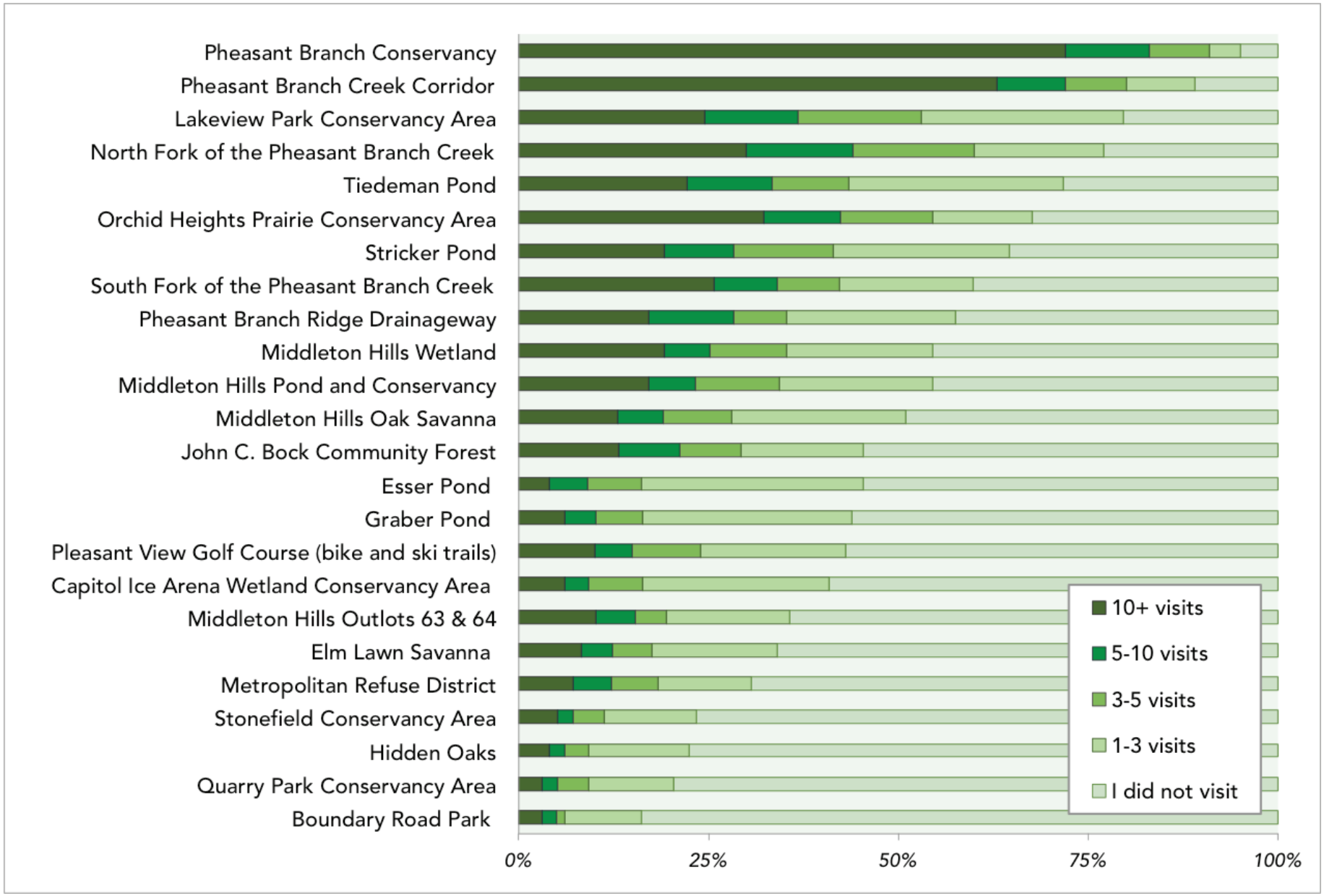

Figure 4-2. Visitation to conservancy areas and trails in the last year. Percent of responses for the following categories: 10+ visits, 5-10 visits, 3-5 visits, 1-3 visits, or "I did not visit."

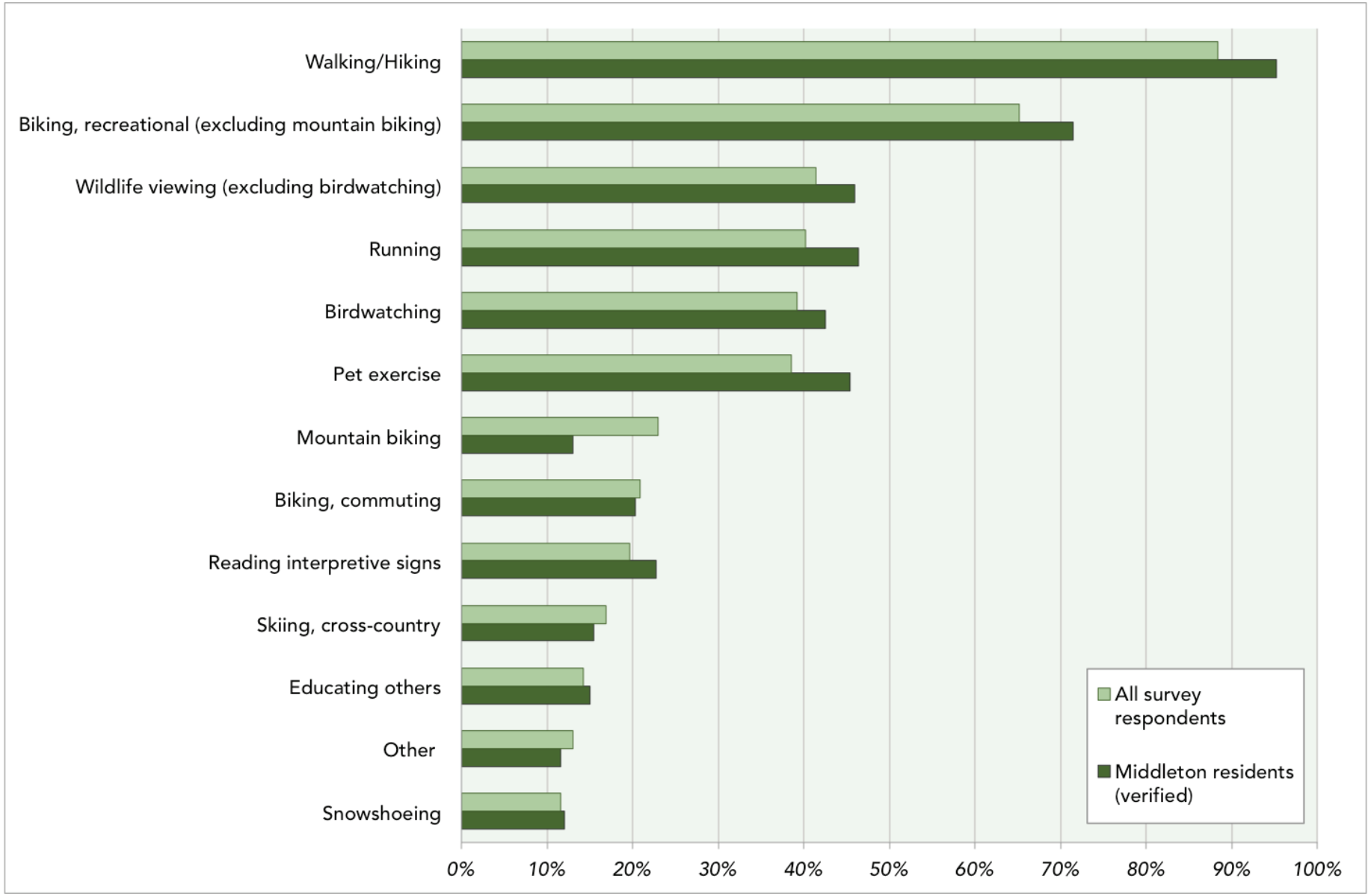

Figure 4-3. Most popular activities performed in conservancy lands in the last year (percent of respondents who performed each activity). Responses for total survey respondents and verified Middleton residents (registered voters) are displayed separately. Respondents could select multiple responses. "Other" included: ice skating, photography, looking at plants, driving for pleasure, geocaching, gardening (Bock Community Gardeners), kayaking and canoeing.

Visitation/Usage

Pheasant Branch Conservancy was the most frequently visited conservancy with 60% of respondents indicating that they visited 10 or more times in the last year (Figure 4-2). For verified Middleton residents, the visitation was even higher: 70% visited over 10 times in the last year. Only 9% of all respondents had not visited PBC. Other highly visited sites included the Pheasant Branch Creek Corridor, the North Fork of the Pheasant Branch Creek, Orchid Heights Conservancy, and the South Fork of the Pheasant Branch Creek, where over 30% of all respondents visited more than 5 times last year. High visitation to these areas in not surprising considering that these areas serve as trail corridors, providing pedestrian and bike path across the City.

Conservancy areas with high local visitation included Stricker Pond Conservancy and Tiedeman Pond Conservancy. Although 36-42% of all respondents did not visit these areas, 16-17% of respondents visited over 10 times in the last year, suggesting that those who do use the pond areas use them frequently.

> *I walk around [Tiedeman] Pond every day - Public meeting participant*

Middleton's conservancy lands support a variety of outdoor activities (Figure 4-3). The most popular uses of conservancy lands were walking/hiking and biking. These two activities are also the most frequent methods of accessing conservancy lands for Middleton residents. Other popular activities included wildlife viewing, birdwatching, running, pet exercise and mountain biking.

Management and policy of conservancy lands should protect user interests such as wildlife viewing and birdwatching, while also supporting activities such as recreational biking, dog walking, and mountain biking.

Conservancy lands usages and motivations are in line with national trends in outdoor recreation. Middleton respondents cited, "Spending time in nature," and "Exercise" as the primary purposes for visiting conservancy lands. According to a national Outdoor Foundation report, the most cited motivation for getting outdoors was exercise, and over half of respondents said pursuing outdoor recreation was means of being close to nature[17].

Additional results are discussed in subsequent chapters. Full survey results are available with a Polco account at polco.us, or a pdf version of results is available at: adaptiverestoration.com/clplan

17 The Outdoor Foundation. 2017. 2017 Outdoor Recreation Participation. Washington, DC. Accessed January 13, 2018 at https://outdoorindustry.org/resource/outdoor-recreation-participation-report-2017/> 2/24/2018.

PUBLIC INPUT MEETING

Sixteen residents in addition to City staff and Adaptive Restoration staff attended the January 20, 2018 public meeting.

Objectives of the Public Meeting

The goal of the public meeting was to provide a forum for open discussion of thoughts, concerns and ideas about conservancy lands, and to foster development of a future vision of Middleton's conservancy lands.

Methods of Advertising

Announcements advertising the Public Meeting were posted on the Middleton Public Lands, Recreation and Forestry website, through "Middleton Parks and Rec" government list serve, on the Parks, Recreation, Forestry and Youth Center Facebook page, and on the Conservancy Lands Plan Update web page (adaptiverestoration.com/clplan). The meeting was also advertised to the Friends of Kettle Ponds, and to the Friends of Pheasant Branch by email and an announcement in their Winter 2017/2018 newsletter.

The meeting was structured as a two-hour event starting with a period for introductions and a 15-minute presentation on the goals of the Plan from Adaptive Restoration, LLC and City staff. Remaining time included a period for socializing, a visioning exercise, and discussion.

We performed a creative visioning exercise where participants wrote a future "cover story" on Middleton's conservancy lands for a published newspaper or magazine. This exercise encourages participants to share individual visions and thoughts, and collaboratively generate a shared future vision of the conservancies. Attendees and staff were separated into groups representing several future timepoints: 1 year, 5 years, 10 years and 50 years in the future. This exercise was modified from resources available through the Learning to Give organization and Campus Outreach Opportunity League.

Take-homes

Stakeholders expressed the role of conservancy lands in making Middleton special.

- A new resident noted that Middleton's conservancies and public lands was one of reasons they moved to Middleton

Stakeholders enjoy the naturalness of conservancy areas.

- Residents living along a conservancy corridor enjoy the wildlife (turkeys, owls, birds, other)
- Appreciate preservation of areas that were never developed
- Suggest identifying areas with rare endemic communities as areas to be protected from human influence (i.e. few or no trails), while other areas can serve as recreation areas

Stakeholders support active restoration efforts.

- Noted impacts of past restoration efforts. "The oak that was planted is now maturing"
- Expressed interest in seeing more habitat improvement and more native plant communities
- Expressed interest in updating existing management plans to reflect current conditions and future desired conditions. Suggested a policy of having a management plan for each conservancy area

Stakeholders are interested in water quality.

- Desire to improve water quality for future residents, particularly the swimmability of Lake Mendota

Stakeholders believe in collaboration.

- Expressed belief that with proper collaboration, conservancy system can be improved
- Support marketing and advertisement of the MAPLE fund as a means of providing adequate funding for conservancy lands

Stakeholders are concerned with conservancy land user etiquette.

- Concern about dogs in conservancies, enforcement of rules (such as leash rule), and rule compliance
- Concern about bike/pedestrian interactions, etiquette, safety, and rule compliance

Stakeholders support future acquisition.

- Expressed belief that acquisition of land and/or trail easements that create green corridors between Middleton and adjacent communities should be a priority.

STAKEHOLDER ENGAGEMENT WITH FRIENDS GROUPS

FRIENDS OF PHEASANT BRANCH

We presented to the Board of the Friends of Pheasant Branch on December 12, 2017. The presentation included discussion of Plan update objectives, a draft timeline of projected work, and a request for input from all members of the Friends of Pheasant Branch (FOPB) through direct written comments, participating in the Conservancy Lands Plan Update Survey, or attending the January 20, 2018 Public Meeting. We submitted an article announcing the Plan update, the Conservancy Lands Plan Update Survey and Public Meeting to the FOPB Winter 2017/2018 newsletter.

Detailed minutes of the December 12, 2017 Board of FOPB meeting are included in Appendix A.

We solicited and received written comments from the Restoration and Management Committee of the Friends of Pheasant Branch, a subcommittee responsible for creating and implementing restoration goals, managing restoration volunteers, and grant writing (Appendix B). We additionally met in person with a member of the Restoration and Management Committee (Box 4-1).

The Friends of Pheasant Branch are currently engaged in accessibility initiatives, trail policy and signage updates in the Pheasant Branch Conservancy. Accessibility initiatives in Middleton are discussed in Chapter 9; trail policy and signage are discussed in Chapter 8.

BOX 4-1: RECOMMENDATIONS FROM A MEMBER OF THE FOPB RESTORATION AND MANAGEMENT COMMITTEE

- *Recommends managing across municipal boundaries in Pheasant Branch Conservancy*
- *Recommends active monitoring of and mitigating the spread of invasive species, particularly in high quality areas. Suggests the mapping tool GLEDN mapping/EDDMapS*
- *Has concerns over the spread of new invasions such as crown vetch, wild parsnip, and spotted knapweed in City portions of the Pheasant Branch Conservancy*
- *Recommends a higher level of coordination between the City, Dane County Parks and the FOPB (at least one annual meeting)*
- *Would like discussion of dogs and dog regulations in conservancy lands*
- *Would like to see accessibility issues in Pheasant Branch Conservancy addressed*
- *The FOPB are interested in the acquisition land to the north of the Dane County portion of Pheasant Branch Conservancy as it becomes available.*
- *Wants to move beyond previous joint efforts to new projects such as clearing buckthorn around the duckblind vista.*
- *Thinks the City is doing well with respect to storm water management, streambank restoration, John C. Bock Community Forest restoration and coordination of resources and volunteers managing "Bock Forest"*

WALK AND TALK AT TIEDEMAN POND WITH THE FRIENDS OF KETTLE PONDS AND NEIGHBORS

We hosted an informal "walk and talk" at Tiedeman Pond on December 16, 2017 with the Friends of the Kettle Ponds and interested neighbors. The meeting was advertised through the Friends of Kettle Ponds and local alders.

Twenty-four residents attended the one-hour meeting in addition to City staff and Adaptive Restoration staff.

Take-homes

Stakeholders live within walking distance of the pond and use the ponds frequently.

- Attendees lived close to Tiedeman Pond or Stricker's Pond. Many walk the pond daily. Many cite the ponds as the reason why they purchased their house or have stayed in their house
- All attendees appreciated access to the Pond and had a positive statement about the Pond
- Most popular uses were walking, dog-walking, and birdwatching

Stakeholders value the naturalness of Tiedeman Pond, in particular, the presence of migratory birds.

- Attendees appreciated the naturalness of the pond. Seasonality of the pond, associated vegetation, migratory birds, and quietness of the pond were mentioned when describing the wildness of the pond
- Viewing birds (migratory birds) and wildlife was indicated as a highlight of the Pond by at least 9 attendees. There was shared concern about overdevelopment of the Pond resulting in declines in bird populations. Other concerns included the number of users and fluctuating water levels as a result of stormwater system and forebay system

Stakeholders do not support further development of Tiedeman Pond, in effort to maintain its wildness. Stakeholders expressed both pros and cons of current trail surfacing.

- Perception that development of gravel and paved trails and increased usership has negatively impacted wildlife and bird populations (at least two households vocalized this opinion)
- At least two households expressed appreciation that past trail development has increased accessibility to multiple types of users (e.g. children, persons using wheelchairs), but are concerned about bike traffic and biker speed
- Same as above but specific to recently paved section of trail: appreciate that paved section is less icy in winter because of snow removal; but opinion that paving should not be extended
- Perception that recent maintenance of trails and boardwalks is better than in the past. Missing boardwalk boards "doesn't happen any more"
- Three households commented about icy boardwalk conditions or icy patches on gravel path in a particularly shady section
- At least one comment about improving signage related to bike use
- One comment that the mowed edge along trails gets wider every year, and that the mowed section is encroaching into natural areas ("it is wide enough")

Stakeholders believe that the ponds have improved over time.

- Attendees who had lived in the area for over 20 years generally felt that the ponds have improved over time. Improvements mentioned include vegetation, active restoration, forebay system, and trails.

Stakeholders support active restoration efforts

- One attendee stated that there should be capital funding for restoration
- At least two household stated that the forebay project was an improvement
- Two households cited restoration at the pond as inspiring them to pursue their own native yard restorations
- Attendees were interested in learning about invasive species and how to control them (e.g. reed canarygrass, hybrid cattail, garlic mustard)
- One attendee requested removing invasive species at Stricker Pond
- One attendee requested removing garlic mustard around Tiedeman Pond
- Interest in prescribed burning at Tiedeman Pond: City staff received email queries asking if Tiedeman Pond could be burned this fall
- At least two households stated that the vegetation at Tiedeman Pond has improved over time

Stakeholders are concerned about water levels in the ponds, flow of water between the ponds, and sedimentation of ponds.

- Concern that Tiedeman Pond is getting shallower was shared by several
- At least one household expressed concern about fluctuating water levels negatively impacting nesting birds and animals (muskrats)
- Three attendees/households expressed concern that shallower water levels is contributing to the spread of American lotus, or, that the lotus is contributing to sedimentation
- Stakeholders were supportive of dredging a forebay for the storm water grate on the east side of the pond (project was proposed by not funded by the City). Two attendees suggested a community fundraising effort for the project

Stakeholders are concerned about phosphorous and algae in the ponds

- At least two attendees perceived American lotus as a positive contribution by reducing blue-green algae in the ponds.
- Discussion about the storm water management system, how water flow is regulated, and if water quality is measured

Mixed opinions about American lotus in the ponds

- Three attendees/households expressed concern that shallower water levels is contributing to the spread of American lotus, or, that the lotus is contributing to sedimentation
- At least two attendees perceived lotus as a positive contribution by reducing blue-green algae in the ponds, as it was intended to. View that lotus is preferable to blue-green algae was shared by at least three households

Stakeholders expressed interest in volunteering

- Some attendees expressed interest in volunteering
- At least two attendees were members of the Friends of Kettle Ponds

Stakeholders support discouragement of social trails.

Other feedback:

- One attendee expressed that many users like picking black caps, and do not want them (all) removed
- One household would like replacement of the Tiedeman Pond overlook/deck

SUMMARY

- Middleton residents support ongoing management and enhancement of the conservancy lands system.
- Middleton residents support active restoration of natural areas and protection of wildlife and wildlife habitat.
- Middleton residents expect enhancement of natural areas concurrent with improvements in facilities and recreation opportunities.
- Middleton residents support expansion of the conservancy lands system and increased connectiosn to regional open space areas for recreational and environmental corridors.
- Public support for conservancy lands justifies increased staffing and funding levels to meet increasing demands.

RECOMMENDATIONS

Use the Conservancy Lands Plan Update Survey as a baseline for future surveys. In future surveys Middleton should seek increased participation from the 18-29 age group and respondents less than 18 years of age.

Management and policy of conservancy lands should protect user interests such as wildlife viewing and birdwatching, while also supporting activities such as recreational biking and pet exercise where appropriate. Impacts of conservancy usage on wildlife and birds should be explored through monitoring.


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CONSERVANCY LANDS OPERATIONS

The management of conservancy lands is not linked to one single entity, but rather is a coordinated effort between City departments, advisory committees and commissions, Friends Groups, and volunteers.

PUBLIC LANDS ORGANIZATION

THE DEPARTMENT OF PUBLIC LANDS, RECREATION AND FORESTRY

The responsible department for management and policy decisions pertaining to public lands is primarily Public Lands, Recreation and Forestry (PLRF). PLRF oversees Middleton's parks, recreation, urban forestry and conservancy lands systems. Staff resources are generally divided between recreation and public lands. The public lands department is responsible for park and conservancy land management, and staff resources are often shared between parks and conservancy lands.

Staffing Levels

The Director of Public Lands, Recreation and Forestry oversees the park and conservancy land system and recreation programs. The Assistant Director of PLRF/Forester/Horticulturist and the Public Lands Lead Supervisor oversee public lands operations and management tasks. Daily operations are performed by a full-time Conservancy Lands Lead Crewperson, one Parks Lead Crewperson and three Park Crewpersons. Two Conservancy Lands dedicated LTE's (0.6 FTE), six Parks dedicated LTE's (1.75 FTE), and five Department of Corrections crew (DOCC) members are available seasonally (Figure 5-1).

Conservancy lands and parks staff are often utilized jointly for conservancy and park land maintenance tasks. The Parks Lead Crewperson and Parks Crewpersons, however, are primarily dedicated for park land and forestry. Additionally, the Parks LTE's are solely dedicated for parks maintenance, specifically active parks and sports fields. Conservancy Lands dedicated LTE's (up to 0.6 FTE) are utilized when qualified candidates are available. In 2017, no Conservancy Lands LTE's were hired due to a lack of suitable candidates.

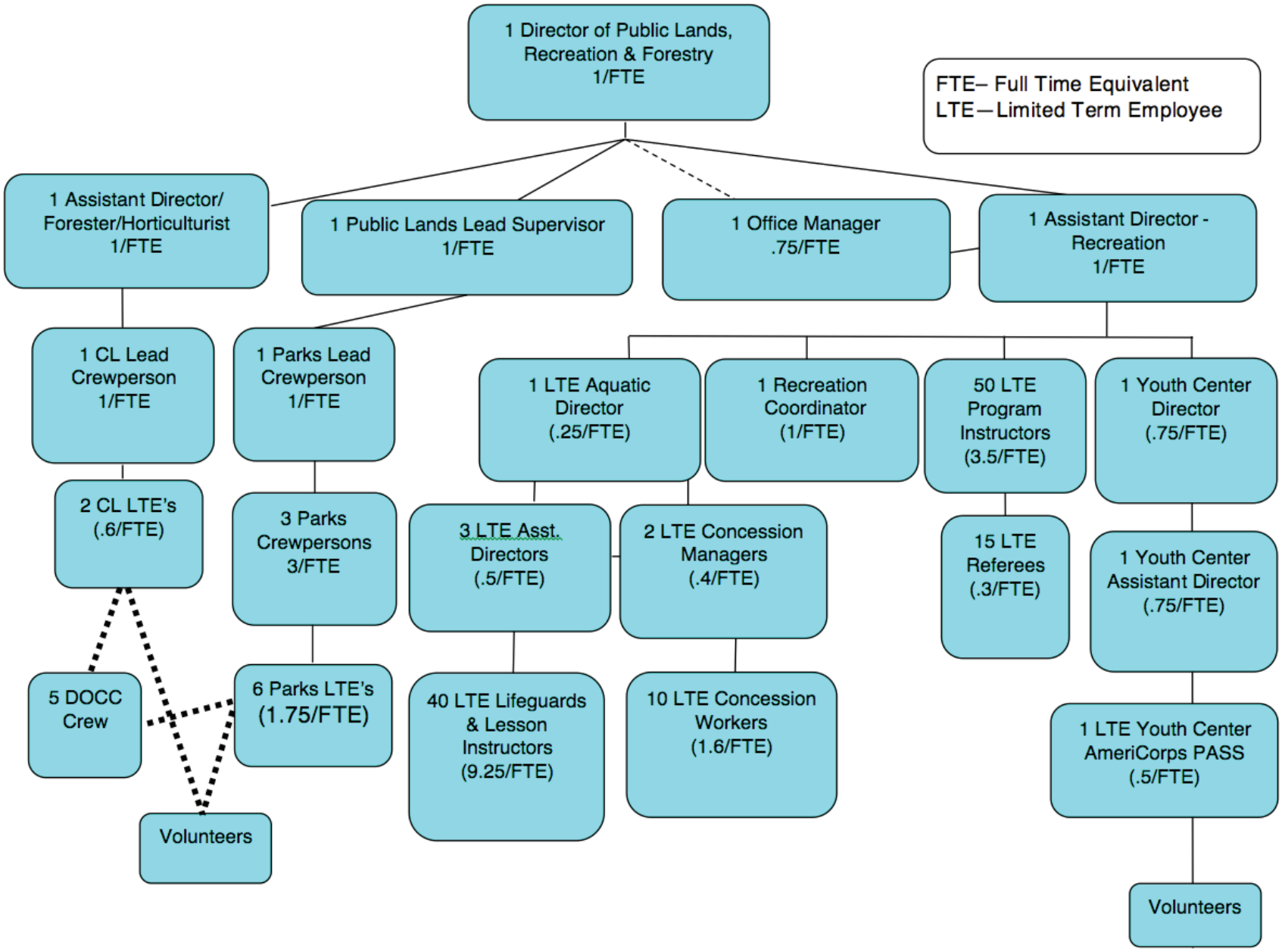


Figure 5-1. Public Lands, Recreation and Forestry Department Organization Chart. Source: City of Middleton, 1/10/2018.

The DOCC from Oakhill Correctional Institution (Oregon, WI) typically contains four inmates and one sergeant. A City staff leads the crew. Involvement in conservancy lands management has changed within the last five years; shifting away from conservancy lands in recent years. Crew time is split between parks, public works, forestry, conservancy lands, and other. In 2017 the DOCC worked on 49 projects (distinct billing designations). About 30% of work was Conservancy lands-specific, 27% was Parks-specific, 16% was Forestry-specific, and the remaining 27% was other, such as Community Development projects and Capital improvement projects. For Conservancy Lands projects, 13 project items were funded through CLC operating expenses, and 2 DOCC project items were funded through the CLC Capital budget.

Current staffing levels are insufficient to adequately manage conservancy lands. Thus, contractors and volunteers additionally support management of conservancy lands. Contractors provide scientific and technical expertise relevant to conservancy lands management. Professional services provided by contractors include, but are not limited to, native vegetation establishment and maintenance, monitoring of State Threatened and Endangered species, streambank stabilization and restoration, wetland delineation, prescribed burning, development of conservancy area Master Plans, and volunteer facilitation and outreach.

RECOMMENDATIONS

Should opportunities arise for personnel change, consider hiring an additional full-time conservancy lands-dedicated staff with knowledge in land stewardship, native plant management, ecology, wildlife management, environmental education, and/or volunteer coordination.

Perform a cost/benefit analysis of the utilization of limited-term employment compared to full-time equivalent staff. Consider factors related to work output including level of knowledge and competency, level of required training, and level of required supervision.

PUBLIC LANDS POLICY

The Department of Public Lands, Recreation and Forestry (PLRF) follows recommendations put forth by three advisory committees within the City government, subject to the final authority of the Common Council: The Conservancy Lands Committee (CLC), the Water Resources Management Commission (WRMC), and the Park, Recreation and Forestry Commission (PRFC). Recommendations pertinent to conservancy lands are primarily provided by the CLC and WRMC.

CONSERVANCY LANDS POLICY

Conservancy Lands Committee (CLC)

The CLC is the main governing body that reviews and guides management recommendations regarding conservancy lands.

As detailed in Section 2.16 Middleton Code of Ordinances, the CLC shall consist of seven members including the Chair of the PRFC (or someone appointed by the Chair), the Chair of the WRMC (or someone appointed by the Chair), the Chair of the Public Works Committee (or someone appointed by the Chair), one Alderperson, two citizens who are residents of the City of Middleton, one of whom possesses expertise in engineering or land conservation and one of whom shall express concern and ability to work in attaining land conservation objectives in the public interest, and one citizen who is not required to be a resident of the City of Middleton. The committee chairs are automatic members on the CLC board, all others are appointed by the Mayor.

The CLC's mission is to further the City's interest in management of its community forests, fields and wetlands for conservation purposes. The CLC also makes policy recommendations and is responsible for studying all land conservation issues affecting City of Middleton lands designated as conservancy. The CLC is charged with planning and implementing programs that are designed to restore and enhance such lands in order to accomplish ecological restoration, improve natural scenic beauty, and provide opportunities for education and recreation for the residents of Middleton. The CLC recommends approval of an annual budget prepared by staff to the Common Council to cover anticipated expenses required to fulfill its objectives. It will also consult with similar bodies from neighboring cities, towns and the county to develop a regional response to issues surrounding land conservation.

The Committee has use of the facilities of the Public Works Department and Planning Office of the City and may appoint such technical sub-committees as it deems necessary to assist in its planning functions, provided that all sub-committee appointments are first submitted to and approved by the Mayor, and may propose to the Common Council an annual budget to cover the anticipated expenditures believed necessary to carry out its objectives.

Water Resources Management Commission (WRMC)

As detailed in Section 2.05 Middleton Code of Ordinances, shall consist of seven members, including the Chair of the PRFC (or someone appointed by the Chair), one Alderperson and five citizen members. The committee chairs are automatic members on the CLC board, all others are appointed by the Mayor.

The mission of this committee is to study, plan and implement programs involving the management of water resources both within and, where possible, beyond the corporate limits of the City of Middleton. All specific and related storm drainage, flood control, flood plain, stream, lake and shoreline projects and improvements which affect or may affect the City of Middleton or its residents shall be reviewed and analyzed by the Commission and its conclusions transmitted to the Common Council. This committee's decisions have the potential to impact conservancy lands that contain water features, especially the kettle ponds and detention ponds.

The Commission has use of the facilities of the Public Works Department and Planning Office of the City and may appoint such technical sub-committees as it deems necessary to assist in its planning functions, provided that all sub-committee appointments are first submitted to and approved by the Mayor, and may propose to the Common Council an annual budget to cover the anticipated expenditures believed necessary to carry out its objectives.

JOINT MANAGEMENT OF CONSERVANCY LANDS

The conservancy lands system is impacted by decisions and actions made by multiple Middleton departments and advisory committees in addition to the PLRF Department, CLC and WRMC.

Board of Parks, Recreation and Forestry Commissioners

The PRFC oversees park facilities, recreation programs, and forested areas of the City. Middleton's active use park facilities total approximately 156 acres, according to the (2014-2019) Comprehensive Park and Open Space Plan.

Many of Middleton's parks border conservancy lands, and Middleton's trail system is often contiguous between park and conservancy lands.

The PRFC provides, conducts and supervises public playgrounds, playfields, indoor recreation centers and other recreation areas and facilities owned or controlled by the City, and conducts recreational and cultural activities. The PRFC consists of seven members, including one Alderperson and six citizens. All members are appointed by the Mayor. Duties and authorities are described in Section 2.10 Middleton Code of Ordinances.

Department of Public Works (DPW)

Conservancy lands areas with water resources that function as storm water facilities are jointly managed by the department of Public Works (DPW) and PLRF. The WRMC is the advisory committee to DPW regarding maintenance of storm water facilities on conservancy lands. Conservancy areas jointly managed include: Pheasant Branch Creek Corridor, North Fork of the Pheasant Branch Creek, South Fork of the Pheasant Branch Creek, Pheasant Branch Ridge Drainageway, Middleton Hills Wetland unit of the Middleton Hills Conservancy, Stonefield Conservancy, Shorecrest Detention Pond, Spring Hill Detention Pond, detention ponds in Hidden Oaks, and detention ponds in Orchid Heights Conservancy, and the Metropolitan Refuse District.

Storm Water Utility Board

The Common Council approved a Storm Water Utility in 2014 with the purpose of creating a dedicated funding mechanism for maintaining the City's storm water management system. A Storm Water Utility Board was concurrently formed to oversee the Storm Water Utility.

As detailed in Section 2.32 Middleton Code of Ordinances, the Storm Water Utility Board shall consist of seven members including three members recommended by the Water Resources Commission from the membership of that Commission; one member recommended by the Public Works Committee from the membership of that Committee; one member recommended by the Finance Committee from the membership of that Committee; one member recommended by the Parks, Recreation & Forestry Commission from the membership of that Commission; one member recommended by the Conservancy Land Committee from the membership of that Committee.

The Storm Water Utility Board is responsible for the charge, management and supervision of the Storm Water Utility, pursuant to the provisions of Section 9.09 Middleton Code of Ordinances (Box 5-1). Storm Water Utility revenue is used for storm water utility expenses including all operation and maintenance costs, cost of borrowing, planning costs and other costs related to the operation of the City of Middleton Storm Water Utility.

BOX 5-1: MIDDLETON CODE OF ORDINANCES, SECTION 9.09 STORM WATER UTILITY

9.01 Storm Water Utility

(1) Purpose. The Common Council finds that the management of storm water and other surface water discharges draining to the Pheasant Branch, Esser Pond,

Stricker Pond, Tiedeman Pond, Graber Pond, Dorn Creek, Black Earth Creek, and Lake Mendota is a matter that affects the health, safety and welfare of the City, its citizens and businesses and others in the surrounding area. In addition, the Federal Environmental Protection Agency and the Wisconsin Department of Natural Resources have implemented standards for storm water management that will require significant upgrades to the existing storm water practices of the City, as well as increased costs for complying with these standards. Failure to effectively manage storm water affects the sanitary sewer utility operations of the City by, among other things, increasing the likelihood of infiltration and inflow into the sanitary sewer system. Surface water runoff may cause erosion of lands, threaten residences and businesses with water damage, and create environmental damage to the rivers, streams and other bodies of water within and adjacent to the City. A system for the collection and disposal of storm water provides services to all properties within the City and surrounding areas including properties not currently served by the systems. The cost of operating and maintaining the City storm water management system and financing necessary repairs, replacements, improvements and extensions thereof should, to the extent practicable, be allocated in relationship to the services received from the system. In order to protect the health, safety and welfare of the public, the Common Council hereby exercises its authority to establish a storm water utility and establish the rates for storm water management services, adopting and publishing as required by law the regulations contained in this Section. The City is acting pursuant to the authority granted by Wis. Stats. § 66.0821.

9.09 (3): Subject to the approval of the Common Council, the Storm Water Utility shall have the power and authority to operate and maintain major storm water management facilities, and to conduct, manage, and finance such utilities, operations and activities as the Storm Water Utility Board deems to be proper and reasonably necessary for a system of storm water and surface water management. These facilities may include, without limitation due to enumeration, surface and underground drainage facilities, sewers, watercourses, retaining walls, ponds, streets, roads, ditches and such other facilities relating to collection, runoff, detention and retention. This includes facilities that will support a storm water management system, whether such facilities are owned and operated directly by the City or are provided under statutory or contractual provisions and furnishing of which facilities create or impose a cost or charge upon the City for the services afforded by such facilities.

Pedestrian, Bicycle and Transit Committee

As detailed in Section 2.31 Middleton Code of Ordinances, the Pedestrian, Bicycle and Transit Committee shall research, investigate and advise other City Committees, Commissions and the Common Council on issues including, but not limited to, pedestrian safety, on-street and off-street bicycle accommodations, transit operations and potential service changes, mobility issues relating to youth, seniors and the disabled community and implementation of and updates to the City of Middleton Bike and Pedestrian Plan.

The Pedestrian, Bicycle and Transit Committee consists of seven members including: one Alderperson, the Plan Commission Chairperson or designee, the Public Works Committee Chairperson or designee, the Committee on Aging Chairperson or designee, one representative of the Middleton-Cross Plains School District, and an additional two members. Four of the members must be citizens. One member shall have transit experience and one member shall have handicap/pedestrian experience.

There is currently no representation of the Pedestrian, Bicycle and Transit Committee on CLC despite shared interest in bicycle and pedestrian recreation and trail facilities.

RECOMMENDATIONS

Coordinate with the Pedestrian, Bicycle and Transit Committee on issues related to trail use policy and trail connectivity.

1) Middleton's Bike and Pedestrian Plan has not been updated since 2009. The next iteration of the Bicycle and Pedestrian Plan should consider studying areas of high bike/pedestrian interface and propose alternatives to minimize negative interactions between bikers and pedestrians. Consider multiple types of bike users (multiple speeds) and multiple types of pedestrians. Use public input gathered in the public input process for this Plan. Promote etiquette between user groups through educational campaigns, signage, or other methods.

2) Coordinate with the Pedestrian, Bicycle and Transit Committee to promote increased connectivity of trails and bike paths within the City and to regional trails.

3) Consider adding a Pedestrian, Bicycle and Transit Committee representative to CLC.

CONTRIBUTIONS OF VOLUNTEERS

Volunteers provide a great contribution to Middleton's conservancy lands through active restoration work, education and outreach. Volunteers must follow the City's Public Lands Volunteer Program Guidelines that require submitting a release of liability and indemnification form prior to participating in volunteer activities on public lands.

Volunteer Contributions in Conservancy Lands

The contribution of volunteers over the last five years is difficult to determine given irregular documentation. The City does not have a designated staff person responsible for coordinating volunteer events, and instead, facilitating groups such as the Friends of Pheasant Branch, Clean Lakes Alliance, Bock Community Gardeners, and consultants often provide volunteer event coordination services and documentation of events.

Volunteer contributions for restoration work in conservancy lands exceeds 900 hours annually 2015-2017 (Tables 5-1, 5-2, 5-3). These estimates often do not account for administrative volunteer efforts. Known contracted time for coordinating and facilitating volunteer events ranges 55-86 hours annually.

Of the 419 respondents to the Conservancy Lands Plan Update Survey, 25% of respondents indicted that they had volunteered in Middleton's conservancy lands in the past year (Figure 5-2). Of survey respondents who indicated that they had volunteered, 75% listed volunteering with an organized group, Friends Group, or through their workplace.

Multiple organizations volunteered in conservancy lands in 2017 including the Friends of Pheasant Branch, Friends of Kettle Ponds, Bock Community Gardeners, Madison Cross Plains Area School District, Madison Audubon, Middleton Kiwanis, Blackhawk Ski Club, United Way, CUNA Mutual Group, Clean Lakes Alliance, Capital Off Road Pathfinders (CORP), and the Boy Scouts, as self-reported on the Conservancy Lands Plan Update Survey.

Survey respondents who indicated volunteering in the past year but not through a Friends Group, organized group, or workplace selected that they volunteered, "on [their] own". Volunteers who wish to work on their own can do so by following the City's Public Lands Volunteer Program Guidelines and receiving permission and guidance from the Director of Public Lands, Recreation and Forestry.

Friends Groups

A Friends Group is a designation given to a group who has a formal agreement with the City of Middleton. Friends Groups supporting public lands must have a resolution approved by the Common Council, CLC, and Director of Public Lands, Recreation and Forestry. The Friends of Pheasant Branch and the Friends of Kettle Ponds support conservancy lands.

Descriptions of Friends Groups and past partnerships are detailed in the 2011-2016 Conservancy Lands Plan[18]. Public Lands, Recreation and Forestry staff expect continued and increased coordination with Middleton's Friends Groups. The Friends of Pheasant Branch and Friends of Kettle Ponds participated in the public input process for this Plan (Chapter 4). The Friends of Pheasant Branch contributed over 3,000 volunteer hours in the larger Pheasant Branch Conservancy in 2017. The efforts of the Friends of Pheasant Branch have an immense positive impact on Middleton's conservancy system. For more information on restoration, grant seeking efforts, education, outreach, and other initiatives of the Friends of Pheasant Branch, visit www.pheasantbranch.org.

18 Schreiber Anderson Associates. 2010. Conservancy Lands Plan 2010-2016. Madison, WI

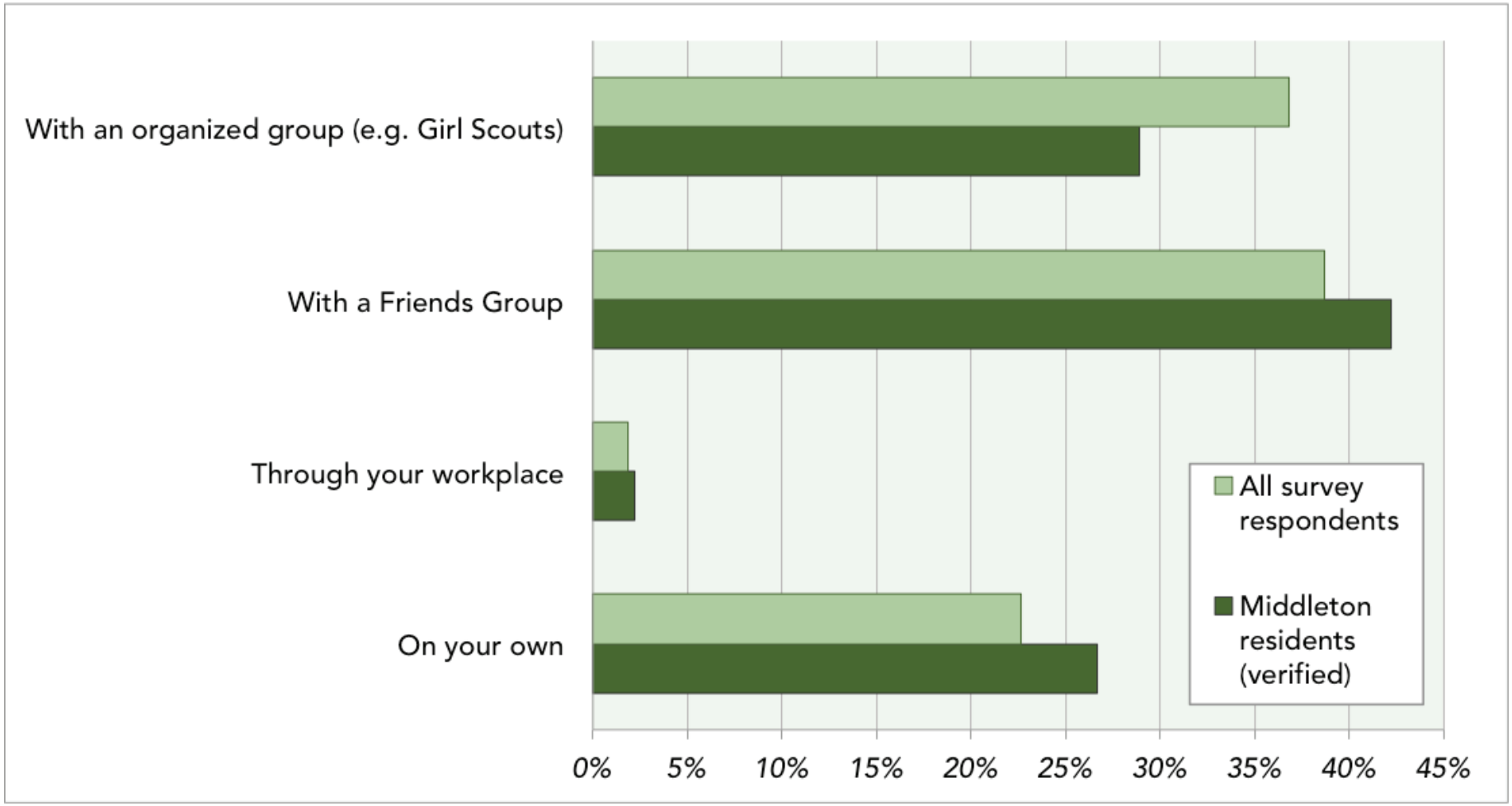


Figure 5-2. Mechanism of volunteer participation in 2017 for respondents of the Conservancy Lands Plan Update Survey, 2018. Responses for total survey respondents and verified Middleton residents (registered voters) are displayed separately. Respondents could select one response.

