

Pollinator Protection Task Force Report

City of Madison, WI

August 2015



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PART 1: Problem Overview and Task Force Background



A bumblebee pollinates lupine Photo: Matt Tucker

Problem Overview:

Pollination occurs when pollinators—such as bees, moths, butterflies, bats, and hummingbirds—transfer pollen between flowers, prompting successful plant reproduction. Many plants are wind-pollinated, but about one-third of the world’s crops rely on pollination by animals.¹ The word “pollinator” often brings the honeybee to mind first—the honeybee is an effective pollinator and managed honeybee apiaries (a collection of beehives) are common throughout Wisconsin. In fact, it was designated Wisconsin’s state insect in 1977 at the request of a third grade class. Interestingly, the honeybee is not native to North America and native insects in Wisconsin, including bumblebees (which live in underground colonies), hundreds of species of solitary wild bees (such as mason bees), and monarch butterflies, as examples, pollinate much of the vegetation in our state.

¹ United States Department of Agriculture, “Insects and Pollinators,” *Natural Resources Conservation Services*, <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/pollinate/>

While honeybees are important pollinators and some farms manage bees specifically to pollinate their own crops, utilizing public land to attract wild bees is a crucial step in maintaining crops central to Wisconsin's economy and culture; including pumpkins, apples, cherries, and cranberries (Wisconsin is the largest cranberry producing state in the country).²

Since 2006, U.S. beekeepers have reported a dramatic decline in honeybee hives, attributed to Colony Collapse Disorder. Colony Collapse Disorder is characterized by the absence of worker bees while the queen bee and some immature bees remain, with no dead bees in sight.³ More observable in Wisconsin is general colony loss not considered Colony Collapse Disorder. From spring to spring 2014-2015, the state lost over 60 percent of its honeybee colonies.⁴ Several species of bumblebees, also key crop pollinators, are dwindling in population, while monarch butterfly populations are suffering, in part because of a reduction in the prevalence of milkweed, which is critical to their lifecycle.⁵

Although there are several potential causes of pollinator decline, including pathogens, parasites, pesticides, crop and other monocultures, genetically modified crops, and climate change, scientists believe colony loss and animal pollinator decline cannot be attributed to a single factor but rather a combination of factors.

Neonicotinoid pesticides have gained attention as potentially one of the primary forces behind honeybee and native pollinator declines. According to the Pesticide Action Network, neonicotinoids are neurotoxic, causing overstimulation of the nervous system that can lead to disorientation, damage to memory, and bodily structure abnormalities.⁶ Among pollinators native to the U.S., a recent study found that crops grown from neonicotinoid-coated seeds destabilize wild bee populations by decreasing reproduction.⁷ The use of the neonicotinoid pesticides clothianidin, imidacloprid, and thiametoxam is currently restricted in the European Union.⁸

The *varroa* mite poses a large threat to honeybees. These parasites attach directly to bees and draw the blood of their host and, if left unaddressed, can grow in

² Ben Brancel, "The Buzz About Bees: Let's Protect Our Pollinators," *The Wisconsin Master Gardener Program*, October 28, 2013, <http://wimastergardener.org/?q=BuzzAbout%20Bees>

³ United States Department of Agriculture, "Honeybee Health and Colony Collapse Disorder," *Agricultural Research Service*, last modified May 13, 2015, <http://www.ars.usda.gov/News/docs.htm?docid=15572>

⁴ Tom Lutey, "Bumbles stumble: U.S. Honey bee colonies decline 42 percent in 2014," *Helena Independent Record*, May 16, 2015, http://helenair.com/news/local/bumbles-stumble-u-s-honey-bee-colonies-decline-percent-in/article_8e866537-e034-559f-b592-1f47411d67d5.html

⁵ The Xerces Society for Invertebrate Conservation, "Pollinator Conservation in Minnesota and Wisconsin," *A Regional Stakeholders Report*, January 2011, <http://www.xerces.org/wp-content/uploads/2011/01/pollinator-conservation-in-minnesota-and-wisconsin.pdf>

⁶ "Save the honey bees," *Pesticide Action Network Europe*, accessed July 8, 2015, <http://savehoneybees.info/risk>

⁷ Maj Rundlöf, Georg K. S. Andersson, Riccardo Bommarco, Ingemar Fries, Veronica Hederström, Lina Herbertsson, Ove Jonsson, Björn K. Klatt, Thorsten R. Pedersen, Johanna Yourstone, and Henrik G. Smith, "Seed coating with a neonicotinoid insecticide negatively affects wild bees," *Nature* 521 (2015): 77-80, doi: 10.1038/nature14420

⁸ European Commission, "Bees & Pesticides: Commission goes ahead with plan to better protect bees," *Animal Health and Welfare*, last modified May 30, 2013, http://ec.europa.eu/food/archive/animal/liveanimals/bees/neonicotinoids_en.htm

population within bee colonies and travel between colonies within apiaries. Many beekeepers apply the chemical fluvalinate to control varroa infestations.⁹

Another major threat facing pollinators, particularly native bees and butterflies, is habitat decline. Conversion of natural habitat to farmland, roadways, and residential property has wiped out the wildflowers on which pollinators depend for food. Climate change has only exacerbated the problem. Increases in both droughts and heavy rain events impair the healthy dispersal of milkweed,¹⁰ and extreme summers and winters weaken bee colonies.¹¹ Bumblebees, accustomed to a wide range of temperate environments, are struggling to adjust to shifting temperature bands in both North America and Europe.¹²

Habitat restoration is a main component of the federal government's National Pollinator Health Strategy. The strategy, commissioned by the federal Pollinator Health Task Force, also focuses on research and public-private partnerships. Specifically, the federal strategy calls for "understanding, preventing, and recovering from pollinator losses" by altering land management techniques, such as planting and pesticide application on public lands, based on new findings for pollinator-friendly methods.¹³ Although the strategy directs the Environmental Protection Agency (EPA) to research negative outcomes of pesticide application for pollinators, it does not include a specific plan for scaling back the use of neonicotinoids.