Table 5-1. Estimated Volunteer Contributions in Middleton's Conservancy Lands, 2017.

AREA	ACTIVITY	PARTICIPATING GROUP	EVENT COORDINATED WITH:	HOURS*
Pheasant Branch Creek Corridor	Removed invasive buckthorn, garlic mustard, and Dame's Rocket	Spectrum Brands	Clean Lakes Alliance	145
Bock Community Forest	Learned about native and invasive weed identification, pulled non-prairie species in the prairie section	CUNA Mutual Group	Clean Lakes Alliance	24
Bock Community Forest	Learned about native and invasive weed identification, pulled non-prairie species in the prairie section	Westside Christian School	Friends of Pheasant Branch	36
Bock Community Forest	Learned about native and invasive weed identification, pulled non-prairie species in the prairie section	MATC	Friends of Pheasant Branch	20
Pheasant Branch Creek Corridor	Creek maintenance	USGS	--	100
Pheasant Branch Creek Corridor	Pulled garlic mustard	Kromrey Middle School	MCPASD	78
Lakeview Park/Conservancy	Trash clean-up	Cub Pack 240, Boyscout Troup 940, Optimist Club, Kiwanis Club	--	50
Bock Community Forest	Volunteer work sessions with Bock Community Gardners: includes invasive species removal, native seed collecting, upkeep of native tree and shrub nursery and native plant garden, transplanting	Bock Community Gardeners, Friends of Pheasant Branch	Bock Community Garden	145
Bock Community Forest	320 Kromrey third and eighth grade students service trip involved overseeding prairie and savanna areas at "Bock" using seed collecting by City staff and seed donated from Dane County Parks	Kromrey Middle School	MCPASD	320
Middleton Bike Park	CORP volunteers perform extensive mountain bike trail maintenance throughout the year	Capital Off-Road Pathfinders (CORP)	--	49
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	USGS	15
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	Rock River Coalition	50
			Total	1,032
Estimated contracted hours with a consultant, assistance includes: coordinating and planning volunteer events with City staff, Friends groups, nonprofits, and other interested groups; materials preparation for events; and facilitating and leading volunteer events.				69

*Estimated on-the-ground volunteer hours. Does not account for administrative task contributions.

Table 5-2. Estimated Volunteer Contributions in Middleton's Conservancy Lands, 2016.

AREA	ACTIVITY	PARTICIPATING GROUP	EVENT COORDINATED WITH:	HOURS*
Bock Community Forest	Learned about native and invasive weed identification, removed non-prairie species in the prairie, savanna, and woodland sections	Spectrum Brands	Clean Lakes Alliance	248
Pheasant Branch Creek Corridor	Creek maintenance	USGS	--	10
Pheasant Branch Creek Corridor	Pulled garlic mustard	Kromrey Middle School	MCPASD	50
Lakeview Park/Conservancy	Trash clean-up	Cub Pack 240, Boyscout Troup 940, Optimist Club, Kiwanis Club	--	40
Bock Community Forest	Volunteer work sessions with Bock Community Gardners: includes invasive species removal, native seed collecting, upkeep of native tree and shrub nursery and native plant garden, transplanting	Bock Community Gardeners, Friends of Pheasant Branch	Bock Community Garden	145
Bock Community Forest	320 Kromrey third and eighth grade students service trip involved overseeding prairie and savanna areas at "Bock" using seed collecting by City staff and seed donated from Dane County Parks	Kromrey Middle School	MCPASD	320
Middleton Bike Park	CORP volunteers perform extensive mountain bike trail maintenance throughout the year	Capital Off-Road Pathfinders (CORP)	--	29
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	USGS	15
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	Rock River Coalition	50
			Total	907
Estimated contracted hours with a consultant, assistance includes: coordinating and planning volunteer events with City staff, Friends groups, nonprofits, and other interested groups; materials preparation for events; and facilitating and leading volunteer events.				55

*Estimated on-the-ground volunteer hours. Does not account for administrative task contributions.

Table 5-3. Estimated Volunteer Contributions in Middleton's Conservancy Lands, 2015

AREA	ACTIVITY	PARTICIPATING GROUP	EVENT COORDINATED WITH:	HOURS*
Bock Community Forest	Learned about native and invasive weed identification, removed non-prairie species in the prairie, savanna, and woodland sections	CUNA Mutual Group, Exact Sciences, Friends of Pheasant Branch	Clean Lakes Alliance, Friends of Pheasant Branch	76
Bock Community Forest	Volunteer work sessions with Bock Community Gardners: includes invasive species removal, native seed collecting, upkeep of native tree and shrub nursery and native plant garden, transplanting	CUNA Mutual Group	Clean Lakes Alliance	145
Bock Community Forest/ Pheasant Branch Conservancy	An Eagle Scout helped build a natural surface trail through the oak woodland at Bock Community Forest	Eagle Scout	--	100
Bock Community Forest	320 Kromrey third and eighth grade students service trip involved overseeding prairie and savanna areas at "Bock" using seed collecting by City staff and seed donated from Dane County Parks	Kromrey Middle School	MCPASD	320
Middleton Bike Park	CORP volunteers perform extensive mountain bike trail maintenance throughout the year	Capital Off-Road Pathfinders (CORP)	--	184
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	USGS	25
Pheasant Branch Conservancy	Rock River Coalition and USGS coordinate stream monitoring with volunteers	Friends of Pheasant Branch	Rock River Coalition	50
			Total	900
Estimated contracted hours with a consultant, assistance includes: coordinating and planning volunteer events with City staff, Friends groups, nonprofits, and other interested groups; materials preparation for events; and facilitating and leading volunteer events.				86

*Estimated on-the-ground volunteer hours. Does not account for administrative task contributions.

RECOMMENDATIONS

Continue partnerships with Clean Lakes Alliance, Friends of Pheasant Branch, Bock Community Gardeners, and Rock River Coalition. Consider creating a volunteering coordinating committee with facilitating groups.

Use Capra accreditation standards for volunteering management as a model for Middleton's volunteer management (Appendix C). Improve documentation and evaluation of volunteer events.

Create a process for training and orienting volunteers. Encourage regular volunteers. Create standard operating procedures for work in conservancy lands (e.g. hand weeding, plant identification, brush removal, seed collecting) that can be shared with volunteers.

Create an online database of volunteers and create an online version of the Public Lands Volunteer Program Guidelines release of liability and indemnification forms. Use the volunteer database as a mechanism of accountability and documentation of work performed.

Consider sending thank-you's and feedback requests to volunteers and/or hosting an annual volunteer gratitude event. (Clean Lakes Alliances provides thank-you's and feedback requests to participants in their events).

Should opportunities arise for personnel change, consider hiring an additional full-time conservancy lands-dedicated staff with knowledge in land stewardship, native plant management, ecology, wildlife management, environmental education, and/or volunteer coordination.


LIVE
GENEROUSLY

CONSERVANCY LANDS OPERATIONS

Conservancy Lands has an annual operating budget and a capital projects budget for management and enhancement of the conservancy system. The operating budget is used for routine expenses, whereas the capital projects budget is used for non-routine improvement projects. Capital projects typically have a longer lifespan (10 years or greater) and a minimum project cost of $5,000.

Although Conservancy Lands is the primary mechanism for maintenance and management of the conservancy system, some operational expenses and capital expenditures related to the conservancy system are funded by other sources. For example, storm water facilities on conservancy lands are managed by the Department of Public Works, and dredging of ponds is a Storm Water Utility expense. Major capital improvement projects may be the responsibility of the Planning department, such as the acquisition of land for the Pheasant Branch Conservancy Trailhead in 2018 using Tax Increment Financing.

Management of conservancy lands is discussed in Chapters 7 and 8.

Conservancy Lands Operating Budget

Conservancy lands operational expenses include routine maintenance expenses and personnel expenses. CLC personnel expenses are limited to LTE assignments and some DOCC designations (Table 5-4). In 2017, 13 of 15 DOCC designations were funded through the CLC operating budget. The average cost for the DOCC is approximately $3,015 for four inmates and one sergeant for a two-week period. Operational maintenance tasks include a variety of land management activities, trail maintenance expenses, grants assistance, and other operating expenses (Table 5-4). A description of operating budget expenditures was modified from the 2011-2016 Conservancy Lands Plan (Table 5-5).

Table 5-4. Conservancy Lands Operating Budget, 2011-2017. Source: City of Middleton, 2018

ITEM	*2011 ACTUAL*	2012 BUDGET	*2012 ACTUAL*	2013 BUDGET	*2013 ACTUAL*	2014 BUDGET	*2014 ACTUAL*	2015 BUDGET	*2015 ACTUAL*	2016 BUDGET	*2016 ACTUAL*	2017 BUDGET
LTE's	--*	--	--	$12,400	--	$12,400	--	$32,400	*$31,423*	$22,420	*$19,622*	--
FICA (personnel benefits)	--	--	--	$950	--	$1,898	--	$949	*$2,028*	$1,715	*$1,410*	--
Pond Restoration Expenses	--	--	--	$9,000	--	$3,841	--	$9,540	*$7,189*	$9,540	*$5,299*	$9,540
Creek Maintenance	--	--	--	$10,500	--	$3,429	--	$10,500	*$4,001*	$10,500	*$7,056*	$10,500
Trail Maintenance Expenses	--	--	--	$19,000	--	$19,000	--	$19,000	*$15,291*	$21,144	*$22,152*	$21,144
Grant Match/ Assistance	--	--	--	$5,000	--	$5,000	--	$5,000	*$3,941*	$5,000	*$3,385*	$5,000
Deer Management Grant	--	--	--	$5,000	--	$5,000	--	$5,000	*$3,912*	$5,000	*$2,784*	$5,000
Invasive Species Control	--	--	--	--	--	$45,000	--	$65,000	*$42,827*	$65,000	*$63,701*	$65,000
Other Operating Expenses	--	--	--	$13,400	--	$28,400	--	$28,400	*$13,360*	$28,400	*$19,664*	$28,400
TOTAL	***$60,304***	**$75,250**	***$39,496***	**$75,250**	***$117,997***	**$123,968**	***$134,792***	**$175,789**	***$123,972***	**$168,719**	***$145,073***	**$144,584**

*Data not available

Table 5-5. Conservancy Lands Operating Budget Item Descriptions[19].

ITEM	DESCRIPTION
LTE's	Labor: Limited Term Employee (LTE) assigned perform general unskilled labor for conservancy lands areas under the direction of the Director of Public Lands, Recreation and Forestry.
FICA	Personnel benefits.
Pond Restoration Expenses	Represents land management activities surrounding the glacial kettle ponds, including but not limited to restoration planning, restoration mowing and weed control, seeding and acquatic planting, prescribed burning, interpretive signage, trail development, and maintenance and dissemination of public information materials.
Creek Maintenance	Includes tree and debris removal from creek corridor areas, installation of erosion control features and restoration by staff and/or contracted services.
Trail Maintenance Expenses	Includes all supplies and services related to performing general trail maintenance, including purchased surface materials, trail markers, herbicide, geo-synthetic materials, grading and compacting of trail surfaces, maintenance and installation of trail surface materials, access gate materials and interpretive materials.
Grant Match/Assistance	Represents monies set aside for any/all conservancy lands grant application funds for operating type materials including trees, shrubs, plant materials, trail surface materials, signage and/or professional services for grant applications or provisions.
Deer Management Grant	Funds allocated specifically for the DNR Urban Wildlife Abatement Grant Funds, a 50/50-match program to assist communities with urban deer management goals and objectives.
Invasive Species Control	Land management activities related to removal of non-native invasive species, non-desirable vegetation for the purpose of limiting the extent of invasive species, protecting and maintaining remnant and restored native plant communities. Activies include but are not limited to: herbicide application, mowing, seeding, planting, brush and tree removal, prescribed burning, signage, maintenance and dissemination of public information materials. By staff and/or contracted services.
Other Operating Expenses	A general fund for any/all unforeseen operating expenditures not covered by other operating items.

19 Schreiber Anderson Associates (2010)

Conservancy Lands Capital Budget

Capital improvement projects are major improvements that typically have a lifespan of 10 years or greater and a minimum project cost of $5,000. Capital funds are used for facility improvements (e.g. trails, bridges, boardwalks, overlooks, interpretive signs, kiosks), restoration projects, plans (e.g. Management Plans/Master Plans and study projects), and acquisitions.

Capital budget totals for Conservancy Lands from 2017 included: Conservancy Lands Master Plan ($20,000), Bock Community Forest – Restoration Management ($30,000, 50% match), and City Trail Network Development and Enhancement ($209,175; Table 5-6).

Our proposed capital improvement projects for 2018-2023 include acquisitions, facilities and equipment improvements, recommends restoration priorities, and outlines a schedule for Master Plan/Management Plan projects (Table 5-7).

Acquisition of new conservancy land should be a priority when the opportunity arises. Areas of potential future acquisition include the greenway corridor to the north and northeast of Middleton, a trail corridor around South Pond, lands to the east and west of Graber Pond, and expansion of the Graber Pond Trail.

Prioritization of improvements and restoration priorities are based on the following criteria:

- Priority ranking of conservancies based on our Prioritization Matrix (Chapter 6)
- Past investment in a project, past grant award, and past and/or current support from partners
- Project was recommended in past Capital Improvement Plans
- Input from PLRF staff

Prioritization for needing a master plan is based on past master plans and vegetation quality (Table 5-10). Each conservancy should have a dedicated master plan, and master plans should be used to inform future Capital Improvement Plans.

Projected trail rehabilitation capital projects are based on pavement condition ratings (Table 5-8). Trail re-paving capital requests should be shifted to the Pedestrian, Bicycle & Transit Committee, as this committee is responsible for new path development requests. This would align funding requests for path development and subsequent path maintenance. Trails, trail maintenance, and trail pavement ratings are discussed further in Chapter 8.

Some improvements that occur on or influence conservancy lands are supported by capital improvement funds outside of Conservancy Lands. Although the CLC is not directly involved, PLRF staff often provide input on these project proposals. Capital projects supported by outside funding sources are listed in Table 5-9.

CONSERVANCY LANDS GRANTS AND DONATIONS

Grants and donations are instrumental in the protection, development, and restoration of Middleton's conservancy lands and trails. Grants and donations received for public lands (parks and conservancies) between 2002 and 2010 are recorded in the 2011-2016 Conservancy Lands Plan[20]. Table 5-11 itemizes grants received specific to conservancy lands, streambank restoration, and storm water management 2011-2017.

Major donations in the last five years include $15,000 annually 2013-2017 from the Friends of Pheasant Branch for restoration of John C. Bock Community Forest prairie, oak savanna, and oak woodland areas (50% City match). Continued donations are expected in 2018 and 2019.

Middleton utilizes the WDNR's Environmental Loans. These loan programs combine federal grants and state funding (Department of Administration and WDNR) to provide subsidized loans. Municipalities are eligible for funding through principal forgiveness. The Clean Water Fund Program provides financial assistance specifically for wastewater and storm water infrastructure projects.

In 2011, Middleton received Clean Water Fund assistance for the Pheasant Branch Creek Streambank Stabilization project for a 1000-foot segment of the creek between Park Street and Century Ave. The project used ecologically-sensitive techniques to stabilize eroded banks and slopes resulting from increased storm water inputs into the Pheasant Branch Creek. Total project cost was $149,000.

Middleton Area Public Lands Endowment

The Middleton Area Public Lands Endowment (MAPLE) fund was established in 2017 as a mechanism of supporting Middleton's public lands and public trail system (Box 5-2).

BOX 5-2: MIDDLETON AREA PUBLIC LANDS ENDOWMENT (MAPLE)

The Middleton Area Public Lands Endowment (MAPLE) was established in 2017, independent of City government, and consists of a volunteer citizen board. These volunteers are dedicated to generating funds to grow an endowment for the enhancement of public lands in the greater Middleton area.

MISSION

The Middleton Area Public Lands Endowment (MAPLE) serves to support, expand, and enhance the City of Middleton's vision of conservancy lands, forestry, parks and recreation, and trails for all.

The Middleton Area Public Lands Endowment Fund:

- Grows a permanent endowment and fosters philanthropy
- Partners with other community groups
- Does not supplant the normal City budget
- Serves a dynamic and diverse community

The Maple Board seeks gifts from individuals and companies who value public lands in our community. Contributions can be made for specific projects or for permanent investment into the Endowment for long-term growth through our partnership with the Madison Community Foundation.

There are many ways to make a tax-deductible contribution to MAPLE through the Madison Community Foundation (MCF). Gifts may be made in the donor's name, anonymously, or in honor of an individual. In addition to cash or checks, credit card gifts and electronic fund transfers (EFT) are all available. Also, securities, life insurance, retirement accounts, charitable gift annuities, and real estate can also be given. For details, go to www.madisongives.org and find MAPLE under their non-profit searchable list.

Contributed by Kelly Hilyard

MAPLE
Middleton Area Public Lands Endowment

20 Schreiber Anderson Associates (2010)

COMPARISON OF RESOURCES

To benchmark Middleton's conservancy lands stewardship with other Dane County municipalities, we contacted land managers at the City of Madison, City of Fitchburg, and Village of DeForest to gather information about their respective conservancy lands systems (Table 5-12).

Although the comparison of resources helps provide context for Middleton's efforts, we caution against making direct comparisons. These municipalities have a varying amount of conservancy lands maintained by other entities, such as the WDNR or Dane County Parks. Similarly many adjacent communities have interjurisdictional trails. The extent of trails and lands is often unknown or estimated.

In some cases, funds allocated for conservancy areas and conservation parks are not segregated from the general parks, forestry and/or trails budget for each municipality. For example, City of Madison's Engineering division is responsible for development and maintenance of the city's paved bike trails.

RECOMMENDATIONS

Each conservancy should have a dedicated Management Plan/Master Plan. A Master Plan should have a minimum lifespan of 10 years but no longer than 25 years. Addendums may be appropriate if site conditions change significantly within 10 years of writing a Master Plan. Changes in site conditions include: change in extent of boundary, significant change in vegetation (e.g. restored to native community), stakeholder and/or partner involvement, or other unforeseen changes.

Acquisition of conservancy lands should be a priority when the opportunity exists. Potential areas for acquisition include but are not limited to: the continuation of an urban greenway to the north and northeast of Middleton, a trail corridor around South Pond, and expansion of the Graber Pond Trail as development continues to east and west of Graber Pond.

Continue pursuit of state, federal and private funding. Grant seeking can be performed internally or by knowledgeable contractors.

Maintain a grants database relevant to public lands, and conservancy lands specifically. Include an updated database of available grants, a grant calendar with important grant deadlines, a database of grants applied for, and a database of grant received (grant amount, project, length of project/funds, annual carryover, and % City match).

Maintain database of donations received to public lands, and conservancy lands specifically.

Paved trail maintenance capital project requests should come from the Pedestrian, Bicycle and Transit Committee. This would align requests for new path development with trail maintenance. PLRF should oversee the contractors completing work.

Projects related to storm water management should be the responsibility of the Public Works Department. Recommended capital projects include: Tiedeman Pond pump replacement and feasibility study and storm water abatement plan, Stricker and Tiedeman Pond Storm water detention pond, Tiedeman Pond dredging near sewer grate, and dredging of Tiedeman pond forebays.

Table 5-6. Conservancy Lands Capital Budget, 2013-2017

PROJECT	2013 BUDGET	2014 BUDGET	CARRY-OVER INTO 2015	2015 BUDGET	CARRY-OVER INTO 2016	2016 BUDGET	CARRY-OVER INTO 2017	2017 BUDGET
City Trail Network Development	$67,500			$57,000		$140,000	*$46,937*	$209,175
Bock Community Forest	$30,000*	$30,000*		$30,000*		$30,000*		$30,000*
PBC Streambank Restoration	$25,000	$235,400*	*$159,104*		*$146,744*		*$139,689*	
Capital Equipment	$45,000							
Invasive Species Control	$60,000							
Tiedeman Pond	$115,800*							
USFWS PBC Wetland Enhancements	$23,500*							
PBC to Graber Pond Trail Link		$250,000*	*$227,280*		*$218,291*		*$76,504*	
Southern Cattail Control				$15,000*	*$11,462*		*$13,941*	
Middleton Beach Road Trails and Habitat Enhancement				$22,200				
Kromrey Middle School Trails						$20,000		
PBC SE Drain Tile Removal						$11,200*	*$4,488*	
PBC Duckblind Boardwalk						$55,000*		
Conservancy Lands Master Plan Update								$20,000
Total	$366,800	$515,400		$124,200		$256,200		$259,175

* Grant and/or donation associated project

Table 5-7. Projected Conservancy Lands Capital Projects, 2018-2023

PROJECT	2018[A]	2019	2020	2021	2022	2023	DESCRIPTION/JUSTIFICATION
Acquisition		TBD	TBD	TBD	TBD	TBD	Acquisition should be a priority when opportunities arise.
Improvements							
Compact Track Loader	$63,000						Compact track loader/track skid steer including a front mount forestry mower. Equipment shared with Public Works[B]
PBCC Technology and Security Improvements			$30,000				Improvements to technology and security, including an update of the emergency medical services locator system[B]
Master Plan Improvements		$80,000	$80,000	$80,000	$80,000	$80,000	Improvements per recommmendations of Master Plans (benches, kiosks, etc.)
Middleton Hills Boardwalk	$135,000						Replacement of Middleton Hills Boardwalk in the Middleton Hills Wetland adjacent to Frank Lloyd Wright Ave[B]
PBC Southeast Trail Boardwalk		$70,000					Replace boardwalk decking and add traction strips[B]
PBC Signage Project		$20,000					Replace PBC signage[B]
PBC Technology and Security Improvements				$25,000	$25,000		Improvements to technology and security, including an update of the emergency medical services locator system[B]
Trail Counters						$30,000	Counters measure pedestrian traffic[B]
Restoration Priorities							
Bock Community Forest	$25,000	$20,000					50/50 match with FOPB donation for prairie and oak savanna restoration. Move to Operations budget in 2020
Mary E Jacobson Fish Scrape				$28,000			Creation of fish habitat similar to PARC-funded Pike Pond spawning project
Mary E Jacobson Trail Installation				$71,775			Construction of a series of looping interlocking paved and unpaved trails through the Middleton Beach Road area and Mary E Jacobson Conservancy (Source: Capital Improvement Plan 2017-2021)
Middleton Bike Park Oak Woodland Restoration					$400,000		Oak woodland restoration in non-golf course area (10 years of management). Area is an environmental and recreational corridor
Middleton Hills Trail Development						$8,000	Installation of trail in Oulots 63&64 connecting the Middleton Hills neighborhood to existing Middleton Hills Trails and ultimately PBC. Component of Middleton Hills Restoration Capital Project (2016, 2017) not completed
MRD Dorn Creek Wetland Restoration						$300,000	Protection and restoration of wetland in northern portion of the Metropolitan Refuse District (10 years of management). Area includes remnant sedge meadow

[A] Approved 2018 projects. Source: 2018 Approved Budget, City of Middleton

[B] Source: Capital Improvement Plan 2018-2022, City of Middleton

Table 5-7. Projected Conservancy Lands Capital Projects, 2018-2023

PROJECT	2018[A]	2019	2020	2021	2022	2023	DESCRIPTION/JUSTIFICATION
PBC SE Tile Break		$12,000					Excavation and removal of drain tiles from a seep in the southeast section of the PBC identified in 2014. Following removal of drain tiles, area will be cleared of invasive species and planted to native species. Recommended by USFWS
PBC Restoration of Hayfield				$100,000			Restoration of hayfield to native prairie (10 years of management). Creates contiguous habitat between the PBC and John C Bock Community Forest
South Fork Oak Woodland Restoration			$135,000				Restoration of remnant oak woodland east of Pleasant View Rd (10 years of management). This area is an environmental and recreational corridor
Recommended Master Plans							
Bishop's Bay proposed park/ conservancy Master Plan			$20,000				Funding source TBD
Bock Community Forest Master Plan						$6,000	Addendum to 2009 Master Plan
Boundary Road Conservancy Master Plan			$6,000				No prior master plan
Capital Ice Arena Conservancy Master Plan				$6,000			No prior master plan
Esser Pond Master Plan				$20,000			Prior plan >10 years old
Graber Pond Conservancy Master Plan					$6,000		Addendum to prior plans. Surrounding area likely to be developed
Hidden Oaks Master Plan		$15,000					No prior master plan
Lakeview Park Conservancy Master Plan				$6,000			Addendum to prior plans
Mary E. Jacobsen Conservancy Master Plan			$20,000				Needs plan dedicated to Jacobson Conservancy
Middleton Bike Park Master Plan		$20,000				$15,000	Master Plan specific to non-golf course conservancy lands.
Middleton Hills Conservancy Master Plan					$10,000		Needs comprehensive plan
MRD Master Plan		$30,000					Master Plan for the Metropolitan Refuse District areas managed by CLC
North Fork Master Plan						$12,000	Addendum to prior plans

[A] Approved 2018 projects. Source: 2018 Approved Budget, City of Middleton

[B] Source: Capital Improvement Plan 2018-2022, City of Middleton

Table 5-7. Projected Conservancy Lands Capital Projects, 2018-2023

PROJECT	2018[A]	2019	2020	2021	2022	2023	DESCRIPTION/JUSTIFICATION
Orchid Heights Prairie Conservancy Master Plan			$6,000				No prior master plan
PBC Master Plan			$50,000				Coordination with FOPB, Dane County and WDNR
Pheasant Branch Creek Corridor Master Plan				$20,000			Prior plan >20 years old
Pheasant Branch Ridge Drainageway Master Plan				$6,000			No prior master plan
Quarry Hill Master Plan		$15,000					No prior master plan
Shorecrest Detention Pond Master Plan						$6,000	No prior master plan
South Fork Master Plan		$15,000					Proposed development of South Pond area in 2019
Spring Hill Detention Pond Master Plan						$6,000	No prior master plan
Stonefield Conservancy Master Plan					$6,000		No prior master plan
Tiedeman & Stricker Pond Master Plan					$30,000		Joint Master Plan for Stricker Pond, Tiedeman Pond, Elm Lawn Conservancies

[A] Approved 2018 projects. Source: 2018 Approved Budget, City of Middleton

[B] Source: Capital Improvement Plan 2018-2022, City of Middleton

Table 5-8. Projected Trail Rehabilitation Capital Projects, 2018-2023

PATH SEGMENT	2018	2019	2020	2021	2022	2023	DESCRIPTION/JUSTIFICATION
Middleton Hills South: Frank Lloyd Wright to Boardwalk		$11,424					Length = 402'
North Fork: Airport Road to Town of Middleton				$109,843			Length = 3000'
North Fork: Parview to Pleasant View			$44,438				Length = 3211'
North Fork: Standard Imaging to new pavement		$83,302					Length = 2332'
PBCC: Deming to Parmenter							Length = 2305'
South Fork: Deming to UW Health			$71,468				Length = 2102'
South Fork: Raven to Greenway		$42,853					Length = 1130'
Tiedeman Pond: Pondview to South Ave			$32,953				Length = 911'
Estimated total cost over 5-years		----------*$991,102*----------					Repaving of path segments as needed based on PASER condition ratings. Compliance with ADA and DOT Standards

Source: Capital Improvement Plan 2018-2022, City of Middleton

Table 5-9. Projected Non-Conservancy Lands Funded Capital Projects, 2018-2023

ITEM	2018[A]	2019	2020	2021	2022	2023	PROPOSED FUNDING SOURCE
Bike Park Trailhead, Parking and Access Drive	$420,000						PRFC Fund Balance and Repl. Fund
Bishop's Bay 50-acre park/conservancy					TBD	TBD	PRFC park development fees, or CL capital
Pheasant Branch Conservancy Trailhead Acquisition	$475,000						Planning TIF funding for parking/bridges/trail ($302,750), grant funds for building ($172,250)
GIS and Data Management System		$45,000					TBD; Licensing fee for software may already in operations budget
Northeast Middleton Trail Connector	$75,000						Planning TIF funding
PBC Parking Study & Improvements		$10,000	$15,000				TBD; improve parking at Graber to PBC connection
Public GIS Update		$40,000					TBD; Licensing fee for software may already in operations budget
South Pond Improvements	$125,000						Planning TIF funding
South Pond Forebay Dredging	$220,000						Storm Water Utility
Adaptive Management/TDML Compliance	$65,370						Water Resource Management Commission

[A] Approved 2018 projects. Source: 2018 Approved Budget, City of Middleton

Table 5-10. Master Plan Prioritization, 2018-2023

CONSERVANCY	YEAR OF PRIOR PLAN(S)	RECOMMENDED PRIORITY[A]	RECOMMENDED CAPITAL BUDGET YEAR	ESTIMATED COST[B]	RESPONSIBILITY	COMMENTS
South Fork of Pheasant Branch Creek	none	high	2019	$15,000	CL	Development of South Pond area is planned for 2019
Quarry Hill Conservancy	none	high	2019	$15,000	CL	Potential recreation and restoration area
Middleton Bike Park	none	high	2019	$20,000	CL	Needs dedicated plan. Partners = Capital Off-Road Pathfinders (CORP)
Hidden Oaks Conservancy	none	high	2019	$15,000	CL/DPW	Oak woodland; neighbor interest in management
Metropolitan Refuse District	none	high	2019	$30,000	DPW/CL	Needs separation of units (DPW: landfill; Parks: dog park; CL: wetland)
Boundary Road Conservancy	none	high	2020	$6,000	CL	Mature oaks; limited use (neighborhood); connects with Madison open space
Orchid Heights Conservancy	none	high	2020	$6,000	CL	Needs plan for restored prairie
Bishop's Bay proposed park/ conservancy	n/a	high	2020	$20,000	TBD	Future recreation and conservation area
Mary E. Jacobson Conservancy	n/a	high	2020	$20,000	CL	Needs dedicated plan
Pheasant Branch Conservancy	1982, 1998, 1998, 1999, 2006, 2008	medium	2020	$50,000	CL	Partners = FOPB, Dane County Parks, WDNR, USFWS
Pheasant Branch Creek Corridor	1998, 1999	medium	2021	$20,000	CL	
Esser Pond Conservancy	1989, 2004	medium	2021	$20,000	CL	

[A] Priority is based on past master plans and vegetation quality.

[B] Estimated cost is based on size, stakeholder interest, complexity and previous budget requests.

Table 5-10. Master Plan Prioritization, 2018-2023

CONSERVANCY	YEAR OF PRIOR PLAN(S)	RECOMMENDED PRIORITY[A]	RECOMMENDED CAPITAL BUDGET YEAR	ESTIMATED COST[B]	RESPONSIBILITY	COMMENTS
Pheasant Branch Ridge Drainageway	none	medium	2021	$6,000	DPW	
Capital Ice Arena Conservancy	none	medium	2021	$6,000	CL	
Lakeview Park Conservancy	2002	medium	2021	$6,000	CL	Significant investment and grant award for restoration (streambank, sedge meadow)
Stricker Pond Conservancy	1982, 2005, 2014, 2016	medium	2022	$10,000	CL/WRMC	Stricker/Tiedeman joint Master Plan and Storm Water Management Plan
Tiedeman Pond Conservancy	2006, 2012, 2004	medium	2022	$16,000	CL/WRMC	Includes Elm Lawn Savanna
Middleton Hills Conservancy	1998, 2004, 2009	medium	2022	$10,000	CL/WRMC	
Graber Pond Conservancy	2006	low	2022	$6,000	CL	
Stonefield Conservancy	1995	low	2022	$6,000	DPW/CL	
North Fork of Pheasant Branch Creek	2005, 2005	low	2023	$12,000	DPW/CL	
Bock Community Forest	2009	low	2023	$6,000	CL	Plan needs addendum to address ongoing management
Shorecrest Detention Pond	none	low	2023	$6,000	DPW	
Spring Hill Detention Pond	none	low	2023	$6,000	DPW	

[A] Priority is based on past master plans and vegetation quality.

[B] Estimated cost is based on size, stakeholder interest, complexity and previous budget requests.

Table 5-11. Grants Received for Conservancy Lands, Streambank Stabilization and Storm Water Projects, 2011-2017

DATE RANGE	GRANTING AGENCY, GRANT PROGRAM[A]	LOCATION	PROJECT	PROJECT SCOPE	STATUS	TOTAL PROJECT COST	GRANT AWARDED
2010-2011	DNR, AIS	Orchid Heights Park/Conservancy	Water Lettuce and Water Hyacinth	Manual removal of water lettuce and water hyacinth in two detention ponds in Orchid Heights Park	closed		$6,553
2010-2012	DNR, UW	primarily Pheasant Branch Conservancy	Middleton Deer Abatement	Deer control and damage abatement project	closed		$2,500
2010-2012	DNR, USC	Lakeview Conservancy	Lakeview Park Water Quality Improvements	Cost-sharing for design, engineering services and construction activities to restore the drainage channel and re-establish wetland to reduce urban runoff carrying suspended solids, phosphorous and heavy metals into the waters of the state. Assistance with Municipal Storm Water Permit goals	closed		$83,020
2012-2013	DNR, AIS	multiple	Southern Cattail Removal	Eradication of Southern Cattail from Middleton wetlands. Effort with consultants and volunteers	closed		$7,367
2012-2013	DNR, USC	Pheasant Branch Creek Corridor	Park Street to Parmenter Streambank Stabilization	Cost-sharing for streambank protection and sediment reduction practices. Assistance with Municipal Storm Water Permit goals	closed		$120,000
2013	USFWS	Pheasant Branch Conservancy	USFWS PBC Wetland Enhancements	Drain tile removal, invasive species removal, and native seeding on the west side of PBC below the overlook prairie	closed		$23,000
2013	DNR, NPS	Lakeview Conservancy	Lakeview Park Streambank Stabilization and Habitat Enhancement	Stabilize approximately 1,600 linear feet of eroding streambank using ecologically-sensitive techniques to mitigate erosion by dissipating stream energy, increasing flood flow capacity, and re-establishing dense deep rooted vegetation (50% City Match)	closed	$115,200	

[A] WDNR grants: AIS = Aquatic Invasive Species, LPAS = Acquisition and Development of Local Parks, NPS = Nonpoint Source Pollution, RTP = Recreational Trails Program, UGS = Urban Green Space, USC = Urban Storm Water Construction, USP = Urban Stormwater Planning, UW = Urban Wildlife Damage Abatement and Control | Dane County: PARC = Partners for Recreation and Conservation

Table 5-11. Grants Received for Conservancy Lands, Streambank Stabilization and Storm Water Projects, 2011-2017

DATE RANGE	GRANTING AGENCY, GRANT PROGRAM[A]	LOCATION	PROJECT	PROJECT SCOPE	STATUS	TOTAL PROJECT COST	GRANT AWARDED
2010-2014	DNR, RTP	Graber Pond	Graber Pond Development	Construction of a 1600' trail along the East side of Graber Pond. The trail will require wetland boardwalks and a chapter 30 permit for wetland impacts and structures in the pond. The project will include native seed, plugs and invasives control and recycled asphalt. The trail will safely connect to the sidewalk gap along High Road. The project will highlight the conical mound with interpretive signs (Total project cost for Graber Pond Development + Trail Development = $250,000)	closed		$30,000
2010-2014	DNR, LPAS	Graber Pond	Graber Pond Trail Development	Same as prior (Total project cost for Graber Pond Development + Trail Development = $250,000)	closed		$33,790
2011-2014	DNR, RTP	South Fork of the Pheasant Branch Creek	City of Middleton, South Fork/Greenway Center Trail	City of Middleton is Developing the South Fork/Greenway Center Trail, 9.5 acres, Friends of Kettle Ponds will be involved, trail will be paved and cleared for year round ADA access. This trail will be used to connect the existing trail system with future Good neighbor Trail and the communities of Middleton, Cross Plains, and Mazomanie.	closed		$45,000
2012-2014	DNR, UW	primarily Pheasant Branch Conservancy	Middleton Deer Abatement	Deer control and damage abatement project	closed		$3,500
2012-2014	DNR, USC	South Fork of the Pheasant Branch Creek	South Fork of Pheasant Branch Creek	Cost-sharing streambank protection and sediment reduction practices within the segment of Pheasant Branch Creek between Greenway Blvd. & Market Street to assist the City in meeting the requirements of its Municipal Stormwater Permit and remedy discharges of total suspended solids, phosphorus & heavy metals entering waters of the state	closed		$60,000

[A] WDNR grants: AIS = Aquatic Invasive Species, LPAS = Acquisition and Development of Local Parks, NPS = Nonpoint Source Pollution, RTP = Recreational Trails Program, UGS = Urban Green Space, USC = Urban Storm Water Construction, USP = Urban Stormwater Planning, UW = Urban Wildlife Damage Abatement and Control | Dane County: PARC = Partners for Recreation and Conservation

Table 5-11. Grants Received for Conservancy Lands, Streambank Stabilization and Storm Water Projects, 2011-2017

DATE RANGE	GRANTING AGENCY, GRANT PROGRAM[A]	LOCATION	PROJECT	PROJECT SCOPE	STATUS	TOTAL PROJECT COST	GRANT AWARDED
2014	Dane County, PARC	Tiedeman Pond	Tiedeman Pond Water Quality and Trails Enhancement	Control stormwater runoff pollution and increase available habitat through the construction of this two-acre forebay/ wetland complex in an area that was dominated by cattails and reed canary grass. The wetland is designed to maximize available habitat as well as aid in the removal of pollutants through plant uptake, microbial breakdown, retention, settling, and adsorption; ultimately helping to control weed growth and algal blooms (50% City Match)	closed	$115,800	
2013-2015	DNR, USP	multiple	Storm Water Plan Updates TMDL	Cost-sharing storm water plan modifications designed to address the wasteload allocations of the Rock River TMDL for the community and to meet the phosphorus and sediment reduction goals of the Municipal Storm Water Permit	closed		$33,310
2014-2015	DNR, USP	Middleton Beach area	Middleton Beach Neighborhood Sustainable Land Use and Storm Water Management	Cost sharing development of a new storm water management plan as part of a sustainable land use plan for the Middleton Beach Neighborhood in the City of Middleton, a Green Tier Legacy Community. Goals are to reduce discharges of sediment and phosphorus to Lake Mendota	closed		$25,160
2014-2016	DNR, UW	primarily Pheasant Branch Conservancy	Middleton Deer Abatement	Deer control and damage abatement project	closed		$5,000
2013-2017	DNR, RTP	Lakeview Park/ Conservancy	Lakeview Park Disc Golf	Amendment #3 Location of the disc golf course was changed to the Lakeview Park. New Disc Golf Trail installed at Lakeview connects with the trail system through the park, adjeacent elementary school and regional bike path	closed		$7,300
2014-	DNR, AIS	multiple	Middleton Southern Cattail Control	continued work with consultants and volunteers to control the multiple stands of Typha domingensis located in the Middleton wetlands. In addition, if Phragmites or purple loosestrife are found in the project area, those plants will also be treated	open		$25,787

[A] WDNR grants: AIS = Aquatic Invasive Species, LPAS = Acquisition and Development of Local Parks, NPS = Nonpoint Source Pollution, RTP = Recreational Trails Program, UGS = Urban Green Space, USC = Urban Storm Water Construction, USP = Urban Stormwater Planning, UW = Urban Wildlife Damage Abatement and Control | Dane County: PARC = Partners for Recreation and Conservation

Table 5-11. Grants Received for Conservancy Lands, Streambank Stabilization and Storm Water Projects, 2011-2017

DATE RANGE	GRANTING AGENCY, GRANT PROGRAM[A]	LOCATION	PROJECT	PROJECT SCOPE	STATUS	TOTAL PROJECT COST	GRANT AWARDED
2015-	DNR, USC	Middleton Beach area	Middleton Beach Road Green Street Design	Funding and cost-share reimbursement by the department for the project as described in the grant application submitted for calendar year 2015 for the eligible storm water construction activities listed in the application to address nonpoint sources of pollution (50% cost-share)	open		$150,000
2015-	DNR, USC	Pheasant Branch Conservancy	Pheasant Branch Conservancy Streambank Restoration and Habitat Enhancement	Approximately ~ 2,000 linear feet of streambank restoration on severely eroding streambanks north of Century Ave	open	$233,400	$124,000
2016-	USFWS	Pheasant Branch Conservancy	USFWS PBC SE Drain Tile Removal	Marked drain tile lines with USFWS Private Land Manager, Mike Engel. Project not completed	open	$11,200	$1,000
2016-	DNR, UW	primarily Pheasant Branch Conservancy	Middleton Deer Abatement	Deer control and damage abatement project	open		$4,150
2017-	DNR, UGS	Pheasant Branch Conservancy	Gerhardt Acquisition Pheasant Branch Trailhead	Funds to aid with the purchase of two parcels for the purpose of developing a regional trailhead that will include a park shelter with a picnic area, restrooms, parking area, and storm water enhancements	open	$475,000	$172,250

[A] WDNR grants: AIS = Aquatic Invasive Species, LPAS = Acquisition and Development of Local Parks, NPS = Nonpoint Source Pollution, RTP = Recreational Trails Program, UGS = Urban Green Space, USC = Urban Storm Water Construction, USP = Urban Stormwater Planning, UW = Urban Wildlife Damage Abatement and Control | Dane County: PARC = Partners for Recreation and Conservation

Table 5-12. Comparison of Conservancy Lands Resources in Like Departments in Dane County, 2017

MUNICIPALITY	MIDDLETON, CITY OF	DEFOREST, VILLAGE OF	MADISON, CITY OF	FITCHBURG, CITY OF	DANE COUNTY
Departmental organization	Conservancy Lands, within Public Lands, Recreation and Forestry Department	Conservancy Lands, within the Parks, Trails and Forestry Department	Conservation Parks, within the Parks Division	Parks, Forestry & Natural Resources	Parks Division, within the Land and Water Resources Department
Acres of Conservancy Lands	835	271	1,750	85	12,608
Acres of drainage and detention areas	acreage not quantified	32 areas (acreage not quantified)	982	164	--
Population (2010 Census)	17,442	8,936	233,209	25,260	488,073
How are projects prioritized?	Past management, ecological quality, capital and grant funding, and partner support	--[A]	(1) Followup on previous work, (2) ecological quality, and (3) capital funding available	No formal process. Some areas get more attention because they are managed by volunteers. Other areas do not get any management other than risk management – taking down hazard trees	--
Biggest challenge	Meeting the expectations/ desires/wishes of Middleton's citizens within the current labor and financial constraints	Never enough time or funding to manage it all	Ecologically, achieving desirable fire effects. Operationally, staffing limitations	Lack of funding and management plans.	--

[A] Data not available

[B] Average capital budget for conservation parks over a 6-year average period (2018-2023) was $330,000. 2017 capital budget was $220,000.