While this report focuses on the City of Madison's specific role in pollinator protection, jurisdictional borders do not hold bees and butterflies. At the state level, the University of Wisconsin's Gratton Lab is partnering with the state Department of Agriculture, Trade and Consumer Protection (DATCP) to carry out pollinator health research and supply adequate information to businesses, beekeepers, gardeners, and the general public for enhancing honeybee and native pollinator habitat.

Dane County is moving forward with a similar process (including a task force) with goals complementary to those of Madison's efforts, prioritizing outreach and education as well as collaboration among departments handling land use to expand pollinator-friendly land area. The county task force is also working toward reducing insecticide use by county departments, in addition to encouraging retailers to restrict neonicotinoid sales. The Madison task force expects to collaborate and

⁹ Ric Bessin, "Varroa mites infesting honey bee colonies," University of Kentucky College of Agriculture, Food and Environment, last modified January 22, 2013, <http://www2.ca.uky.edu/entomology/entfacts/ef608.asp>

¹⁰ Josephine Marcotty, "Calling all milkweed: Federal pollinator plan needs a billion plants for monarch butterflies," *Star Tribune*, June 6, 2015, <http://www.startribune.com/calling-all-milkweed-federal-pollinator-plan-needs-a-billion-plants-for-monarchs/306383591/>

¹¹ Markham Heid, "You Asked: Are the Honeybees Still Disappearing?" *Time*, April 15, 2015, <http://time.com/3821467/bees-honeybees-environment/>

¹² Alan Neuhauser, "Buzzkill: Global Warming is Wiping Out the Bees," *US News & World Report*, July 9, 2015, <http://www.usnews.com/news/articles/2015/07/09/study-global-warming-is-wiping-out-bumblebees>

¹³ The White House, Presidential Memorandum—Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators, June 20, 2014, <https://www.whitehouse.gov/the-press-office/2014/06/20/presidential-memorandum-creating-federal-strategy-promote-health-honey-b>

cooperate with the County and State in working to implement the recommendations of this report.

Around the country, several cities and states have addressed pollinator decline within the past few years. As a key pillar of Minnesota's plan, the Minnesota Department of Agriculture highlighted the proven threat of neonicotinoids to pollinators and is pursuing a statewide information campaign around the pesticide.¹⁴ North Dakota, the nation's leader in honey production, has a voluntary plan focused on Best Management Practices for balancing the needs of the agriculture and beekeeping industries, such as collaboration in selecting effective hive locations.¹⁵ A handful of cities have banned neonicotinoid pesticide application on city land, including Seattle, Washington in September 2014¹⁶ and Portland, Oregon in April 2015.¹⁷ Asheville, NC pioneered a "bee week" and was the first "Bee City USA."¹⁸ Other cities, such as Edmonton, Alberta and Oslo, Norway, are focusing on creating pollinator habitat within city limits.

Throughout this report the term "pollinator-friendly" is used to indicate actions or tools that provide pollinators with the food and/or nesting resources they need for populations to succeed. Obviously, not all species of pollinators need the same resources. Nonetheless, planting species that flower for the entire growing season will benefit a range of pollinators. Nesting habitats are more complicated. For example, honeybee colonies are managed by humans, although the food resources on which they rely are similar to those of many other pollinator species. Other species differ in their nesting needs—monarch butterflies, for example, only lay eggs on milkweed plants; some native bees are ground-nesting, while others nest in plant material. Still, there are ways to manage land that protect existing nesting habitat or create new nesting possibilities.

Task Force Background:

In June 2014, the White House issued a memorandum creating a Pollinator Health Task Force directing agencies to review current practices and implement new strategies to improve pollinator health, recognizing the importance and urgency in addressing the issue of pollinator loss throughout the federal government.

¹⁴ Minnesota Department of Agriculture, "Pollinator Bank, Habitat Protection, and Pesticide Special Review," *Pollinator Report to the Minnesota State Legislature*, January 15, 2014,

<http://www.mda.state.mn.us/protecting/bmps/~media/Files/news/govrelations/pollinators/legppt-pollinators14.pdf>

¹⁵ North Dakota Department of Agriculture, *North Dakota Pollinator Plan*, 2014,

<http://www.nd.gov/ndda/files/resource/NorthDakotaPollinatorPlan2014.pdf>

¹⁶ Matt Driscoll, "Seattle Sticks Up For Bees, Bans Neonicotinoids. But Will It Help?" *Seattle Weekly News*, September 26, 2014,

<http://www.seattleweekly.com/home/954782-129/seattle-sticks-up-for-bees-bans>

¹⁷ Laura Zuckerman, "Portland bans insecticide to protect declining honey bees," *Reuters*, April 1, 2015,

<http://www.reuters.com/article/2015/04/01/us-usa-bees-oregon-idUSKBN0MS5KL20150401>

¹⁸ "Bee City USA Communities," *Bee City USA*, accessed August 4, 2015, <http://www.beecityusa.org/about.html>

Following this lead, Mayor Paul Soglin began the process of creating a City task force to review City policies and practices. In October 2014, the Madison Common Council adopted a resolution directing the Madison Food Policy Council to form and lead a Pollinator Protection Task Force. The task force was directed to convene, develop, and provide implementation direction to City departments for strategies to promote the health of honeybees and other pollinators. The full text of the resolution is available in Appendix A. The following members composed the task force from December 2014 through August 2015:

Satya Rhodes Conway – Chair of Task Force and Madison Food Policy Council Member
Nathan Clarke – Mad Urban Bees and Madison Food Policy Council Member
Nan Fey – Madison Food Policy Council Chairperson
Mark Woulf – Food and Alcohol Policy Director
Alder Ledell Zellers – District 2
Matt Tucker – Zoning Administrator
Mike Dailey – Deputy City Engineer
Randall Wiesner – Facilities Management Project Manager
Natalie Erdman – Director, Planning, Community and Economic Development
Eric Knepp – Superintendent – Parks Division
Charlie Romines - Assistant Superintendent – Parks Division
Joseph Demorett – Madison Water Utility
Katherine Cornwell – Director, Planning Division
Linda Horvath – Urban Planner, Planning Division
Roberta Sladky – Director, Olbrich Botanical Gardens
Lesly Scott – Public Health Supervisor, Public Health Madison & Dane County
Mary Michaud – Director, Division of Planning, Policy, Evaluation, Public Health Madison & Dane County
Caitlin Buhr – Intern, Mayor’s Office, Pollinator Protection Task Force

The Pollinator Protection Task Force (PPTF) drew the data and recommendations compiled in this report from several notable resources, including University of Wisconsin researchers, land use specialists, peer-reviewed scientific papers, articles from esteemed news sources, and government reports. The PPTF does not claim to be experts on pollination nor pollinators, but rather to represent the City divisions and departments most likely to be able to have a positive impact on pollinator populations. The stated goal of the PPTF is that this report leads to continued and increased efforts by the City and the public to protect and support all pollinator populations in the City of Madison and beyond.

PART 2: Review of City Practices: Department Reports



Olbrich's sustainable gravel gardens, with a diverse collection of perennials, provide exceptional habitat for birds and insects.

Photo: Olbrich Botanical Gardens

The Pollinator Protection Task Force asked City of Madison departments and divisions that manage and maintain land to describe practices used on their lands that may impact pollinator populations. Reported practices include pesticide use; mowing; passive, active, and intensive land use; species selection for seeding and planting; and building-related landscaping. Additionally, each City Department identified opportunities to enhance pollinator protection efforts on their lands by adding demonstration projects, improving public communication and outreach, creating feeding and/or nesting habitats, and forming partnerships to increase pollinator population numbers.

Through many of its current practices, the City of Madison acknowledges the vital role of pollinators and recognizes the significance of maintaining adequate habitat. Madison is viewed as a progressive urban agriculture city due to a model residential beekeeping ordinance, a steady increase in the purchase of backyard chicken permits every year since 2004, and relaxed zoning for community and market gardens (see Building Inspection Division below). The City also uses a minimal amount of pesticides as a part of current practices (see Parks Division below).

It is important to note that each land management activity carries trade-offs. For example, a specific mowing practice, although not conducive to pollinators, may be needed to control invasive species or maintain recreational opportunities. With each of these activities, the goal is to produce more overall benefits than costs for the City and pollinators.

Below is a summary of the departmental and division reports. See Appendix B for the list of questions the PPTF used to prompt each department.

Building Inspection Division

The City of Madison Building Inspection Division is responsible for inspecting buildings and land within the City of Madison to ensure compliance with City zoning ordinances and building codes. While the Building Inspection Division does not actively maintain any land, it ensures that land in the City of Madison is properly maintained to comply with Madison General Ordinances, including enforcing standards for lawn maintenance.

Mowing Practices

The City's property maintenance ordinance, which is enforced by the Property Maintenance section of the Building Inspection Division, requires lawn areas to be maintained and grass not to exceed 8 inches in length. Under the current ordinance, "Natural Lawns," which are native grasses over 8 inches, may be approved by building inspection if they fit select requirements including the type of grasses planted and the border from the property line.

Land Acreage and Land Management

Building Inspection maintains guidelines related to various land uses including gardens, urban beekeeping, and urban agriculture. Property maintenance codes currently prohibit grasses and "herbaceous materials" over 8 inches. At this time, current policy is to not regulate gardens on private property that may violate ordinance. Building Inspection staff suggests a change to the ordinance language in order to account for the existence of gardens while still limiting grasses that are non-compliant with natural lawn regulations.

City of Madison Zoning allows for the keeping of honeybees on private property. Provisions balance reasonable beekeeping opportunities with neighbors' interests in regards to safety or nuisance of use. During the work of the PPTF, Building

Inspection worked with Ald. Zellers to increase the types of zoning districts in which beekeeping is allowed, extending the allowable areas to employment and airport districts.

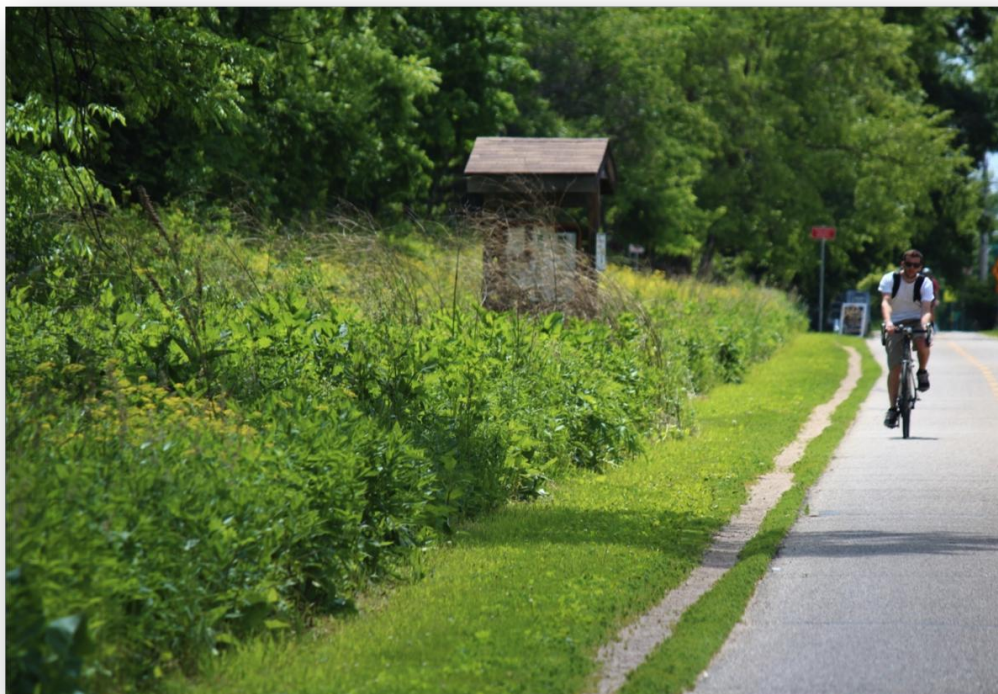
In addition, City of Madison Zoning regulates Urban Agriculture in various forms. Urban Agriculture land uses are approved in two ways depending on the land's Zoning classification: *Permitted Uses* in which the owner may use the land for a particular purpose if they meet certain circumstances; or as *Conditional Uses* which require management plans and a public hearing.