[C] City of Madison Parks Division does not divide operating budgets between parks, conservation parks, recreation and forestry. Total Parks Division budget was $17 million in 2011. Madison's trail system is funded by the Engineering Division.

[D] Additional sources included: City of Madison 2017 Capital Budget Capital Improvement Plan and City of Fitchburg Parks and Open Space Plan 2015-2010.

[E] City of Middleton trail mileages include all conservancy, parks and other off-road trails within the city.

[F] Dane County Parks Division operating budget for Recreation Parks, Natural Resource Areas, Wildlife Areas, Historical/Cultural Sites, County Forests and Trails.

Table 5-12. Comparison of Conservancy Lands Resources in Like Departments in Dane County, 2017

MUNICIPALITY	MIDDLETON, CITY OF	DEFOREST, VILLAGE OF	MADISON, CITY OF	FITCHBURG, CITY OF	DANE COUNTY
Miles of trail					
Natural surface	3.3[E]	1	11	2	--
Paved	11.4[E]	5	0	0	--
Boardwalk	1.2[E]	1	0.25	0	--
Crushed limestone	4.7[E]	1	7	0	--
Capital budget	$244,175	0	$330,000[B]	0	$5,889,700
Operating budget	$144,584	$41,251	--[B]	$14,500	$2,577,210[F]
Donations	$15,000	0	--	$1,500	--
Volunteer hours	967	0	--	500+	~65,000
Staffing (full-time equivalent)	1	1	3.6	0.6	31
Staffing (seasonal hours)	1,248	0	2,000	0	--
Habitat types (acres)					
Prairie remnant	--	minimal	20	0	--
Restored prairie	--	30	190	60	--
Wetland	--	75	1,025	2.4	--
Oak savanna	--	3	25	0	--
Oak woodland	--	6	335	0	--
Other forest	--	150	60	25	--

[A] Data not available

[B] Average capital budget for conservation parks over a 6-year average period (2018-2023) was $330,000. 2017 capital budget was $220,000.

[C] City of Madison Parks Division does not divide operating budgets between parks, conservation parks, recreation and forestry. Total Parks Division budget was $17 million in 2011. Madison's trail system is funded by the Engineering Division.

[D] Additional sources included: City of Madison 2017 Capital Budget Capital Improvement Plan and City of Fitchburg Parks and Open Space Plan 2015-2010.

[E] City of Middleton trail mileages include all conservancy, parks and other off-road trails within the city.

[F] Dane County Parks Division operating budget for Recreation Parks, Natural Resource Areas, Wildlife Areas, Historical/Cultural Sites, County Forests and Trails.

Table 5-12. Comparison of Conservancy Lands Resources in Like Departments in Dane County, 2017

MUNICIPALITY	MIDDLETON, CITY OF	DEFOREST, VILLAGE OF	MADISON, CITY OF	FITCHBURG, CITY OF	DANE COUNTY
Comments			Other open space in Madison includes lands owned by the UW-Madison (e.g. Arboretum, Lakeshore Preserve)	Staff has many other non-conservancy duties	Dane County Parks categorizes land into Recreation Parks, Natural Resource Areas, Wildlife Areas, Historical/ Cultural Sites, County Forests, and Trails. Dane County Parks also manages 2,800 acres of Conservantion Easements and 24 miles of Streambank Easements
Sources[D]	Mark Wegner, Public Lands Recreation and Forestry Assistant Director and Forester	Joleen Stinson, Parks and Natural Resource Supervisor	Paul Quinlan, Conservation Resources Supervisor, 2012-2017 Parks and Open Space Plan	Anna Healy, Urban Forester and Naturalist	Dane County Parks and Open Space Plan 2018-2023, 2018 Adopted Budget Dane County, Wisconsin

[A] Data not available

[B] Average capital budget for conservation parks over a 6-year average period (2018-2023) was $330,000. 2017 capital budget was $220,000.

[C] City of Madison Parks Division does not divide operating budgets between parks, conservation parks, recreation and forestry. Total Parks Division budget was $17 million in 2011. Madison's trail system is funded by the Engineering Division.

[D] Additional sources included: City of Madison 2017 Capital Budget Capital Improvement Plan and City of Fitchburg Parks and Open Space Plan 2015-2010.

[E] City of Middleton trail mileages include all conservancy, parks and other off-road trails within the city.

[F] Dane County Parks Division operating budget for Recreation Parks, Natural Resource Areas, Wildlife Areas, Historical/Cultural Sites, County Forests and Trails.

CONSERVANCY LANDS INVENTORY

CONSERVANCY LANDS SYSTEM FACILITIES MAP

As part of the Plan update, we created updated maps of Middleton's natural areas. The Middleton conservancy lands Existing Facilities map is included in Appendix D. The maps highlight existing facilities in Middleton, including conservancy lands, active parklands, and trails, as well as public lands and trails in adjacent communities.

The Middleton Public Lands system is categorized as Conservancy Lands, Parks, and Other Open Space. Individual Conservancy Lands and Parks are labeled along with vistas, schools, parking lots, boat launches, and benches. Trails within the City are highlighted by surface type, and off-street shared use routes are also included. The Existing Facilities maps include the extent of the City of Middleton at a large scale, and are further divided into seven sub-areas of the City for additional detail.

Data for the Existing Facilities maps was provided by the City of Middleton and Dane County in various GIS formats. Additional data was gathered from Wisconsin DNR and the WisconsinView Data Portal. The provided GIS data was modified significantly to reflect spatial and naming updates. As such, the Existing Facilities maps represent a re-creation of maps of the conservancy system rather than a simple update of previously produced maps.

The Existing Facilities maps can be at a variety of scales, and are designed to function as digital interactive PDF maps. The interactive features of the PDF allow users to easily customize the map for their particular interests, and provide an easier interface to navigate the information shown on the map. The interactive features generally fall into three categories: "layers", "pop-ups", and links. The PDF map includes layers that can are simple to turn on and off. The default configuration when the file opens is a basic but legible depiction of the Existing Faculties. Additional layers such as air photos, watersheds, terrain (e.g. hillshade) and the historic vegetation cover can be accessed on the left side of the screen. The PDF includes several pop-up features that provide information that would be otherwise difficult to see without zooming into features. Pop-ups include property names, trail names, and trail segment distances. Finally, there are numerous links within the PDF document. These links provide easy access to views within the document (i.e. the user can click a Conservancy property name on the Existing Facilities overview map, and come to a zoomed in view of this property on subsequent pages). Links also provide access to outside information such as websites, pictures, and previously produced reports (e.g. Master Plans).

PRIORITIZATION MATRIX

An objective of this Plan was to create a mechanism for City staff to identify priorities for maintenance and development efforts within the conservancy system. We strived to create an objective scheme for rating Middleton's conservancies given their natural resource value, impact on water resources, past investment in management/restoration, and public influence considerations (Table 6-1). Prioritization matrix factors were assigned maximum point values based on 25 criteria (Table 6-2). These criteria incorporate issues raised during the public participation process, and input from City staff and the CLC.

The sum of point values assigned to each conservancy allowed us to classify the conservancies into 4 priority categories: "very high," "high," "medium" and "low", with 6-7 conservancies in each ranking class. The relative priority categories may inform allocation of operating funds and prioritization of capital improvement projects.

The priority matrix is not a static ranking, but rather a framework for continued assessment of the conservancy lands system. Point values were determined given known and available information. However, information was lacking in some factor categories for some or all conservancies. For example, there is currently limited information about Threatened and Endangered species in Middleton's conservancy lands. As conservancy area Master Plans are updated, new available information will inform priority matrix assessments.

Table 6-1. Conservancy Lands Maintenance Prioritization Matrix

CONSERVANCY[A]	PRIORITY CATEGORY	PRIORITY SCORE TOTAL	COMMENTS
Pheasant Branch Conservancy	very high	278	Partners: Dane County Parks, WDNR, FOPB, Clean Lakes Alliance, USFWS
Lakeview Conservancy (and Mary E Jacobson Conservancy)	very high	253	Proximity to Lake Mendota.
Stricker Pond Conservancy	very high	248	Migratory bird stopover.
Tiedeman Pond Conservancy	very high	229	Migratory bird stopover.
Pheasant Branch Creek Corridor	very high	227	Creek corridor. Trail corridor.
John C Bock Community Forest	very high	208	Partners: Dane County Parks, WDNR, FOPB, Bock Community Gardeners, Clean Lakes Alliance
Metropolitan Refuse District	very high	196	High-quality wetland north of former landfill. In Dorn Creek environmental corridor.
North Fork of the Pheasant Branch Creek	high	193	Grassland birds present.
Middleton Bike Park	high	191	Trail maintenance and grant funding partners include MadNorSki, Capital Off-Road Pathfinders, Blackhawk Ski Club
Graber Pond Conservancy	high	174	Potential for expansion of the Graber Pond Trail
Esser Pond Conservancy	high	163	
Middleton Hills Conservancy: Pond	high	160	
South Fork of the Pheasant Branch Creek	high	162	Creek corridor and oak woodland. Trail corridor.
Middleton Hills Conservancy: Wetland	high	155	
Orchid Heights Conservancy	medium	144	AIS grant for water hyacinth rand water lettuce removal in ponds. Herbaceous invasive species include wild parsnip, sweet clover
Middleton Hills Conservancy: Outlots 63&64	medium	144	Some of the native seed sown on site provided by Dane County Parks.

[A] Conservancy areas are separated by subunit where past management, management plans, grant funding or partner involvement has been individual to subunit.

Table 6-1. Conservancy Lands Maintenance Prioritization Matrix

CONSERVANCY[A]	PRIORITY CATEGORY	PRIORITY SCORE TOTAL	COMMENTS
Pheasant Branch Ridge Drainageway	medium	142	PARC grant for trail establishment. Potential acquisition of adjacent undeveloped land to improve trail connectivity
Middleton Hills Conservancy: Oak Savanna	medium	139	
Middleton Hills Conservancy: Gaylord Nelson Pond	medium	135	
Hidden Oaks Conservancy	medium	123	
Stonefield Conservancy	medium	116	
Capital Ice Arena Conservancy	low	113	Adjacent to Hidden Oaks.
Quarry Park Conservancy	low	107	Oak woodland with low density of invasive species in understory.
Tiedeman Pond Conservancy: Elm Lawn Savanna	low	81	
Boundary Road Conservancy	low	76	Mature oak woods with invasive brush understory.
Shorecrest Detention Pond	low	71	
Spring Hill Detention Pond	low	71	

[A] Conservancy areas are separated by subunit where past management, management plans, grant funding or partner involvement has been individual to subunit.

Table 6-2. Prioritization Matrix Factor Descriptions

FACTOR	CATEGORY	WEIGHTING (MAXIMUM VALUE)	DESCRIPTION
Site has management plan	environmental	30	Points awarded if the site has a dedicated management plan noting desired future condition (30 points minus years from last plan).
Size >10 acres	environmental	10	In general, larger sites provide more ecosystem services and more habitat value.
Has remnant prairie, savanna, oak woodland or wet prairie	environmental	20	This ranking criteria describes sites with an intact native plant community. This could include presence of prairie grasses and wildflowers, oaks, or other native woody or herbaceous vegetation.
Has restored prairie, savanna, oak woodland or wet prairie	environmental	10	This ranking criteria describes sites with a restored native plant community. This could include presence of prairie grasses and wildflowers, oaks, or other native woody or herbaceous vegetation.
Habitat quality	environmental	50	Highly ranked sites have a low proportion of invasive, non-native species to native species. Other factors contributing to a high ranking include presence of mature oaks, which are irreplaceable in our lifetime. These provide the necessary structure for savanna and oak woodland. Habitat for endangered, threatened, rare and sensitive species (1=low, 50=excellent).
Contributes to flood and stormwater abatement	environmental	10	Assigned to conservancy lands with wetland features.
Hydrologically connected to Lake Mendota	environmental	10	Conservancy lands with a direct surface water connection to Lake Mendota with the potential to improve water quality by reducing nutrients and sediment.
Has or had grant funding or in-kind donation	funding	5	Site currently has grant funding for conservancy improvements (# of grants).
Has volunteer support	public influence	5	Site currently has active support from volunteers.
Had volunteer support	public influence	5	Site formerly received support from volunteers.
Opportunities for education	public influence	5	Accessible to school groups and citizens.
Public comment/interest/support	public influence	10	Conservancy mentioned in comments received from City staff and/or during plan writing process.
Maximum priority score		304	

Table 6-2. Prioritization Matrix Factor Descriptions

FACTOR	CATEGORY	WEIGHTING (MAXIMUM VALUE)	DESCRIPTION
In environmental corridor (e.g. Dane County NRAB, or linked with undeveloped land)	environmental	10	Land is contiguous with other open space and/or part of a county designated natural resource area boundary.
Threatened & Endangered species	environmental	10	Conservancy contains state or federal listed threatened or endangered species.
Development threat (consider for new areas, trails)	public influence	20	Site is adjacent to undeveloped land that could be incorporated as conservancy lands or trail corridors. Adjacent land is susceptible to development (residential, commercial) that would change the character of the conservancy of interest.
Water level impacts conservancy or park features (e.g. trails)	environmental	5	Water levels of ponds and streams within conservancy lands impact features and improvements within public land.
Water level impacts outside conservancy	environmental	10	Water levels of ponds and streams within conservancy lands impact property off site.
Groundwater recharge	environmental	10	Site is a groundwater recharge area.
Vulnerability	environmental	10	Could include threats to the area including invasive species, stormwater runoff, development on or near site.
Partner involvement (# of partners)	public influence		One point assigned for each partner organization assisting with management of the conservancy.
Potential/existing trail connection	public influence	10	Points awarded if the site already has trails or is located near proposed trail locations.
Public access	public influence	10	If there is a trail public access = 10. immediately adjacent road, access = 5 (survey indicated pleasure driving as an activity).
Visitation	public influence	24	Visitation rank as determined by the conservancy lands plan update survey (24 = most visited, 0 = least visited).
Tourism feature/recreation site	public influence	5	Site is featured in Middleton tourism outreach media.
Includes cultural features (e.g. Native American sites)	environmental	10	Site contains cultural features.
Maximum priority score		304	

INVENTORY OF CONSERVANCY LANDS

Middleton's conservancy lands system contains over 835 acres of land and shares over 27 miles of off-road trails with City's park system. A summary of conservancy lands is found in Table 6-3. Single-page descriptions of each conservancy area are located in Appendix E.

Table 6-3. Inventory of Middleton's Conservancy Lands

CONSERVANCY[A]	ACRES	FACILITIES	NATURAL COMMUNITIES	PRIORITY CATEGORY
Pheasant Branch Conservancy	325.2	Shared use bike/ped ADA-accessible trails (crushed limestone, paved), parking lots, wildlife viewing platform, boardwalks, bridges, interpretive and wayfinding signage. Passive hiking-only trails and bridge. Two scenic vistas including duckblind overlook. Trail loop is contiguous with Dane County Parks trails	wetlands, sedge meadow, restored prairie, restored/remnant oak savanna/oak woodland, marsh, natural springs, stream, seeps, fresh/ wet meadow, mixed hardwoods, surrogate grassland (hayfield)	very high
Lakeview Park Conservancy	30.5 *(14.7)*	Paved shared use bike/ped trail, ADA-accessible fishing port, interpretive signage. Adajcent to Lakeview Park facilities (includes parking lot, pavilion with restrooms, disc golf course)	Stream, planted wet-mesic/wet prairie, restored sedge meadow, mixed hardwoods	very high
Lakeview Park Conservancy: Mary E. Jacobson Conservancy	*15.8*	None	Wetland, marsh, shrub communities, remnant sedge meadow, mixed hardwoods	--
Sticker Pond Conservancy Area	25.1	Crushed limestone and natural surface shared used bike/ped trail, benches, scenic vista, interpretive signage, nesting boxes, purple martin bird houses. Trail connects with City of Madison's natural surface trail to loop around pond. Pond accessible for ice skating	Glacial kettle pond, wetlands, marsh, shrub communities, restored mesic prairie, restored oak savanna, mixed hardwoods	very high
Tiedeman Pond Conservancy	34.1 *(32.2)*	Shared use bike/ped trail loop (paved and natural surface), ADA-accessible boardwalk, wildlife viewing platform and scenic vista, interpretive signage. Pond accessible for ice skating	Glacial kettle pond, wetlands, marsh, restored mesic/wet-mesic/wet prairie, mixed hardwoods	very high
Tiedmean Pond Conservancy: Elm Lawn Savanna	*1.9*	Paved shared use bike/ped trail, nature study area for Elm Lawn Elementary, bench, interpretive signage	Restored oak savanna, and mixed hardwoods	--
Pheasant Branch Creek Corridor	58.7	Paved shared use bike/ped trails, benches, birding alcoves, interpretive and wayfinding signage	Stream, wetlands, mixed hardwoods, oak savanna	very high
John C. Bock Community Forest	19.1	Crushed limestone shared use bike/ped trail, natural surface hiking-only trail, interpretive signage and kiosk, community garden, monument	Restored prairie, restored oak savanna, restored/remnant oak woodland (management includes wooded area of Pheasant Branch Conservancy east of the East/Southeast Trail)	very high

[A] Conservancy areas are separated by subunit where past management, management plans, grant funding or partner involvement has been individual to subunit.

Table 6-3. Inventory of Middleton's Conservancy Lands

CONSERVANCY[A]	ACRES	FACILITIES	NATURAL COMMUNITIES	PRIORITY CATEGORY
Metropolitan Refuse District	72.6	Conservancy area excludes dog parks and leased land. No public access to conservancy and Public Works-managed areas	Wetland, remnant sedgemeadow, surrogate grassland (mowed field)	very high
South Fork of the Pheasant Branch Creek	34.2	Paved shared use bike/ped trail, benches, interpretive and wayfinding signage	Stream, wetlands, marsh, shrub communities, oak woodland	high
North Fork of the Pheasant Branch Creek	65.3	Paved shared use bike/ped trails, interpretive and wayfinding signage	Stream, wetlands, marsh, shrub communities, planted wet-mesic/wet prairie	high
Graber Pond Conservancy	32.8	ADA-accessible boardwalk and paved shared use bike/ped trail, adaptive kayak launch and fishing port, benches, interpretive signage	Glacial kettle pond, wetlands, restored mesic prairie, mixed hardwoods and oak savanna	high
Esser Pond Conservancy	27.5	Paved shared use bike/ped trail, bench, scenic vistas, interpretive and wayfinding signage	Glacial kettle pond, wetlands, marsh, wet-mesic/wet prairie	high
Middleton Bike Park	34.3	Mountain biking trails and pump track	Oak woodland/mixed hardwoods, restored prairie	high
Middleton Hills Conservancy	31.1			high
Middleton Hills Conservancy: Pond and Conservancy (Outlot 10)	*3.1*	Natural surface trail connecting to the Frances Hammerstrom trail.	Glacial kettle pond, restored wet-mesic/wet prairie, marsh, restored oak savanna, mixed hardwoods	--
Middleton Hills Conservancy: Oak Savanna	*3.2*	Natural surface/woodchip trail, interpretive signage, benches	Restored oak savanna	--
Middleton Hills Conservancy: Outlot 63 & 64	*7.9*	Scenic vista, stone bench	Restored mesic prairie, restored oak savanna	--
Middleton Hills Conservancy: Wetland Conservancy	*15.9*	ADA-accessible boardwalk and alcove, natural surface hiking loop, interpretive signage	Wetland, marsh	--
Middleton Hills Conservnacy: Gaylord Nelson Detention Pond	*1.0*	None	Detention pond, planted wet prairie	--
Orchid Heights Conservancy	9.1	Shared use bike/ped crushed limestone and paved trails, mowed grass hiking-only trail. Adjacent to Orchid Heights Park facilities (includes parking lot, ball fields, pavilion with restrooms, all-terrain wheelchair storage facility)	Restored wet-mesic/wet prairie, two detention ponds	medium

[A] Conservancy areas are separated by subunit where past management, management plans, grant funding or partner involvement has been individual to subunit.

Table 6-3. Inventory of Middleton's Conservancy Lands

CONSERVANCY[A]	ACRES	FACILITIES	NATURAL COMMUNITIES	PRIORITY CATEGORY
Stonefield Conservancy	5.4	Paved shared use bike/ped path connecting adjacent neighborhoods, natural surface hiking trail	Detention pond, planted wet prairie	medium
Pheasant Branch Ridge Drainageway	4.4	Paved shared use bike/ped path connecting Graber Pond Trail and Pheasant Branch Creek trail system	Detention pond, planted wet prairie	medium
Hidden Oaks Conservancy	14.6	Paved shared use bike/ped sidewalk	Detention pond, planted wet prairie, oak woodland	medium
Shorecrest Detention Pond	1.6	None	Detention pond, planted wet prairie	low
Boundary Road Conservancy	0.9	None. Adjacent to Boundary Road Park	Oak woodland	low
Quarry Park Conservancy	5.1	None. Adjacent to Quarry Skate Park	Oak savanna	low
Capital Ice Arena Conservancy	2.9	Paved shared use bike/ped sidewalk connecting to Hidden Oaks sidewalk	Planted mesic prairie	low
Spring Hill Detention Pond	1.4	None	Detention pond, planted wet prairie	low

[A] Conservancy areas are separated by subunit where past management, management plans, grant funding or partner involvement has been individual to subunit.

CONSERVANCY LANDS MANAGEMENT
VEGETATION AND WILDLIFE

CONSERVATION VALUE OF CONSERVANCY LANDS

Middleton's conservancy lands serve multiple functions, including facilitating outdoor recreation, managing storm water, and protecting water quality, but are primarily managed for conservation of natural areas. Natural areas management must identify the natural resources we are seeking to protect in Middleton and surrounding communities, and must recognize and address external pressures and threats to conservancy lands, such as development and invasive species.

Internally, the multifunctionality of conservancy lands creates opportunities and constraints for management. Management of storm water facilities on conservancy lands should be done in a manner compatible with land management on surrounding conservancy land. Similarly, conservancy trails, trail policy and trail development should enhance and not diminish natural resource value of conservancy lands.

ECOLOGICAL LANDSCAPE

Topography

Middleton is located along the western edge of the Southeast Glacial Plains and is adjacent to two other landscapes: the Central Sand Hills and Western Ridge and Coulees (Figure 7-1)[21]. Each of Wisconsin's 16 ecological landscapes has unique biological and physical attributes (e.g. climate, soils, hydrology) influencing the plant and animal communities within the landscape.

The Southeast Glacial Plains ecological landscape is characterized by topography sculpted by ancient glaciation. Glacial features in the Middleton area were primarily shaped by the advance and retreat of the Green Bay Lobe, an ice sheet up to 1,600 feet tall that existed in Wisconsin 24,000-12,000 years ago. Characteristic glacial landforms include glacial till plains and moraines as well as other unique glacial features like outwash plains, drumlins, eskers, kames and kettles.

As glaciers advanced southward, they incorporated and transported enormous quantities of rock and soil. As the climate warmed over thousands of years and the glaciers slowly retreated, rocks, boulders and soil were released and deposited. Hilltop ridges, *moraines*, formed near the furthermost extent of glacial advance (e.g. terminal moraine). Depressions, or *kettles*, formed from ice melt where blocks of ice were pushed into the ground by a receding glacier. Kettle depressions that eventually filled with glacial meltwater are called *kettle ponds*. Middleton has five kettle ponds. *Glacial till plains* are expansive plains of glacial till, sediment derived from erosion and movement of material by an advancing or retreating ice sheet. *Drumlins* are elongated, often egg-shaped hills formed by either deposition of glacial sediment or erosion of bedrock material during glacial advance or retreat.

21 Finley RW. 1976. Original vegetation cover of Wisconsin. Map (scale1:500,000) and accompanying text. North Central Forest Experiment Station,US Department of Agriculture, Forest Service, St. Paul, Minnesota.

The Southeast Glacial Plains has bedrock of limestone, dolomite, or occasionally sandstone or shale that is covered by a thick layer of glacial deposits. Soils are derived from lime-rich glacial tills overlain with silt-loam loess cap. These soils are particularly suitable for agriculture. The gently rolling or flat topography and fertile soils of this landscape contributed to the conversion of natural plant communities to agricultural land following the influx of European Settlers. Remnants of endemic natural communities are often found today in areas not suitable for agriculture – such as steep slopes, bluffs, and wetlands. The Southeast Glacial Plains once supported 5 million acres of oak savannas and woodlands, prairies, sedge meadows, and other wetland communities.

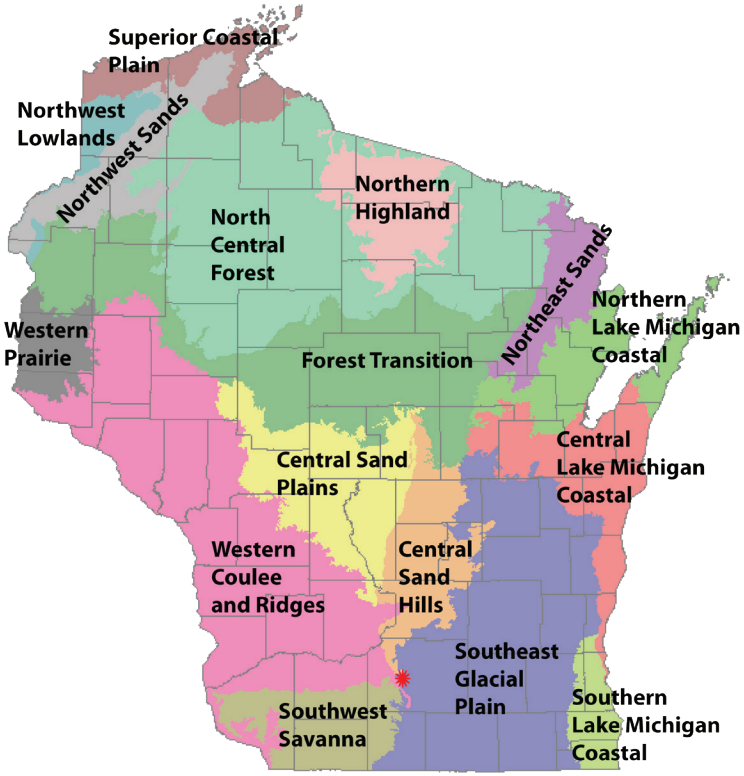


Figure 7-1. Middleton is located at the intersection of three ecological landscapes: Southeast Glacial Plain, Southwest Savanna, and Central Sand Hills. Data provided by the WDNR, 2014.

Hydrology

Middleton is in the Lake Mendota watershed, which is a sub-watershed of the Yahara River. The Yahara River drains into the Rock River, which ultimately flows into the Mississippi River. Like the surrounding landscape, the Yahara's chains of lakes was created by glaciation. The retreating glacial ice carved a valley and deposited sediments, gravel, and rocks creating drumlins and areas of poorly drained soils, where wetlands formed. Deposits also dammed the valley, creating the Glacial Lake Yahara, a lake encompassing an area double the size of all water area in the chain of lakes currently. Over time the lake reduced into smaller bodies of water creating the chain of lakes: Lakes Mendota, Monona, Waubesa and Kegonsa[22].

Middleton is geographically bordered to the east by Lake Mendota, and the 7-mile Pheasant Branch Creek and its tributaries flow into the Lake. The Pheasant Branch drains an area of over 22 acres and contributes 1,800 gallons a minute into Lake Mendota[23].

Today the landscape of Middleton and the surrounding Yahara watershed supports a variety of land uses such as urban and residential use, and agricultural land use. Non-point source runoff, particularly nutrient and sediment storm water runoff, severely impacts water quality.

Middleton's conservancy lands protect its water resources such as undisturbed wetlands, kettle ponds and creeks. The Pheasant Branch Creek and its tributaries (North Fork, South Fork) are protected by four conservancies: the Pheasant Branch Conservancy, the Pheasant Branch Creek Corridor, the North Fork of the Pheasant Branch Creek and the South Fork of the Pheasant Branch Creek. The 550-acre Pheasant Branch Conservancy is critical in protecting the Pheasant Branch Creek as well as its source springs and seeps, and wetland areas.

The Wisconsin Wetlands Association considers the Pheasant Branch Conservancy one of 7 "Workhorse Wetland Gems" in the state[24]. These wetlands demonstrate functional values of a wetland as described by the Wisconsin Rapid Wetland Assessment Methodology. The Pheasant Branch Conservancy is highlighted for its high groundwater connections[25]. Natural springs discharge 2.6 million gallons of groundwater into the Pheasant Branch wetlands daily.

Middleton's five glacial kettle ponds are additionally protected as conservancy areas (Sticker Pond, Tiedeman Pond, Graber Pond, Esser Pond, and Middleton Hills Pond, in Middleton Hills Conservancy).

Many of Middleton's conservancy areas serve dual function as both ecological resources and storm water management features. Storm water management goals include reducing sediment and suspended solids loads, in compliance with State regulations, and mitigating erosion. The City of Middleton is one of 23 participants in the Yahara WINS (watershed improvement network) watershed phosphorous reduction project organized by the Madison Metropolitan Sewerage District (MMSD), the WDNR, and partnering organizations. The project initiated in 2012 as a pilot regulatory compliance strategy called watershed adaptive management, in which all sources of phosphorus in a watershed work together to reduce phosphorus. In the first four years of the project, 29,000 pounds of phosphorous were kept from area surface water, accounting for 25% of the project's 20-year phosphorous reduction goal[26]. In 2016 the project transitioned to from a pilot project to a full-scale long-term (20+ years) project.

Vegetation

Historically, the Southeast Glacial Plains supported 5 million acres of prairie, oak savanna, oak woodlands, wetlands and other endemic communities. Today, less than 0.1% of original prairie and oak-dominated communities remain. These communities are globally imperiled due to their rarity.

22 Dane County Environmental Council. 2007. Yahara Waterways: Water Trails Guide. Madison, WI
23 Wisconsin Department of Natural Resources. 2002. Rock River Water Quality Management Plan, Lower Rock River Appendix. WT-668-2002. South Central Region, WDNR. Madison, WI
24 Wisconsin Wetlands Association. 2015. Wisconsin's Wetland Gems. Madison, WI
25 Larson J, Lehnhardt S.1998. Vegetation and Ecological Conditions of the Pheasant Branch and Belftontaine Conservancies. Applied Ecological Services, Inc. Brodhead, WI
26 Madison Metropolitan Sewer District. Accessed April 1, 2018 at <http://www.madsewer.org/Programs-Initiatives/Yahara-WINs> 2/26/2018

PLANT COMMUNITY TYPES

A community is an assemblage of different species that grow together and interact either directly or indirectly. A plant community is the vegetative component of the community. More specifically, a plant community is a local assemblage of species that develops in response to site conditions, such as soil moisture and fertility, local and regional climate, slope, aspect, and disturbance patterns[27].

Plant communities are recognizable associations of species, but do not necessarily have discrete boundaries. Where two community types overlap is called an ecotone. Some communities exist on a spectrum that is influenced by a gradient in some abiotic or biotic factor, such as disturbance. The prairie-oak savanna-oak woodland continuum is one such example. Communities range in size from less than an acre to thousands of acres. Communities are dynamic and always changing. Some change may be rapid while other change is slow and unrecognizable in a human lifespan[28].

Natural Community Types

Middleton's conservancy lands support a diversity of plant communities and unique landscape features. The Wisconsin Natural Heritage Inventory (WNHI) describes native plant communities endemic to Wisconsin[29]. Plant communities and landscape features existing in Middleton's conservancy lands, but not categorized in the WNHI are also listed in Table 7-1[30].

Several imperiled plant communities are present in Middleton, including prairie communities, oak woodland, oak opening (oak savanna), and wetland communities. Middleton's Threatened and Endangered resources are discussed later in this chapter.

27 Curtis JT. 1959. The Vegetation of Wisconsin: An Ordination of Plant Communities. The University of Wisconsin Press, Madison, WI
28 Epstein EJ, Judziewicz EJ, Spencer EA. 2011. Wisconsin Natural Heritage Inventory: Recognized Natural Communities – Working Document. Wisconsin Department of Natural Resources, PDF file.
29 Wisconsin Natural Heritage Program, Bureau of Natural Heritage Conservation, Wisconsin DNR. 2016. Wisconsin Natural Heritage Working List. Madison, WI. Accessed March 1, 2018 https://dnr.wi.gov/topic/nhi/wlist.html
30 Eggers SD, Reed DM. 2011. Wetland Plants and Plants Communities of Minnesota and Wisconsin. 3rd ed. United States Corps of Engineers, Regulatory Branch, Saint Paul District, Saint Paul, Minnesota

Table 7-1. Middleton's Natural Communities and Landscape Features

COMMUNITY OR FEATURE	DESCRIPTION	SOURCE[A]
Kettle pond	A geologic feature formed by a receding glacier. As an ice sheet retreats, chunks of ice may detach and press into a depression surrounded by mounds of soil. As the ice melts, a depression called a kettle hole remains. When water occupies the depression, it is called a kettle pond.	
Marsh communities	Marshes are characterized by permanent or temporal shallow water, and emergent aquatic vegetation. Dominant species include cattails and bulrushes among other gramanoids and forbs. These wetlands promote water quality by trapping sediments and taking up nutrients, mitigate floodwaters and shoreline erosion, and provide habitat for a variety of fishes, birds, and other wildlife.	BWSR
Mesic prairie	Prairies that occur on rich, moist but well-drained soils, where conditions may vary between wet and dry depending on the time of year and moisture conditions. Mesic prairies have a high diversity of forbs and graminoids. Prairies are adapted to frequent fires. Less than 0.1% of the original extent of prairie remains in Wisconsin.	WNHI
Mixed hardwoods	A central hardwoods community dominated by mesic hardwood species.	
Oak savanna	An oak opening is an oak-dominated savanna community in which there is at least one tree per acre but where total tree cover is less than 50%. The ground layer contains a native grass and forbs adapted to scattered sunlight. Receive varying amounts of sunlight. This community is critically imperiled in Wisconsin.	WNHI
Oak woodland	Woodlands dominated by oaks (*Quercus spp.*). The oak woodland community occupies a position on the continuum between oak openings (oak savanna) and oak forest/southern dry forest. Oak woodlands are characterized by trees that are more densely spaced and less spreading than those of savannas, and with crown closure between 50-95%. Dominant species include white oak, bur oak, and black oak, sometimes mixed with shagbark hickory. The ground layer is diverse; featuring members of the prairie, oak savanna, and oak forest communities that are adapted to highly filtered light conditions and frequent fire	WNHI
Sedge meadow	Widespread in southern Wisconsin, this open wetland community is most typically dominated by tussock sedge and Canada bluejoint grass, among other sedges, grasses and forbs. Common in glaciated landscapes, where they often border streams or drainage lakes. This community occurred with prairie, savanna, and hardwood forest communities. Threats to this community include fire suppression, drainage of wetlands, and invasive species.	WNHI
Seeps	A seep is an area where groundwater reaches the surface through permeable earth. Seeps are not as obvious as springs and are often located on hillsides	
Shrub swamps	Wetlands dominated by woody deciduous shrubs such as willows and dogwoods. Artificial drainage and fire suppression contribute to the succession of meadows to shrub communities. Includes shrub-carr.	BWSR
Springs	A spring is a point where groundwater or an underground stream reaches the ground surface.	
Stream	Middleton's streams include the Pheasant Branch Creek and its tributaries.	
Surrogate grasslands	A human-influenced landscape dominated by cool-season grass species, such as hayfields and pastures. These areas are dominated by non-native plant species, but provide habitat for grassland birds and some mammals.	WNHI

[A] Wisconsin Natural Heritage Program, 2016

[B] Minnesota Board of Water and Soil Resources (BWSR) Wetland Plants and Plant Communities of Minnesota and Wisconsin (Eggers and Reed. 2011)

Table 7-1. Middleton's Natural Communities and Landscape Features

COMMUNITY OR FEATURE	DESCRIPTION	SOURCE[A]
Wet-mesic prairie and wet prairie	Prairies occurring on moist soils. These prairies are often associated with wetland communities such as sedge meadow, emergent marshes, fens, etc. Have a high diversity of gramanoids and forbs.	WNHI
Wet/Fresh meadow	A community dominated by invasive reed canary grass. Typically in areas where sedge meadow or wet prairies would occur, but human influence such as artificial drainage, cultivation, and/or excess sediment and nutrient inputs favors establishment of reed canary grass	BWSR
Wetland communities	Areas were soils are saturated or covered with water, such as swamps, marshes, bogs, potholes, swales, glades and overflow land of rivers and valleys	

[A] Wisconsin Natural Heritage Program, 2016

[B] Minnesota Board of Water and Soil Resources (BWSR) Wetland Plants and Plant Communities of Minnesota and Wisconsin (Eggers and Reed. 2011)

THREATS AND OPPORTUNITIES

In Middleton and across the state, natural communities are impacted by past land use legacies and ongoing stressors such as habitat loss, fragmentation and degradation. Threats to natural communities are either directly or indirectly a result of human influence on the landscape.

Major threats to southern Wisconsin's natural communities include fire suppression, habitat loss, habitat fragmentation, loss of biodiversity, invasive species, changes in hydrology, and climate change (Table 7-2)[31].

Table 7-2. Threats to Wisconsin's Endemic Natural Communities

Fire suppression	Many natural communities in southern Wisconsin are adapted to fire at various frequencies and intensities, started by either natural lightning strikes or cultural practices. (Limits mesophication, can facilitate reproduction of key canopy species, e.g. oak; can deter growth of some non-native species; increases plant diversity)
Non-native plants	Non-native plants and fauna (e.g. non-native earthworms)
Ecological simplification	Loss of biodiversity, or ecological simplification. Loss of biodiversity coincides with loss of structural diversity and functionality.
Habitat loss	Habitat loss through agricultural production, development and transportation infrastructure
Habitat fragmentation	Habitat fragmentation through conversion to agricultural land or development. Many native plants and animals require large areas of contiguous habitat.
Hydrologic modifications	Changes in hydrology are human-caused. Alterations in hydrology include damming, draining (e.g. drain tiles), ditching, filling or urban storm water inputs.
Climate change	Climate change impacts natural communities in several ways: changes distribution and extent of species ranges, likely increases frequency and intensity of extreme weather events such as flooding or drought, may impact the ability to and efficacy of prescribed burning, and may indirectly promote invasive species.

31 Wisconsin Department of Natural Resources. 2015. 2015-2025 Wisconsin Wildlife Action Plan. Madison, WI.

Middleton is located at the edge of urban and suburban development pushing outward from the Madison metropolitan area. Land to the south and southwest of the City is primarily urban and residential, whereas areas to the north and northwest are primarily agricultural or undeveloped. Middleton's conservancy lands thus buffer urban development to south and provide a corridor between regional open space areas to the north, northeast, west, and to Lake Mendota. Thus, there is an opportunity for strategic acquisition of land or connection to land that strengthens contiguous environmental corridors to the north, northeast, and west of Middleton. These environmental corridors can additionally serve as recreational corridors where appropriate, for example, bike paths.

Nearby public open spaces include lands owned and managed by the WDNR, Dane County Parks, and to a lesser degree the Town of Middleton and City of Madison. Nearby Dane County Parks lands include Recreation Parks, Wildlife Areas, and Natural Resource Areas. Mendota County Park, Dorn Creek Wildlife Area, and North Mendota Prairie Unit Wildlife Area are located northeast of Middleton. Nearby Natural Resource Areas include the Dane County-owned portion of the Pheasant Branch Conservancy and the Black Earth Creek Natural Resource Area, located at the headwaters of the Black Earth Creek in the Town of Middleton. Natural Resource Areas (NRA's) are defined as lands set aside for the protection of valuable natural environments, such as water resources, wetlands, prairie, steep topography, forests, and agricultural working lands. These areas are managed primarily for natural resource value and secondarily for recreation. Dane County Parks additionally maps Natural Resource Area Boundaries (NRAB's) which are buffer areas protecting NRA's that are typically not owned by Dane County Parks. Mapping of these areas has, "no bearing on any zoning or land use decisions and participation by private landowners or local units of government to carry out any outlined resource protection initiatives is on a voluntary basis,"[32]. However, mapping of these areas highlights opportunities for protection of a larger landscape through either future acquisition, agricultural or conservation easements, or through private management (Figure 7-2).

Areas adjacent to Middleton include the North Mendota NRAB, which connects the Pheasant Branch NRA/NRAB to Dorn Creek/ Dorn Creek headwaters and to Six Mile Creek, and the Black Earth Creek NRAB to the west of Middleton, which connects the headwaters of Black Earth Creek to the Ice Age National Scenic Trail Corridor.

The Black Earth Creek NRAB includes forested and open space areas to the north and west of the Middleton Bike Park. The land to the north is being developed into a cross-country skiing Community Olympic Development Training Center and land to the west provides cross-country skiing and mountain biking access to Blackhawk Ski Club facilities. Managing these areas for silent sports recreation (cross-country skiing, biking, hiking, etc.) can be compatible with protecting these forested and open space areas.

The North Mendota NRAB encompasses the Metropolitan Refuse District property, which includes wetlands adjacent to Dorn Creek.