Forms of Urban Agriculture under zoning:

Agriculture, Cultivation: This form of Urban Agriculture allows the land to be used for growing field crops, tree farming, or nursery operations; typically larger in operation.

Community Garden: Community Gardens bring together a group of individuals in an area of land to grow or harvest food or ornamental crops for group use, consumption, or donation.

Market Garden: Market Gardens function similarly to community gardens; however, garden yields are sold for profit, but not on public land.



Waubesa area bike path and wildflower planting Photo: Matt Tucker

Species Planting Summary/Building-Related Landscaping

While the City of Madison Building Inspection Division does not engage in active planting or landscaping, it is involved in the enforcement of related property standards. Building Inspection enforces an ordinance listing noxious weeds that must be eradicated from property upon discovery. Building Inspection also enforces the City's landscaping provisions, which apply to all property in the City except single and two-family homes, through its Zoning Ordinance. These provisions require minimum plantings but do not require specific plantings to be used.

Engineering Division

The Engineering Division has a broad and diverse area of responsibility that includes agency-owned lands, regulatory enforcement of certain uses of private lands, design or design approvals for both publicly- and privately-developed properties, and maintenance of Engineering-owned lands and some of the City's facilities. Engineering-owned parcels exceed 1,500 acres in total. Additionally, the Engineering Division has partial responsibility for design of vegetation along rights-of-way, bike paths, and other public corridors. The Engineering Division is responsible for the landscape design components of most of the City-owned facilities. Lastly, the Engineering Division regulates private property development for storm water management and erosion control.

Pesticide Practices

City of Madison Engineering does use pesticides to control certain invasive weed species; however, applications are targeted to remove common or exotic invasive species or to prevent resprouting. Pesticides are also applied preventatively for specific land use purposes, such as the application of Round-up weed control to a turf area prior to a rain garden installation. Pesticides are applied to Engineering lands by qualified City staff, qualified volunteers, or qualified contractors. Pesticide usage of the Engineering Division is tracked and reported annually.

Mowing Practices

The majority of Engineering-maintained lands are only mowed once or twice annually with mowings at the end of the year as much as possible. There are a small number of intensive use areas that are mowed frequently, similar to park areas. Some engineering lands are "spot mowed" to control weeds eliminating the need for regular season mowing. These lands promote the growth of natural prairie. Full mowing of these areas, if any, is at the end of the growing season.

Land Acreage and Land Management

Engineering land has several different functions and uses depending on its designation, and while most is passively managed, some is more actively managed or even intensively used as soccer fields, athletic fields, or playgrounds. The Storm Water Utility-owned lands are primarily for conveyance or storage as well as treatment of storm water runoff. Often the ownership boundary will include adjacent unusable lands that are then owned and maintained by the Storm Water Utility, but not critical to the storm water function. The Storm Water Utility owns most floodplains and wetlands. The Engineering Division also owns the City's five closed landfills managed for various uses and an array of small parcels for the Sanitary Sewer Utility.

Storm Water Utility: The Storm Water Utility of Engineering owns approximately 1,417 acres of land. Of this land, 273 acres is not mowed and is likely forested. The remaining acres are at least partially mowed and very few have intensive use. These lands consist mostly of greenways, wet ponds, and dry ponds. Greenways are designed to slow down storm water and provide some level of treatment by removing sediments and nutrients. Both pond buffers and greenways are mowed once or twice annually to minimize invasive weeds and volunteer trees that can lead to erosion issues when they shade out lower growing vegetation and expose bare ground.

Sanitary Sewer Utility: The Sanitary Sewer Utility owns about 40 acres mostly made up of land over pipes or land containing a sewerage pumping station.

Closed City Landfills: Closed City landfills make up about 82 acres and are mostly maintained as prairie land. Some former landfills have a more intensive use, such as athletic fields or dog parks.

Street Terraces and Terrace Rain Gardens: Engineering maintains a portion of street terraces and some medians or islands. Some terraces contain terrace rain gardens, which are constructed by the City but maintained by the property owner. Currently 567 rain gardens are registered on the City Website. Engineering approves the designs and plantings of private storm water management features as well.

Bike Paths: Engineering maintains some bike paths in city limits with varying turf conditions and mowing schedules.



Greenway and rain garden at the police training facility on Femrite Drive
Photo: Matt Tucker

Species Planting Summary

Newer storm water management areas are planted with “*Infiltration Seed Mix*” or “*Detention Basin Seed Mix*.” These mixes, commonly used in Public Works, have many species in common with lists of species planted to support pollinator species. Older storm water areas consist of simple grasses or are forested and require no plantings. Engineering also tracks plantings that are commonly used or recommended to private owners in rain gardens. Salt tolerant species are predominantly used for terrace rain gardens, as the presence of salt in sitting water can be harmful to non-tolerant species.

Building-Related Landscaping

The Facilities Management Section of Engineering, addressed below, handles all building-related landscaping on Engineering-owned land and is often responsible for overseeing landscaping installation for new or renovated City facilities.

Opportunities for Demonstration Projects and Public Communication and Education

While a demonstration project on Engineering land would require a public process prior to proceeding, there are many appropriate potential land areas available for use. For example, changing a maintenance practice, to the benefit of pollinators, for the purpose of obtaining data and feedback, could be used as a pilot. Public education and communication with adjacent property owners would be essential in order to change practices. As current policy dictates, any mowing change must be

approved by a majority of residents responding to the requested change via a survey. City Engineering currently works with individuals within City property and rights-of-way for the purpose of volunteer planting and maintenance. This program is relatively new and is still gaining traction.