32 Dane County Parks. Dane County Parks Open Space Plan 2018-2013. n.d. PDF file

One of my only concerns with the conservancy system has to do with development projects that are possibly infringing on native environments. I'd hate to see our wetlands, prairies, and forests polluted because the impact can stretch beyond just Middleton - Survey respondent, 2018

The [conservancy system] is being threatened by excessive nearby development - Survey respondent, 2018

...I'd love to see more land and trails brought into the system and connect some of the disparate areas and connect to other trails and conservancy/park areas in Madison, Cross Plains, Waunakee, etc. - Survey respondent, 2018

As I see Middleton ever expanding, I hope we can continue to add or save spaces as a retreat from our urban landscape - Survey respondent, 2018

We are truly fortunate to be blessed with conservancy lands. We have the obligation to take care of them to ensure they remain in good quality for future generations of people, wildlife and plant communities - Survey respondent, 2018

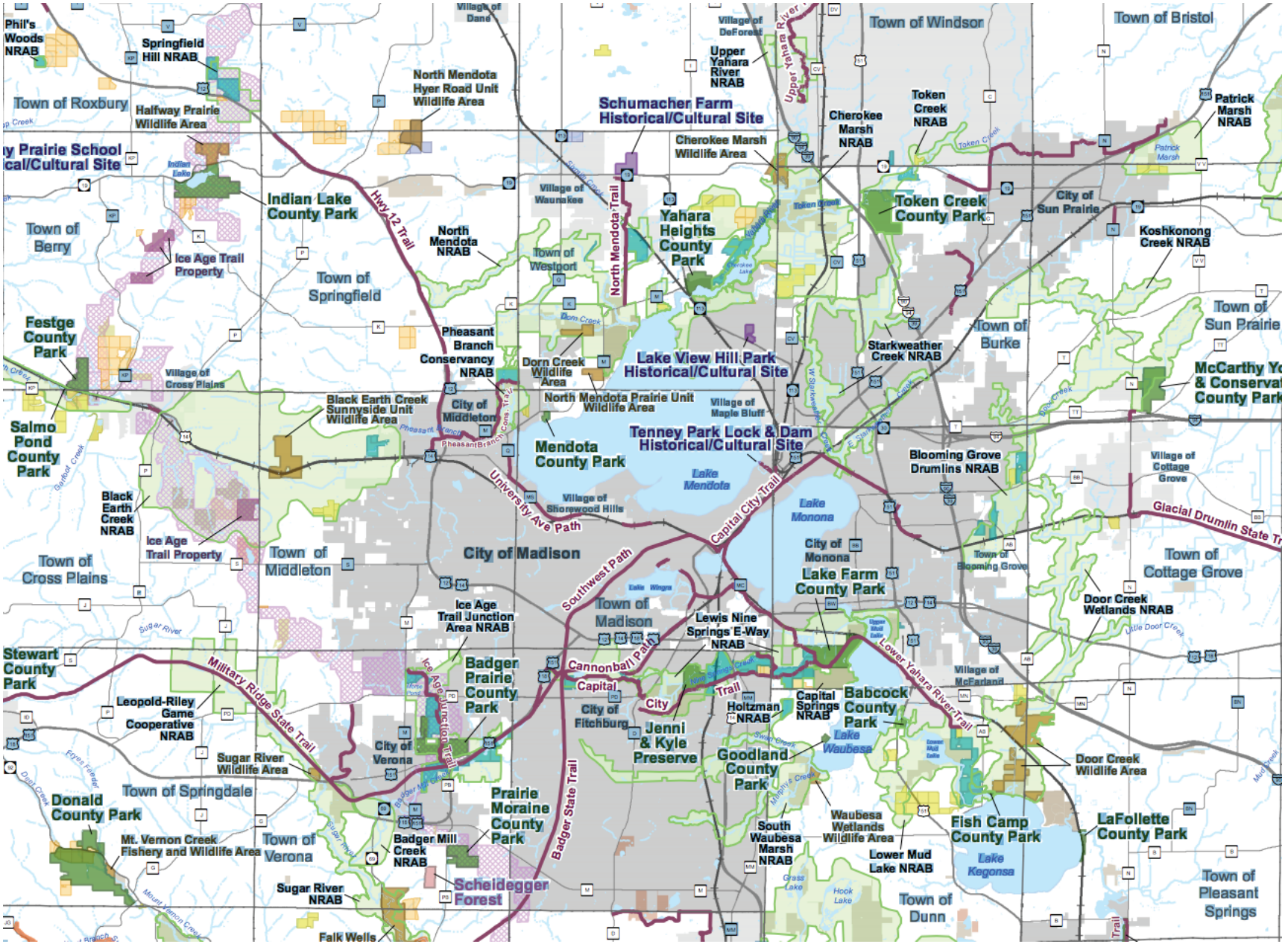


Figure 7-2. Dane County Parks park system and Natural Resource Areas map. Source: Dane County Parks

LAND MANAGEMENT

This Plan is meant as a framework for managing Middleton's conservancy lands system, however, is not a substitute for management plans for specific conservancy areas. The recommendations provided in this plan are general guidelines for management and are not intended to be conclusive or static.

Land Stewardship Strategies

Successful land stewardship requires routine monitoring and evaluation. Monitoring and assessment of past management activities thus informs changes in management tactics in response to results of previous management. This process of adaptive management also allows for adjustments in management practices based on new available information and research.

Land stewardship additionally requires flexibility due to the nature of ecological systems – natural fluctuations (e.g. populations dynamics, hydrology), random events (e.g. weather), unpredictable results of prior management activities, and other factors beyond human control.

General land management strategies should:

- Use a scientific, data-driven approach to management
- Focus on vegetation: the appropriate plant community assemblage provides habitat for insects, wildlife and birds
- Manage for endemic natural communities and native vegetation
- Provide habitat for species of special concern
- Reduce extent and spread of invasive species
- Restore natural processes to a landscape (e.g. fire regime, hydrology)

STORM WATER MANAGEMENT

Many of Middleton's conservancy areas additionally serve as storm water management facilities. Management of urban storm water is important because runoff increases sedimentation, conductivity and temperature of surface water, which degrades downstream water and habitat quality. Storm water runoff influences urban streams and wetlands by increasing the amount and flow of water in a system. Impervious surfaces associated with urban environments (e.g. impervious roads, parking lots, buildings and rooftops) exacerbate storm water runoff.

Management of storm water is guided by the City's storm water management plan, which includes a 2010 Water Quality Master Plan and associated studies. Storm water management goals include reducing sediment and suspended solids loads, in compliance with State regulations, and mitigating erosion. The Department of Public Works (DPW) and associated committees (WRMC, Storm Water Utility Board) are responsible for storm water management projects, study projects, and facility maintenance. Storm water features such as detention ponds and retention ponds aim to promote water infiltration.

Consequently, multiple City departments and committees are involved with land management decisions and oversight on conservancy lands functioning on some level as storm water management facilities. This has led to both gaps and overlap in responsibility, particularly for vegetation management. Examples of mismanagement include unnecessary or arbitrary mowing of natural areas (e.g. John C Bock Community Forest native plantings), or neglect due to lack of designated responsibility (e.g. Hidden Oaks Conservancy).

Opportunities

While managing conservancy lands for storm water provides challenges, using natural systems to manage storm water has many advantages (Table 7-3).

For over 20 years, the City has restored and managed native plant communities in its conservancy lands and storm water features. Native plants are adapted to our climate and offer greater value per acre compared to non-native vegetation by providing superior storm water infiltration capability, wildlife habitat, and resilience to drought (Table 7-3). The superior ability of native plants compared to introduced grass species to promote water infiltration, prevent erosion and withstand periods of draught is attributable to their deep root systems (Figure 7-3)[33]. Many prairie species contain about 2/3 of their biomass below ground in roots.

Given the level of expertise required in determining proper timing and application of vegetation management practices, we recommend that one entity should ultimately be responsible for vegetation management on land with native plantings. Costs of vegetation management may be shared across departments. For example, PLRF could conduct prescribed burns or maintenance mowing of a storm water detention basin, however expenses could be billed to DPW.

33 Minnesota Department of Natural Resources. 2018. Native Grasses - Soil Stabilization. Accessed April 1, 2018. https://www.dnr.state.mn.us/roadsidesforwildlife/nativegrasses.html

Improvement projects related to storm water management should be the responsibility of the Public Works Department. Proposed capital projects include: Tiedeman Pond pump replacement and feasibility study/stormwater abatement plan; Stricker and Tiedeman Pond Stormwater Detention Pond, Tiedeman Pond dredging around the sewer grate, and Tiedeman Pond forebay dredging.

Updating the City's GIS system and establishing an in-house GIS database could improve coordination between City departments. Benefits would include: shared access to maps and relevant data between multiple City departments, up-to-date public lands map are maintained in a central location, public lands maps delineate management responsibilities and desired management practices specific to area. Enhanced GIS capacity would provide a mechanism for documenting and evaluating land stewardship activities qualitatively and quantitatively.

Acquisition of additional lands could provide opportunities for enhanced storm water management, conservation and recreation. Coordinate with the WRMC regarding runoff control measures and acquisition of lands for enhanced mitigation of runoff. For example, the WRMC is currently investigating land aquisition around the North Fork of the Pheasant Branch Creek for corridor buffers and storm water detention basins. These areas could additionally provide benefits for wildlife habitat and recreational use.

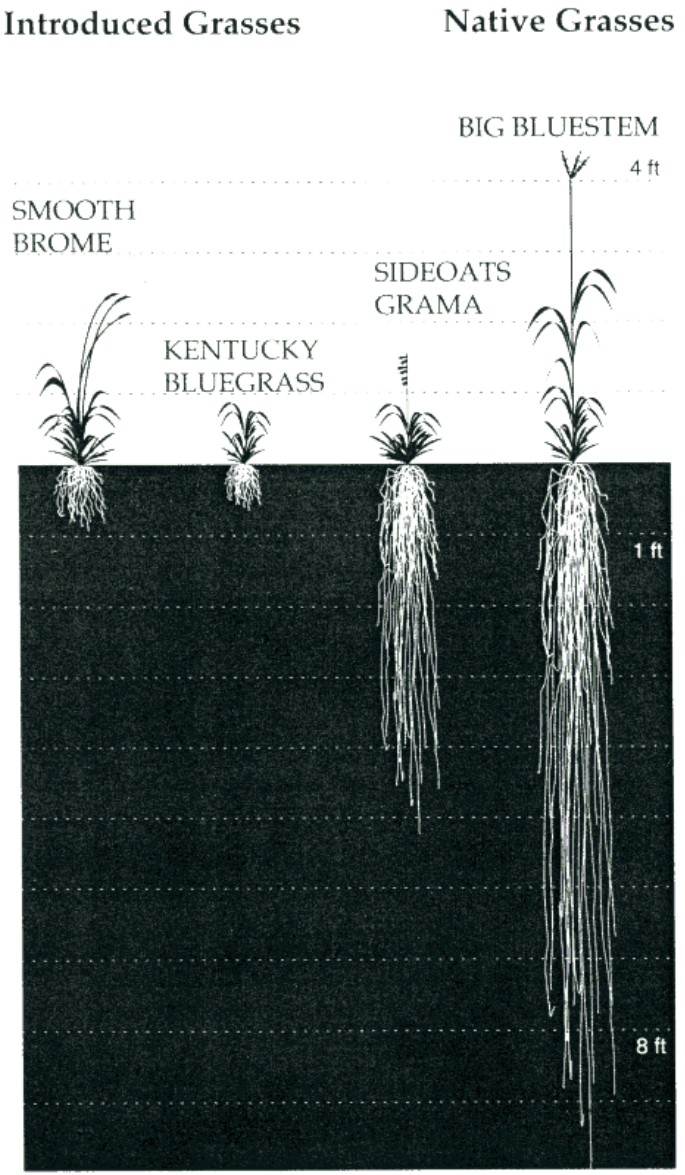


Figure 7-3. Root depth of native grasses compared to introduced turf grasses, prepared by the Minnesota Department of Natural Resources, 2018. Prairie grasses and forbs grow extensive roots up to 20 feet deep.

Table 7-3. Opportunities and Constraints of Detention Basin Native Plantings

OPPORTUNITIES	CONSTRAINTS
Provides pollinator habitat	Requires weed management by personnel knowledgeable in native plant identification
Deep roots of prairie plants allow increased storm water infiltration and attenuation of runoff compared to shallow-rooted non-native vegetation	Requires properly timed maintenance mowing or burning
Aesthetics	Seed cost
If in a weed management program, limits influx of invasive species into downstream areas	
Provides wildlife habitat	
Native plants host more nutrient and pollutant-reducing microorganisms compared to non-native	
High below-ground biomass leads to increased carbon sequestration	
May be eligible for grant funding	

INVASIVE PLANT SPECIES

Invasive species warrant special attention because of the reduction in habitat diversity and quality that they are likely to cause. The best approach is to prevent a small number of plants from becoming a major infestation through regular monitoring and prompt control.

Invasive species are classified in Wisconsin by the Wisconsin NR 40 listing (Wis. Adm. Code ch. NR 40)[34].

Prohibited species are those not currently found in Wisconsin, with the exception of small pioneer stands of terrestrial plants, but which, if introduced to the state, are likely to survive and spread, potentially causing significant environmental or economic harm or harm to human health. It illegal to possess, transport, transfer, or introduce Prohibited invasive species in Wisconsin without a permit.

Restricted species are those that are already established in the state and cause or have the potential to cause significant environmental or economic harm or harm to human health. Restricted species are subject to a ban on transport, transfer and introduction, but possession of terrestrial species is allowed.

Caution species are those that may be placed in other categories such as prohibited, restricted, or non-restricted because they are not currently found in the state, appear to be invasive only regionally, or their potential for invasiveness in Wisconsin is unknown.

Non-regulated species are those that may have some beneficial uses as well as negative impacts on the environment but are already integrated into Wisconsin's ecosystems so that control or eradication is not practical or feasible.

The Wisconsin NR 40 Invasive Species list provides some measure of severity of invasive species threats. However, the list does not convey severity of Non-regulated invasive species that are considered widespread and "not practical or feasible" to eradicate. Some listed Non-regulated species, (e.g. Birdsfoot trefoil), are pernicious in native plant communities and should be removed from remnant and restored native plant communities.

34 Wisconsin Department of Natural Resources. 2013. Invasives Rule – NR 40 Terminology, Invasive Species. Accessed March 20, 2018 https://dnr.wi.gov/topic/invasives

Management of Prohibited Species in Middleton

Wisconsin Prohibited species identified in Middleton since 2011 are listed in Table 7-4.

Water Hyacinth and Water Lettuce, Orchid Heights Conservancy/ Pheasant Branch Conservancy

The City received a WDNR Aquatic Invasive Species (AIS) Grant in 2010 for removal of a large infestation of water lettuce and hyacinth from the North and South detention ponds in Orchid Heights Park/Orchid Heights Conservancy, and some areas in the Pheasant Branch Conservancy where water hyacinth and water lettuce plants had been transported downstream into the Pheasant Branch marsh, which ultimately drains into Lake Mendota. This project was an "emergency response" to a rapidly growing invasion that threatened the habitat quality of the Pheasant Branch Conservancy. The source of infestation is unknown. All plant material was removed in 2010, and the area was monitored 2011-2013. No water hyacinth and water lettuce plants were identified following removal in 2010.

Southern Cattail, multiple locations

Southern cattail (*Typha domingensis*) was first identified in 2011 in multiple locations within a ¼ mile area in storm water swales, culvert areas, and wetland areas. Areas include the North Fork of the Pheasant Branch Creek stream corridor and confluence pond, South Fork of the Pheasant Branch Creek stream corridor adjacent to Costco parking lot, and Esser Pond. The City received a WDNR Early Detection AIS Grant for Southern cattail removal 2012-2013, and a second five-year AIS Grant for 2014-2018. Grant funds from the 2014-2018 AIS Grant additionally cover removal of two Wisconsin Restricted species: Phragmites (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). Project is ongoing.

Policeman's Helmet, Orchid Heights Park/Orchid Heights Conservancy

Policeman's helmet (*Impatiens grandulifera*) was identified in storm water swales in Orchid Heights Park in 2015. The area was monitored and plants were removed as found 2015-2018. Monitoring is ongoing.

Table 7-4. Wisconsin NR 40 Prohibited Species Identified in Middleton 2011-2017

SPECIES NAME	STATUS
Water hyacinth (*Eichhornia crassipes*)	eradicated
Water lettuce (*Pistia stratoites*)	eradicated
Southern Cattail (*Typha domingensis*)	ongoing monitoring and removal
Policeman's helmet (*Impatiens grandulifera*)	ongoing monitoring and removal

RESTORATION CAPITAL PROJECTS

Adequate funding is necessary to preserve and enhance the quality of Middleton's natural areas. According to the Conservancy Lands Plan Update Survey, 22% of verified Middleton residents listed habitat restoration and management of native vegetation as the highest priority for allocation of funds with respect to conservancy lands. When identifying management priorities, 81% of residents cited invasive species management as very important (4) or extremely important (5) on a 1-5 Likert scale. Additionally, 65% of residents cited restoring areas to native vegetation communities as very important (4) or extremely important (5).

Biodiversity that is supported through well-functioning ecosystems is of primary importance to me - Survey respondent, 2018

When initiating a native plant establishment project, we recommend a 10-year establishment period prior to shifting the project from capital to maintenance budgets. This allows the planting to establish and become resilient to degradation from invasive species, flooding, or other outside influences.

Proposed restoration capital projects for the next five years are listed in Table 5-7.

MANAGEMENT PRACTICES

Common land management activities are described in the 2011-2016 Conservancy Lands Plan[35].

35 Schreiber Anderson Associates. 2010. p 2-1

Table 7-5. Estimated Per Acre Costs of Restoration for General Natural Community Types

PLANT COMMUNITY	INITIAL YEAR OF RESTORATION *PER ACRE*	MATURE RESTORATION (>10 YEARS) *PER ACRE*	10-YEAR COST *PER ACRE*
Prairie communities	$1,500	$300	$11,000
Wetland communities	$1,500	$300	$11,000
Oak savanna/oak woodland communities	$5,000	$300-600	$27,000

WILDLIFE MANAGEMENT

Middleton's conservancy lands are home to a diversity of wildlife that occupies the variety of habitat types within the conservancy lands system - wetlands, prairie, savanna and woodlands. For different species of wildlife, these areas serve as travel corridors, resting areas, breeding grounds, or year-round habitat.

During the public outreach process for this plan, dozens of comments were received from conservancy users about how they appreciate their interaction with birds and wildlife when visiting Middleton's public lands. According to Cornell University's "e-Bird," a citizen-science database, over 235 species of birds have been identified in Pheasant Branch Conservancy. Other e-bird hotspots include Stricker Pond, Tiedeman Pond, and Graber Pond.

> *I love to be outside and experience the natural environment. Spotting a special animal like a mink, hawk, turtle, or deer is wonderful. I am so grateful for our conservancy lands and want to see them preserved and cared for - Survey respondent, 2018*

Sometimes wildlife can have a negative impact on conservancies and the community. An example of this includes nutrient inputs to kettle ponds from non-migratory Canada geese, which can lead to algal blooms and a decline in water quality. Another example of negative wildlife impacts are losses in biodiversity due to grazing pressure from white-tailed deer. Deer abundance increased dramatically in the last several decades and deer populations greatly exceed historic levels in southern Wisconsin. Selective browsing by deer influences alters the vegetative composition of natural communities[36]. Over-browsing and selective browsing reduce biodiversity of our landscapes, increase susceptibility to invasive species, and indirectly reduce habitat for Wisconsin native fauna. Middleton has engaged in a deer damage abatement program since 2002.

Past management activities

Blanding's turtles

City staff, contractors and volunteers have played an active role monitoring for Blanding's turtles (*Emydoidea blandingii*) and enhancing habitat. These turtles are protected under Wisconsin law and are found in several conservancy areas within the City, including Pheasant Branch Conservancy, Graber Pond Conservancy and Middleton Hills Conservancy wetland area. Volunteers and contractors surveyed Middleton's natural areas for turtles (2009-2014) and monitored movement of these turtles using radio telemetry. This project was supported by WDNR Citizen-Based Monitoring Partnership Program funds, received in 2011.

A tile break and wetland restoration on the west side of Pheasant Branch Conservancy is near the overwintering habitat of the turtles, and surrogate nesting media (sand piles) were placed on the east side of the conservancy.

The three Blanding's turtles fitted with radio telemetry devices were monitored weekly to see where they were utilizing the marsh (2012-2013). The data indicated that the turtles hibernate each winter near this restored wetland area. This monitoring project also provided insight into the seasonal patterns of snapping turtles and painted turtles, which following similar patterns of migration. Nesting sites were also documented. Eggs from non-suitable, dangerous nesting sites (i.e. lawn) were collected and reared by a DNR turtle expert. These "head-started" turtles grow faster than their outdoor counterparts, and have a greater chance of survival due to their size. In 2012, 9 head-started turtles were released in the Pheasant Branch Conservancy; in 2013, 16 head-started turtles were released.

Over the course of the 5-year project, the consultant (Thompson & Associates Wetland Services) presented numerous talks and demonstrations, and facilitated over 1000 hours of volunteer work.

36 Côté SD, Rooney TP, Tremblay JP, Dussault C, Waller DM. Annual Review of Ecology, Evolution, and Systematics 2004 35:1, 113-147

Deer Management

Middleton has participated in deer management in the Pheasant Branch Conservancy since 2002 with the assistance of WDNR Urban Wildlife Damage Abatement and Control grants. The grant program helps offset expenses related to monitoring and estimating deer populations, culling deer with sharpshooters, performing health and tissue sampling (for Chronic Wasting Disease), modifying habitat to reduce suitability to deer, and other abatement methods.

The project is aimed at reducing the density of deer given the absence of natural predators in urban Middleton. An unnaturally large population of deer creates a nuisance in yards and parks, contributes to car accidents on local roads, and negatively impacts native vegetation in Middleton's conservancies. The WDNR recommends an acceptable threshold of 10 deer per square mile (about 1 deer per 64 acres) in the Madison Metropolitan area. Since 2002 the program has been successful in reducing the number of deer in the conservancy. Project activities also include grant renewal, education and outreach materials (Figure 7-4).

Major deer damage abatement activities included:

Aerial surveying	2014, 2015
Habitat modifications: removing invasive brush	2014, 2015
Sharpshooter culling	2002-2014

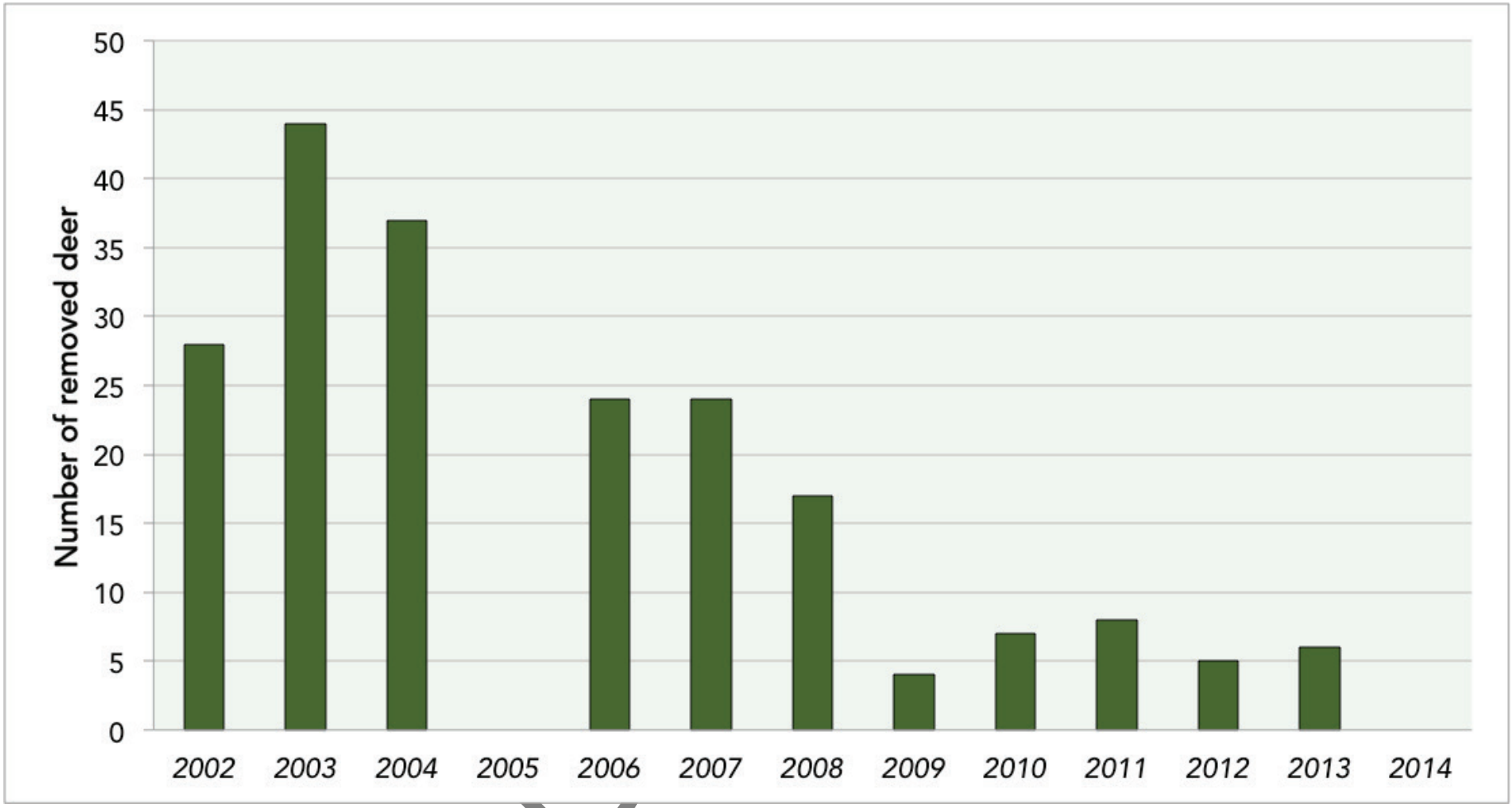


Figure 7-4. Deer Damage Abatement Deer Removal in Middleton 2002-2014

"Bird City"

In 2011 the City was awarded "Bird City" status by the Bird City Wisconsin project, recognizing the City's commitment to maintaining and enhancing bird habitat. In order to become a "Bird City," a community needs to demonstrate that they have met at least seven of 22 criteria within these four categories:

Category 1	Creation and Protection of Habitat
Category 2	Participation in Programs Promoting Effective Community Forest Management
Category 3	Limiting or Removing Hazards to Birds
Category 4	Public Education

This status has been renewed annually.

ENDANGERED, THREATENED AND SPECIAL CONCERN SPECIES

Threatened and Endangered Species are plants and animals designated by state and federal agencies to receive legal protection due to their rarity. At the state level, Wisconsin State Statute 29.604 and Administrative Rule Chapter NR 27 provide guidance on this protection.

As part of this protection, the Wisconsin DNR's Bureau of Endangered Resources maintains the Wisconsin Natural Heritage Inventory (NHI) program. The WNHI Working List contains 1) native species known or suspected to be rare and/or declining in the state, 2) natural communities recognized by WNHI, and 3) certain other natural features that occur in Wisconsin. The Working List includes species legally designated as "Endangered" or "Threatened" by either the State of Wisconsin (State Statute 29.604 and Administrative Rule NR 27) or the federal government (federal Endangered Species Act). It also contains species the department has designated "Special Concern," as well as the USFWS's formal "Candidate" species[37].

NHI data is publicly available at a township level. Since the City of Middleton boundary extends across 3 townships, we listed the NHI for all 3 townships, current as of July 2017 (Table 7-6). Township lists exclude bald eagles and particularly sensitive species for the purpose of protecting the locations of these elements. Thus, the data presented at the Township level should not be used for reviewing a proposed land development or land management project for potential impacts to endangered resources.

Sensitive Species are generalized to the County level. Dane County sensitive species elements are listed in Table 7-7[38].

Protected wild animals

In addition to legal protection for threatened and endangered species, Wisconsin rule NR 10.02 extends legal protection to specifically named animals regardless of rarity (Table 7-8).

37 Wisconsin Natural Heritage Program, Bureau of Natural Heritage Conservation, Wisconsin DNR. 2016. Wisconsin Natural Heritage Working List. Madison, WI Accessed March 1, 2018 https://dnr.wi.gov/topic/nhi/wlist.html.
38 Wisconsin Department of Natural Resources. 2017. Sensitive Species List: Elements to be Generalized to County Level. PDF file last updated October 2017

Incidental Take

The WDNR has the authority to allow incidental take of endangered and threatened species under certain circumstances, and has developed protocols to minimize negative impacts to protected native species while conducting land management and landscape altering activities[39].

An *Incidental Take Permit/Authorization* is issued on a project-by-project basis, and the individual or agency responsible for incidental mortality must submit an application prior to performing land management activities.

Broad Incidental Permit/Authorizations were created for common land management activities such that neither an application nor a permit fee is required. An individual or organization covered by this permit or authorization is therefore automatically covered.

Land management activities in Middleton's conservancy lands are covered under the Grassland and Savanna Broad Incidental Take Permit/Authorization. Incidental take (mortality) of endangered and threatened species may occur during grassland and savanna management activities, however, these activities are necessary for maintaining habitat for these species.

According to the Grassland and Savanna Broad Incidental Take Permit/Authorization:

The term "grassland" broadly includes prairie communities, sedge meadow, shrub-wetland, fen, brush prairie, sand barrens, bracken grassland, and sphagnum bog. Pastures and fields dominated by non-native grasses and forbs with or without shrubby invasion, and plantings of native grasses and forbs are also considered "grassland".

The term "savanna" refers to oak and pine barrens, glades, oak openings (oak savanna), open oak woodland and all phases in between. Degraded lands, agricultural lands, and other forested lands that are targeted for grassland or savanna restoration also are included under this authorization.

Prior to completing land management activities, the land manager must compile a list of species likely to be present on site. If the WDNR is funding or approving the management activity, a DNR staff will conduct an assessment using the NHI database. If the WDNR is not conducting, funding, or approving the project, an Endangered Resources Review can be requested.

Activities Covered

This permit/authorization is not a blanket approval for all activities that may occur in a grassland and savanna habitat. Only the following management activities are covered when appropriate species protocols are followed: prescribed burning, mowing/haying, selective tree or brush cutting, herbicide application, and grazing. Other activities (tree planting, flooding, harvesting seed from Threatened and Endangered Species) require special instructions and/or special permissions from the WDNR Bureau of Endangered Resources.

The WDNR also prepares incidental take protocols outlining management protocols for individual species. Listed plants are grouped under a single protocol.

39 Wisconsin Department of Natural Resources. January 20, 2017. Broad Incidental Take Permit/Authorization for Grassland and Savanna Management. Accessed April 1, 2018 https://dnr.wi.gov/topic/erreview/itgrasslands.html

Rusty-Patched Bumble Bee

The rusty-patched bumble bee (*Bombus affinis*) is a federally endangered species under the Endangered Species Act (ESA) effective as of March 21, 2017. Middleton is located in a High Potential Zone, as identified by the USFWS, meaning that rusty-patched bumble bees are likely present in the area. The USFWS recommends assuming that rusty-patched bumble bees are present where suitable habitat is present (i.e. prairie communities) although population levels are low even in High Potential Zones. Known populations exist in several locations in the greater Madison metropolitan area, including at the UW-Madison Arboretum.

Federally funded projects in High Potential Zones may require a federal permit for incidental take. Non-federally funded projects do not require a permit outside of compliance with the ESA. The USFWS provides conservation management guidelines, or recommendations for land management practices in areas of potential rusty-patched bumble bee habitat[40]. Local USFWS ecologists are available for consultation regarding management of the rusty-patched bumble bee.

To make a prairie it takes a clover and one bee, -

One clover and a bee,

and revery.

The revery alone will do

If bees are few.

- Emily Dickinson

40 US Fish and Wildlife Service. 2018. Conservation Management Guidelines for the Rusty Patched Bumble Bee (Bombus affinis). US Fish and Wildlife Service, US Department of the Interior. PDF file

Table 7-6. Middleton Threatened and Endangered Species Recorded at the Township Level, 2017

SCIENTIFIC NAME	COMMON NAME	WI STATUS	FEDERAL STATUS	GROUP	TOWNSHIP	TOWNSHIP NAME
Bombus affinis	Rusty-patched Bumble Bee	SC/N	Listed Endangered	Bee	T7N R8E	Middleton
Lespedeza leptostachya	Prairie Bush Clover	END	Listed Threatened	Plant	T8N R9E	Westport
Ammodramus henslowii	Henslow's Sparrow	THR	Species of Concern	Bird	T8N R9E	Westport
Cirsium hillii	Hill's Thistle	THR	Species of Concern	Plant	T8N R9E	Westport
Emydoidea blandingii	Blanding's Turtle	SC/P	Species of Concern	Turtle	T8N R9E	Westport
Acris blanchardi	Blanchard's Cricket Frog	END		Frog	T8N R9E	Westport
Aflexia rubranura	Red-tailed Prairie Leafhopper	END		Leafhopper	T8N R9E	Westport
Asclepias purpurascens	Purple Milkweed	END		Plant	T7N R8E	Middleton
Papaipema silphii	Silphium Borer Moth	END		Moth	T7N R8E	Middleton
Ruellia humilis	Hairy Wild Petunia	END		Plant	T7N R8E	Middleton
Terrapene ornata	Ornate Box Turtle	END		Turtle	T7N R8E	Middleton
Progne subis	Purple Martin	SC/M		Bird	T8N R9E	Westport
Agalinis gattingeri	Roundstem Foxglove	THR		Plant	T7N R8E	Middleton
Notropis anogenus	Pugnose Shiner	THR		Fish	T8N R9E	Westport
Polytaenia nuttallii	Prairie Parsley	THR		Plant	T8N R9E	Westport
Vireo bellii	Bell's Vireo	THR		Bird	T8N R9E	Westport
Cuscuta glomerata	Rope Dodder	SC		Plant	T8N R9E	Westport
Cuscuta polygonorum	Knotweed Dodder	SC		Plant	T8N R9E	Westport
Houstonia caerulea	Azure Bluets	SC		Plant	T7N R8E	Middleton
Nothocalais cuspidata	Prairie False-dandelion	SC		Plant	T8N R9E	Westport
Acipenser fulvescens	Lake Sturgeon	SC/H		Fish	T8N R9E	Westport
Thamnophis radix	Plains Gartersnake	SC/H		Snake	T8N R9E	Westport

Source: WDNR. Data current as of 2017.

END = endangered; THR = threatened; SC = special concern: SC/FL = federally protected as endangered or threatened, but not so designated by DNR; SC/H = take regulated by establishment of open closed seasons; SC/M = fully protected by federal and state laws under the Migratory Bird Act; SC/N = no laws regulating use, possession, or harvesting; SC/P = fully protected

Table 7-6. Middleton Threatened and Endangered Species Recorded at the Township Level, 2017

SCIENTIFIC NAME	COMMON NAME	WI STATUS	FEDERAL STATUS	GROUP	TOWNSHIP	TOWNSHIP NAME
Anguilla rostrata	American Eel	SC/N		Fish	T8N R9E	Westport
Epiaeschna heros	Swamp Darner	SC/N		Dragonfly	T7N R8E	Middleton
Microtus ochrogaster	Prairie Vole	SC/N		Mammal	T7N R8E	Middleton
Microtus pinetorum	Woodland Vole	SC/N		Mammal	T8N R9E	Westport
Myndus ovatus	A Planthopper	SC/N		True Bug	T8N R9E	Westport
Prairiana cinerea	A Leafhopper	SC/N		Leafhopper	T8N R9E	Westport
Calcareous fen	Calcareous Fen	NA		Community	T8N R9E	Westport
Dry prairie	Dry Prairie	NA		Community	T8N R8E	Springfield
Dry-mesic prairie	Dry-mesic Prairie	NA		Community	T8N R9E	Westport
Emergent marsh	Emergent Marsh	NA		Community	T8N R9E	Westport
Northern wet forest	Northern Wet Forest	NA		Community	T8N R9E	Westport
Shrub-carr	Shrub-carr	NA		Community	T8N R9E	Westport
Southern sedge meadow	Southern Sedge Meadow	NA		Community	T8N R9E	Westport
Springs and spring runs, hard	Springs and Spring Runs, Hard	NA		Community	T7N R8E	Middleton
Stream--fast, hard, warm	Stream--Fast, Hard, Warm	NA		Community	T7N R8E	Middleton

Source: WDNR. Data current as of 2017.

END = endangered; THR = threatened; SC = special concern: SC/FL = federally protected as endangered or threatened, but not so designated by DNR; SC/H = take regulated by establishment of open closed seasons; SC/M = fully protected by federal and state laws under the Migratory Bird Act; SC/N = no laws regulating use, possession, or harvesting; SC/P = fully protected

Table 7-7. Sensitive Species in Dane County Not Otherwise Listed as Threatened and Endangered Species in Middleton-area Townships, 2017

COMMON NAME (SCIENTIFIC NAME)
Animal Aggregate Sites
Bat Hibernaculum
Herptile Hibernaculum
Mammals
Big Brown Bat (*Eptsicus fuscus*)
Little Brown Bat (*Myotis lucifugus*)
Northern Long-eared Bat (*Myotis septentrionalis*)
Eastern Pipistrelle (*Perimyotis subflavus*)
Reptiles
Timber Rattlesnake (*Crotalus horridus*)
Easter Massasuage Rattlesnake (*Sistrurus catenatus catenatus*)
Ornate Box Turtle (*Terrapene ornata*)

Source: WDNR. Data current as of 2017.

Table 7-8. Wisconsin Rule NR 10.02 Protected Wild Animals, 2017

(1)	Cougar, Canada lynx, badger, moose, gray wolf, wolverine and flying squirrel, except as provided in Section 1b, NR 10.02 .
(2)	Endangered or threatened species listed in ch. NR 27.
(3)	Albino and white deer.
(4)	Woodchuck except as provided in s. 29.337, Stats.
(5)	Prairie chicken, Canada spruce grouse (spruce hen), swans, cranes, bitterns, plovers, kingfishers, cormorants, herons, sandpipers and grebes.
(6)	Eagles, hawks, falcons, and owls except as provided in ch. NR 18.
(7)	Hen pheasants except as expressly provided in this chapter, or in ch. 29 or 169, Stats.
(8)	Any other wild bird not specified in Chapter NR 10.
(9)	Timber rattlesnake (*Crotalus horridus*), except that a timber rattlesnake may be killed in emergency situations involving an immediate threat to human life or domestic animals.
(10)	Gophersnakes (*Pituophis catenifer*), gray ratsnakes (*Pantherophis spiloides*), and the North American racers (*Coluber constrictor*).
(11)	Blanding's turtles (*Emydoidea blandingii*).

Source: Wis. Adm. Code ch. NR 10.02

RECOMMENDATIONS

LAND STEWARDSHIP RECOMMENDATIONS

Develop and maintain a variety of native plant communities. Existing native plant communities are protected and enhanced, and additional communities are established to the extent possible given the limitations of size, surrounding land use, and available resources. Native plant communities provide habitat for insects, wildlife and birds.

Management of conservancy lands should be guided by management plans. Each conservancy area should have a dedicated Management Plan/Master Plan. A Master Plan should have a minimum lifespan of 10 years but no longer than 25 years.

Establish an in-house GIS database (geodatabase) as a land management tool.

1) *Document and evaluate land stewardship and restoration activities in a central location*
2) *Map management units and delineate management responsibility among City departments*
3) *Map areas of special protection such as remnant and restored areas and known locations of rare and threatened species*
3) *Document grants and grant activities*
4) *Record interpretive and educational programming, and volunteer activities (time, location, activity, outcome)*
5) *Include conservancy lands facilities (trails, bridges, overlooks, signage, other structures). Note condition, maintain an annual replacement and maintenance budget, record installation data, and document maintenance activities and expenses*

All conservancy areas should be subject to growing season vegetation surveys. Monitoring and assessment of past management activities should inform changes in management tactics in response to results of previous management. Consider using UAV aerial imagery as an assessment tool.

Prevent introduction and spread of invasive species. Perform active and regular monitoring of invasive species. Eradicate new invasions of non-native species while they are limited in extent and easier to remove. Prevent invasive seed production. Consider using mapping tools to track the locations and extent of invasive species. Mapping tools can be used to monitor new infestations and to evaluate past and ongoing management efforts.

Management of conservancy lands should involve restoring natural processes to a landscape. The City actively restores fire regime to many conservancy areas through prescribed burning. Human-caused modifications in hydrology also impact the health of natural communities. Restoration of natural hydrology should also be a priority. Past restoration includes the removal of drain tiles in the western portion of the Pheasant Branch Conservancy.

Prescribed fire is a critical land management tool necessary for maintaining the prairie, savanna, and wetlands in Middleton. When planning prescribed burns, consider ecological goals and smoke management. Conduct prescribed burns only when air quality conditions are moderate or better, and smoke dispersal conditions are fair, good, or excellent.

RECOMMENDATIONS ON MANAGING ACROSS MUNICIPAL BOUNDARIES

Establish a memorandum of understanding (MOU) with partners to allow cross-boundary collaboration on land stewardship of the Pheasant Branch Conservancy and Stricker Pond Conservancy.

1) *Managing the Pheasant Branch Conservancy as a whole rather than separate units may lead to lower per-acre costs, since equipment and personnel would be mobilized once rather than multiple times when conducting the same land management activity (e.g. prescribed burning, invasive plant spraying, etc). An MOU should contain language allowing cross-boundary land management activities between City of Middleton, Dane County Parks, the WDNR, and the Friends of Pheasant Branch. At a minimum it should allow prescribed fire, herbicide application, and invasive plant removal, within guidelines agreed to by the land managers for each entity. The MOU should note that each entity shares the common goal of managing and maintaining prairie, oak woodland, oak savanna and wetland communities.*

RECOMMENDATIONS ON MANAGING RARE AND THREATENED NATURAL COMMUNITIES AND WILDLIFE

Identify and protect areas with unique natural resources, such as remnant and restored areas, and known locations of rare and threatened species. Consider protection of these areas such as reducing or eliminating human and pet impact. Comply with federal and state regulations regarding protection of threatened and endangered species.

1) *Follow management guidelines in the WDNR's Broad Incidental Take Protocol for Grasslands and Savannas*
2) *Review the USFWS's Conservation Management Guidelines for the Rusty-Patched Bumble Bee (Bombus affinis). Consult with local USFWS ecologists.*

Create a system for monitoring wildlife and use collected data to inform management. Establish a framework for submitting observations that can be used by City staff as well as citizens and volunteers. Identify and monitor threatened and endangered species.

1) *Consider hosting an iNaturalist bioblitz in a defined conservancy area.*
2) *Link with established local projects such as the WDNR's Snapshot Wisconsin project and the UW-Madison's Urban Canid project. Snapshot Wisconsin is a volunteer-based partnership to monitor wildlife across the state. Participants submit trail camera footage that is classified (species identified) using crowdsourcing methods*

Continue urban deer damage management. Use the WDNR standard for the Madison Metropolitan area of 10 deer/square mile as a target for deer herd size. Assess herd size every 5 years using aerial flyovers or UAV flyover.

Trails and trail use policy should consider impacts to wildlife. With respect to dog exercise in conservancy lands:

1) *Evaluate compliance with current rules, feasible methods of enforcing rules and repercussions for not following rules*
2) *Consider further surveying of conservancy user attitudes towards dogs in conservancies and policy options*
3) *Consider pilot studies restricting dogs from sensitive areas or sensitive times of year (i.e. breeding bird season)*

RECOMMENDATIONS RELATED TO STORM WATER MANAGEMENT

Identify a single entity to be responsible for vegetation management on land with native plantings, including storm water detention ponds. Costs of vegetation management may be shared across departments.

Improvement projects related to storm water management should be the responsibility of the Public Works Department. Capital projects include: Tiedeman Pond pump replacement and feasibility study/stormwater abatement plan; Stricker and Tiedeman Pond Stormwater Detention Pond; Tiedeman Pond dredging near sewer grate; Tiedeman Pond forebay dredging.

Establish an in-house GIS database (geodatabase) as a land management tool (see above).

Review recommendations of the UW-Madison Water Resource Management (WRM) Practium report: Making Stricker's Pond a Better Resource for Middleton and Madison Residents (2016).

Coordinate with the WRMC regarding runoff control measures and acquisition of lands for enhanced mitigation of runoff. For example, the WRMC is currently investigating land aquisition around the North Fork of the Pheasant Branch Creek for corridor buffers and storm water detention basins. These areas could additionally provide benefits for wildlife habitat and recreational use.

RECOMMENDATIONS ON PREVENTING ENCROACHMENT

Mark and maintain property boundaries. The boundary of public lands should be clearly marked to help orient visitors and staff, ensure land management activities occur within the property, and to discourage encroachment by neighbors.

Develop an explicit future desired state for each conservancy area or subunits within a conservancy. Engage with developers and conservancy neighbors to plant conservancy-compatible vegetation along lot lines. For example, if an area contains prairie and prescribed burning is an intended management tool, encourage adjacent developments against planting heat-sensitive plans such as Arborvitae.

Restore areas where social trails have formed to natural vegetation. Establish clear policy against social trails.

RECOMMENDATIONS ON FUNDING RESTORATION AND MANAGEMENT

Seek public and private funds for development, restoration and management. Maintain partnerships with organizations and individuals.

Secure necessary funding to maintain ecological restorations through at least the first 10 years of post-planting maintenance. The initial phases of restoration, site preparation and post-planting maintenance require timely and intensive effort by land managers. As the restoration matures and desirable vegetation establishes, maintenance needs and costs decrease. When initiating a native plant establishment project, we recommend a 10-year establishment period prior to shifting the project from capital to maintenance budgets.

Maintain a database of grants:

1) Document grants applied for and grants received (funding amount, City match, project description, length of project/funds)

2) Create a grant calendar of available grants, grant deadlines and other funding opportunities. Update at least annually.

RECOMMENDATION ON ACQUISITION

Acquisition of conservancy land should be a priority when the opportunity arises, particularly areas of high quality habitat and areas in conservation and greenway corridors.

CONSERVANCY LANDS TRAIL SYSTEM

INVENTORY OF CONSERVANCY TRAILS

Middleton has over 27 miles of off-road trails (Table 8-1). Trails include shared-use bike/pedestrian trails, pedestrian (hiking-only) trails, mountain biking trails, and seasonal cross-country skiing trails. Middleton offers nearly 9 miles of ADA-accessible trails.

Trail surface types

Paved surface trails include conventional paved trails and porous paved trials:

Standard pavement (8.8 miles)	
Pros	bituminous asphalt, long lifespan (7-15 years), preferred surface for bicyclists, all conventional paved trails in Middleton are ADA accessible, typically 8-10 foot width
Cons	impervious to water, crack with vegetation, frost heaves, greater initial impact due to installation excavation

Porous pavement (2.6 miles)	
Pros	asphalt mixture comprised of recycled materials that allowed infiltration of storm water; the permeability also enhances the rate of snow and ice melt in winter months, reducing the amount of winter maintenance
Cons	porous pavement is prone to degradation

Crushed limestone (4.7 miles)	
Pros	crushed limestone is a permeable natural limestone gravel, more natural aesthetic appeal, may be reinforced with waterbars and silt socks, typically 6-10 foot width
Cons	prone to washout, gravel erosion can build up in sloped areas

Natural surface paths include mowed grass, hard-packed trails, and woodchip trails:

Mowed grass (6.5 miles)	
Pros	easy to maintain with regular mowing, best for pedestrian use and low-use areas, permeable
Cons	not appropriate for heavy use, not preferable for bikes

Natural earth (2.6 miles)	
Pros	hard-packed natural earth or mineral soil trails are best for hiking and mountain biking, can be installed with limited equipment, typically less than 3 foot width, low maintenance if built with proper slope and surface considerations
Cons	requires expertise to build correctly, not usable when wet

Wood chip (0.7 miles)	
Pros	utilizes available wood material and therefore cheaper to install, has a natural aesthetic, can be used as a temporary surface to cover exposed soil and prevent erosion
Cons	wood chip trails are rarely used in Middleton, wood material degrades rapidly, requires significant labor for maintenance

Boardwalks (1.2 miles)	
Pros	boardwalks are installed where trails extend over ephemeral or permanent wet areas, allows adequate drainage and minimizes impacts on the environment, typically short in length
Cons	expensive to install, slippery (in 2017 the City implemented a pilot project testing textured strips to reduce slipperiness)

Table 8-1. Middleton Public Lands Trail Inventory, 2017

TRAIL NAME	SURFACE	LENGTH (MILES)
Elm Lawn Trail	standard pavement, porous pavement	0.3
Esser Pond Trail	porous pavement	0.2
Graber Pond Trail (includes Misty Valley Trail and Linkage)	porous pavement, boardwalk, standard pavement	1.2
Harbor Village Trail	crushed limestone	0.1
Hidden Oaks Trails	standard pavement	0.5
Kromrey to Food Concepts Connector	crushed limestone	0.3
Kromrey to PBC Connector	crushed limestone	0.1
Lakeview Park	standard pavement	1.3
Marina Court Trail	boardwalk	0.3
Middleton Bike Park Trails	natural surface	2.6
Middleton Hills Trails	standard pavement, boardwalk, mowed grass	1.2
North Fork Trail	standard pavement	3.2
Orchid Heights	standard pavement	0.4
Pheasant Branch Conservancy Bock Forest Trail	crushed limestone, natural surface	0.9
Pheasant Branch Conservancy Northeast Trail	crushed limestone	0.6
Pheasant Branch Conservancy Pedestrian Segments (A, B, C)	crushed limestone, boardwalk, wood chip, mowed grass	1.0
Pheasant Branch Conservancy Southeast Trail	crushed limestone, boardwalk	1.0
Pheasant Branch Conservancy West Trail	crushed limestone, boardwalk	1.2
Pheasant Branch Creek Corridor Trail	porous pavement	1.5
Pleasant View Golf Course Cross-Country Ski Trails	mowed grass	6.0
South Fork Trail	porous pavement, standard pavement	1.2
Stonefield Trail	concrete, crushed limestone	0.2
Stricker Pond Trail	concrete, crushed limestone, standard pavement	0.6
Tiedeman Pond Trail	crushed limestone, boardwalk, standard pavement	1.1
HWY 12 Trail	standard pavement	2.0

Source: Modified from data provided by the City of Middleton, 2017

TRAIL MAINTENANCE

Trail maintenance is funded through the conservancy lands operating budget. Trail maintenance expenses include all labor and supplies related to general trail maintenance, including purchased surface materials, trail markers, herbicide, geo-synthetic materials, grading and compacting of trail surfaces, maintenance and installation of trail surface materials, access gate materials and interpretive materials. Anecdotally, City staff perceives that the majority of trail maintenance labor and supply costs goes to maintenance of crushed limestone trails.

Between 2013 and 2017, 11-25% of the Conservancy Lands operating budget was allocated for trail maintenance expenses (Table 8-2).

Costs associated with re-paving trails are generally not operating expenses.

Trail Development and Trail Repaving Capital Projects

The PASER rating system is a tool for evaluating road and trail pavement conditions[40]. Paved surfaces are ranked on a scale of 1 to 10, and specific maintenance actions or repaving is recommended based on rating (Figure 8-1). Middleton's public lands trail system uses the PASER rating system to evaluate repaving needs (Table 8-3). Repaving of trail segments primarily within conservancy lands is funded through Conservancy Lands capital budget (Table 8-4).

Trail development expenses are additionally funded through Conservancy Lands capital projects (Table 8-4). Trail development and trail repaving projects in the last five years accounted for 50% of the total Conservancy Lands capital budget across those years.

40 Wisconsin Transportation Information Center, 2002. Pavement Surface Evaluation and Rating: Asphalt PASER Manual. Madison, WI.

Table 8-2. Conservancy Lands Operating Expenses Related to Trail Maintenance, 2013-2017

CATEGORY	2013	2014	2015	2016	2017
Trail Maintenance Expenses	$19,000	$19,000	$19,000	$21,144	$21,144
Total Budget	$75,250	$123,968	$175,789	$168,719	$144,584
Percent of Budget	25%	15%	11%	13%	15%

Source: City of Middleton

Table 8-3. Middleton Public Lands Paved Trail PASER Ratings, 2017

TRAIL NAME	SEGMENT NAME	SURFACE (YEAR PAVED)	PASER RATING
Lakeview Park Trail	park segment		3
North Fork Trail	Standard Imaging to new surface		4
South Fork Trail	Greenway Blvd to Market St		4
South Fork Trail	Deming Way to UW Health Ct		4
North Fork Trail	Parview Rd to Airport Rd		4
Middleton Hills Trails (South)	Boardwalk to FLW Ave		4
Orchid Heights Trail	park segement		4
North Fork Trail	Parview Rd to Pleasant View Rd		4
Parkside Heights Park	park segment		5
North Fork Trail	Airport Rd to Town of Middleton		6
Hwy 12 Trail/ WIDOT Trail	Creek to Airport Rd		6
Hwy 12 Trail/ WIDOT Trail	Airport Rd to Schneider Rd		6
Hwy 12 Trail/ WIDOT Trail	Schneider Rd to Parmenter		6
Pheasant Branch Creek Corridor Trail	Deming Way to Parmenter		6
Pheasant Branch Creek Corridor Trail	Park to Century		6
Meadows Park Trail	park segment		6
Middleton Hills Trails (South)	FLW Ave to boardwalk		6
Parisi Park Trail	park segment		6
Stricker Pond Trail	park segment		6
Tiedeman Pond Trail	Pondview Rd to South Ave		6
South Fork Trail	UW Health Ct to Deming Way (Mead & Hunt)		7
Hidden Oaks Trail	Pleasant View to White Coral Way		7
Hidden Oaks Trail	White Coral Way to Sunstone Ln		7

Source: City of Middleton, 2017

Table 8-3. Middleton Public Lands Paved Trail PASER Ratings, 2017

TRAIL NAME	SEGMENT NAME	SURFACE (YEAR PAVED)	PASER RATING
Fireman's Park Trail	park segment		7
South Fork Trail	Market St to Deming roundabout		7
South Fork Trail	Deming circle to University		8
Hidden Oaks Trail	Sunstone Ln to Sand Pearl Trail		8
Pheasant Branch Creek Corridor Trail	Parmenter to Park	porous (2013)	8
Middleton Hills Trails (North)	park segment		8
Graber Pond	Caneel Trl to Misty Valley Dr	porous (2013)	9
Graber Pond	Misty Valley Dr to boardwalk	porous (2013)	9
Graber Pond	Graber Rd to boardwalk	porous (2013)	9
South Fork Trail	Pleasant View to Raven	porous (2014)	10
South Fork Trail	Deming Way to Terrace Ave (Esser)	porous (2017)	10
North Fork Trail	Deming Way to Standard Imaging	porous (2017)	10
North Fork Trail	new surface to Parview	standard (2016)	10
Graber Pond Trail	Pheasant Branch Rd to Whittlesey Rd	standard (2017)	10
Graber Pond Trail	Manito Ct to Caneel Trl	porous (2016)	10
Allen Boulevard Trail	Marshall Park to Mendota Ave	porous (2016)	10
Allen Boulevard Trail	Mendota Ave to Midtown Pub	porous (2016)	10
Elm Lawn Trail (Park Street)	Woodgate to RR tracks	porous (2017)	10
Graber Pond Trail	Caneel Trl to Manito Ct	porous (2016)	10
Graber Pond Trail	Whittlesey Rd to Pheasant Branch Rd	standard (2017)	10
Stonefield Park Trail	Gammon to Woodgate	porous (2015)	10
Stonefield Park Trail	Clovernook to Elm Lawn	porous (2017)	10
Tiedeman Pond Trail	Voss Prkwy to Pondview Rd	porous (2017)	10

Source: City of Middleton, 2017

Rating system

Surface rating	*Visible distress**	*General condition/ treatment measures*
10 Excellent	None.	New construction.
9 Excellent	None.	Recent overlay. Like new.
8 Very Good	No longitudinal cracks except reflection of paving joints. Occasional transverse cracks, widely spaced (40' or greater). All cracks sealed or tight (open less than ¼").	Recent sealcoat or new cold mix. Little or no maintenance required.
7 Good	Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open ¼") due to reflection or paving joints. Transverse cracks (open ¼") spaced 10' or more apart, little or slight crack raveling. No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
6 Good	Slight raveling (loss of fines) and traffic wear. Longitudinal cracks (open ¼"– ½"), some spaced less than 10'. First sign of block cracking. Sight to moderate flushing or polishing. Occasional patching in good condition.	Shows signs of aging. Sound structural condition. Could extend life with sealcoat.
5 Fair	Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open ½") show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.	Surface aging. Sound structural condition. Needs sealcoat or thin non-structural overlay (less than 2")
4 Fair	Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (½" deep or less).	Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more).
3 Poor	Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25% of surface). Patches in fair to poor condition. Moderate rutting or distortion (1" or 2" deep). Occasional potholes.	Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay.
2 Very Poor	Alligator cracking (over 25% of surface). Severe distortions (over 2" deep) Extensive patching in poor condition. Potholes.	Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective.
1 Failed	Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

** Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.*

Figure 8-1. PASER Rating System for Evaluating Pavement Conditions. Source: Wisconsin Transportation Information Center, 2002

Table 8-4. Conservancy Lands Capital Projects Budget Related to Trail Development, 2013-2017

CATEGORY	2013	2014	2015	2016	2017
City Trail Network Development	$67,500	--	$57,000	$140,000	$209,175
PBC to Graber Pond Trail Link	--	$250,000	--	--	--
Kromrey Middle School Trails	--	--	--	$20,000	--
Total Trail Projects Budget	*$67,500*	*$250,000*	*$57,000*	*$160,000*	*$209,175*
Percent of Total Capital Budget	18%	49%	46%	63%	81%

Source: City of Middleton

RECOMMENDATIONS

Maintain a database of trail maintenance expenses per surface type. Compare annual maintenance costs versus upfront cost of installation for different surface types.

Paved trail maintenance capital project requests should come from the Pedestrian, Bicycle and Transit Committee. This would align requests for new path development with trail maintenance. PLRF should oversee the contractors completing work.

RESOURCES

Use available resources on natural trails design and maintenance from the US Forest Service, the National Park Service and nonprofit organizations:

Washington Office of Recreation, Heritage and Volunteer Resources, US Forest Service. 2016. Trail Fundamentals and Trail Maintenance Objectives. US Forest Service. Missoula, MT.

Ice Age National Scenic Trail, Wisconsin Department of Natural Resources and National Park Service. 2015. Ice Age National Scenic Trail, Handbook for Trail Design, Construction, and Maintenance. Ice Age National Scenic Trail. Madison, WI

American Trails: americantrails.org

Rails-to-Trails Conservancy: railstotrails.org

TRAIL POLICY

Trail policy recommendations are largely informed by public input received through the Conservancy Lands Plan Update Survey and during public meetings.

Trail Conditions and Extent of Trails

Middleton residents are passionate about the conservancy's trails and trail system. Over 95% of residents rated trail conditions as good (50%) or great (46%). The majority of residents felt that the conservancy system had the right amount of trails (77%). When asked about trail types (hiking-only, cross-country ski, snowshoeing, mountain biking, shared-used trails), the majority of Middleton respondents felt that all trail types had the right amount of trails. Some residents (20%) responded that there are too few trails while less than 3% responded that there were too many trails. The demand for more trails likely will increase as Middleton's population grows.

Future trail development should accommodate increased trail demands while protecting the mission of conservancy lands as a natural resource.

Trail Surfacing

Survey respondents showed a preference for either natural surface trails or crushed limestone trails compared to paved trails and wood chip trails, regardless of age and gender categories.

Trail surface preference appears more complex when considering survey comments about trails and trail surfaces. Despite a preference for natural surface and crushed limestone trails, respondents commented that these trail types are not preferable for biking, are difficult to use in the winter (not plowed; icy), and are prone to maintenance issues.

> *I really like the variety of trails for different uses. I like to bike on paved trails with my girls. I like to run on the limestone. I like to walk on natural surface trails - Survey respondent, 2017*

Preference for crushed limestone trails is likely activity-dependent. Although bikers prefer smooth paved surfaces, several respondents commented that crushed limestone is best for running, walking and wildlife viewing/birdwatching.

Shared-used Trail Policy

Crushed limestone trails are typically accessible to bikes (i.e. shared-use bike/pedestrian trails) but are perceived as difficult or slow to bike on. On the contrary, several respondents who identified as pedestrian users suggested that slowed bike traffic had a positive effect on their user experience. Concern about bike/pedestrian etiquette was often expressed as concern over the speed of bikers and the perception that paved surfaces encourage fast biking. Other concerns include the disturbances to wildlife and their impact on popular activities such as birdwatching, wildlife viewing, photographing wildlife, and enjoying the quietness of nature.

> *Bicyclists go too fast - Survey respondent, 2017*

As exemplified by the survey, the conservancy lands trail system hosts many diverse uses. No Conservancy Lands regulation limits speed of bicycle use, and enforcing speed regulations is likely not practical or feasible. Faster-moving road bikers likely use conservancy lands trails as safe and scenic off-road biking options, but inadvertently impact the experience of pedestrians. Creating adequate public spaces for different user groups, including different bicycle user groups (e.g. varying speeds and motivations of bicyclists) may be important in mitigating perceived conflict between bicyclists and pedestrians, and protecting conservation interests in conservancy lands.

Natural surface trails, such as the trail through the John C Bock Community Forest woodland, are typically not accessible to bikes. Since walking/hiking is the most popular activity in conservancies, creating more hiking-only trails may be an option for reducing conflict between bikers and pedestrians.

Middleton's Bike and Pedestrian Plan has not been updated since 2009. The next iteration of the Bike and Pedestrian Plan should consider studying areas of high bike/pedestrian interface and propose alternatives to minimize negative interactions between bikers and pedestrians. The CLC should offer consultation to the Pedestrian, Bicycle and Transit Committee regarding bicycle and pedestrian issues specific to conservancy lands.

E-bike Policy

E-bike use in Middleton's public lands trail system is prohibited. Middleton's ordinances are consistent with current State regulations (Box 8-1). Industry leaders in Wisconsin are expected to propose new legislation in 2018 that would create a classification system for e-bikes based on powering method and maximum speed, creating an opportunity for expansion of allowable uses of e-bikes.

Middleton Code of Ordinances Chapter 21.03 (2p) describes:

> Bicycles, Electric Personal Assistive Mobility Devices, and Motor Bicycles. All ordinances of the City of Middleton relating to the use of bicycles, electric personal assistive mobility devices as defined by Wis. Stats. 340.01 (15pm) and motor bicycles as defined by Wis. Stats. 340.01(30), shall be applicable to all conservancies. Bicycles, electric personal assistive mobility devices and motor bicycles shall be parked only in areas so designated. Bicycles, electric personal assistive mobility devices and motor bicycles may not be operated in any conservancy except upon pathways designated for such use. Where motor bicycles are permitted, the motor shall not be used.

BOX 8-1: WHAT ARE E-BIKES?

An electric bicycle (E-bike) is a type of motor bicycle with an electric motor. E-bikes have pedals and can be operated either by pedal power or motor power. The two main powering systems are pedal assist and power on demand. With a pedal assist system the electric motor is regulated by pedaling action. A power on demand system is activated by a handlebar throttle, similar to a motorcycle or moped.

E-bike use is governed by State laws.

In Wisconsin e-bikes are classified as "motor bicycles" and are regulated like bicycles if it meets the below listed criteria.

E-bikes meet the following criteria:

- Electric motor less than 750 watts
- Maximum speed less than 20 mph when operated solely on motor power, and
- Must have fully operational pedals, such that when the motor is completely off the bike can still be operated by pedal power.

State law dictates:

- Anyone operating an e-bike must possess a valid license but e-bikes are considered bicycles for vehicle registration purposes.
- E-bike riders must be at least 16 years of age.
- No motorized vehicles are allowed on shared use paths
- E-bikes are not allowed on bike paths (shared-use paths), unless are being used solely by human power
- In Wisconsin, persons using electric wheelchairs and mobility assistance scooters are considered pedestrians.

Referenced state legislation: 343.05(3)(c), 343.07(4)(c), 343.08, 343.135, 346.02, 340.01(5s), 346.79(5), 346.94(12)

E-bike Statistics

A national survey on public perception of e-bikes and e-bike policy was conducted by the Transportation Research and Education Center at Portland State University with 700 responses in 2013 and 2014. The League of American Cyclists published results of the survey in a 2015 summary[41].

According to the survey, people use e-bikes in different ways – to increase their range and speed, to ride with less effort or more easily on hills, and to boost their health through increased physical activity.

The vast majority of respondents (80%) agreed or somewhat agreed that e-bikes can have positive aspects including:

- Be used by older people and people with physical challenges
- Functionally replace cars for a wide variety of trips
- Offer transportation options to people who can't drive
- Expand the number of people using bicycles for transportation
- Get more people biking more often
- Make family bicycling more accessible

When we asked about negative perceptions, the overwhelming response, 72%, was related to safety. The weight and speed of moving e-bikes are two safety considerations. E-bikes are heavier than non-motorized bicycles, weighing 40 pounds or more. There is little evidence to date assessing the likelihood and impacts of crashes involving e-bikes. Speed of moving e-bikes is a second safety concern. A naturalistic study of e-bikes in Gothenburg, Sweden found e-bike riders to average 5 mph faster than non-motorized bicyclists (14 mph in urban traffic versus 9 mph)[42]. A second study of the University of Tennessee's e-bike share program found that the average and maximum speed of e-bikes was only 3 mph faster than non-motorized bikes in a campus setting[43]. More information is needed about e-bike use and safety on shared-use paths.

41 McLeod K..2015. Electric Bicycles: Public Perceptions & Policy; Results and analysis of a national survey of American bicyclists. The League of American Bicyclists. PDF file

42 Dozza M, Werneke J, & Mackenzie M. 2013. e-BikeSAFE: A naturalistic cycling study to understand how electrical bicycles change cycling behaviour and influence safety. In International Cycling Safety Conference (pp. 1–10). Helmond, The Netherlands

43 Langford B. 2013. A comparative health and safety analysis of electric-assist and regular bicycles in an on-campus bicycle sharing system. Doctoral dissertation at the University of Tennessee, Knoxville

Dogs

Pet exercise, particularly dog exercise, is a controversial issue in Middleton's conservancy lands as well as other community public spaces. We recommend viewing dog policy in conservancy lands as both a user-interest issue and a wildlife conservation issue. Dog policy considerations should include:

- Public input
- The variety of conservancy uses and user preferences
- Current policy in Middleton and similar public lands
- Potential impacts to wildlife and sensitive natural communities

Consideration 1: Public input

Comments from the Conservancy Lands Plan Survey Update included:

Some sensitive areas should also be off-limits to dogs, even if on a leash. There are dog parks for dogs that need more exercise than can be had on a trail shared with others that are less mobile	*Become more dog friendly*
Keep conservancy accessible to dogs on leash	*People don't pick up dog poop very well*
Dogs need to be on leashes in conservancy areas. This is abused by dog owners	*No dogs!*

One respondent suggested that the City allocate more resources towards, "*Protecting wildlife from dogs and/or enforcing strict rules about people cleaning up after their dogs or having them on leashes.*"

Another respondent said the City should allocate more resources towards, "*Dog park development, some raised paths in chronically flooded areas at Quisling, and dog park recreational swimming area.*"

Respondents with negative attitudes often cited impacts on wildlife as informing their opinions.

Consideration 2: The variety of conservancy uses and user preferences.

Many pet owners appreciate the ability to walk dogs in conservancy areas, especially given the proximity of conservancy areas to Middleton residences. Middleton's off-leash dog exercise areas (e.g. MRD Dog Exercise Area and Quisling Park) are both on the outskirts of the city, and likely require a drive for the majority of visitors.

I walk my dog everyday - Survey respondent, 2017

However, dogs can negatively impact the experience of other users. Wildlife-centric activities are popular conservancy activities. Of Conservancy Lands Plan Update Survey respondents, 39% and 41% use conservancies for birdwatching and wildlife viewing, respectively. Other conservancy lands uses include "simply enjoying the tranquility of the area," spending time in nature, looking at native plants, and nature photography.

I love dogs, but not everyone does, and I've seen unleashed dogs approach people who seemed frightful of them, which is really irresponsible of the dog owner.

[Conservancy] vegetation provides habitat for a wide range of wildlife – we have seen deer, rabbits, raccoons, foxes, turkeys, squirrels, and many, many songbirds

I would like to see the leash laws enforced in the conservancy areas to preserve the migrating birds and other native wildlife

- Survey respondents, 2017

Consideration 3: Current policy in Middleton and similar public lands

Middleton Code of Ordinances 21.03 (2e) allows pets on leash in all conservancy areas with the exception of horses, unless otherwise noted. Pet leashes must be 6 feet or less, and pet waste must be picked up and disposed of off conservancy lands. Regardless of whether a user is walking pets or performing another activity, all users must remain on trails. Pets are allowed in Middleton parks on leash (6 feet or less) and allowed off leash in designated dog exercise areas (e.g. Metropolitan Refuse District Dog Exercise Area and Quisling Park).

Dogs need to be on leashes in conservancy areas. This is abused by dog owners - Survey respondent, 2017

Policy should also consider rules in adjacent public spaces. Given the contiguity of trails between the Middleton and Dane County parcels of the Pheasant Branch Conservancy, trail policy should be consistent between the two entities.

As of May 2018, the Friends of Pheasant Branch and Dane County Parks are considering revisions to dog policy in the Dane County portion of the Pheasant Branch Conservancy. Proposed regulations would restrict dogs from the northernmost portion of the Pheasant Branch Conservancy. The 96-acre restored prairie and savanna area provides habitat for grassland birds and other wildlife. Dogs on leash would be allowed on the main crushed limestone trail (North Trail) but not on grass paths to the north.

Throughout the Dane County Parks System there are 7 designated off-leash dog parks totaling nearly 230 acres. These off-leash areas offer open space and meadow areas, and access for swimming in some locations. All dogs must have a dog permit when using any Dane County Parks space. Dogs on leash (6-feet or less) are allowed in recreation parks and wildlife areas (managed for habitat and recreation) but not allowed in Natural Resource Areas, which are set aside for the protection of valuable natural resources (e.g. Pheasant Branch Conservancy; dog rules are specific to site)[44].

The City of Madison requires a dog permit for dogs visiting any Madison park space[45]. Madison does not allow dogs in its conservation parks, although dogs are allowed on-leash on-trail in 26 parks and off-leash in 8 dog parks. Dogs are not permitted at Stricker Pond.

A review of trail policy in Middleton should evaluate compliance with current stated rules (e.g. leash rules and dog waste pick-up), and consider enforcement of rules and repercussions for users who violate rules. We recommend clear posting of conservancy rules and etiquette and better utilization of web media for conservancy lands information and regulations. Consider creating an interactive web map clearly identifying areas where dogs on leash *are* and *are not* allowed. For example, dogs on leash are allowed on the crushed limestone portion of the Pheasant Branch Conservancy Bock Forest Trail, but are not allowed on the pedestrian-only woodland trail loop, as noted by etiquette signs.

Consideration 4: Potential impacts to wildlife and sensitive natural communities

Consider pilot studies posting additional etiquette signs or restricting dog use in sensitive areas (e.g. remnant natural communities, features prone to degradation) or during sensitive times of the year (e.g. breeding bird season).

Implement wildlife and bird monitoring programs as a component of science-driven conservancy lands management. Use data to inform policy where available.

44 Dane County Parks. 2018. Dogs in Parks. Accessed April 10, 2018 https://parks-lwrd.countyofdane.com/parks-recreation/dogs-in-parks
45 City of Madison Parks Division. 2018. Accessed April 10, 2018 http://www.cityofmadison.com/parks/play/dogsInParks.cfm

Special Events Permitting

Middleton's public lands Special Events Permitting procedures were updated in December 2017. Special Events Permits are granted through the License and Ordinance Committee and overseen by the department of Tourism. Events with fewer than 200 people do not require a special events permit. Anecdotally, most events require some permit other than a land use permit, such that most events taking place on Middleton's public lands are known. For example, Tourism often coordinates with PLRF regarding events on public lands because groups often rent Parks facilities. Groups hosting Special Events can post their own signs. According to City staff, past issues related to special events on public lands are generally limited to scenarios where stated parks and conservancy regulations were violated. All parks and conservancy lands regulations apply to special events, unless given explicit authority from the Director of PLRF.

Connectivity

Trail Connectivity to Communities Outside of Middleton

Respondents expressed a desire for increased connectivity of trails within the City and to surrounding communities. Comments expressed interest in connections to Madison, to the communities of Waunakee/Westport, and to communities west of Middleton. An Urban Greenways Study was prepared in 2016 providing recommendations for expansion of a greenway connecting downtown Middleton to the Middleton Bike Park area and areas west of city limits (citation).

> *I think we have an AWESOME trail system (Pheasant Branch) and I would just encourage the city to continue building our trail network - Survey respondent, 2017*

Other opportunities for increased connectivity include the urban greenway to the north of the North Lake subdivision, bike path connections to the Westport area, expansion of the Graber Pond Trail as development continues to east and west of Graber Pond, and increased connections to communities west of Middleton.

RECOMMENDATIONS

Promote establishment of greenway and trail corridors through easements, acquisition. Coordinate with Dane County and surrounding municipalities.

Future trail development should accommodate increased trail demands while protecting the mission of conservancy lands as a natural resource. Consider acquisition of new conservancy lands as a means of accommodating a growing population while mitigating impacts of increased recreational demand and increased development in the city.

Enforce State motor bike/e-bike regulations (i.e. no motor bikes nor electronic scooters) with the exception of personal assistive mobility devices. Keep informed of expected changes in State legislation with respect to e-bikes in 2018. If State law changes, coordinate with the ad hoc Accessibility Committee regarding e-bike use among the mobility impaired. Consider alignment of e-bike policies in Middleton and surrounding communities, such as the City of Madison, given the connectivity of bike trails.

Coordinate with the Pedestrian, Bicycle and Transit Committee:

1) *Middleton's Bicycle and Pedestrian Plan has not been updated since 2009. The next iteration of the plan should consider studying areas of high bike/pedestrian interface and propose alternatives to minimize negative interactions between bikers and pedestrians. Consider multiple types of bike users (multiple speeds) and multiple types of pedestrians. Use public input gathered in the public input process for this Plan. Promote etiquette between user groups through educational campaigns, signage, or other methods.*
2) *Coordinate with the Pedestrian, Bicycle and Transit Committee to promote increased connectivity of trails and bike paths within the City and to regional trails.*
3) *Consider adding a Pedestrian, Bicycle and Transit Committee representative to CLC.*

Natural surface trails (such as the trail through the Bock Community Forest woodland) are typically not accessible to bikes. Since walking/hiking is the most popular activity in conservancies, creating more hiking-only trails may be an option for reducing conflict between bikers and pedestrians.

Management and policy of conservancy lands should protect user interests such as recreational biking, mountain biking, and pet exercise, while also supporting activities such as wildlife viewing and birdwatching. Impacts of conservancy usage on wildlife and birds should be explored through monitoring.

Evaluate compliance with current pet exercise ordinances, and address issues with rule compliance if found. Consider regulations in adjacent public lands.

1) *Consider implementing a pilot study restricting dog use in sensitive areas and/or during certain times of the year (breeding birds). Monitor impact, or lack of impact, of restricted dog access on wildlife, birds, and natural communities and use to inform future trail policy.*
2) *Refer to public input received during the Plan process, including results of the Conservancy Lands Plan Update Survey and public input meetings. Consider further surveying on attitudes towards dogs in conservancies and policy options.*

Establish a policy regarding the use of "drones," unmanned aerial vehicles (UAV's), in conservancy lands.

We recommend clear posting of conservancy rules and etiquette and better utilization of web media for conservancy lands information and regulations.


MIDDLETON
STAY
ON
TRAIL

CONSERVANCY AND TRAIL SIGNAGE

An inventory of conservancy signage was performed in November 2017 using methodology consistent with past assessment methods. A 2017 report written by a UW-Madison Urban and Regional Planning graduate candidate assessed signage in the Pheasant Branch Conservancy[46].

Types of signs in Middleton's public lands system include:

Interpretive	sign describes an ecological or historical concept
Identification	sign labels a landmark or feature
Regulation	delineates property boundaries and/or enforces rules
Orientation	wayfinding, sign contains a map and/or general visistor information
Direction	trail markers
Hazard	signs that warn of potential hazards, like slippery trails
Unknown/Other	includes memorial plaques, exercise stations, bike fix-it stations

Inventory of Sign Conditions

The 2017 assessment rated sign conditions *good* (new-looking to some signs of wear, but perfectly legible), *fair* (signs of wear, but at least mostly legible), and *poor* (structurally un-sound, or illegible; needs repairing or replacement).

The majority of signs through Middleton's conservancy system (89%) are rated as *fair* or *good* condition. Although signs in *fair* condition are "mostly legible," they will likely need replacement within the next 5 years if not sooner. The remaining 11% of are in *poor* condition and in need of immediate replacement. Of *poor* condition signs, at least a third are directional signs and at least a third are interpretive signs.

Evidence of disrepair was attributable to the sign, signpost, or stickers. Posts were often broken, bent, or heavily leaning. In only two cases was mower damage cited as a reason for sign post condition. Sign posters and Plexiglas coverings showed effects of sun and water damage including discoloration, fading, peeling, or cracking. For signs or groups of signs containing trail etiquette stickers, the stickers often had peeled off or been ripped off.

Signage in Pheasant Branch Conservancy is paired with an Emergency Medical Service (EMS) locator system. Throughout the conservancy, signs or groups of signs are labeled with a letter (A-Z) sticker. This letter is used by the Middleton Police Department and other EMS to locate specific points on the trails system. Many of these stickers have peeled or faded and are in need of replacement.

An overhaul of the Pheasant Branch Conservancy signage, including an update of the EMS location program is planned for 2019-2022. Installation of an EMS location system in the Pheasant Branch Creek Corridor is planned for 2020.

46 Wessel S. 2017. Planning for Access- Signage Guidelines for Pheasant Branch Conservancy. Urban and Regional Planning Department, UW-Madison, Madison, WI. PDF file.

RECOMMENDATIONS

Seek replacement of "poor" condition signs. Update trail system map signs: of 15 trail system map signs across the conservancy system, only two signs are rated in good condition; the remaining 13 signs are faded such that sign use is difficult. Consider replacing all trail system map signs with an updated map.

Comments received in the Conservancy Lands Plan Update Survey request more mileage stickers and trail distances on maps. Trail distances on physical maps and trail markers are helpful for users planning a walk or run, and allow users with mobility impairments to determine the desired length of their trip.

Maintain a geodatabase of sign location, sign type, sign condition, installation date, and maintenance record. Perform an annual review of sign conditions. Create an annual maintenance and replacement budget. Anticipate longevity of signs and schedule replacements.

When replacing signs, create signs with consistent and recognizable style. Consider sign audience. Etiquette signs should be legible to pedestrians and faster-moving bicyclists.

In 2016/2017, the UW-Madison Urban and Regional Planning Department offered a graduate level course focused on the role of nature in human health and wellness. The Pheasant Branch Conservancy was chosen as study site and students explored, inventoried, mapped and quantified the assets of the Conservancy. Members of the Friends of Pheasant Branch became involved and assisted with the study. Two papers resulted, which are resources available to the City of Middleton and Dane County as they implement improvement plans:

Pheasant Branch Conservancy Outreach and Facilities Plan, 2016

Planning for Access: Signage Guidelines for Pheasant Branch Conservancy, 2017

Signage and trail policy should consider accessibility issues – adhere to signage guidelines on ADA-compliant trails. Use available published resources. Specific to Pheasant Branch Conservancy, consider recommendations in the 2016 Pheasant Branch Conservancy Outreach and Facilities Plan prepared by the UW-Madison Urban and Regional Planning graduate students and 2017 Planning for Access: Signage Guidelines for Pheasant Branch Conservancy (Wessels, 2017).

When implementing an update to Pheasant Branch Conservancy signage, coordinate with Pheasant Branch Conservancy partners including Dane County Parks and the Friends of Pheasant Branch.

RESOURCES

Resources are available on effective and equitable wayside and signage design.

National Park Service. 2009. Wayside Exhibits: A Guide To Developing Outdoor Interpretive Exhibits. Harpers Ferry Center Media Services, National Park Service, Department of the Interior. PDF file. https://www.nps.gov/hfc/pdf/waysides/wayside-guide-first-edition.pdf

National Park Service. 2005. National Park Service Wayside Map Standards. Harpers Ferry Center Media Services, National Park Service, Department of the Interior. PDF file. https://www.nps.gov/hfc/pdf/waysides/map-standards.pdf

National Park Service. 2010. Wayside Typographic Standards. Harpers Ferry Center Media Services, National Park Service, Department of the Interior. PDF file. https://www.nps.gov/hfc/pdf/waysides/type-standards.pdf

SEGD. 2012. SEGD 2012 ADA White Paper Update: Signage Requirements in the 2010 Standards for Accessible Design. Society of Environmental Graphic Design. PDF file. https://segd.org/sites/default/files/SEGD_2012_ADA_White_Paper_Update.pdf

SOURCES OF INFORMATION ABOUT CONSERVANCY LANDS

The Conservancy Lands Plan Update Survey asked how respondents get information about conservancy locations and trails. The majority of respondents indicated that they receive information from word of mouth (62%), City of Middleton websites (62%) and wayfinding signs (41%). Fewer than 8% of respondents listed using either the Public Lands, Recreation, Forestry and Youth Center facebook page or Visit Middleton facebook page. Other sources of information included Friends Group pages (Friends of Pheasant Branch website), and mountain biking trail condition reports from MadCityDirt.com and the Capital Off-Road Pathfinders (CORP) website.

DIGITAL INTERPRETIVE MEDIA

The vast majority of conservancy users (91%) carry a cell phone while using conservancy lands, and 62% actively use their phone. Smart phones offer a number of opportunities for interactive experience in conservancy lands. Features of smart phones include access to internet, gps location, and a camera. These features allow use of mobile apps to perform monitoring (e.g. track wildlife observations), or to access site-specific information. Mobile apps or QR code-based systems can link conservancy users to up-to-date interpretive media or general conservancy information, such as trail maps, conservancy regulations, notifications of special events, and trail conditions.

Attendees of public input meetings, however, also cited the experience of being away from a screen or phone as a reason for visiting conservancy lands. In particular, a teacher who utilizes conservancy areas as an outdoor classroom stressed the importance of experiences for youth that do not involve electronic media. The teacher appreciates conservancy's physical interpretive signs and cautioned against relying on smart phones as the sole mechanism for receiving interpretive media.

Use of a dynamic or interactive mobile app and/or QR code-based system offers unique opportunities for interactive media, however, should not be a replacement for physical interpretive media and wayfinding signs. Electronic media can act as a compliment to existing physical signage.

RECOMMENDATIONS

Explore potential use of mobile apps for citizen monitoring of wildlife and flora. Explore use of mobile apps and/or a QR code-based system as a mechanism for conservancy users to access seasonal interpretive media and up-to-date conservancy and trail information.

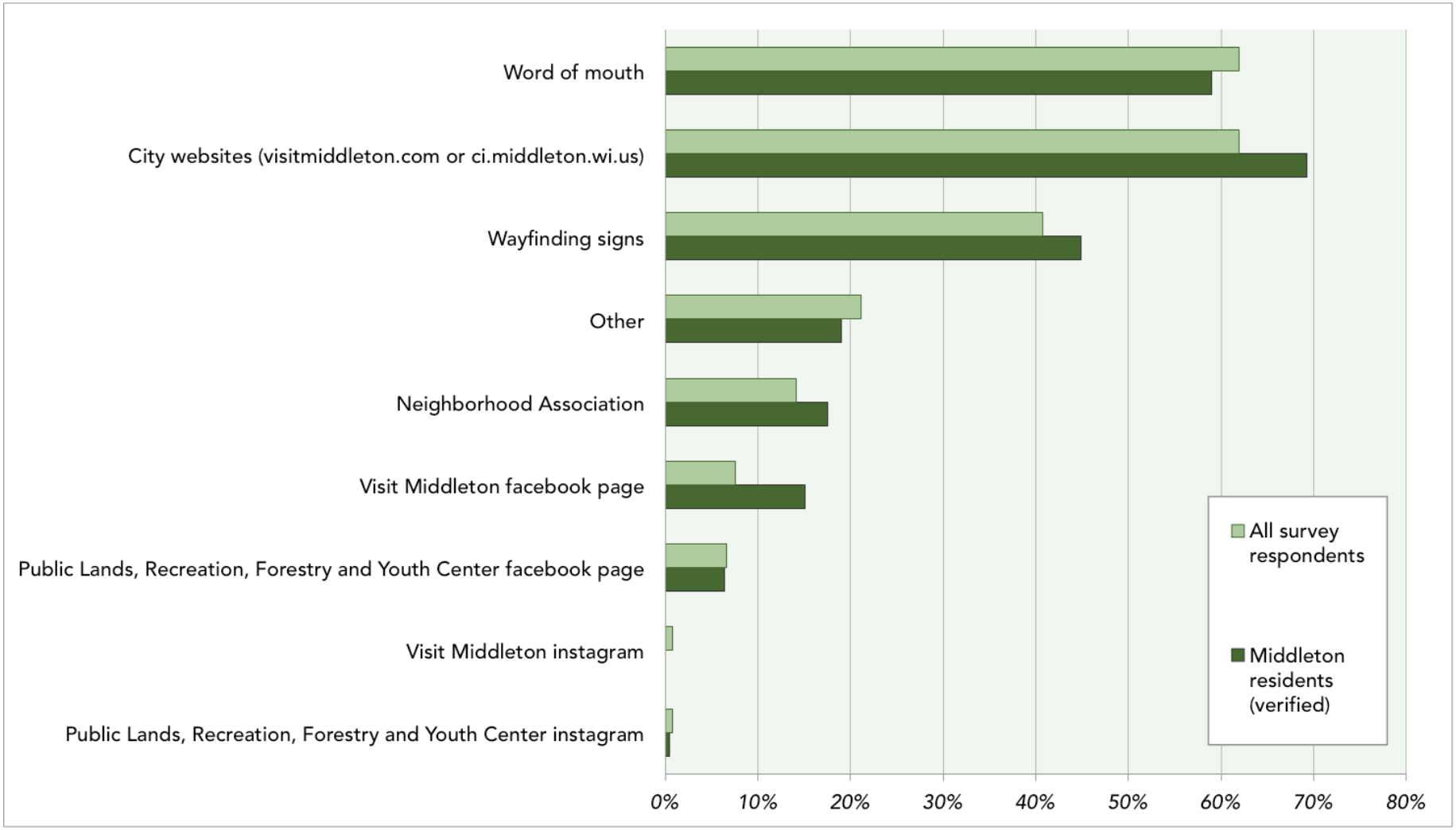


Figure 8-2. Sources of Information on Conservancy Lands and Trails of Respondents of the Conservancy Lands Plan Update Survey, 2018. Responses for all survey respondents and verified Middleton residents (registered voters) are shown separately.