Opportunities to Create Reserved Nesting Habitats

City of Madison Engineering is receptive to an expert evaluating various land plots and designated uses to determine which nesting habitats are currently available and what more can be done.

Facilities Management – Engineering Division

The Facilities Management Division of City Engineering has several duties including site planning and design for large City-owned project spaces, construction of new facilities, major interior and exterior remodeling projects, and installation of energy efficient replacements for insulation, lighting, and windows.

Pesticide Practices

Facilities Management has not yet encountered a need to use pesticides during any projects.

Mowing Practices

Facilities Management requires Landscape Architects (usually hired consultants) to specify low-mow and non-mow grasses in “ornamental lawn” areas and use native seeding in other areas. All seed types used come from the approved list in the Public Works Standard Specifications, which contain specifications on seed mixes, application rates, and other related requirements.

Species Planting Summary/Building-Related Landscaping

Facilities Management requires landscape architects to identify and plant low-maintenance, drought tolerant perennials and other low-maintenance plants, shrubs, and trees. Where site plans require storm water management features, landscape architects are required to follow the *City Standard Specifications* as identified in Engineering’s Species Planting Summary as previously mentioned.

Opportunities for Demonstration Projects and Public Communication and Education

There are possibilities for demonstration projects in the future as two larger sites proceed through Master Site Planning.

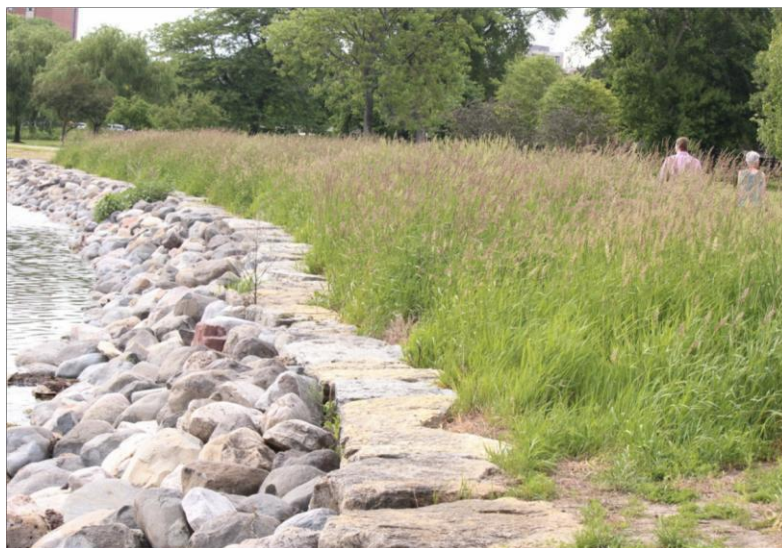
Parks Division

The City of Madison Parks Division is responsible for planning and maintenance of Parks within the city. The Parks Division also manages recreational facilities including the Goodman Pool, the Warner Park Recreational Center, and Olbrich Botanical Gardens. Additionally, the Parks Division houses Forestry, which provides planting, trimming, and tree maintenance along Madison's streets.

The City of Madison Parks Division is proactive in its volunteer projects and volunteer recruitment. Ongoing efforts by volunteer groups such as Madison Area Weed Warriors and Monona Bay Shoreline Cleanup Volunteers, and by individuals with projects such as Dog Park Clean Up Day and Earth Day Challenge, take place throughout the year. Madison Parks hosts numerous events each year, which promote a commitment to the environment and stewardship of the lands. The Madison Bird City Celebration is another example of Madison Parks' commitment to educating the public.

In addition to protecting habitat, Madison Parks continues its wetland restoration project on the Yahara River in Cherokee Marsh. Within the past ten years, more than 100 acres of aquatic habitats have been restored to protect adjacent wetlands from shoreline erosion.

Madison Parks operates under the philosophy that protecting parks land equals protecting assets for years to come. The City of Madison has 14 conservation parks totaling over 1,600 acres. Conservation parks are managed to preserve the native plant communities, wildlife, and the natural landscape. These parks are developed for controlled public access and managed to preserve and restore native plant and animal populations. Within each of these specialty parks are pollinator-friendly habitats that promote and welcome pollinators.



Brittingham Park, along the Monona Bay shoreline Photo: Matt Tucker

Pesticide Practices

City of Madison Parks only uses pesticides in accordance with Integrated Pest Management principles and in compliance with City of Madison pesticide policies. They are used periodically on athletic fields and more routinely on conservation parks and high-end athletic venues (e.g. baseball, football, and soccer fields; golf courses). Use in conservation efforts is almost always in concert with the cutting of exotic trees or brush followed closely by the hand application of an herbicide applied directly to the cut stump. The higher-end athletic venues require a uniform stand of grass; as such, herbicides are used as one part of a larger management program to keep weeds to a minimum. Aside from golf and conservation land sections, only 75 acres out of the 4,000 general parks land acres see occasional herbicide use.

Parks administers Imidacloprid, a neonicotinoid that is one of the most widely used insecticides in the world. Acelypryn, an insecticide believed to be more bee-friendly, is applied on all putting green surfaces and exclusively at Glenway Golf Course. Application of Acelypryn has cut down the City's use of Imidacloprid, but the cost of Acelypryn is about seven times that of Imidacloprid products. A University of Wisconsin entomologist has indicated that, with the use of IPM and pesticide management practices at golf courses, the likelihood of a detrimental impact on pollinators due to Imidacloprid use is highly unlikely. All pesticide applicators are State certified, demanding a higher standard than is required by federal law.

In 2014, the Forestry Section of Madison Parks began treating over 4,000 City-owned terrace ash trees against the Emerald Ash Borer using the insecticide Emamectin Benzoate, product name Tree-age. In 2015 Madison Parks expects that number to increase to over 6,000 terrace trees, bringing the total to around 11,000 ash trees into the two-year treatment cycle. The use and method of application of this insecticide was carefully vetted by staff on the EAB taskforce and passed through seven committees before Common Council approval. Madison Parks is confident that the possible impact on pollinators is extremely low.