Arid Adaptations
A prairie plant has many special features that allow it to live in dry, windy areas. Find these features on the real plants nearby for a lesson on finding and holding water.
Big Bluestem
Stiff Goldenrod
Side-oats Grama
Black-eyed Susan
Butterfly Weed
Rough Blazingstar
Little Bluestem
Purple Prairie Clover
Leaves. Narrow leaves, as found on grasses, present only a small surface area to drying winds and the sun.
Coating. Waxy or shiny looking leaves may have a covering that slows evaporation.
Hair. Tiny hairs on stems and leaves slow air movement and thus evaporation from the plants' surface.
Spacing. Do you see the bare ground between the plants? Spacing keeps plants from competing for water.
Roots. About 2/3 of a prairie plant lives below ground. Many threadlike roots near the soil surface quickly gather new rainfall. Deep taproots reach water buried far below. In some plants, such as prairie blazingstar, roots may reach 14 feet down!
MIDDLETON
WELCOME TO THE
PHEASANT BRANCH CONSERVANCY

PLANNING CONSIDERATIONS

Planning for the next five years and beyond of public lands management must take into account trends of increased population growth, changing demographic composition and increased interest in recreation.

DEMOGRAPHICS

Demographic information is based on the 2010 U.S. Census, and estimates and projections from the Wisconsin Department of Administration.

Population

Between 2010 and 2017 Middleton's population grew over 15% (+2,709 individuals; Table 9-1)[48]. Over that same period, Dane County's population increased by 36,714 individuals (+7.5%)[49].

Trends in population growth are expected to continue for Middleton and its surrounding communities (Table 9-2)[50]. Dane County is the second most populated county in Wisconsin, with Madison the largest municipality within the County. By 2040, Dane County is estimated to house an additional 120,000 residents (+24%) with Madison increasing by 31,077 residents (+21%)[51]. In that same period, Middleton is expected to grow by a staggering 33%.

Development and Urbanization

Demands for new development demonstrate the City's continued population growth. Between 2010 and 2017, 35-70 building permits were issued each year for new single family, multi-family and commercial buildings. In 2017 alone over $97 million worth of building permits were issued[52].

48 Wisconsin Demographic Services Center. 2017. Official Final Estimates, 1/1/2017, Wisconsin Municipalities, With Comparison to Census 2010. Wisconsin Department of the Administration. PDF File
49 Wisconsin Demographic Services Center. 2017. Official Final Estimates, 1/1/2017, Wisconsin Counties, With Comparison to Census 2010. Wisconsin Department of the Administration. PDF File
50 Wisconsin Demographic Services Center. 2013. Population and Household Projections, produced in 2013, based from 2010 Census. Wisconsin Department of Administration. Accessed February 20, 2018 http://doa.wi.gov
51 Egan-Robertson D. 2013. Wisconsin's Future Population: Projections for the State, Its Counties and Municipalities, 2010-2040. Prepared for the Wisconsin Department of Administration, Demographic Services Center. UW-Madison Applied Population Laboratory, Madison, WI. PDF File
52 Data sourced from the City of Middleton

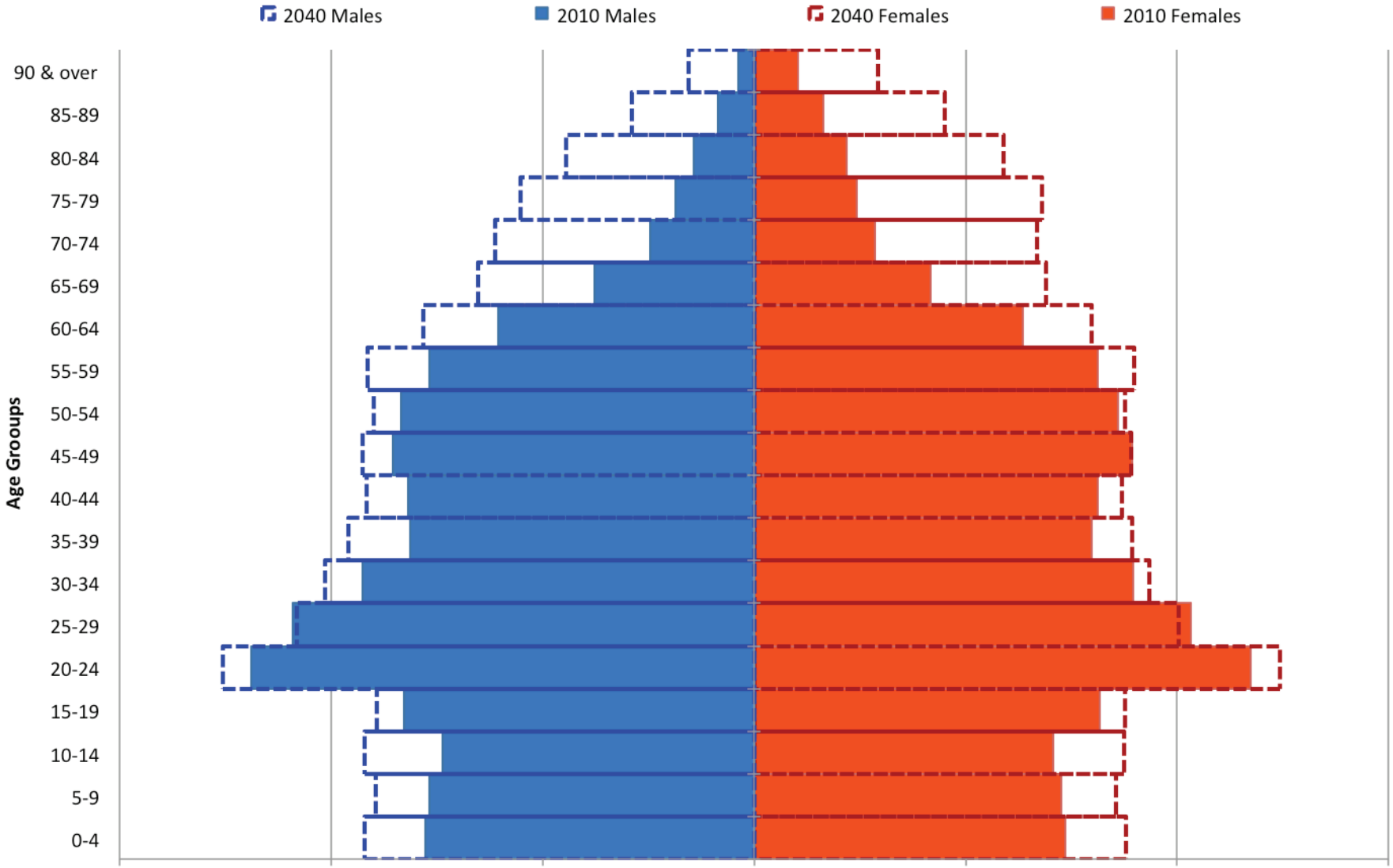


Figure 9-1. Dane County Age-Sex Pyramid, 2010 and 2040 Projections. Provided by the Wisconsin Department of Administration, 2013.

Age

As Middleton and Dane County's population grows, it simultaneously ages. As of 2010, 12% of Middleton's population was over 65, an increase of 2% percent from 2000. Projections for Dane County suggest the largest expected population growth is in age cohorts over 65 between 2010 and 2040 (Figure 9-1)[53]. Although there is also expected growth in youth age cohorts under 19, the population gain for elderly groups (>65) is expected to triple the growth of youth groups. Conservancy lands should seek to accommodate accessibility needs of this growing senior population.

Race and Ethnicity

In 2010, the US Census indicated that the majority of Middleton residents were

White (87.1%). The second highest percentage was Hispanic or Latino (5.6%) followed by Asian (4.2%) and Black or African American (3.5%). In Dane County and the State, future projections suggest increased racial and ethnic diversity.

Table 9-1. Demographic Composition of Middleton, 2010

	2010 CENSUS	2017 ESTIMATE
Population	17,442	20,151
	% of population	
>65 years of age	12%	--
<5 years of age	5%	--
White	87.1%	--
Hispanic/Latino	5.6%	--
Asian	4.2%	--
Black/African American	3.5%	--

Source: Wisconsin Demographic Services, 2013

53 Wisconsin Demographic Services Center, 2013

Table 9-2. Wisconsin Department of Administration Projected Population Growth for the City of Middleton and Surrounding Communities.

MUNICIPALITY	CENSUS 2010	PROJECTION 2015	PROJECTION 2020	PROJECTION 2030	PROJECTION 2040	% CHANGE 2010-2040
Village of Cross Plains	3,538	3,615	3,795	4,125	4,230	22%
City of Madison	233,209	241,250	251,550	270,350	281,150	21%
City of Middleton	17,442	18,540	19,670	21,780	22,570	33%
Town of Middleton	5,877	6,205	6,695	7,735	8,330	42%
City of Verona	10,619	11,620	12,800	15,070	16,850	58%
Village of Waukakee	12,097	12,750	13,850	15,940	17,530	45%
Dane County	488,073	--	530,620	577,300	606,620	24%

Source: Wisconsin Demographic Services, 2013

RECOMMENDATIONS

Consider impacts of future population growth and subsequent urbanization and development on public lands in Middleton. Pressures on conservancy lands include provision of ecosystem services, such as storm water management.

Consider Middleton's aging population. See Accessibility recommendations.

TRENDS IN RECREATION

This past year, the Wisconsin DNR performed statewide and regional analyses assessing existing outdoor-based recreation opportunities and identifying future recreation needs in each region of the State. The Wisconsin Statewide Comprehensive Outdoor Recreation Plan (SCORP) documents outdoor recreation trends and issues throughout the state, and serves as a guiding document for outdoor recreation policies. A 2017-2022 SCORP will be published in 2018. The plan will include results of a recreation participation survey sent to 6,400 random residents.

A prior version of the SCORP was published in 2011. The 2011-2016 SCORP documents Wisconsin's recreation demands based on responses of Wisconsin residents (718) to the 2005-2009 National Survey on Recreation and the Environment.

Across the country Wisconsin boasts some of highest rates of outdoor recreation with 87% of Wisconsinites enjoying some form of outdoor recreation. By far the most popular outdoor recreation activity is walking with 88% participation[54].

While walking occurs most commonly in developed settings: roads or sidewalks, parks and trails help promote walking and biking culture. Viewing natural scenery was the third most popular outdoor recreation activity, and is coupled with other activities such as walking and biking. According to a national Outdoor Foundation report, the most cited motivation for getting outdoors was exercise, and over half of respondents said pursuing outdoor recreation was a means of being close to nature[55].

54 Wisconsin Department of Natural Resources. 2011. Wisconsin's Statewide Comprehensive Outdoor Recreation Plan 2011-2016. Wisconsin Department of Natural Resources, Bureau of Parks and Recreation. Madison, WI. Accessed January 5, 2018 http://dnr.wi.gov/topic/parks/planning/scorp/

55 Outdoor Industry Association. 2017. Outdoor Recreation Topline Report 2017. Accessed February 21, 2018 https://outdoorindustry.org/resource/outdoor-recreation-participation-topline-report-2017

Activity	2005–2009 Participation	
	Percent Participating	Number of Participants (1,000s)
Walk for pleasure	87.7	3,947
Gardening or landscaping for pleasure	65.4	2,944
View/photograph natural scenery	65.3	2,939
Attend outdoor sports events	65.0	2,926
Family gathering	63.5	2,858
Visit nature centers, etc.	63.5	2,858
View/photograph other wildlife	57.9	2,606
Driving for pleasure	52.8	2,377
View/photograph wildflowers, trees, etc.	52.4	2,359
Sightseeing	50.6	2,278
Bicycling	48.7	2,192
Boating (any type)	47.3	2,129
Picnicking	47.0	2,115
Visit historic sites	46.7	2,102
Snow/ice activities (any type)	45.9	2,066
Yard games, e.g., horseshoes	44.7	2,012
Gather mushrooms, berries, etc.	42.8	1,926
Visit a beach	42.3	1,904
Golf	41.8	1,881
Swimming in lakes, streams, etc.	41.7	1,877
View/photograph birds	41.7	1,877
Freshwater fishing	37.4	1,683
Day hiking	36.7	1,652
Motorboating	36.0	1,620
Visit a farm or agricultural setting	35.3	1,589
Swimming in an outdoor pool	34.5	1,553
Visit a wilderness or primitive area	33.7	1,517
Warmwater fishing	33.2	1,494
Attend outdoor concerts, plays, etc.	32.8	1,476
Soccer outdoors	32.3	1,460
Running or jogging	32.1	1,445
Mountain biking	30.7	1,382
Sledding	28.2	1,269
View/photograph fish	26.7	1,202
Developed camping	25.4	1,143
Handball or racquetball outdoors	23.5	1,058
Visit other waterside (besides beach)	22.6	1,017
Hunting (any type)	22.2	999

Activity	2005–2009 Participation	
	Percent Participating	Number of Participants (1,000s)
Off-highway vehicle driving	19.8	891
Trail running	18.6	773
Snowmobiling	18.3	824
Big game hunting	18.0	810
Canoeing	17.9	806
Visit prehistoric/archeological sites	15.5	698
Boat tours or excursions	13.9	626
Ice skating outdoors	13.5	608
Ice fishing	13.1	590
Waterskiing	13.0	585
Coldwater fishing	12.8	576
Primitive camping	11.4	513
Small game hunting	11.3	509
Rafting	9.2	414
Cross country skiing	8.8	396
Horseback riding (any type)	8.7	392
Tennis outdoors	8.5	383
Backpacking	7.4	333
Kayaking	7.3	329
Rowing	7.2	324
Downhill skiing	7.0	315
Horseback riding on trails	6.6	297
Use personal watercraft	6.5	293
Snorkeling	6.2	279
Snowshoeing	6.1	275
Migratory bird hunting	4.1	185
Sailing	3.9	176
Rock climbing	3.8	171
Snowboarding	3.7	167
Mountain climbing	2.7	122
Caving	2.6	117
Inline skating	2.5	113
Orienteering	1.6	72
Scuba diving	1.1	50
Windsurfing	1.1	50
Surfing	1.0	45

See the 2005–2010 Wisconsin SCORP for additional detail on residents' participation in outdoor recreation.

Figure 9-2. Wisconsin Outdoor Recreation Participants by Participation Rate (Age 16+), 5-year view, prepared for the 2011-2016 Wisconsin SCORP report.

Limited development activities occur on primarily undeveloped or natural areas. The most popular forms of outdoor recreation in a limited development setting are water activities (47.3% boating, any kind; 42.3% visit a beach, 41.7% swimming; only 7.3% kayaking)[56].

Trends in Wisconsin over the last two decades show increasing outdoor recreation demands, increased urban outdoor recreation and changing recreational preferences. The largest recreation trend between 2000 and 2016 was the migration of rural populations to urban centers and the consequent increased demand for urban recreational activities[57]. Expected population growth in Middleton, its adjacent municipalities, such as Madison, and Dane County will increase demand for urban-based recreation and change recreational preferences.

In roughly the past two decades some of biggest numerical gains in recreation activity participation relevant to conservancy lands include: viewing and photographing birds and wildlife, walking for pleasure, bicycling, and running[58]. All activities were also identified as popular activities in Middleton's conservancy lands, based on responses to the Conservancy Lands Plan Update Survey (Figure 9-3).

Statewide, the greatest percent change in recreation activities, a measure of increasing demand and projected future growth, includes: adventure racing, driving for pleasure, kayaking, visiting a dog park, bmx biking, climbing, and stand-up paddle boarding[59]. Middleton currently has infrastructure for kayaking, using dog parks, and a mountain bike pump track.

The 2018-2023 Dane County Parks and Open Space Plan (POSP) identifies disc golf and mountain biking as the two largest growth areas in Dane County[60].

The 2018-2023 Dane County POSP also highlights the uniqueness of Dane County given its urban and diverse population. Activities uniquely popular to Dane County include food, exercise, education, gardening and pet exercise. Dane County also hosts a number of regionally significant recreation events such as the Wisconsin Ironman.

Middleton has the potential to become an important regional recreation event host with the development of privately-managed Community Olympic Development Center cross-country skiing facility adjacent to the Middleton Bike Park. This facility would connect City facilities with privately owned facilities including the Blackhawk Ski Area for both mountain biking and cross-country skiing. The Outdoor Foundation's annual participation report identified cross-country skiing as the second top outdoor activity for growth nationally over a three-year period (2013-2016).

56 Wisconsin Department of Natural Resources, 2011
57 Ibid
58 Ibid
59 Ibid
60 Dane County Parks Division. 2018. 2018-2013 Parks & Open Space Plan. Dane County Parks Division, Land and Water Resources Department, County of Dane. Madison, WI. PDF File

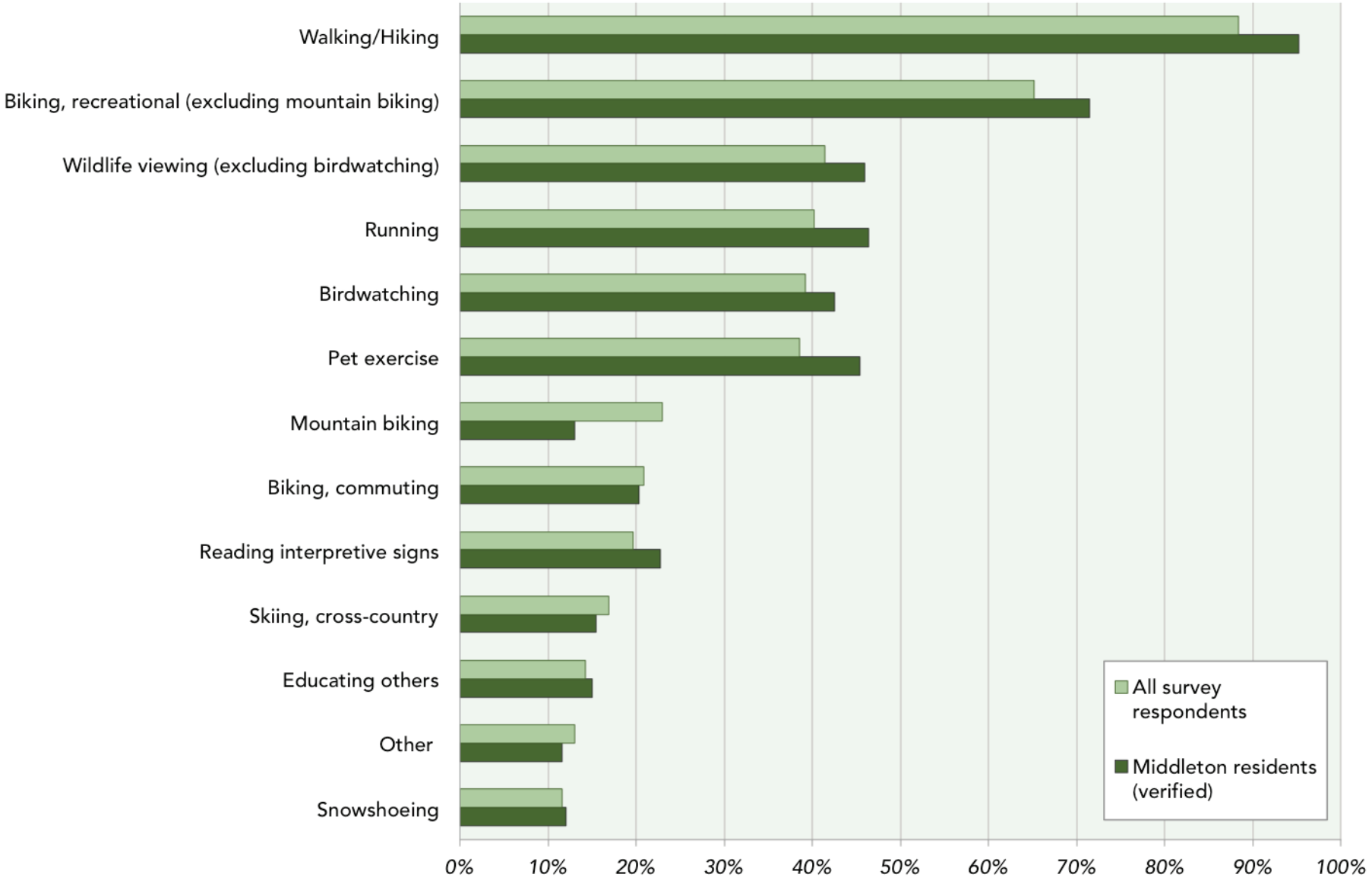


Figure 9-3. Most popular activities performed in conservancy lands in the last year (percent of respondents who performed each activity). Responses for total survey respondents and verified Middleton residents (registered voters) are displayed separately. Respondents could select multiple responses. "Other" included: ice skating, photography, looking at plants, driving for pleasure, geocaching, gardening (Bock Community Gardeners), kayaking and canoeing.

Increasing Demand	Adventure racing	Popular as both an individual and a group activity.
	Driving for pleasure	An easy activity for the aging baby boomer generation.
	Developed/RV camping	Baby boomers are a continued driving force for this growth.
	Kayaking	Cheaper entry points have attracted more participants.
	Visit a dog park	Urban residents continue to demand more of these areas.
	Soccer outdoors	Youth growth is still strong in urban areas.
	BMX biking	X Games popularity may be driving this growth.
	Climbing	Indoor climbing walls have led to an outdoor resurgence.
	Stand up paddling/paddleboarding	A fast growing water sport sweeping the country.
	Triathlon (on- and off-road)	Varying distance events have allowed for growth.
	Off-highway vehicle driving	Post recession growth continues.
	Gardening or landscaping for pleasure	The "grow local" concept is taking hold at many levels.
Stable Demand	Walk for pleasure	Market saturation does not allow for large growth.
	Running or jogging	Gen Y is replacing the baby boomers for this activity.
	Water parks	Recession may have caused this growth to slow.
	Motorboating	Still easy access in a water-based state.
	Day hiking	Popular with many generations.
	Golf	Time constraints do not allow for growth.
	Tent camping	Continues to be stable, but growth is illusive.
	Snowboarding	May have peaked after 20 years of growth.
	Trail running	A stable niche activity with Gen Y.
	View/photograph wildlife	An easy activity that spans generations.
	Bicycling (road and non-paved)	Popular with many generations – access is still key.
	Snowshoeing	After large growth, this has stabilized.
Decreasing Demand	Hunting	Continues to struggle with generational loss and private access.
	Inline skating	A large decrease in the last six years, the bottom may be near.
	Skateboarding/skate parks	Gen M is free-skating with longboards.
	Horseback riding on trails	Recession impacts have caused this to decrease with no rebound.
	Softball	Baby boomers continue to leave this sport.
	Downhill skiing	Gen Y does not have the numbers to replace aging baby boomers.

Figure 9-4. Projected Trends in Wisconsin Outdoor Recreation Activities, prepared for the 2011-2016 Wisconsin SCORP.

RECOMMENDATIONS

Incorporate findings from the Wisconsin SCORP 2017-2022 into upcoming City of Middleton Parks and Open Space Plan.

Despite proximity to Lake Mendota, the City of Middleton has limited opportunities for water activities. Continue supporting water quality initiatives improving water quality in Lake Mendota. Consider future opportunities for Middleton's waterfront.

Incorporate changing recreation demands in future planning, while maintaining a long-term vision of conservancy areas. Promote recreation opportunities that have minimal impacts on on Middleton's natural resources.

ACCESSIBILITY

The City of Middleton and its partners are actively developing initiatives to improve accessibility in Middleton's conservancy and park lands. Current offerings include:

- 9 miles of ADA-compliant trails
- Adaptive fishing port at Lakeview Park
- Adaptive fishing equipment available for loan (free)
- Adaptive kayak/canoe port at Graber Pond
- All-terrain wheelchair for use in the Pheasant Branch Conservancy, housed at Orchid Heights Park (free)

The Friends of Pheasant Branch have taken a leading role in promoting accessibility in the Pheasant Branch Conservancy (Box 9-1). The Friends of Pheasant Branch, City of Middleton and partnering organizations formed an ad hoc Accessibility Committee in 2017 to further accessibility initiatives in Middleton. The Friends of Pheasant Branch also received a $20,000 grant to promote accessibility in the Pheasant Branch Conservancy in 2017 and 2018.

In 2016 and 2017, the UW-Madison Urban and Regional Planning Department offered a graduate level course focused on the role of nature in human health and wellness. The Pheasant Branch Conservancy was chosen as study site and students explored, inventoried, mapped and quantified the assets of the Pheasant Branch Conservancy. Members of the Friends of Pheasant Branch participated in the study. Two papers resulted:

Pheasant Branch Conservancy Outreach and Facilities Plan, 2016[61]

The Plan assesses mechanisms for facilitating outdoor activity for aging populations, individuals with cognitive challenges, individuals with limited mobility, and youth generations. The document recommends facilities improvements, development of a Mobile Device App, and outreach. Recommended facilities improvements include updates to wayfinding and interpretive signage, creation of sensory corridors to host sensory tours, use of phenological calendars, and integration of interpretive programming with a Mobile Device App. Recommended outreach includes inclusive interpretive programming, community surveying, engagement through social media, and evaluation of online conservancy media through web analytics.

Planning for Access: Signage Guidelines for Pheasant Branch Conservancy, 2017[62]

This document inventories and evaluates existing signage in the Pheasant Branch Conservancy and proposes a new signage framework, or a summary of recommendations based on published literature and results of focus group studies.

61 Urban and Regional Planning 590-2 Associates. 2016. Pheasant Branch Conservancy Outreach and Facilities Plan. Urban and Regional Planning Department, UW-Madison, Madison, WI. PDF Report.
62 Wessel S. 2017. Planning for Access- Signage Guidelines for Pheasant Branch Conservancy. Urban and Regional Planning Department, UW-Madison, Madison, WI. PDF file.

Public Input on Accessibility

The majority (>50%) of respondents of the Conservancy Lands Plan Update Survey were unaware of Middleton's all-terrain wheelchair, adaptive fishing equipment, and accessible kayak/canoe port.

Respondents provided suggestions for improved accessibility options: improve signage, increase the number of benches, update the emergency medical services (EMS) locator system, install handrails on steps, follow the City's ADA plan, reduce slipperiness of boardwalks, provide more shade, increase advertising of accessibility options, allow e-bikes, move the kayak/canoe port at Graber Pond to a more accessible location, and provide greater access to Lake Mendota.

The City of Middleton is exploring a number of initiatives related to the above suggestions.

- In 2017, in 2017 the City implemented a pilot project testing textured strips to reduce slipperiness on boardwalks.
- Updating signage in the Pheasant Branch Conservancy is a proposed project in 2019.
- Improving technology and security in Pheasant Branch Conservancy and Pheasant Branch Creek Corridor is a proposed project in 2020-2022 (including updating EMS locator system and investigating use of digital media and mobile apps for interpretation)
- Middleton's conservancy system averages one bench every ¼ mile.

BOX 9-1. THE FRIENDS OF PHEASANT BRANCH RECEIVED A 20K GRANT TO PROMOTE ACCESSIBILITY IN THE PHEASANT BRANCH CONSERVANCY IN 2017 AND 2018

"Make a Memory Days": Outreach to seniors, individuals with cognitive challenges and those with limited mobility - *written by* John Daly

After months of planning by the Friends of Pheasant Branch (FOPB) Education Committee, the outreach initiative to the community's older adults, known as Make a Memory Days, took place over several days in August 2017 at the Pheasant Branch Conservancy. The participant attendance numbers indicate the success of these events; over 60 older adults did make a memory.

The participant evaluations thanked the FOPB for providing a learning experience in nature with several positive outcomes. Participants stated that the multi-hour event provided them an opportunity to recall childhood outdoor experiences; an awakening of the senses (smell, touch, hearing); and, a personal challenge to get outside more often and enjoy the uniqueness of this special place.

The Make a Memory Day events invited older adults, individuals with cognitive challenges and those with limited mobility to the Pheasant Branch Conservancy. The committee recruited and trained naturalists to lead tours into the conservancy with the use of large golf carts and the new all-terrain wheel chairs provided by Access Ability Wisconsin.

One can usually measure a program's degree of success by the percentage of returned evaluations. Research states that a 30% return of feedback forms is good. The participant response for these Make a Memory Days was over 63% and that was within a few days of the events. The participants thanked the Friends for providing a special day outside in Nature.

Photo credit: Dale Klubernatz

In 2015, the FOPB Senior Advisory Council was formed to help the Education Committee in their planning to out-reach to older adults. Research states that successful planning of a learning experience begins with the ideas, interests and the needs of the learners themselves. The FOPB Education Committee originated the planning for this program by asking members of this council and older adults from other community organizations a key question - "In what ways can the Pheasant Branch Conservancy be a part of your daily lives?"

The compilation of input provided guidance in the planning and design of program events like Make a Memory. It also contributed to the review of materials (print, website, etc.), the identification of potential concerns and enhancements with the infrastructure, as well membership services and volunteer opportunities.

Continued on page 9-16

BOX 9-1. THE FRIENDS OF PHEASANT BRANCH RECEIVE A 20K GRANT TO PROMOTE ACCESSIBILITY IN THE PHEASANT BRANCH CONSERVANCY IN 2017 AND 2018, continued

In 2016, the Friends of Pheasant Branch Conservancy was awarded a $20,000 grant from Bader Philanthropies Inc. This two-year grant provides financial support for a variety of projects in 2017 and 2018. The grant has four components:

- Programming for older adults, individuals with memory loss and those with limited mobility;
- Critical review of current materials;
- Analysis of the Conservancy infrastructure (including signage); and,
- Capacity of the organization to continue the outreach to target populations in the community.

The Board of the Friends of Pheasant Branch Conservancy supports extending its community out-reach initiatives to older adults and has formed the Accessibility Ad Hoc Committee. This has been a natural progression of the growth of this non-profit organization and the efforts of the FOPB to promote lifelong learning reflecting the evolving community needs. In order to assure that the planning is inclusive the members of the Accessibility Committee have been recruited from various resource organizations and the community's senior centers and senior living communities.

Committee members include representatives from the following partners:

Alzheimer's and Dementia Alliance

Attic Angels Place

Brookdale Middleton

Dane County Parks Department

Dementia Friendly Communities

Middleton Glen

Middleton Public Lands, Recreation and Forestry

UW–Madison School of Nursing

UW–Madison Urban and Regional Planning

Contributed by John Daly, Friends of Pheasant Branch Conservancy
jhdaly@charter.net
www.pheasantbranch.org

RECOMMENDATIONS

Consider relocating the Graber Pond kayak/canoe port to a more accessible location. Consider length of trail and availability of parking.

Continue partnerships with the Friends of Pheasant Branch and other organizations to promote programming for seniors, those with cognitive challenges and those with limited mobility, such as the "Make a Memory Days" coordinated by the Friends of Pheasant Branch in 2017.

Consider accessibility when developing new conservancy signage, such as the Pheasant Branch Conservancy signage update planned for 2019.

Should Wisconsin laws regarding E-bikes change, consider accessibility issues as relates to e-bike use. Coordinate with the ad hoc Accessibility Committee regarding on e-bike use among individuals with mobility impairments. When creating motor bike/e-bike policy, consider policies in surrounding communities, such as the City of Madison, given the connectivity of bike trails.

Some Conservancy Lands Plan Update Survey respondents expressed concern that "overdoing" accessibility will take away from other's experiences by adding to the development of conservancy areas. Search for a balance within the variety of preferences and needs of Middleton's conservancy users.

YOUTH EDUCATION

Madison Cross Plains Area School District (MCPASD) uses conservancy lands for a number of teaching and service learning opportunities. Many events are coordinated by the Friends of Pheasant Branch and occur in Pheasant Branch Conservancy (Appendix 5).

Middleton's schools take advantage of their proximity to conservancy lands. Kromrey Middle School is directly adjacent to the Pheasant Branch Creek Corridor. Sixth grade students learn about the importance of native plants and storm water management in protecting the Pheasant Branch Creek through the school's native rain gardens. Kromrey students also pull garlic mustard in the Pheasant Branch Creek Corridor annually with the Friends of Pheasant Branch.

Middleton Hill School is just a block away from the Pheasant Branch Creek Corridor and a short bus ride from the Pheasant Branch Conservancy. High school students can participate in field trips to the Pheasant Branch Conservancy in introductory Biology, Field Biology, English, and art classes.

Elm Lawn Elementary School is located across from Tiedeman Pond and uses the Elm Lawn Savanna area as an outdoor classroom. Elm Lawn students have also participated in nature-based art projects involving field trips to the Pheasant Branch Conservancy.

The 21st Century eSchool, an alternative k-12 program using online and in-classroom teaching, offers outdoor classroom trips to the Pheasant Branch Conservancy.

Sauk Trail Elementary School borders Lakeview Park and Lakeview Conservancy.

RECOMMENDATIONS

Support the Friends of Pheasant Branch in coordinating educational and service events with MCPASD schools.

Seek to involve students and teachers in events occurring on conservancy lands.

Improve documentation and evaluation of educational events occurring on conservancy lands. Identify and protection conservancy lands features that support educational opportunities (for example, presence of a rare and threatened species, access to a natural stream, etc.).

CONCLUSIONS

CONCLUSIONS

CONSERVANCY LANDS ARE A KEY FEATURE OF MIDDLETON

Middleton's public lands system sets the City apart from other communities in the county and in the state. Middleton is distinguished in both the scale of its public lands system and the commitment to conservation of natural areas. The 835 acres of conservancy lands account for over 14% of the total land in Middleton, and its off-road trail system stretches over 27 miles.

Impacts of the conservancy lands system include:

- Conservancy lands are part of Middleton's community identity
- Conservancy lands area a critical part of the infrastructure that makes Middleton a great place to live, work and play.
- Conservancy lands maintain and improve property values
- Conservancy lands keeps the City competitive with other communities for businesses, residents, and events.

Middleton is additionally unique in that the City owns the majority of public lands within city limits. Adjacent municipalities, like the City of Madison and City of Fitchburg, have a larger proportion of open space that is managed by outside entities, such as the State of Wisconsin (e.g. State trails), the WDNR, Dane County Parks, or UW-Madison (e.g. UW-Madison Arboretum in Madison). An advantage of Middleton's ownership of public land is its connectivity to City parks, City trails, and community centers. However, challenges include limitations in staffing and funding.

The beauty and accessibility of the conservancy lands are a key element of what makes Middleton such as desirable place to live – Survey respondent, 2018

LOVE LOVE LOVE our free parks and walking/hiking/bike paths The Public Lands make Middleton an absolute gem – Resident, 2012 – Survey respondent, 2018

Middleton has a great conservancy system. The funding and effort Middleton spends on the conservancy is much appreciated. These lands are what sets Middleton far above other areas around Madison and make it a great, family friendly place to live – Survey respondent, 2018

Conservancy lands preserve the natural functions of wetlands, creeks, springs and ponds in Middleton, and protect historic communities, such as prairies, sedge meadows, oak savannas, and oak woodlands. Despite an otherwise urban environment, Middleton's conservancy lands support a variety of resident and migratory wildlife. The Pheasant Branch Conservancy, for example, supports over 235 species of birds alone. Middleton's commitment to conservation is evidenced by the award of multiple major State and Federal grants over the last decade. The City received over $472,000 in support for restoration, wildlife management and stream bank stabilization since 2011.

THE CONSERVANCY LANDS SYSTEM MUST RESPOND TO FUTURE CHANGES IN MIDDLETON

This Plan documents changes since the writing of the 2011-2016 Conservancy Lands Plan. Changes over the last six years include:

- 15% population growth in Middleton since 2010
- Increased development and urbanization within Middleton
- Increased public interest in recreation and changing recreational preferences
- Reorganization of Public Lands, Recreation and Forestry staffing
- Establishment of a Storm Water Utility
- Addition of the Metropolitan Refuse District land
- Establishment of the Middleton Area Public Lands Endowment (MAPLE)
- Expansion of Middleton's accessibility initiatives
- Award of State and Federal grants for restoration, wildlife management and stream bank stabilization

Compared to prior versions of the Conservancy Lands Plan, this Plan was the first to perform a dedicated conservancy lands survey and incorporate public input received from the survey and public meetings. This plan was also the first to include a discussion of accessibility, e-bike policy and dog policy.

Future changes

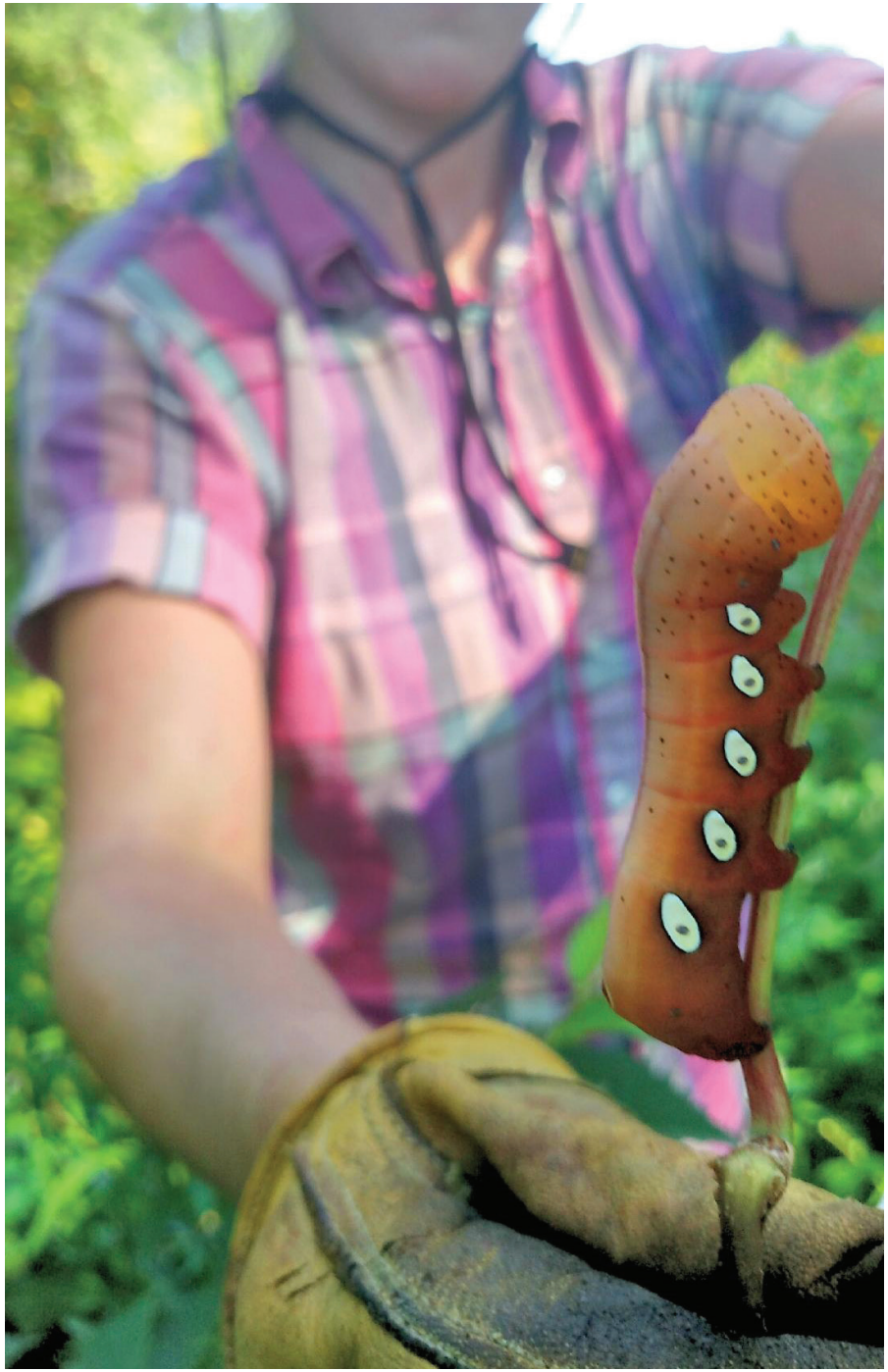
New topics discussed in this Plan reflect changes in conservancy land usage and changing recreation trends. Future management of conservancy lands must address changing recreational preferences, increased interest in recreation, and increased recreation demands given population growth. Concurrently, conservancy lands management must address increased demand for ecological services, such as protecting water quality, managing storm water, and providing habitat for rare and threatened species, particularly as Middleton becomes more developed. Ongoing threats to the conservancy lands system include development and urbanization, invasive species, and the disruption of natural processes, such as hydrology.

Conservancy lands staffing and funding levels should be commensurate with increased recreational and ecological demands on the conservancy lands system.

UPDATE PUBLIC GIS AND USE GEODATABASES AS LAND MANAGEMENT TOOLS

Public Lands, Recreation and Forestry should coordinate with other City departments in situations where management of conservancy lands and the public lands trail system involves multiple departments. Delineation of management responsibilities and establishment of a clear and shared future desired condition for a conservancy area or trail could improve efficiency of vegetation management.

We recommend updating the City's GIS system and creating a conservancy lands geodatabase as a means of improving data sharing across departments and improving efficiency of data management given Public Lands, Recreation and Forestry's limited staff resources. Geodatabase applications related to conservancy lands include: up-to-date system and facilities maps, mapping and monitoring of invasive species, mapping and monitoring of rare and threatened species (e.g. wildlife monitoring), documentation of management activities and expenses, documentation of trail maintenance and expenses, documentation of events (e.g. volunteer events), database of management plans, and database of grants and donations received.



SUPPORT ONGOING RESTORATION AND PROTECTION OF NATURAL AREAS

Ongoing management and enhancement of conservancy lands is an investment in protecting services provided by conservancy lands. Restoration of natural areas to native plant communities provides superior benefits to the Middleton community than degraded natural areas. Thus, restoration of Middleton's conservancy lands preserves the value of these lands into the future.

The values of conservancy lands include:

- Protection of native plant communities and associated wildlife
- Protection of wildlife habitat
- Climate change mitigation
- Protection of water quality, storm water and flood water infiltration, and erosion mitigation
- Protection of air quality
- Economic benefits to the Middleton community
- Recreational opportunities
- Education
- Public health

Protection and restoration of Middleton's conservancy lands require active and ongoing management. Successful land stewardship should:

- Take a scientific approach to management. Routine monitoring and evaluation should inform future management tactics. Implement data collection systems and use data to inform management, funding and policy.
- Address new and existing threats to conservancy lands such as urbanization, development, recreational demand, and invasive species. Staffing level, staffing expertise, and funding should be commensurate with demands on the conservancy lands system.
- Prioritize management. Land management priorities should be informed by natural resource value, impact on water resources, past investment in management/ restoration, and public influence considerations
- Maximize return on past investment. Perform ongoing management following intial project investment.

RESTORATION IS POSSIBLE THROUGH COLLABORATIONS AND PARTNERSHIPS

The City should seek to maintain and expand its partnerships with groups supporting conservancy lands and entities maintaining lands of similar management within the region. Middleton's conservancy lands-supporting friends groups, the Friends of Pheasant Branch, Bock Community Gardeners, and the Friends of Kettle Ponds provide an invaluable service to the community by providing educational and volunteer opportunities for residents, and by supporting restoration of natural areas. The City should work collaboratively with these Friends Groups and other supporting non-profits, like the Clean Lakes Alliance, to promote continued opportunities for citizen involvement in conservancy lands. Seek new or enhanced partnerships to promote citizen monitoring of wildlife.