Mowing Practices

In total, the Parks Division manages close to 6,000 acres of City property. Including golf courses, Madison Parks mows 1,500 acres as finish cut, similar to a traditional home lawn. Parks currently manages approximately 620 acres in managed meadow and no mow areas within General Parks as well as the Conservation Park acreage. Parks developed Land Management Standards, which were approved by the Parks Commission in 2013, that classify general parklands into the following categories and include specific maintenance standards: Meadows, Woodlands, Wetlands, and Mowed Turf. Within each of these categories are further subcategories with more specific land management goals and maintenance standards.

Land Acreage and Land Management

Land management within Parks varies based on its designated purpose. Conservation Parks are primarily used for passive recreation, with the notable exception of cross-country skiing and snowshoeing in the winter. Within General Parks, most of the acreage is not used for active recreation. Generally, land that is mowed as a finish cut is used actively.



Warner Park dog park area Photo: Matt Tucker

Species Planting Summary

Parks spent \$150,000 in capital project landscape contracts in 2014, which includes park trees, landscape plants, and labor for contractors responsible for installing and watering. Approximately \$105,000 of that was spent on plant material purchases.

Building-Related Landscaping

Parks manages well over 250 buildings and structures. The grounds surrounding most contain junipers or no plantings. Some structures, such as the Warner Park Recreation Center and the Goodman Pool, have much more extensive landscaping. Two years ago, Parks began a beautification project to improve landscaping at certain facilities using funds from the Olin Trust and knowledge from the Olbrich Botanical Gardens. Successful landscape projects have included the Reindahl

Shelter, the Olin Shelter, the new Elver Shelter, the Goodman Pool parking lot, and landscaping around several Madison Parks signs.

Opportunities for Demonstration Projects and Public Communication and Education

Parks believes that there are endless opportunities to work with the public to create demonstration projects. Madison Parks is open to forming partnerships with local organizations and community members to commit to pollinator protection standards.

Opportunities to Create Reserved Nesting Habitats

There are numerous opportunities to create ground, cavity, stem, or wood nesting habitats on Madison Parks land. Currently, Parks does not manage lands expressly to favor pollinators, with the exception of Managed Meadow areas. These areas are mowed in late October through early December to allow the pollination period to complete.

Olbrich Botanical Gardens – Parks Division

Olbrich Botanical Gardens is public garden located within Olbrich Park in the City of Madison with a 16-acre outdoor garden and a 10,000 square foot conservatory. Its mission is to “enrich life by nourishing and sharing the beauty of gardens, the joy of gardening, the knowledge of plants, and the diversity of our world.” As a public-private partnership between Madison Parks and Olbrich Botanical Society, Olbrich Botanical Gardens offers tours, family programs, school programs, special events, and adult education. Olbrich Botanical Gardens’ outdoor gardens showcase sustainable design and plant selection best suited for southern Wisconsin. Sustainable features include gravel gardens, rain gardens, and multiple alternatives to mown turf.

Olbrich Gardens participates in Nature Net, a consortium of 16 South-Central Wisconsin environmental education organizations that provide resources to schools and the general public. Olbrich also collaborates with the Wisconsin Science Festival, MSCR, Madison Public Library, the University of Wisconsin Alumni Association of Thailand, and the Thailand Student Association of UW-Madison. Olbrich Botanical Gardens has received many accolades, including the APGA Award of Program Excellence from the American Public Garden Association and the 2015 Certificate of Excellence from Trip Advisor.

Pesticide Practices

Olbrich Botanical Gardens’ pesticide use on outdoor plantings is very minimal, strategic, and follows Olbrich’s Integrated Pest Management Program. Pesticides are

not used on the managed turf at Olbrich Botanical Gardens and organic treatments such as compost tea are primarily used on managed turf. Pesticides are applied to plants as needed, not wholesale sprayed. However, non-chemical approaches, including washing plants, attracting beneficial insects, and hand weeding are the first choice of treatment at Olbrich. Horticultural soaps and oils are utilized before traditional pesticides.

Mowing Practices

Olbrich Gardens staff mows on an as-needed basis, based on the season and growth of turf. The Great Circle, which is used for gatherings, is the primary mowed turf. Olbrich's lawn alternatives, which include drought-tolerant perennial grasses, native grasses, and native sedges, are mixed with wildflowers and bulbs. Some meadow landscapes are mowed two times per year while others are burned or trimmed in place of mowing.

Land Acreage and Land Management

Olbrich has approximately sixteen acres of public garden. These sixteen acres are intensively cultivated and managed for education and passive recreation.



Olbrich's sustainable gravel gardens, with a diverse collection of perennials, provide exceptional habitat for birds and insects.

Photo: Olbrich Botanical Gardens

Species Planting Summary

Olbrich Gardens has an extensive plant list. Pollinators are encouraged by the nature of Olbrich's plantings and methodologies. Olbrich operates under a right plant, right place philosophy, growing plants that are Midwest-hardy, disease-resistant, and pest-resistant. Olbrich staff also plant more low-maintenance perennials, with annuals dotted in, rather than solid annual beds.

Opportunities to Create Reserved Nesting Habitats

Currently, Olbrich Gardens provides a considerable amount of nesting habitats by nature of its purpose. In addition, Mad Urban Bees manages honeybee hives off the walkway on the north side of the gardens.

Opportunities for Demonstration Projects and Public Communication and Education

Olbrich Gardens already has a number of existing demonstrations of low-maintenance gardening; meadow planting; and right plant, right place landscaping. Currently all sixteen acres of Olbrich Gardens demonstrate pollinator-friendly, sustainable gardening. Olbrich marketing staff encourages the public to visit the gardens as inspiration for home gardens and to offer ideas in sustainable gardening. Considerable information about practices used is available to the public in the Schumacher Library at the gardens. Olbrich's Education Programs offer classes year-round on many sustainable horticulture topics. Events like Olbrich's Blooming Butterflies—held for two weeks during the summer—offer an excellent opportunity for wildlife education. Explorer School Programs offer grades K – 5 hands-on learning experiences that support Wisconsin Model Academic Standards for science and that supplement classroom curricula.



Mad Urban Bees honeybee hives at Olbrich Botanical Gardens
Photo: Matt Tucker

Planning Division

The Planning Division is responsible for coordinating and implementing urban development policies that improve the quality of the downtown and established neighborhoods, planning for new neighborhoods and peripheral growth management, compiling and analyzing statistical data relating to urban planning and management, and implementing City land use and development policies through the maintenance of development regulations and the review of specific development proposals. The Planning Division does not own or manage land; rather, the Division establishes and implements land use policies through the City's Comprehensive Plan, and its neighborhood and other special area plans.

Land Acreage and Land Management

This division is primarily involved in long-range land planning. There is a possibility for the Planning Division to be involved indirectly in land use in the future through a comprehensive plan update that incorporates Pollinator Protection Taskforce recommendations. Planning could become involved in mapping attractive pollinator habitats as well as in researching establishment of criteria to designate attractive pollinator habitats in the future.

Opportunities to Create Reserved Nesting Habitats

The Planning Division sees an opportunity to create nesting habitats through open space planning and incorporating pollinator habitats into Comprehensive Plans, Neighborhood Development Plans, and other special area plans. Planning is working to satisfy requirements for the Terrace Rain Garden Program, the Dane County Plant Share program, and the Community Gardens program, which provide additional opportunities to create pollinator nesting habitats.

Opportunities for Demonstration Projects and Public Communication and Education

City of Madison Planning has the opportunity to reconnect fragmented landscapes and secure wildlife corridors through a strategy such as Pollinator Pathway certification, a program that envisages a place for cities within natural areas. Such efforts are currently under way in the Emerson East-Eken Park-Yahara Neighborhood. Encouraging volunteer partnerships between neighbors and neighborhood parks, in the manner of the "Bee Safe Neighborhoods" campaign, is also a beneficial option for enhancing community connections while supporting pollinator habitat. .

Public Health Madison and Dane County

Public Health Madison and Dane County is responsible for the promotion and protection of environmental, family, and community health. While Public Health Madison & Dane County does not manage land resources, it is involved in the consideration of climate change and other environmental impacts.

Opportunities for Demonstration Projects and Public Communication and Education

Public Health sees opportunities to promote physical and mental health by connecting residents to nature. Pollinator habitats are an opportunity to do so, particularly when located at schools and childcare facilities, as well as on public lands.

Public Health is acutely interested in the potential effects of climate change on local communities, particularly with respect to extreme heat conditions. Efforts to increase the urban shade canopy can be supplemented by strategies to boost pollinator habitats, which are essential to local food production.

To spur outdoor physical activity and engaged learning, and to promote long-term civic stewardship of natural resources and environmental health, Public Health Madison & Dane County is currently providing staff support to the Madison Area GROW Coalition, a group of K-12 teachers, principals, parents, schools, and community organizations committed to connecting children to outdoor learning opportunities. This group has a lot of interest in pollinator protection. Also, PHMDC staff has been informing an assessment process to guide a national initiative of the National League of Cities and the Children & Nature Network to connect children to nature.

Water Utility

Madison Water Utility provides high quality water to every person in Madison. The utility operates and maintains water well facilities, pump stations, reservoirs, and water towers across the city. The land where these critical facilities are located is also owned and maintained by Madison Water Utility.

Pesticide Practices

Madison Water Utility applies Round-up weed control on an as-needed basis to planting beds to control growth of undesirable plant species. Pesticides are used sparingly. In 2014, the total treated area added up to less than one acre.

Mowing Practices

Madison Water Utility currently mows 33 properties, amounting to approximately 25 total acres. Mowing occurs once per week from mid April to late October with an average mowing height of 2 ¾ inches.

Land Acreage and Land Management

Total acreage for all Madison Water Utility properties comes to 43.78 acres. While 25 acres are actively mowed, driveways, parking lots, and buildings occupy the rest of the acreage, with a few acres left unoccupied for future developments.

Species Planting Summary

The Utility mainly uses the *Madison Parks* mix that consists of Creeping Red Fescue, Turf-Type Perennial Ryegrass, and Kentucky Bluegrass for grass seeding. Some sites owned by Madison Water Utility may use other seed mixes commonly used in Public Works including the *Infiltration Seed Mix* and the *Tall Grass Prairie*.

Building-Related Landscaping

Madison Water Utility is currently assessing and making modifications to plantings and overall landscaping at all sites, working on 3 to 4 sites a year. It has received assistance in creating individual site plans from Madison Parks, which has included Water Utility site landscaping in their annual landscaping contract.

Opportunities to Create Reserved Nesting Habitats

Madison Water Utility lots are generally small and may not be suitable to accommodate some types of nesting habitat. Several new facilities that are in the process of being built are located on larger lots. With these lots ranging from 2 to 3 acres in size, more options for planting and creating nesting habitats are available.

Opportunities for Demonstration Projects and Public Communication and Education

Madison Water Utility lots are typically very small and primarily occupied by buildings; however, proposed demonstration projects (i.e. plantings in landscaped beds) for the purpose of public education can operate on a small scale. The Madison Water Utility does employ an active Public Information Officer (PIO) who is able to put together a communication plan and share activities with the public.

PART 3: Task Force Recommendations



One of many pollinator-friendly yards in the City of Madison Photo: Ledell Zellers

As numbers of honeybees and native pollinators continue to decline, it is essential to take steps to not only protect pollinators, but to create an environment in which they will thrive. The City of Madison Pollinator Protection Task Force is tasked with the goals of:

- Reviewing current department practices that affect pollinator habitat and health;
- Developing recommendations for departments to improve the habitat for pollinators on City-owned land; and
- Providing guidance for a long-term strategy to departments to promote pollinator health.