Collaborative management of natural areas should involve regional land management entities, such as Dane County Parks and the City of Madison. Memoranda of Understanding can improve outcomes of land management activities by pooling labor and funding efforts towards a shared goal.

Public Land, Recreation and Forestry should maintain relationships with local representatives of state and federal agencies (e.g. WDNR, USFWS), and pursue state and federal support for ongoing restoration and wildlife management.

Middleton is located at the intersection of the Madison metropolitan area and relatively undeveloped lands to the north and west of the city. Thus, there is an opportunity for strategic acquisition of land or connection to land that strengthens contiguous environmental corridors between Lake Mendota and areas to the north, northeast, and west of Middleton, and an opportunity for recreational corridors between urban centers and regional recreational areas. Develop and long-term and regional vision of environmental and recreation corridors when visioning the future of Middleton's conservancy lands.

With the proper collaboration... we can make [Middleton] a better place – Public meeting attendee, 2018

SUMMARY OF RECOMMENDATIONS

This Plan documents past land stewardship activities in conservancy lands, and changes since the writing of the prior plan (2011), gathers and incorporates public input about conservancy lands, and provides management recommendations. Recommendations provided in this plan pertain to land management, policy, funding, staffing and development. These recommendations are intended to highlight opportunities for improvement, mitigate threats to the conservancy lands system, and focus management priorities.

Our recommendations are informed by 1) public input gathered as part of the Plan writing process and 2) the stated conservancy lands goals and objectives (as listed in Chapter 3). A summary of our recommendations is organized by the conservancy lands goal that most aligns with the intent of each recommendation (Table 10-1).

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
GOAL 1: PROTECT AND RESTORE NATIVE LANDSCAPES AND DESIGNATED CONSERVANCY LANDS TO MAINTAIN AND IMPROVE NATURAL HABITAT, SCENIC BEAUTY, PASSIVE RECREATION AND OUTDOOR EDUCATION FOR PERSONS OF ALL AGES AND ABILITIES.			
Maintain a grants geodatabase relevant to public lands, and conservancy lands specifically. A grants geodatabse should: 1) Document grants applied for and grants received (project area, project description, funding amount, City match, length of project/funds) 2) Create a grant calendar of available grants, grant deadlines, and other funding opportunities. Update at least annually.	(5) Conservancy Lands Operations	1.6, 1.1	Table 5-11
Maintain database of donations received to public lands, and conservancy lands specifically.	(5) Conservancy Lands Operations	1.6, 1.1	
Maintain a geodatabase of sign location, sign type, sign condition, installation date, and maintenance record. Perform an annual review of sign conditions. Create an annual maintenance and replacement budget. Anticipate longevity of signs and schedule replacements.	(8) Conservancy Lands Trails: Trail Maintenance	1.5	Table 5-7
All conservancy areas should be subject to growing season vegetation surveys. Monitoring and assessment of past management activities should inform changes in management tactics in response to results of previous management. Consider using UAV aerial imagery as an assessment tool.	(7) Conservancy Lands Management: Vegetation and Wildlife	1.4	
Identify and protect areas with unique natural resources, such as remnant and restored vegetative communities. Identify locations of rare and threatened species and areas of critical habitat. Map areas of special protection (remnant and restored areas, and known locations of rare and threatened species). Prioritze these areas for allocation of resources, and consider special protection of these areas, such as policies reducing human and pet impact.	(7) Conservancy Lands Management: Vegetation and Wildlife, (4) Public Outreach	1.1, 1.3, 1.6	Tables 7-1, 7-2, 7-2, 7-6, 7-7, 7-8
Prevent introduction and spread of invasive species. Perform active and regular monitoring of invasive species. Eradicate new invasions of non-native species while they are limited in extent and easier to remove. Prevent invasive seed production. Consider using mapping tools to track the locations and extent of invasive species. Mapping tools can be used to monitor new infestations and evaluate management efforts.	(7) Conservancy Lands Management: Vegetation and Wildlife, (4) Public Outreach	1.4, 1.6	Box 4-1, Table 7-2, Table 7-4
Management and policy of conservancy lands should protect user interests such as wildlife viewing and birdwatching, while also supporting activities such as recreational biking, mountain biking and pet exercise where appropriate. Impacts of conservancy usage on wildlife and birds should be explored through monitoring.	(9) Planning Considerations, (8) Conservancy Lands Trail System	1.2	Figures 9-2, 9-3, 9-4

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Use the Conservancy Lands Plan Update Survey as a baseline for future surveys. In future surveys Middleton should seek increased participation from the 18-29 age group, respondents less than 18 years of age, and respondents over 65.	(4) Public Outreach	1.6	Figure 9-1
Incorporate changing recreation demands in future planning, while maintaining a long-term vision of conservancy areas. Promote recreation opportunities that have minimal impacts on Middleton's natural resources.	(8) Conservancy Lands Trail System, (9) Planning Considerations	1.5, 2.6	Figures 9-2, 9-3, 9-4
Future trail development should accommodate increased trail demands while protecting the mission of conservancy lands as a natural resource. Consider acquisition of new conservancy lands as a means of accommodating a growing population while mitigating impacts of increased recreational demand and increased development in the city.	(8) Conservancy Lands Trail System, (9) Planning Considerations	1.5, 2.6	Figures 9-2, 9-3, 9-4
When replacing signs, create signs with consistent and recognizable style. Consider sign audience. Etiquette signs should be legible to pedestrians and faster-moving bicyclists. All signs should consider accessibility issues – adhere to signage guidelines on ADA-compliant trails. Use available published resources.	(8) Conservancy Lands Trail System, (9) Planning Considerations	1.5, 2.2	
Consider relocating the Graber Pond kayak/canoe port to a more accessible location. Consider length of trail and availability of parking.	(9) Planning Considerations: Accessibility	1.2, 1.5, 4.2	Box 9-1
Continue partnerships with the Friends of Pheasant Branch and other organizations to promote programming for seniors, those with cognitive challenges and those with limited mobility, such as the "Make a Memory Days" coordinated by the Friends of Pheasant Branch in 2017.	9) Planning Considerations: Accessibility	1.2, 1.5, 4.2	Box 9-1
Comments received in the Conservancy Lands Plan Update Survey request more mileage stickers and trail distances on maps. Trail distances on physical maps and trail markers are helpful for users planning a walk or run, and allow users with mobility impairments to determine the desired length of their trip.	(8) Conservancy Lands Trail System: Conservancy and Trail Signage	1.5	
Seek replacement of "poor" condition signs. Update trail system maps: of 15 Trail System Maps across the conservancy system only two signs are rated in good condition; the remaining 13 signs are faded such that sign use is difficult. Consider replacing all trail system map signs with an updated map.	(8) Conservancy Lands Trail System: Conservancy and Trail Signage	1.5	Appendix D
Enforce State motor bike/e-bike regulations (i.e. no motor bikes nor electronic scooters) with the exception of personal assistive mobility devices. Keep informed of expected changes in State legislation with respect to e-bikes in 2018. Should Wisconsin laws regarding E-bikes change, consider accessibility issues as relates to e-bike use. Coordinate with the ad hoc Accessibility Committee regarding on e-bike use among individuals with mobility impairments. When creating motor bike/e-bike policy, consider policies in surrounding communities, such as the City of Madison, given the connectivity of bike trails.	(8) Conservancy Lands Trail System: Conservancy and Trail Signage, (9) Planning Considerations	1.2, 1.5, 4.2	Box 8-1

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Natural surface trails (such as the trail through the Bock Community Forest woodland) are typically not accessible to bikes. Since walking/hiking is the most popular activity in conservancies, creating more hiking-only trails may be an option for reducing conflict between bikers and pedestrians.	(8) Conservancy Lands Trail System, (4) Public Outreach	1.2, 1.5, 4.2	Figure 9-3
Each conservancy should have a dedicated Management Plan/Master Plan. A Master Plan should have a minimum lifespan of 10 years but no longer than 25 years. Addendums may be appropriate if site conditions change significantly within 10 years of writing a Master Plan. Changes in site conditions include: change in extent of boundary, signification change in vegetation (e.g. restored to native landscape), stakeholder and/or partner involvement, or other unforeseen changes.	(7) Conservancy Lands Management: Vegetation and Wildlife	1.6, 5.3	Table 5-10, Table 6-3
Develop and maintain a variety of native plant communities. Existing native plant communities are protected and enhanced, and additional communities are established to the extent possible given the limitations of size, surrounding land use, and available resources. Native plant communities provide habitat for insects, wildlife and birds	(7) Conservancy Lands Management: Vegetation and Wildlife	1.1, 1.3, 6.3	Table 7-1, Table 6-3
Management of conservancy lands should involve restoring natural processes to a landscape. The City actively restores fire regime to many conservancy areas through prescribed burning. Human-caused modifications in hydrology also impact the health of natural communities. Restoration of natural hydrology should also be a priority. Past restoration includes the removal of drain tiles in the western portion of the Pheasant Branch Conservancy.	(7) Conservancy Lands Management: Vegetation and Wildlife	1.3, 6.1	Table 7-2
Prescribed fire is a critical land management tool necessary for maintaining the prairie, savanna, and wetlands in Middleton. When planning prescribed burns, fuels on adjacent properties should be evaluated. Firebreaks width and type should correlate with both the vegetation on conservancy lands, and the vegetation and structures to be protected on adjacent lands. Conduct prescribed burns only when air quality conditions are moderate or better, and smoke dispersal conditions are fair, good, or excellent.	(7) Conservancy Lands Management: Vegetation and Wildlife	1.1	Table 7-2
Establish a policy regarding the use of "drones," unmanned aerial vehicles (UAV's), in conservancy lands.	(8) Conservancy Lands Trail System	1.5	
GOAL 2: EXPAND PARTNERSHIPS FOR MAINTENANCE OF CONSERVANCY LANDS AND HANDS-ON RESTORATION AND LEARNING OPPORTUNITIES FOR THE RESIDENTS OF MIDDLETON.			
Incorporate findings from the Wisconsin SCORP 2017-2022 into upcoming City of Middleton Parks and Open Space Plan	(9) Planning Considerations: Trends in Recreation	2.3	Figure 9-2, Figure 9-4
Continue partnerships with Clean Lakes Alliance, Friends of Pheasant Branch and Bock Community Gardeners. Consider creating a coordinating committee with facilitating groups.	(5) Conservancy Lands Operations: Contributions of Volunteers	2.4, 6.2	Table 5-1, 5-2, 5-3

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Use Capra accreditation standards for volunteering as a model for Middleton's volunteer management. 1) Create a process for training and orienting volunteers. Encourage regular volunteers. 2) Create standard operating procedures for work in conservancy lands (e.g. hand weeding, plant identification, brush removal, seed collecting) that can be shared with volunteers. 3) Create an online database of volunteers and create an online version of the Public Lands Volunteer Program Guidelines release of liability and indemnification forms. Use the volunteer database as a mechanism of accountability and documentation of work performed. 4) Consider sending thank-you's and feedback requests to volunteers and/or hosting an annual volunteer gratitude event.	(5) Conservancy Lands Operations: Contributions of Volunteers	2.4, 6.2	Appendix C
We recommend clear posting of conservancy rules and etiquette and better utilization of web media for conservancy lands information and regulations.	(8) Conservancy Lands Trail System	2.1	
Support the Friends of Pheasant Branch in coordinating educational and service events with MCPASD schools.	(9) Planning Considerations: Youth Education	2.4	Appendix F
Seek to involve students and teachers in events occurring on conservancy lands.	(9) Planning Considerations: Youth Education	2.4	Appendix F
Explore potential use of mobile apps for citizen monitoring of wildlife and flora. Explore use of mobile apps and/or a QR code-based system as a mechanism for conservancy users to access seasonal interpretive media and up-to-date conservancy and trail information.	(8) Conservancy Lands Trail System	2.2	
We recommend clear posting of conservancy rules and etiquette and better utilization of web media for conservancy lands information and regulations.	(8) Conservancy Lands Trail System	2.1	
GOAL 3: IMPROVE WATER QUALITY WITHIN THE CONSERVANCY LANDS PROPERTIES.			
Identify a single entity to be responsible for vegetation management on land with native plantings, including storm water detention ponds. Costs of vegetation management may be shared across departments.	(7) Conservancy Lands Management: Vegetation and Wildlife	3.3	Table 7-3
Follow recommendations of the UW-Madison Water Resource Management (WRM) Practium report: Making Stricker's Pond a Better Resource for Middleton and Madison Residents (2016).	(7) Conservancy Lands Management: Vegetation and Wildlife	3.1, 3.2, 3.3	

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Improvement projects related to storm water management should be the responsibility of the Public Works Department. Capital projects include: Tiedeman Pond pump replacement and feasibility study/ stormwater abatement plan and study; Stricker's and Tiedeman Pond Stormwater Detention Pond; Tiedeman Pond dredging near sewer grate; dredging of Tiedeman pond forebays.	(7) Conservancy Lands Management: Vegetation and Wildlife	3.1, 3.2, 3.3	Table 5-9
Despite proximity to Lake Mendota, the City of Middleton has limited opportunities for water activities. Continue supporting water quality initiatives improving water quality in Lake Mendota. Consider future opportunities for Middleton's waterfront.	(9) Planning Considerations	3.2, 1.2	Figure 9-2, Figure 9-4
Coordinate with the WRMC in their investigation for runoff control measures in the North Fork of Pheasant Branch Creek. Potential land acquisition for corridor buffers, or stormwater detention basins, could provide multiple benefits for recreational, or wildlife habitat use.	(7) Conservancy Lands Management: Vegetation and Wildlife	3.1, 3.2, 3.3	
GOAL 4: INCREASE CONNECTIONS BETWEEN MIDDLETON'S CONSERVANCY LANDS AND OTHER ADJACENT AND REGIONAL CONSERVATION AREAS INCLUDING CORRIDORS AND LINKAGES WITH OTHER GOVERNMENT/MUNICIPAL LANDS OF SIMILAR MANAGEMENT.			
Coordinate with the Pedestrian, Bicycle and Transit Committee on issues related to trail use policy and trail connectivity. 1) Middleton's Bike and Pedestrian Plan has not been updated since 2009. The next iteration of the Bicycle and Pedestrian Plan should consider studying areas of high bike/pedestrian interface and propose alternatives to minimize negative interactions between bikers and pedestrians. Consider multiple types of bike users (multiple speeds) and multiple types of pedestrians. Use public input gathered in the public input process for this Plan. Promote etiquette between user groups through educational campaigns, signage, or other methods. 2) Coordinate with the Pedestrian, Bicycle and Transit Committee to promote increased connectivity of trails and bike paths within the City and to regional trails. 3) Consider adding a Pedestrian, Bicycle and Transit Committee representative to CLC.	(8) Conservancy Lands Trail System	4.1, 4.2, 4.3, 4.4, 4.6	

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Establish a memorandum of understanding (MOU) with partners to allow cross-boundary collaboration on land stewardship of the Pheasant Branch Conservancy and Stricker Pond Conservancy. 1) Managing the Pheasant Branch Conservancy as a whole rather than separate units may lead to lower per-acre costs, since equipment and personnel would be mobilized once rather than multiple times when conducting the same land management activity (e.g. prescribed burning, invasive plant spraying, etc). A memorandum of understanding (MOU) should contain language allowing cross-boundary land management activities between City of Middleton, Dane County Parks, the WDNR, and the Friends of Pheasant Branch. At a minimum it should allow prescribed fire, herbicide application, and invasive plant removal, within guidelines agreed to by the land managers for each entity. The MOU should note that each entity shares the common goal of managing and maintaining prairie, oak woodland, oak savanna and wetland communities.	(7) Conservancy Lands Management: Vegetation and Wildlife, (4) Public Outreach	1.1, 1.3, 1.4, 2.3, 3.2, 4.3	
Acquisition of conservancy lands should be a priority when the opportunity exists. Potential areas for acquisition include but are not limited to: the continuation of an urban greenway to the north and northeast of Middleton, a trail corridor around South Pond, and expansion of the Graber Pond Trail as development continues to east and west of Graber Pond.	(7) Conservancy Lands Management: Vegetation and Wildlife	4.6	Table 5-7, Table 5-9, Figure 7-2
Develop an explicit future desired state for each conservancy area or subunits within a conservancy. Engage with developers and conservancy neighbors to plant conservancy compatible vegetation along lot lines. For example, if an area contains prairie and prescribed burning is an intended management tool, encourage adjacent developments against planting heat-sensitive plans such as *Arborvitae*.	(7) Conservancy Lands Management: Vegetation and Wildlife	4.5	
Mark and maintain property boundaries. The boundary of public lands should be clearly marked to help orient visitors and staff, ensure land management activities occur within the property, and to discourage encroachment by neighbors.	(7) Conservancy Lands Management: Vegetation and Wildlife	4.5	
GOAL 5: PROVIDE ADEQUATE FUNDING, MANAGEMENT AND STAFFING TO OVERSEE THE MAINTENANCE OF CONSERVANCY LANDS.			
Seek public and private funds for development, restoration and management. Maintain partnerships with organizations and individuals.	(5) Conservancy Lands Operations	5.4	Box 5-2
Should opportunities arise for personnel change, consider hiring an additional full-time conservancy lands-dedicated staff with knowledge in land stewardship, native plant management, ecology, wildlife management, environmental education, and/or volunteer coordination.	(5) Conservancy Lands Operations	5.1	Table 5-1, 5-2, 5-3, Figure 5-1
Perform a cost/benefit analysis of the utilization of limited-term employment compared to full-time equivalent staff. Consider factors related to work output including level of knowledge and competency, level of required training, and level of required supervision.	(5) Conservancy Lands Operations	5.1	Figure 5-1

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Use the conservancy lands Prioritization Matrix as a method of prioritization maintenance and development efforts.	(6) Conservancy Lands Inventory	5.3, 1.1-1.3	Table 6-1, Table 6-3
Paved trail maintenance capital projects should come from Pedestrian, Bike and Transit Committee. This would align requests for new path development with maintenance. PLRF would oversee the contractors completing work.	(8) Conservancy Lands Trail System	5.1, 5.2	Table 5-8, Table 8-2, Table 8-3, Table 8-4
Secure necessary funding to maintain ecological restorations through at least the first 10 years of post-planting maintenance. The initial phases of restoration, site preparation and post-planting maintenance require timely and intensive effort by land managers. As the restoration matures and desirable vegetation establishes, maintenance needs and costs decrease. When initiating a native plant establishment project, we recommend a 10-year establishment period prior to shifting the project from capital to maintenance budgets.	(7) Conservancy Lands Management: Vegetation and Wildlife	5.1, 5.3	Table 5-6, Table 5-7
GOAL 6: PROMOTE CONSERVATION OF WILDLIFE AND WILDLIFE HABITAT IN MIDDLETON'S CONSERVANCY LANDS.			
Identify and protect areas with unique natural resources, such as remnant and restored areas, and known locations of rare and threatened species. Consider protection of these areas such as reducing or eliminating human and pet impact. Comply with federal and state regulations regarding protection of threatened and endangered species. 1) Follow management guidelines in the WDNR's Broad Incidental Take Protocol for Grasslands and Savannas 2) Review the USFWS's Conservation Management Guidelines for the Rusty-Patched Bumble Bee (*Bombus affinis*). Consult with local USFWS ecologists.	(7) Conservancy Lands Management: Vegetation and Wildlife	6.3	Table 7-1, Table 7-6, Table 7-7, Table 7-8
Create a system for monitoring wildlife and use collected data to inform management. Establish a framework for submitting observations that can be used by City staff as well as citizens and volunteers. Identify and monitor threatened and endangered species. 1) Consider hosting an iNaturalist bioblitz in a defined conservancy area. 2) Link with established local projects such as the WDNR's Snapshot Wisconsin project and the UW-Madison's Urban Canid project. Snapshot Wisconsin is a volunteer-based partnership to monitor wildlife across the state. Participants submit trail camera footage that is classified (species identified) using crowdsourcing methods.	(7) Conservancy Lands Management: Vegetation and Wildlife	6.2, 2.4	
Continue urban deer damage management. Do not exceed the WDNR standard for the Madison Metropolitan area of 10 deer/square mile as a target for deer herd size. Assess herd size every 3 years using aerial flyovers or UAV flyover.	(7) Conservancy Lands Management: Vegetation and Wildlife	6.2, 6.3	

[A] Refer to Goals and Objectives listed in Chapter 3

Table 10-1.Conservancy Lands Plan 2018-2023 Recommendations and Associated Conservancy Lands Goals and Objectives

DESCRIPTION	ASSOCIATED CHAPTER	ASSOCIATED OBJECTIVE[A]	ASSOCIATED TABLES AND FIGURES
Trails and trail use policy should consider impacts to wildlife. With respect to pet-exercise in conservancy lands: 1) Evaluate compliance with current rules, feasible methods of enforcing rules and repercussions for not following rules. 2) Consider further surveying attitudes towards dogs in conservancies and policy options. 3) Consider pilot studies restricting dogs from sensitive areas or sensitive areas/sensitive times of year (i.e. breeding bird season).	(7) Conservancy Lands Management: Vegetation and Wildlife	6.4	

[A] Refer to Goals and Objectives listed in Chapter 3

APPENDIX A

To: Friends of Pheasant Branch Board of Directors
From: Stacey Marion, Adaptive Restoration LLC
Date: December 14, 2017
Re: City of Middleton Conservancy Lands Plan Five-Year Update Comments

On December 11, 2017 myself (Stacey Marion [Adaptive Restoration LLC]), and Ben Yahr (Resolution Studio LLC) attended a Friends of Pheasant Branch Board of Directors meeting to discuss City of Middleton's Conservancy Lands Plan Five-Year Update. We gave a 15-minute introductory presentation, followed by a 15-minute question and discussion period. The intent of the meeting was to introduce the project and project objectives, invite stakeholder input, and discuss a plan for receiving input from the Friends of Pheasant Branch Board and Committees. While discussing potential follow-up actions, some feedback relevant to the Plan was shared. Comments are listed below.

This document was reviewed by Pam Shannon and John Daly December 12-14, 2017.

Meeting details
December 11, 2017
Kromrey Middle School

Meeting attendance:
BOARD MEMBERS PRESENT:

John Daly, Board Vice-President and Chair, Accessibility Committee Ad Hoc
Pam Shannon, Board Secretary
Jim Bachhuber
Stefanie Brouwer, Chair, Watershed Committee
Ron Biendseil, Chair, Governance Committee
Herb Garn
Margaret Lewis, Chair, Development and Marketing Committee
Dagny Myrah
Lois Sater
Forrest Weesner, Co-chair, Restoration and Management Committee
Deb Weitzel, Chair, Education Committee

GUESTS PRESENT:

Rob Schubert, Dane County; Park Coordinator-Restoration and Management
Janet Kane, Co-chair, Restoration and Management Committee
Paul Slota, Member, Restoration and Management Committee
Stacey Marion, Adaptive Restoration
Ben Yahr, Resolution Studio

Comments received from the Friends of Pheasant Branch Board and guests
The following comments and questions were received at the meeting. The name(s) or number of commenters with like statements is listed in parentheses.

Comments regarding the public input process:

- *A number of attendees expressed concern over the Conservancy Lands Plan Five-Year Update project tight timeline and the ability to provide meaningful input in that timeframe – (Jim Bachhuber and John Daly, with view shared by everyone on board)*

- *Suggestion to hold a second public meeting - (Stefanie Brouwer, with others in agreement)*

- *Discussion about best methods of follow-up discussion, whether meetings or submitting written feedback – (multiple)*

- *The Board intends to form a working group representing the various Board committees and interests to solicit and organize input to be presented on the plan – (John Daly)*

- *Concern about our ability to get input from underserved populations (e.g. elderly, persons with limited mobility, persons with dementia) – (John Daly)*

- *Question about our distribution methods for requesting public input – (Stefanie Brouwer suggested that the FOPB website could be a venue)*

- *Question regarding public comment period on the Plan once it is drafted – (Herb Garn)*

Comments and questions regarding the scope of the Plan:

- *Question about scope of plan and scope of input requested. Asked if prior plans were a good reference for understanding the scope and formatting of the upcoming Plan – (Forrest Weesner)*

- *Question about whether the Plan seeks input regarding such issues as vegetation management and burn schedule – (Jim Bachhuber)*

- *Question asking how well the Plan would align with Dane County Park's latest five-year plan, referring to the 2018-2023 Dane County Parks and Open Space Plan – (Stefanie Brouwer)*

- *Suggestion that when re-doing maps, expand them out to include non-Middleton Conservancy areas such as Pope Farm and Wisdom Prairie in order to consider opportunities for creating conservancy corridors – (Paul Slota, with others in agreement)*

Comments related to accessibility issues within Pheasant Branch Conservancy:

- *Interest in providing feedback related to accessibility was expressed – (John Daly). [Comment: John Daly chairs the Accessibility Ad Hoc Committee, whose members include Matt Amundson (City of Middleton Director of Public Lands, Recreation, and Forestry) and Rhea Stangel-Maier (Dane County Parks)]*

- *Comment that having accurate maps with accessibility information is very important to making the Conservancy more user-friendly to the groups the Accessibility Committee is concerned about (e.g. elderly, persons with limited mobility, persons with dementia) - (John Daly)*

- *Comment made about increasing number of benches along trails to improve accessibility – (John Daly)*

- *Comment received about sharing two UW-Madison Urban and Regional Planning reports that were prepared for the Accessibility Committee – (John Daly)*

Comments related to Pheasant Branch Conservancy facilities:

- *Comment made in opposition of paving trails in the Conservancy – (Margaret Lewis)*

- *Comment made about slippery boardwalks – (Margaret Lewis)*

- *Question asking if physical maps (signage) in Pheasant Branch Conservancy would be replaced or enhanced – (Forrest Weesner)*

APPENDIX B

R&M Committee meeting 1/08/18
DRAFT

Attending: Janet Kane, Forrest, Weesner, Paul Slota, Herb Garn, Tom Klein, Tom Bernthal, Rob Schubert, Susan Gruber, Emil Haney, Jane Cummings Carlson, Gary Sater

. . . . . .

Middleton Conservancy Lands Plan

Questions from Stacey Marion (Adaptive Restoration)

Ecological versus Municipal Boundaries: group is in favor of encouraging approaching plan that focuses on ecological boundaries - which would encourage multiple groups to come together to manage ecosystems similarly.

What is the project area and nature of work for the Aquatic Invasive Species grant?
Tom Bernthal has this information.

What are priorities for vegetation management in the Dane County portion of PBC?
Management of invasive species; establishing and supporting native communities. Cat tail, reed canary grass, phragmites and invasive shrubs.

What should the priorities be for the City portion of PBC?
Same as for county plus crown vetch, bird's foot trefoil and spotted knap weed should be a high priority. Garlic mustard and Dames rocket are also a concern but not as high a threat.

What is the City currently doing well?
Storm water management, stream bank restoration. Bock prairie restoration.

How can the City, FOPB, and Dane County coordinate better?
If the groups could have a long-term plan where priorities are coordinated, that would facilitate joint efforts. Perhaps a coordinating committee.

How could we better coordinate volunteer efforts?
Would be helpful for city to initiate efforts to pursue volunteers and take on the role of coordinating a volunteer program.

. . . . . .

APPENDIX C

COMMISSION FOR ACCREDITATION OF PARK AND RECREATION AGENCIES (CAPRA) STANDARDS FOR VOLUNTEER MANAGEMENT

Sourced from:
Commission for Accreditation of Park and Recreation Agencies. 2010. Management of Park and Recreation Agencies, Chapter 17 – Human Resource Management, 3rd edition. PDF File.

4.7 – Volunteer Management

Standard: There shall be a volunteer management function within the agency, including a comprehensive volunteer management manual that includes policies and procedures related to the management of volunteers.
Suggested Evidence of Compliance: Provide the volunteer management manual.

4.7.1 – Use of Volunteers

Standard: Volunteers shall be used by the agency in a variety of positions
Suggested Evidence of Compliance: Provide list of functions in which agency volunteers are used, the extent of use, and examples of volunteer position descriptions.

4.7.2 – Volunteer Recruitment, Selection, Orientation, Training, and Retention

Standard: There shall be an on-going function within the agency for the recruitment, selection, orientation, training and retention of volunteers, including procedures on background screening. Background investigations shall be made for all volunteers who work routinely with vulnerable populations, especially youth, senior adults, and persons with disabilities.
Suggested Evidence of Compliance: Provide the agency's recruitment, selection, orientation, training, and retention procedures. Provide the agency's background investigation procedures for volunteers and evidence of implementation.

4.7.3 – Supervision and Evaluation of Volunteers

Standard: Agency volunteers shall be monitored, shall received supervisory visits, and be evaluated regarding performance. Supervision and evaluation of volunteers is important to ensure adequate training is provided and to verify satisfactory conduct and performance. The degree to which the agency supervises and evaluates volunteers may vary depending on the role of the volunteers.
Suggested Evidence of Compliance: Provide written description of monitoring system including current practices for supervisory visits, and examples of evaluations.

4.7.4 – Recognition of Volunteers

Standard: The agency shall recognize volunteers for their contributions. Recognition may take many forms, depending on the nature of volunteer roles.
Suggested Evidence of Compliance: Provide a description of the recognition program and recognitions given over the past calendar year.

4.7.5 – Liability Coverage for Volunteers

Standard: Agency volunteers shall be covered for negligence liability.
Suggested Evidence of Compliance: Provide documentation indicating coverage of volunteers for negligence liability.

APPENDIX D

Legend

Middleton Public Lands System

- Conservancy Lands
- Park Space
- Other Open Space
- Proposed Open Space

Other Public Lands

- School Districts
- City of Madison
- Town of Middleton
- Dane County
- WDNR

City of Middleton Trails

- Hard Surface (Conc./Asphalt/Porous)
- Crushed Limestone Surface
- Natural Surface
- Boardwalk
- Olympic CC Ski Training Facility
- Shared Use Route

Items of Interest

- City Limits
- Watersheds
- Vista
- School
- Parking Lot
- Boat Launch
- Bench

Note: This is an interactive PDF map.
Use "Layers" on the right side of the Acrobat viewer to customize your map.
Look for "Popups" to help read small objects as you hover your mouse over them.
Click on the name of a Conservancy Land or Park in the "Bookmarks" to zoom to the parcel.
Click on the name of Conservancy Lands on the map to be be taken to outside websites.
Turn on the "Symbols - PDF" layer and look for the Report and Photo icons to see information about Conservancy Lands.

Conservancy Lands Key

1. Pheasant Branch Conservancy
2. Orchid Heights Conservancy
3. John C. Bock Community Forest
4. Middleton Hills Conservancy
5. Shorecrest Detention Pond
6. Spring Hill Detention Pond
7. Metropolitan Refuse District
8. Graber Pond Conservancy
9. Pheasant Branch Ridge Drainageway
10. Mary E. Jacobsen Conservancy
11. Lakeview Conservancy
12. Stonefield Conservancy
13. Boundary Road Conservancy
14. Tiedeman Pond Conservancy
15. Stricker Pond Conservancy
16. Quarry Hill Conservancy
17. Esser Pond Conservancy
18. Pheasant Branch Creek Corridor
19. North Fork of the Pheasant Branch Creek
20. South Fork of the Pheasant Branch Creek
21. Middleton Bike Park
22. Hidden Oaks
23. Capital Ice Arena Conservancy
24. Proposed Park/Conservancy

Park Space Key

- A Taylor Park
- B Orchid Heights Park
- C Baskerville Park
- D Middleton Hills Park - South
- E Parkside Heights
- F Hawkridge Park
- G Middleton Hills Park - North
- H Pheasant Branch Ridge Park
- I Middleton Ridge Park
- J Lakeview Park
- K District Center
- L Meadows Park
- M Stonefield Park
- N Stricker Park
- O Woodside Heights Park
- P Hillcrest Park
- Q Quarry Park
- R Fireman's Park
- S Baumann Aquatic Center
- U Penni Klein Park
- T Parisi Park
- V Firefighters Memorial Park
- W Hinrichs Family Farm Park
- X MRD - Rush Fields
- Y City of Middleton Dog Exercise Area
- Z Small Dog Exercise Area

Other Resources

- 2005 Middleton Conservancy Lands Plan (Report)
- 2010 Middleton Conservancy Lands Plan (Report)
- 2012-2017 Dane County Parks and Open Space Plan (Map)
- 2012 Good Neighbor Trail Plan (Report)
- 2013 North Mendota Future Urban Development Area (Report)
- 2014 Middleton Comprehensive Open Space Plan (Report)

N

0 1250 2500 FEET

Prepared For: Middleton — The Good Life

Existing Facilities - System Map

City of Middleton

Conservancy Lands Plan Update

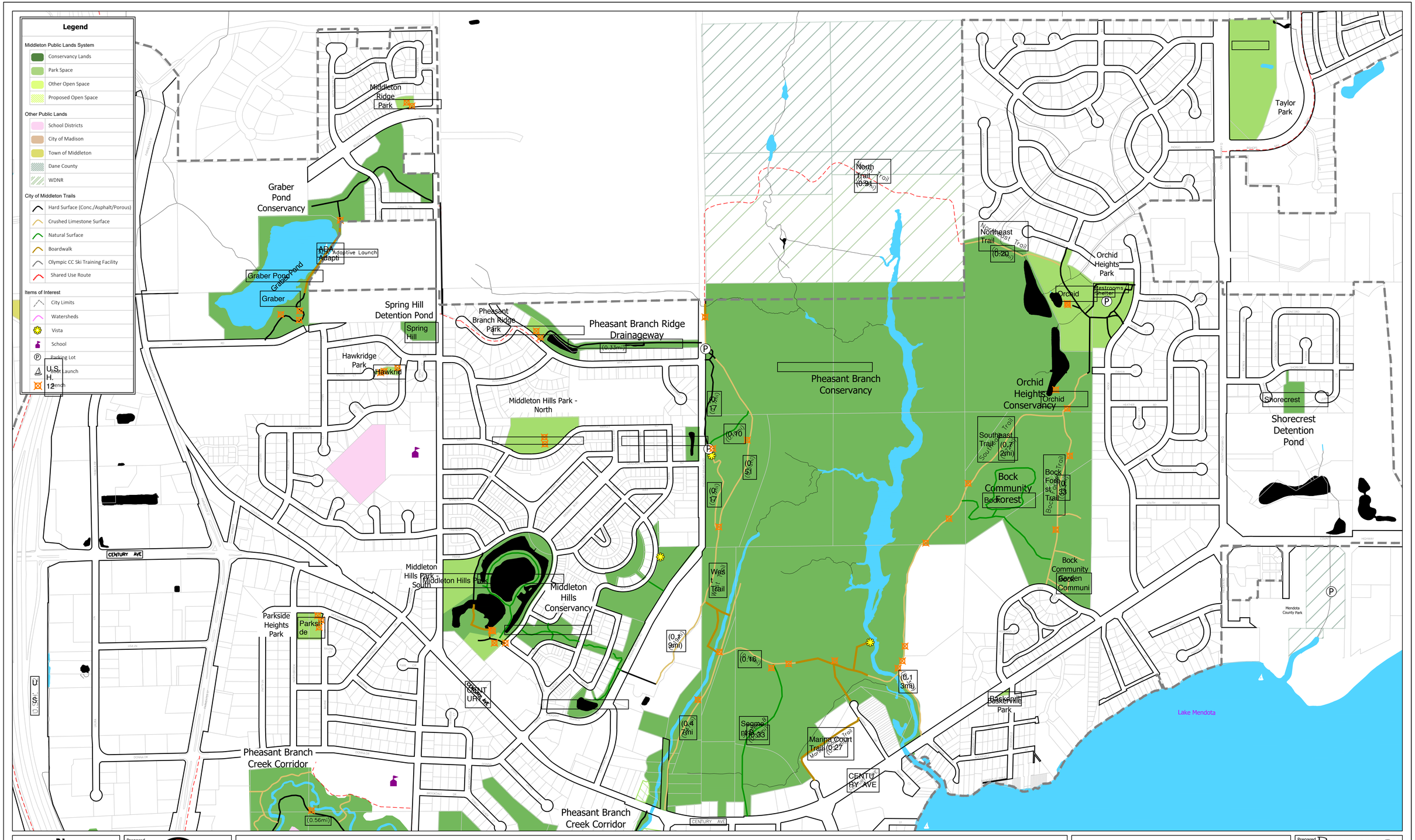
Description: Existing Open Space and Trails

Figure Number: 171208-00-001

Date: May 7, 2018

Prepared By: Resolution Studio, LLC; Adaptive Restoration

Date Plotted: 5/7/2018 1:38:29 PM



N

0 450 900 FEET

Prepared For: MIDDLETON

Pheasant Branch Area

City of Middleton

Conservancy Lands Plan Update

Description: Existing Open Space and Trails - Pheasant Branch

Figure Number: 171208-00-002

Date: May 7, 2018

Prepared By: RESOLUTION STUDIO, LLC / ADAPTIVE RESTORATION

Date Plotted: 5/7/2018 1:38:45 PM

N

0 300 600 FEET

Prepared For: Middleton

Conservancy Lands - Southeast Area

City of Middleton

Conservancy Lands Plan Update

Description: Existing Open Space & Trails - Southeast Middleton

Figure Number: 171208-00-003

Date: May 7, 2018

Prepared By: Resolution Studio, LLC; Adaptive Restoration

Date Plotted: 5/7/2018 1:39:13 PM


Legend
Middleton Public Lands System
Conservancy Lands
Park Space
Other Open Space
Proposed Open Space
Other Public Lands
School Districts
City of Madison
Town of Middleton
Dane County
WDNR
City of Middleton Trails
Hard Surface (Conc./Asphalt/Porous)
Crushed Limestone Surface
Natural Surface
Boardwalk
Olympic CC Ski Training Facility
Shared Use Route
Items of Interest
City Limits
Watersheds
Vista
School
Parking Lot
Boat Launch
Bench
Pheasant Branch Creek Corridor
Pheasant Branch Creek Corridor
Pheasant Branch Creek Corridor Trail
Baumann Aquatic Center
Parisi Park
Fireman's Park
Mary E. Jacobsen Conservancy
Lakeview Park
Lakeview
Lakeview Park Conservancy
Lakeview Conservancy
CENTURY AVE
UNIVERSITY AVE
Quarry Park
Quarry Park Conservancy
Hillcrest Park
District Center Park
Meadows Park
Tiedeman Pond
(0.23mi)
(0.56mi)

N
0 300 600 FEET

Prepared For:

Conservancy Lands - Central Area

City of Middleton

Conservancy Lands Plan Update

Description: Existing Open Space & Trails - Central Middleton

Figure Number: 171208-00-004

Date: May 7, 2018

Prepared By: Resolution Studio, LLC

Adaptive Restoration

Date Plotted: 5/7/2018 1:39:36 PM

Legend

Middleton Public Lands System

- Conservancy Lands
- Park Space
- Other Open Space
- Proposed Open Space

Other Public Lands

- School Districts
- City of Madison
- Town of Middleton
- Dane County
- WDNR

City of Middleton Trails

- Hard Surface (Conc./Asphalt/Porous)
- Crushed Limestone Surface
- Natural Surface
- Boardwalk
- Olympic CC Ski Training Facility
- Shared Use Route

Items of Interest

- City Limits
- Watersheds
- Vista
- School
- Parking Lot
- Boat Launch
- Bench

HWY 14

UNIVERSITY AVE

WISCONSIN & SOUTHERN RR CO

South Pond
South Pond

Esser Pond Conservancy

Esser Pond
Esser Pond

South Fork Pleasant Branch Creek Corridor

South Fork of the Pleasant Branch Creek

Middleton Bike Park

(P) (Proposed)

(P)

Pleasant View Golf Course
(Trails Winter Use Only)

To Madison (Multi-Use Trail)

US HIGHWAY 12 & 14

N

0 375 750 FEET

Prepared For: MIDDLETON The Good Neighbor City

Conservancy Lands - Southwest Area

City of Middleton

Conservancy Lands Plan Update

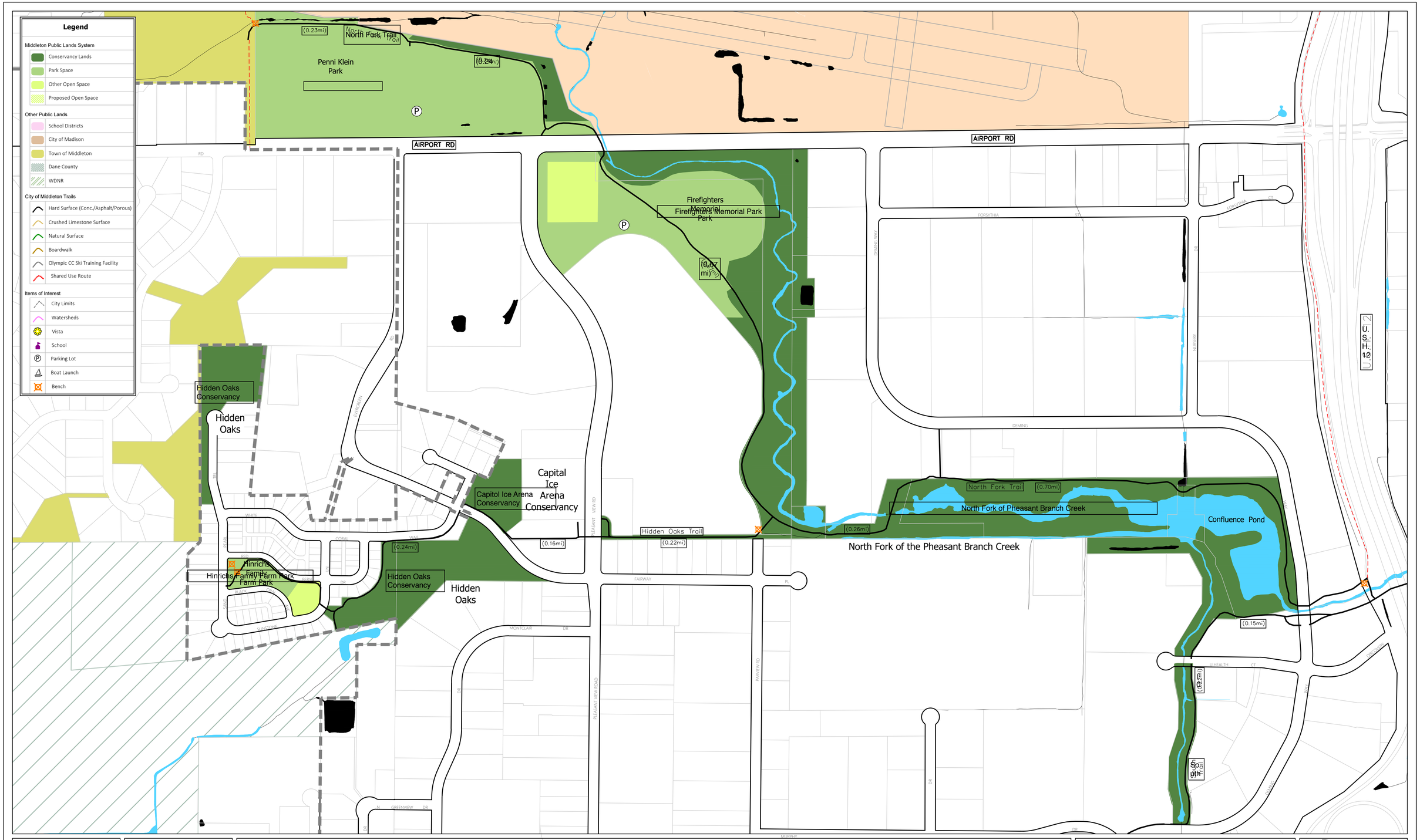
Description: Existing Open Space & Trails - Southwest Middleton

Figure Number: 171208-00-005

Date: May 7, 2018

Prepared By: RESOLUTION STUDIO, LLC — ADAPTIVE RESTORATION

Date Plotted: 5/7/2018 1:40:07 PM



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Prepared For: Middleton

Conservancy Lands - Northwest Area

City of Middleton

Conservancy Lands Plan Update

Description: Existing Open Space & Trails - Northwest Middleton

Figure Number: 171208-00-006

Date: May 7, 2018

Prepared By: Resolution Studio, LLC; Adaptive Restoration

Date Plotted: 5/7/2018 1:40:42 PM

Legend
Middleton Public Lands System
Conservancy Lands
Park Space
Other Open Space
Proposed Open Space
Other Public Lands
School Districts
City of Madison
Town of Middleton
Dane County
WDNR
City of Middleton Trails
Hard Surface (Conc./Asphalt/Porous)
Crushed Limestone Surface
Natural Surface
Boardwalk
Olympic CC Ski Training Facility
Shared Use Route
Items of Interest
City Limits
Watersheds
Vista
School
Parking Lot
Boat Launch
Bench
Metropolitan Refuse District
City of Middleton Dog Exercise Area
MRD - Small Dog Park
BALTZER ROAD
Future Park and Conservancy
Future Park and
Taylor Park
N
0
450
900
FEET

Conservancy Lands - Northeast Area

City of Middleton

Prepared For:

Conservancy Lands Plan Update

Description: Existing Open Space & Trails - Northeast Middleton

Figure Number: 171208-00-007

Date: May 7, 2018

Prepared By: Resolution Studio, LLC

Adaptive Restoration

Date Plotted: 5/7/2018 1:40:57 PM

APPENDIX E

INVENTORY OF MIDDLETON'S CONSERVANCY LANDS

Table A-1. Conservancy Area Master Plans

CONSERVANCY	MASTER PLAN TITLE, AUTHOR AND YEAR PRODUCED
Pheasant Branch Conservancy	1982 Pheasant Branch Nature Preserve, Stockham and Vandewalle | 1998 Vegetation and Ecological Conditions of the Pheasant Branch and Belftontaine Conservancies, AES | 1998 Wetland Delineation of the 503-acre Pheasant Branch and Belfontaine Conservancies, SAA | 1999 North Lake Mendota Regional Plan, SAA | 2006 Wetland Mitigation Report, Thompson & Associates | 2008 Soils of Pheasant Branch Conservancy: Analysis of Soil Features and Their Suitability for Recreational Uses Using the USDA's Web Soil Survey, Watermolen, Kefer, and Mednick
Lakeview Conservancy (and Mary E Jacobson Conservancy)	2002 Lakeview Park Conservancy Areas: Ecological Assessment and Restoration Plan, Robert Wernerehl, Clark Forestry
Stricker Pond Conservancy	1982 Stricker's Pond: Master Plan, Stockham and Vandewalle | 2005 Stricker Pond Conservancy Park: Ecological Assessment and Restoration Plan, Michael Anderson BioLogic | 2014 Water Resources Assessment of Stricker's Pond, Marshall and Healy | 2016 Making Strickers Pond a Better Resource for Middleton and Madison Residents, University of Wisconsin-Madison Nelson Institute for Environmental Studies Water Resource Management Practium
Tiedeman Pond Conservancy	2006 Ecological Assessment Plan, Nicole Kalkbrenner, Cardno JFNew | 2012 Wetland Delineation Report: Tiedeman Pond, Cardno JFNew
Elm Lawn Savanna	2004 Memo, Biologic Environmental Consulting
Pheasant Branch Creek Corridor	1998 Vegetation Management Plan, Clark Forestry | Vegetation Management Plan, AES | (a comprehensive listing of studies and management reports is listed in the 1999 North Lake Mendota Plan)
John C Bock Community Forest	2009 John C Bock Community Forest: Ecological Assessment and Management Plan, Biologic
Metropolitan Refuse District	none
North Fork of the Pheasant Branch Creek	2005 North Fork Management Plan | 2005 Pheasant Branch Creek Confluence Pond: An Assessment of Current Conditions and Recommendations for Management, Michael Anderson, Biologic
Middleton Bike Park	none
Middleton Hills Conservancy	--
Middleton Hills Conservancy: Pond and Conservancy (Outlot 10)	none
Middleton Hills Conservancy: Oak Savanna	2004 Middleton Hills Oak Savanna Conservancy Park: Assessment and Restoration Plan, Michael Anderson, Biologic Environmental Consulting
Middleton Hills Conservancy: Outlots 63 & 64	2009 Middleton Hills Eighth Addition Outlots 63 and 64: Ecological Assessment and Management Plan, Michael Anderson, Biologic Environmental Consulting
Middleton Hills Conservancy: Wetland Conservancy	1998 report, AES
Middleton Hills Conservancy: Gaylord Nelson Pond	none
Graber Pond Conservancy	2006 Graber Pond, Master Plan, Saiki/JFNew | 2010 Graber Pond: Hydrologic Study and Management Plan, Montgomery Associates

Table A-1. Conservancy Area Master Plans

CONSERVANCY	MASTER PLAN TITLE, AUTHOR AND YEAR PRODUCED
Esser Pond Conservancy	1989 Esser Pond Wetland: Functional Impact Assessment, Design and Management Study, Zimmerman and Kailing | 2003-2004 Vegetation Management Plan, Biologic Environmental Consulting
South Fork of the Pheasant Branch Creek	none
Orchid Heights Conservancy	none
Pheasant Branch Ridge Drainageway	none
Hidden Oaks Conservancy	none
Stonefield Conservancy	1995 Memo, Dave Eagan
Capital Ice Arena Conservancy	none
Quarry Park Conservancy	none
Boundary Road Conservancy	none
Shorecrest Detention Pond	none
Spring Hill Detention Pond	none

BOUNDARY ROAD CONSERVANCY

Acres	0.9
Priority ranking	Low
Description	Unmanaged oak woodland adjacent to Boundary Road Park
Habitat	Oak woodland
Visitation	N/A
Access	None
Connectivity	Adjacent to Boundary Road Park
Recreation	
Facilities	N/A
Management plan	None
Management since 2011	
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	No
Threats	Invasive species and species not compatible with oak woodlands: buckthorn, box elder, cherry, honeysuckle, garlic mustard. Lack of active management.

CAPITAL ICE ARENA CONSERVANCY

Acres	2.9
Priority ranking	Low
Description	Berm planted to mesic prairie
Habitat	Mesic prairie
Visitation	Low
Access	Paved shared-use path (Hidden Oaks Trail) runs adjacent to conservancy along Evergreen Road
Connectivity	Connects to Hidden Oaks Conservancy. Adjacent to City-owned open space to the north
Recreation	
Facilities	Paved shared-use bike path runs adjacent to conservancy
Management plan	None
Management since 2011	
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	No
Threats	Invasive species: reed canary grass, Queen Anne's lace, Canada goldenrod. Lack of active management.

ESSER POND CONSERVANCY

Acres	27.5
Priority ranking	High
Description	A kettle pond with restored wetland vegetation in the center of Middleton's business district. Northern area was originally planted in 2004 with funding from the WDNR and maintains a high diversity of native plants. Shoreline is dominated by emergent cattails.
Habitat	Glacial kettle pond, wetlands, marsh, wet-mesic and wet prairie
Visitation	Moderate
Access	Access via the South Fork Trail
Connectivity	South Fork Trail connects Terrace Avenue through Esser Pond Conservancy to the South Fork of the Pheasant Branch
Recreation	Walking, running, biking, birdwatching, wildlife viewing, pond hockey (seasonal), etc.
Facilities	Paved shared-use trail (South Fork Trail), two vistas, bench, interpretive sign, exercise station
Management plan	1989 Esser Pond Wetland:Functional Impact Assessment, Design and Management Study, Zimmerman and Kailing | 2003-2004 Vegetation Management Plan, Biologic Environmental Consulting
Management since 2011	Restoration of wetland and prairie vegetation, including seeding, prescribed burning, and invasive species management. Monitoring and removal of purple loosestrife.
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes (storm water drains into natural kettle pond)
Threats	Invasive species: Southern cattail, hybrid cattail, purple loosestrife. Runoff impacts.

GRABER POND CONSERVANCY

Acres	32.8
Priority ranking	High
Description	Middleton's largest kettle pond and surrounding upland natural areas. The conservancy includes restored prairie and interpretive signs buffering the pond and the Misty Valley neighborhood. Conservancy contains a conical mound feature. Restored prairie and oak savanna areas require ongoing maintenance.
Habitat	Glacial kettle pond, wetlands, restored mesic prairie, mixed hardwoods and oak savanna
Visitation	Moderate
Access	Shared-use trail (Graber Pond Trail). Access via Graber Road
Connectivity	Graber Pond Trail connects to the Pheasant Branch Ridge Drainageway and ultimately to Pheasant Branch Conservancy. Conservancy area is bordered to the east and west by undeveloped open space
Recreation	Walking, biking, birdwatching, wildlife viewing, canoeing and kayaking, etc.
Facilities	ADA-accessible boardwalk and paved shared-use path, adaptive canoe/kayak launch and fishing port, benches, interpretive and wayfinding signage. Potential for future completion of a loop trail around Graber Pond.
Management plan	2006 Graber Pond, Master Plan, Ken Saiki, JFNew | 2010 Graber Pond: Hydrologic Study and Management Plan, Montgomery Associates
Management since 2011	Development of the Graber Pond Trail in 2014, including construction of boardwalk and paved shared-use trail. Prescribed burn and savanna restoration. Monitoring and removal of purple loosestrife. Maintenance of storm water basins.
Grants received since 2011	Graber Pond Development (WI DNR Recreational Trails Program; 30k, 2010-2014), Graber Pond Trail Development (WI DNR Aquisition and Development of Local Parks; $33,790, 2010-2014)
Volunteer support and/or partners	
Storm water facility	Yes (pond receives run-off, additionally area to the east of Misty Valley Drive is managed as a detention pond)
Threats	Invasive species. Development to east and west. Runoff impacts.

HIDDEN OAKS CONSERVANCY

Acres	14.6
Priority ranking	Medium
Description	Hidden Oaks Conservancy has two units: one unit is managed as a detention basin and borders open space owned by Dane County. The area is near the headwaters of the Black Earth Creek. The detention basins were originally planted to native species, but have degraded in quality due to invasive species. The second unit contains an unmanaged oak woodland that borders wooded natural area owned by the Town of Middleton. Woodland contains bur, black, white and red oaks, and has a low density of invasive brush. High potential for restoration of woodland and recreational use such a natural surface hiking trail or mountain biking trail.
Habitat	Detention pond, planted wet prairie, oak woodland
Visitation	Low
Access	Paved shared-use path (Hidden Oaks Trail) runs along the north edge of the detention basin area, adjacent to residential neighborhood. No access to oak woodland unit
Connectivity	Connects to open space owned by the Town of Middleton and Dane County. Dane County land protects the headwaters of the Black Earth Creek and is within the Black Earth Natural Resource Area
Recreation	Walking, biking, etc.
Facilities	Paved shared-use trail (Hidden Oaks Trail)
Management plan	None
Management since 2011	Monitoring and removal of purple loosestrife. Maintenance of storm water basins.
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes, detention basins
Threats	Invasive species: leafy spurge, reed canary grass, burdock, phragmites, biennial thistles, hybrid cattail. Encroachment of mesic tree species: aspen, box elder. Lack of management in oak woodland and disruption of fire regime.

JOHN C BOCK COMMUNITY FOREST

Acres	19.1
Priority ranking	Very high
Description	John C Bock Community Forest is the newest addition to the Pheasant Branch Conservancy (2009). The acquisition of land was possible through major fundraising efforts by the City of Middleton and the Friends of Pheasant Branch. Grants, donations and funds were received from the City of Middleton, John C Bock Foundation, Dane County Conservation Fund grant, Wisconsin DNR Knowles-Nelson Stewardship Program grant, Madison Community Foundation, and donations from many businesses and individual donors.The conservancy includes restored prairie, oak savanna, and oak woodland. Initially planted in 2010, the prairie and savanna areas support over 80 species of native plants. Management includes the oak woodland southeast of the Southeast Trail in the Pheasant Branch Conservancy.
Habitat	Restored prairie, restored oak savanna, restored/remnant oak woodland
Visitation	Moderate
Access	Access from Highland Way and on-trail from the Pheasant Branch Conservancy via the Southeast Trail.
Connectivity	Contiguous with the Pheasant Branch Conservancy and Orchid Heights Park and Conservancy.
Recreation	Walking/hiking, running, biking, birdwatching, wildlife viewing, gardening, etc.
Facilities	Crushed limestone shared-use trail connecting Highland Way and the Pheasant Branch Conservancy. Natural surface hiking-only trail loops through the oak savanna and oak woodland area.
Management plan	2009 John C Bock Community Forest: Ecological Assessment and Management Plan, Biologic Environmental Consulting
Management since 2011	Prairie and savanna areas were originally seeded in 2010. Since 2010, there has been active prairie and savanna restoration including weed management, overseeding, and prescribed burning. Additionally, the City, with a large volunteer contribution from the the Bock Community Gardeners, nursed and transplanted oak saplings (>100 trees) and other native shrub species. Oak woodland restoration including removal of non-oak woodland trees and prescribed burning. Since 2011 "Bock Forest" has hosted many volunteer and educational events, including Forestry Field Days, and volunteer sessions with the Friends of Pheasant Branch and the Bock Community Gardners.
Grants received since 2011	Donation from the Friends of Pheasant Branch 2013-2017, $15,000 each year; 50/50 match (City 15k)
Volunteer support and/or partners	Friends of Pheasant Branch, Bock Community Gardeners
Storm water facility	No
Threats	Invasive species: particularly crown vetch and reed canary grass encroaching from adjacent lands.

LAKEVIEW CONSERVANCY
(AND MARY E JACOBSON CONSERVANCY)

Acres	30.5
Priority ranking	Very high
Description	Lakeview Conservancy includes 14.7 acres of natural area abutting Lakeview Park and an additional 15.8 acres to the east of Allen Boulevard (Mary E Jacobson Conservancy). Both areas buffer an unnamed creek flowing into Lake Mendota and contain small areas of remnant sedge meadow.
Habitat	Stream, planted wet-mesic/wet prairie, restored and remnant sedge meadow, mixed hardwoods
Visitation	High
Access	Access within conservancy areas is limited, however, Lakeview Park trails are to conservancy areas
Connectivity	Contiguous with Lakeview Park. Hydologically connected to Lake Mendota. Lakeview Park and Conservancy areas are adjacent to Sauk Trail Elementary School
Recreation	In Lakeview Park: walking, biking, fishing, using exercise stations, etc.
Facilities	In Lakeview Park: paved trails, benches, exercise loop, adaptive fishing port, interpretive signs, shelter and bathrooms, parking lot, disc golf course
Management plan	2002 Lakeview Park Conservancy Areas: Ecological Assessment and Restoration Plan, Robert Wernerehl, Clark Forestry
Management since 2011	Lakeview Park Streambank Stabilization and Habitat Enhancement Project (2013): stabilized 1,600 linear feet of eroding streambank using ecologically-sensitive techniques to mitigate erosion by dissipating stream energy, increasing flood flow capacity, and re-establishing deep-rooted native vegetation. Included use of toewood, stone toe stabilization, revegetation, log vanes, and rootwad composites. Assessment of area for fisheries enhancement (2013). Middleton Beach Road - Delineations and Restoration Plans (2013-2014; $13,170). Removal of buckthorn in preparation for an uncompleted restoration and trail development project
Grants received since 2011	Lakeview Park Water Quality Improvements: restore the drainage channel and re-establish the wetland to reduce urban runoff; assist the City in meeting the goals of the Municipal Storm Water Permit ((2010-2012, $83,020), Lakeview Park Streambank Stabilization and Habitat Enhancement Project (2013, WDNR Urban Nonpoint Source and Storm Water Management Grant Program, $115,200), Lakeview Park Frisbee Golf (WDNR Recreational Trails Program; $7,300; 2013-2017), Middleton Beach Neighborhood Sustainable Land Use/Stormwater Management Plan (WDNR; 2014-2015; $25,160), Middleton Beach Road - Green Street Design (WDNR 2015, encumbered - $0 paid)
Volunteer support and/or partners	
Storm water facility	Yes
Threats	Runoff impacts. Invasive species.

METROPOLITAN REFUSE DISTRICT

Acres	72.6
Priority ranking	Very high
Description	Conservancy area is considered lands to the north of the landfill. Area contains a high quality wetland and remnant sedge meadow near the headwaters of the Dorn Creek. Low abundance of invasive species. Non-conservancy areas within the Metropolitan Refuse District include a jointly owned municipal landfill, an area leased for agriculture, and two dogs parks.
Habitat	Wetland, remnant sedge meadow, surrogate grassland (mowed field)
Visitation	Low
Access	No access to natural area
Connectivity	Headwaters of the Dorn Creek. Adjacent to lands owned by the WDNR
Recreation	In adjacent dog parks: pet exercise
Facilities	In adjacent dog parks: plan for restrooms
Management plan	
Management since 2011	
Grants received since 2011	
Volunteer support and/or partners	In adjacent dog parks: Friends of Middleton Dog Parks
Storm water facility	
Threats	Invasive species: hybrid cattail, reed canary grass. Impacts from adjacent land use.

MIDDLETON BIKE PARK

Acres	34.3
Priority ranking	High
Description	Woodland with mountain biking trails and a pump track
Habitat	Oak woodland
Visitation	Moderate
Access	Development of a dedicated parking lot and trailhead for mountain bikers is planned for 2018
Connectivity	Trail connects to South Fork Trail, to the future Pleasant View Road bike path, connects north and west to privately owned (accessible to public) future Olympic Development Ski Trails and Blackhawk Ski Club
Recreation	Mountain biking, snowshoeing (seasonal), cross-country skiing (seasonal)
Facilities	Single track mountain bike trails, pump track
Management plan	
Management since 2011	Maintenance of mountain biking trails is aided by significant volunteer contributions from the Capital Off-Road Pathfinders
Grants received since 2011	
Volunteer support and/or partners	Capital Off-Road Pathfinders
Storm water facility	
Threats	Lack of vegetation management.

MIDDLETON HILLS CONSERVANCY
POND (OUTLOT 10)
OUTLOTS 63 & 64
OAK SAVANNA
WETLAND
GAYLORD NELSON DETENTION POND

Acres	31.1
Priority ranking	High
Description	Five conservancy units in the Middleton Hills neighborhood area. Includes of variety of high quality community types including restored oak savanna, restored prairie, and wetland features. There is an opportunity for enhanced trail connections between Middleton Hills and the Pheasant Branch Conservancy.
Habitat	Outlot 10: glacial kettle pond, restored wet-mesic prairie, marsh, restored oak savanna, mixed hardwoods. Outlots 63 & 64: restored prairie, restored oak savanna. Oak Savanna: restored oak savanna. Wetland: wetland, marsh. Gaylord Nelson Detention Pond: detention pond, wet prairie with high diversity of native species
Visitation	Moderate
Access	Access via road. Access by Middleton Hills Trails and Hammerstrom Trail to Wetland, Oak Savanna, and Pond (Outlot 10).
Connectivity	Middleton Hills Trails connect conservancy areas within the Middleton Hills neighborhood. Hammerstrom Trail connects to Pheasant Branch Conservancy.
Recreation	Walking/hiking, biking, birdwatching, wildlife viewing, pet exercise, etc.
Facilities	Hammerstrom Trail, Middleton Hills Trails (includes grass, natural surface and boardwalk around Wetland, woodchip trails in the Oak Savanna, and a crushed limestone trail connecting the Oak Savanna through the Pond area
Management plan	Middleton Hills Wetland: 1998 AES Report | Middleton Hills Oak Savanna: 2004 Middleton Hills Oak Savanna Conservancy Park: Assessment and Restoration Plan, Biologic | 2009 Outlots 63 & 64 Middleton Hills Eighth Addition Outlots 63 and 64: Ecological Assessment and Management Plan, Biologic
Management since 2011	Capital improvement project 2010-2017 for active restoration of native plant communities: Restoration of wet prairie and oak savanna in the Pond (Outlot 10), prairie and savanna restoration in Outlots 63 & 64, oak savanna restoration in the Oak Savanna, wet prairie restoration in Gaylord Nelson Pond, prescribed burning in the Wetland.
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes, Middleton Hills Wetland, Middleton Hills Pond (Outlot 10), Gaylord Nelson Detention Pond
Threats	Invasive species. Runoff impacts.

NORTH FORK OF THE PHEASANT BRANCH CREEK

Acres	65.3
Priority ranking	High
Description	The conservancy protects a segment of the North Fork of the Pheasant Branch Creek stretching from Airport Road to Deming Way. Includes the Confluence Pond. Supports a variety of present and migratory birds and wildlife.
Habitat	Stream, wetlands, marsh, shrub communities, planted wet-mesic/wet prairie
Visitation	High
Access	A shared-use paved trail (North Fork Trail) provides access into and through the conservancy. Adjacent to Firefighter's Memorial Park
Connectivity	The North Fork Trail connects to the Pheasant Branch Creek Trail and joins with Firefighter's Memorial Park and Quisling Park.
Recreation	Walking/hiking, biking, running, birdwatching, etc.
Facilities	North Fork Trail
Management plan	2005 North Fork Management Plan | 2005 Pheasant Branch Creek Confluence Pond: An Assessment of Current Conditions and Recommendations for Management, Michael Anderson, Biologic
Management since 2011	Management of invasive Southern cattial, phragmites, and purple loosestrife. Regular prescribed burning. Emergent shoreline is dominanted by willow, reed canary grass, and cattails. Some shoreline areas (northeast edge of Confluence Pond) were forestry mowed in 2017.
Grants received since 2011	WI DNR AIS Southern Cattail Removal confluence pond (2012-2013, $7,367, split with South Fork area) | WI DNR AIS Southern Cattail (2014-2018, $20,000, split with South Fork area)
Volunteer support and/or partners	
Storm water facility	Yes
Threats	Invasive species. Runoff impacts.

ORCHID HEIGHTS CONSERVANCY

Acres	9.1
Priority ranking	Medium
Description	Orchid Heights Conservancy abuts the east edge of Pheasant Branch Conservancy and is contiguous with Orchid Heights Park. Areas within the conservancy include a restored prairie, detention ponds, and a rain garden.
Habitat	Restored wet-mesic/wet prairie, two detention ponds
Visitation	High
Access	Contiguous with Orchid Heights Park. Access via the
Connectivity	Contiguous with Pheasant Branch Conservancy and Pheasant Branch Conservancy trail loop.
Recreation	Walking/hiking, biking, running, birdwatching, etc.
Facilities	Paved shared-use path connects the Pheasant Branch Conservancy Southeast Trail and Northeast Trail. Pedestrian-only grass trails around the restored prairie. Connected to Orchid Heights Park (bathroom facility, parking, ball fields, all-terrain wheelchair housing); paved and grass trails
Management plan	
Management since 2011	Eradication of prohibited species water lettuce and water hyacinth. Removal and monitoring of Policeman's helmet.
Grants received since 2011	WI DNR Aquatic Invasive Species Grant: Water Lettuce & Hyacinth (2010-2011, $)
Volunteer support and/or partners	
Storm water facility	Yes, detention ponds are managed by WRMC
Threats	Invasive species. Lack of management. Runoff impacts.

PHEASANT BRANCH CONSERVANCY

Acres	325.2
Priority ranking	Very high
Description	The Pheasant Branch Convervancy is the largest and oldest conservancy in Middleton. The conservancy is contiguous with 161 acres owned by the WDNR and Dane County Parks to the north. The entire Pheasant Branch Conservancy totals over 514 acres. Won a Best Places in Wisconsin award in 2017, and a WPRA Award of Excellence in 2007. Two parcels on Century Ave were purchased in 2018 for the development of a trailhead.
Habitat	Wetlands, sedge meadow, restored prairie, restored/remnant oak savanna and oak woodland, marsh, natural springs, stream, seeps, fresh/wet meadow, mixed hardwoods, surrogate grassland (hayfield)
Visitation	High
Access	Trails provide access into the conservancy from Century Ave, the Pheasant Branch Road parking lot, from the Middleton Hills neighborhood, Orchid Heights Park, and Marina Drive.
Connectivity	Contiguous with 161 acres owned by the WDNR and Dane County Parks. Contiguous with Orchid Heights Park and Conservancy and John C Bock Community Forest
Recreation	Walking/hiking, biking, running, pet exercise, birdwatching, widlife viewing, nature photography, education, etc.
Facilities	Crushed limestone shared-use bike/pedestrian trails provide a contiguous loop around the conservancy in both the Middleton and Dane County portions. The conservancy also offers pedestrian (hiking-only) trails. Interpretive signage; Duck blind (scenic vista). Trail surfaces include crushed limestone, boardwalk, and short pavement sections.
Management plan	1982 Pheasant Branch Nature Preserve, Stockham and Vandewalle | 1998 Vegetation and Ecological Conditions of the Pheasant Branch and Belftontaine Conservancies, AES | 1998 Wetland Delineation of the 503-acre Pheasant Branch and Belfontaine Conservancies, SAA | 1999 North Lake Mendota Regional Plan, SAA | 2006 Wetland Mitigation Report, Thompson & Associates | 2008 Soils of Pheasant Branch Conservancy: Analysis of Soil Features and Their Suitability for Recreational Uses Using the USDA's Web Soil Survey, Watermolen, Kefer, and Mednick
Management since 2011	Pheasant Branch Conservancy Marina Court Trail Expansion Project (2011) | Pheasant Branch Creek Stream Restoration North of Century (2017) | Woodcreek Condo Stormwater Project (2017) | Phragmites control in the easrt marsh in PBC (2013, 2015, 2016) | Identification of SE Drain Tile (2015) | Blanding's Turtles Citizen-based Monitoring in PBC (2010-2014) | Crown vetch control along the west edge/along pb trail (2013-2017) | West Drain Tile Removal and Native Planting with USFWS (2013, 2014) | Duck Blind Trail delineation and trail route (2016) | Regular prescribed burning of the west overlook prairie and oak savanna | Acquisition of Pheasant Branch Trailhead
Grants received since 2011	Gerhardt Acquisition Pheasant Branch Trailhead (WDNR Urban Green Space, 2017-2018, $172,250) | Pheasant Branch Streambank Restoration (2017, WDNR Nonpoint Source Pollution grant program, $124,000) | USFWS Drain Tile Break and Wetland Enhancement in West Pheasant Branch (2013; $23,000) | SE Drain Tile Break - USFWS has expressed future support
Volunteer support and/or partners	Friends of Pheasant Branch, Dane County Parks, WDNR, USFWS
Storm water facility	Yes

PHEASANT BRANCH CREEK CORRIDOR

Acres	58.7
Priority ranking	Very high
Description	The Pheasant Branch Creek Corridor follows the Pheasant Branch Creek east of Hwy 12 to Century Ave.
Habitat	Stream, wetlands, mixed hardwoods, oak savanna
Visitation	High
Access	Access to the Pheasant Branch Creek Trail from Century Ave and from Deming Way. A trail connects the conservancy and Kromrey elementary school.
Connectivity	The conservancy functions are a creek corridor as well as a trail corridor connecting the Pheasant Branch Conservancy trails to the South and North Fork of the Pheasant Branch Creek Trails. The trail provides an underpass below HWY 12.
Recreation	Walking/hiking, biking, running, birdwatching, wildlife viewing, education, etc.
Facilities	Pheasant Branch Creek Corridor Trail (1.5 miles paved, ADA-accessible. Birding alcoves. Bridges across creek
Management plan	1998 VegetationManagement Plan, Clark Forestry | Vegetation Management Plan, AES | A comprehensive listing of studies and management reports is listed in the 1999 North Lake Mendota Plan
Management since 2011	Pheasant Branch Creek Streambank Stabilization Project Park Street to Century Ave (2011) | Pheasant Branch Creek Streambank Stabilization Project Park Street to Parmenter Street (2013) | Kromrey Middle School Stream Relocation Project (2015) | Clean Lakes Allaince sponsored events with Spectrum Brands in (2016, 2017) | MACPSD and USGS partnered to pick up trash along the corridor (2015-2017).
Grants received since 2011	Pheasant Branch Streambank Stabilization Project Park Street to Century Ave (2011, 149k, WI DNR Clean Water Fund, Loan Program) | Pheasant Branch Creek Streambank Stabilization Project Park Street to Parmenter (2012-2013, 120k, WI DNR Clearn Water Fund, Loan Program
Volunteer support and/or partners	Kromrey Middle School (MCPASD), USGS, Clean Lakes Alliance and Spectrum Brands
Storm water facility	Yes
Threats	Invasive species. Runoff impacts.

PHEASANT BRANCH RIDGE DRAINAGEWAY

Acres	4.4
Priority ranking	Medium
Description	The conservancy contains a trail corridor and a storm water detention basin.
Habitat	Detention pond, planted wet prairie
Visitation	Moderate
Access	Access from High Road and Pheasant Branch Road
Connectivity	Graber Pond Trail - Linkage connects Graber Pond Trail to Pheasant Branch Conservancy (through Whittlesley on-street connection). Undeveloped open space to north of conservancy area.
Recreation	Walking/hiking, biking, running, pet exercise, etc.
Facilities	Paved shared-use trail (Graber Pond Trail - Linkage)
Management plan	None
Management since 2011	Development and installation of the detention basin managed by DPW
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes
Threats	Invasive species. Runoff impacts.

QUARRY PARK CONSERVANCY

Acres	5.1
Priority ranking	Low
Description	A mature oak woodland located uphill of Terrace Ave. Has potential for a close-to-downtown conservancy area
Habitat	Oak woodland
Visitation	No access
Access	No access
Connectivity	Adjacent privately owned woodland. Adjacent to Quarry Skate Park and Hillcrest Park
Recreation	None. Opportunity for mountain biking or hiking trails.
Facilities	None
Management plan	None
Management since 2011	None. However, evidence of management prior to 2011
Grants received since 2011	
Volunteer support and/or partners	Neighbor interest
Storm water facility	No
Threats	Invasive species. Lack of management, lack of prescribed burning.

SHORECREST DETENTION POND

Acres	1.6
Priority ranking	Low
Description	Detention pond off of Shorecrest Drive
Habitat	Detention pond, planted wet prairie
Visitation	No access
Access	No access
Connectivity	
Recreation	No access
Facilities	None
Management plan	None
Management since 2011	Managed by the Department of Public Works as a storm water facility
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes
Threats	Invasive species. Management not specific to native species.

SOUTH FORK OF THE PHEASANT BRANCH CREEK

Acres	34.2
Priority ranking	High
Description	Follows the South Fork of the Pheasant Branch Creek east where it meets with the North Fork to form the Pheasant Branch Creek. The conservancy serves as greenway from Pleasant View Road to South Pond. The conservancy includes the creek corridor, an upland oak woodland, and South Pond. The conservancy is influenced by the surrounding urban environment. Development of South Pond including vegetation management and trail development planned for 2019.
Habitat	Stream, wetlands, marsh, shrub communities, oak woodland
Visitation	Moderate
Access	Access from Deming Way, Greenway Boulevard, Pleasant View Road, and Parmenter Street
Connectivity	Trail connects to Esser Pond and the North Fork Trail, and to the Middleton Bike Park
Recreation	
Facilities	South Fork Trail (1.2 mile ADA-accessible paved trail), interpretive and wayfinding signage
Management plan	None
Management since 2011	South Fork of the Pheasant Branch Creek Streambank Stabilization Project (2014). Development of the South Fork/Greenway Center Trail (2011-2014). Trail development concurrent with streambank protection and sediment reduction practices (fulfill requirements of Municipal Stormwater Permit). Monitoring and removal of purple loosestrife.
Grants received since 2011	WI DNR AIS Southern Cattail Removal along south fork towards Deming Way (2012-2013, $7,367 split with North Fork) | WI DNR AIS Southern Cattail (2014-2018, $20,000, split with North Fork) | South Fork/Greenway Center Trail (2011-2014, WI DNR Recreational Trails Program, $45,000) | South Fork of Pheasant Branch (WDNR Urban Storm water Construction, $60,000, 2012-2014)
Volunteer support and/or partners	Friends of Kettle Ponds (supported South Fork/Greenway Center Trail)
Storm water facility	Yes
Threats	Invasive species. Runoff impacts

SPRING HILL DETENTION POND

Acres	1.4
Priority ranking	Low
Description	Detention pond managed by the Department of Public Works. Adjacent
Habitat	Dentetion Pond, planted wet prairie, planted swamp oak
Visitation	No access
Access	No access
Connectivity	
Recreation	No access
Facilities	No access
Management plan	None
Management since 2011	Managed by the Department of Public Works as a storm water facility
Grants received since 2011	
Volunteer support and/or partners	
Storm water facility	Yes
Threats	Invasive species. Management not specific to native species.

STONEFIELD CONSERVANCY

Acres	5.4
Priority ranking	Medium
Description	Storm water facilities managed for native vegetation along Old Middleton Road
Habitat	Detention pond, planted wet prairie
Visitation	Low
Access	Access from shared-use path and sidewalk on Old Middleton Road
Connectivity	Paved shared-use path connects Walnut Circle and Cypress Trail
Recreation	Walking/hiking, biking, etc.
Facilities	Paved shared-use pat, Natural surface trail around the perimeter of the east detention basin
Management plan	1995 Memo, Dave Eagan
Management since 2011	Managed by the Department of Public Works as a storm water facility, regular prescribed burning
Grants received since 2011	
Volunteer support and/or partners	Neighbor interest
Storm water facility	Yes
Threats	Invasive species.

STRICKER POND CONSERVANCY

Acres	25.1
Priority ranking	Very high
Description	Stricker Pond is a glacial kettle pond that supports a variety of wildlife, waterfowl, and migratory birds. Since 2001 the natural pond has also functioned as a stormwater management feature, detaining water before it flows into Lake Mendota. Site of cultural importance: native people's encampment.The southern 1/3 of Stricker Pond area is owned by the City of Madison.
Habitat	Glacial kettle pond, wetlands, marsh, shrub communities, restored mesic prairie, restored oak savanna, mixed hardwoods
Visitation	High
Access	Middleton Street, Voss Parkway (through Stricker Park), Longmeadow Road (City of Madison)
Connectivity	Trail loops around Stricker Pond, including City of Madison portion. Adjacent to Stricker Park. Stricker Pond is less than a half mile southwest of Tiedeman Pond.
Recreation	Walking/hiking, biking, birdwatching, wildlife viewing, ice skating, kayaking, pet exercise, etc.
Facilities	Stricker Pond Trail includes gravel and woodchip segments. Connects to a pavement trail through Sticker Park to the northwest of the conservancy. Other facilities include benches and interpretive signage.
Management plan	1982 Stricker's Pond: Master Plan, Stockham and Vandewalle | 2005 Stricker Pond Conservancy Park: Ecological Assessment and Restoration Plan, Michael Anderson BioLogic | 2014 Water Resources Assessment of Stricker's Pond, Marshall and Healy | 2016 Making Strickers Pond a Better Resource for Middleton and Madison Residents. University of Wisconsin-Madison Nelson Institute for Environmental Studies Water Resource Management Practium
Management since 2011	Recent management (Adaptive Restoration) has focused on the 5-acre mesic prairie planting on north side of pond and an oak woodland restoration on the west side of the pond. The shoreline areas of the pond were previously restored to wet prairie, but have been invaded with reed canary grass. Maintaining restored mesic prairie, oak woodland, and mitigating the invasion of reed canary grass and encroaching brush are priorities for the pond.
Grants received since 2011	
Volunteer support and/or partners	The Friends of Kettle Ponds. Volunteer maintains purple martin birdhouses.
Storm water facility	Yes
Threats	Invasive species. Runoff impacts.

TIEDEMAN POND CONSERVANCY

ELM LAWN SAVANNA

Acres	34.1
Priority ranking	Very high
Description	Tiedeman Pond is a glacial kettle pond managed for stormwater/floodwater management and aquatic, wet prairie, and oak savanna habitat. Like Stricker Pond, Tiedeman Pond provides habitat for aquatic fauna, waterfowl, and birds. The Elm Lawn School savanna and prairie is adjacent to the Elm Lawn Elementary School across the street from Tiedeman Pond
Habitat	Glacial kettle pond, wetlands, marsh, restored mesic/wet-mesic prairie/wet prairie, mixed hardwoods | Elm Lawn Savanna: Restored oak savanna, mixed hardwoods
Visitation	High
Access	
Connectivity	Adjacent to Woodside Heights Park. Less than 1/2 mile from Stricker Pond.
Recreation	Walking/hiking, biking, birdwatching, wildlife viewing, ice skating, kayaking, pet exercise, etc.
Facilities	Stricker Pond loop trail includes crushed limestone and paved segments. Other facilities include a viewing platform, benches, interpretive signage
Management plan	2006 Ecological Assessment Plan, Nicole Kalkbrenner, JFNew | 2012 Wetland Delineation Report: Tiedeman Pond, Cardno JFNew | Specific to Elm Lawn Savanna: 2004 Biologic Environmental Consulting
Management since 2011	Tiedeman Pond Water Quality and Trails Enhancement Project (2014) | Tiedeman Pond Ice off/anoxia study with Mary Linton (2013) | Establishment and maintenance of native vegetation around forebays following construction - inlcudes prescribed burning of restored prairie (2014-current).
Grants received since 2011	Tiedeman Pond Water Quality and Trails Enhancement Project (2013, Partners for Recreation and Conservation (PARC) Grant Program, $82,000)
Volunteer support and/or partners	The Friends of Kettle Ponds. Volunteer maintains purple martin birdhouses.
Storm water facility	Yes
Threats	Invasive species. Runoff impacts.

APPENDIX F

MIDDLETON CROSS PLAINS AREA SCHOOL DISTRICT EVENTS UTILIZING CONSERVANCY LANDS

Contributed by Deb Weitzel

A recap of MCPASD events utilizing Middleton's conservancy lands

*Sixth grade classes pulls garlic mustard in conjunction with FOPB

*Ninth grade biology (550 students) over two days and during 90 minute class periods, comes to the Conservancy and collects data to support a research question, "Does proximity to trails impact the biodiversity of plants?" A week later, the same students collect seed (in the same manner - during 90 min. class period over 2 days) at the Conservancy, Holy Wisdom Monastery, or Gov. Nelson State Park. Coordinated with FOPB.

*Grades K-5 have the option to take field trips to the Conservancy to learn about trees, plants, soil, water, ecology. 500+ students did. Coordinated by FOPB.

*FOPB coordinated with sixth grade teachers at Kromrey Middle School (KMS) for all sixth graders to learn about the importance of storm water management to protect Pheasant Branch Creek behind the school. The focus was the extensive rain gardens on Kromrey campus. The students learned about native plants vs invasive plants. They then did literature search to help decide what invasive species to remove. Each class removed 3 different species, bagged them and Purple Cow Organics took the weeds away for composting. Plans are in the works to restore native species to one rain garden that has a high percentage of invasive species.

*All Middleton High School (MHS) photography students upload 1-5 of their best photos of the Conservancy during a nature photography unit. The photos are judged by semester for first-third place with honorable mention as well. The photos are for use in the FOPB Phenology calendar. Service learning project with FOPB.

*MHS Field biology students (around 50) come to the Conservancy to learn native and invasive plant ID. They then come back to survey the density of species. FOPB.

*MHS Field Biology is centered around the Conservancy. The students are frequently coming to conservancy lands during their class period to tag turtles, survey reptile populations, small mammal study and other wildlife related projects. (Only invasive/native plant study is coordinated through FOPB).

*FOPB partnered with 4K classes to produce curriculum for 10 outdoor experiences for all 10 4K sites. A spring field trip to the Conservancy is being planned.

*FOPB partnered with Girl Scouts to produce backpacks for getting a badge in nature exploration. One of these backpacks with the lessons and equipment needed, will be housed at Northside School for use in Pheasant Branch Conservancy.

*FOPB have also coordinated with an English teacher to have 4 different stations for the students to learn about land use, prairie management, history, etc at the Conservancy. The students explored a bit on their own. Back at school they completed a research paper on a variety of subjects centered on what was learned at the Conservancy. They also produced seasonal poetry that was included in a couple of the Phenology calendars.

*Elm Lawn art teacher, Anne Gustafson planned with FOPB on a grant to have an intergenerational art project for third graders. The students heard stories about growing up outside from senior center residents. The students had a field trip to the conservancy and then produced art projects - drawings, clay, multi-media - in turn with nature.

*FOPB teamed with MHS video class to learn about the Conservancy and how it attracts folks to Middleton.,..many speakers with different angles. The kids produced short videos about the value of the Conservancy to Middleton. Grant monies supported project.

*FOPB teamed with Jeff Sledge's UW graduate class to produce a report about various aspects of the Conservancy....signage, boardwalks, social media support, etc.

*Students at MHS in Ecology Club dedicated 3 year's of profits from the Organic Dinner ($10,000) to help Bock Forest purchase. Bock Forest was purchased in 2006.

*MHS Students from ecology classes, teams and other organizations plus Clark St. Community School students have helped with restoration and management in Conservancy. Invasive removal and seed collecting with FOPB.

*MHS ecology students monitored Pheasant Branch Creek and wrote a report that was given to the City each year. In the 90s - then the monitoring expanded to Rock River Coalition and documenting the results on line with UW-EX. Water Action Volunteers. The monitoring site was behind MHS in creek corridor (ended in 2011).

School Awards and Accolades

MCPASD has US Department of Education Green Ribbon Award 2015 | Middleton High School - Green and Healthy Schools - Red Maple Award and Green Ribbon Award 2012 | Park School - GHS/Red Maple and Green Ribbon 2014 | West Middleton School - GHS/Red Maple and Green Ribbon 2015 | Kromrey Middle School - GHS/Red Maple and Green Ribbon 2016

Comments on How the City Could Support Future Events

If events are occuring on conservancy lands that would benefit with students or with naturalist help, the City should reach out to the school district. Any projects that could help educate students about nature is an opportunity for collaboration.

Other events

Contributed by Jeff Erikson

Middleton Hill School teachers use conservancy areas for a variety of teaching needs. Lessons include: prairie plant ID and frequency survey. Seed collection. Deep pellet count survey, field camera images, forest management of Bock forest, worm survey, crane survey, turtle survey, stream flow monitoring, and biotic indexing.