Our overall recommendation is that the City, and in particular the Madison Food Policy Council, work with government agencies, businesses, City departments, schools, farmers, organizations actively working with pollinators, and the public to increase both food resources and suitable nesting habitat for pollinator species. This will include:

- Adopting and implementing policies that promote pollinator health and habitat;
- Exploring alterations to current City land management practices that improve habitat of pollinators on City-owned land;
- Educating the general public and City departments on the issue of pollinator decline and strategies that can be implemented to improve pollinator health and habitat; and
- Creating and fostering partnerships that assist in the advancement of pollinator health at the local, regional, and federal levels.

The following recommendations for action correspond to the task force's goals. The PPTF asks that the Madison Food Policy Council determine the appropriate City agency or department to work on implementing each recommendation. The PPTF expects that implementation of these recommendations will be overseen by the Madison Food Policy Council and the City's Food and Alcohol Policy Director. See Appendix C for the Project Charter.

A suggested time frame for implementation is provided after each recommended action. The time frame is listed as a guideline and is represented as follows:

- Short: 1-2 years
- Medium: 2-3 years
- Long: 3+ years

Policy Recommendations

Recommendation: Adopt and implement policies that promote pollinator health and habitat.

The City has limited tools for adopting policies that would not be preempted by state law; however, this section lays out courses of action Madison is able to take to support pollinators, including restricting neonicotinoids and facilitating the expansion of pollinator habitat within the city.

Recommended Actions:

1. Consider additional neonicotinoid regulations and/or management practices, e.g. banning neonicotinoids on city land, and/or regulations on time of application. *Timeframe: Short*
2. Review planting lists used by the City and landscaping specifications for city buildings and create planting list or lists to be utilized by all City

departments and the City's Urban Design Commission that promote pollinator-friendly habitats, with a focus on:

- Native and non-invasive species
- Low-maintenance and drought-tolerant species
- Species diversity that includes varying flowering patterns during the growing season to attract a variety of different types of pollinators.

The list should be made available to the public as a way of encouraging plantings from the master list. *Time Frame: Short*

3. Create a City-approved certification program for pollinator-friendly retailers that do not carry products that are harmful to pollinators. This is in lieu of a citywide regulation on pesticide use, which is pre-empted by State law. *Time frame: Medium to long*
4. Continue to expand the City's existing beekeeping ordinance to additional zoning districts. *Time frame: Short (Changes Underway)*
5. Revise the "natural lawns" permit requirements and "noxious weeds" policy to broaden the opportunity for homeowners to attract pollinators by utilizing native species and gardens. *Time frame: Short*

Education Recommendations

Recommendation: Educate the general public and City departments on the issue of pollinator decline and strategies that can be implemented to improve pollinator health and habitat.

One of the key areas in which the City can be active and helpful in spreading awareness of pollinator protection is through the education of city departments, and more importantly, the general public, of the importance of strong pollinators and opportunities for action.

Recommended Actions:

1. Departments should identify opportunities for demonstration projects on City-owned lands that are accessible to the public and install them as possible, especially on under-utilized City land, and work with public information officers to promote such projects and pollinator-friendly management practices. *Time frame: Medium to long*

Examples of demonstration projects and pollinator-friendly management:

- a. Raising flowering plants, such as wild lupine, prairie clover, goldenrod, basil, or milkweed, on unused park or water utility space
- b. Incorporating flowering plants into grasses planted to filter runoff along the lake shorelines
- c. Leaving bare ground and pithy plant debris exposed in public landscaping to foster ground bee nesting

Projects should include the strategic placement of interpretive educational signs near demonstrations.

2. Create and disseminate information to the general public about the issue of pollinator loss, the connection to climate change and food security, and the relevant city practices that impact pollinators. Information should be available in plain text and on the city website. *Time frame: Medium*

Information should include:

- a. Explanation of mowing policies, pesticide policies, the value of environmental corridors for insects, and other pollinator-friendly management practices.
 - b. Overview of relevant data on the causes and contributions of pesticide use and habitat loss on pollinator decline.
 - c. Resources to the public on the City's beekeeping ordinance, Terrace Rain Garden program, edible landscapes permit program, and street terrace planting policy.
 - d. Materials that provide best practices for home owners and renters on methods for improving pollinator health and habitat.
3. Advertise the benefits of making a commitment to restricted pesticide use on a neighborhood level and design a recognition system for neighborhood associations and organizations that manage land, including schools and churches in a responsible fashion. *Time frame: Medium*
 4. Encourage neighborhood associations to appeal to pollinators when beautifying spaces using Neighborhood Grant Program funds. *Time frame: Short*

Public Lands Management Recommendations

Recommendation: Explore alterations to current City land management practices that improve habitat of pollinators on City-owned land.

Many City of Madison land management practices are already conducive to healthy pollinators. However, there are several opportunities to stimulate pollinator habitat restoration, laid out below.

Recommended Actions:

1. Review standard maintenance procedures and refine to make more pollinator-friendly. *Time frame: Medium*
 - Identify places where mowing can be reduced or eliminated.
 - Examine mowing and pesticide application schedules and adjust to accommodate pollinator lifecycles
 - Identify mulching options for beds of decorative plantings that would allow for more diverse and pollinator-friendly species while minimizing the need for maintenance
2. Survey existing no-mow areas and identify places where managed meadows would be appropriate. Develop a program to transition these areas to managed meadows. *Time frame: Medium*
3. Consider establishing milkweed patches in parks and along bike paths for migrating monarch butterflies. *Time frame: Short to Medium*
4. Obtain an expert evaluation of City lands to identify nesting habitat, including what to protect and where possibilities exist to increase habitat. In response, protect pollinator nesting sites (tree cavities and snags, clumps of leaves and branches, bare ground) on City land where possible and use signage to promote the activity. *Time frame: Medium to long*
5. Identify environmental corridors for native pollinators and include their development in appropriate plans, and ensure that such development is coordinated with local and regional partners to maximize impact and effectiveness. *Time frame: Medium to long*
6. Review the management agreements governing agriculture lands owned by the City and leased to farmers and include pollinator protections as appropriate. *Time frame: Medium*
 - Currently about 340 acres
 - Leases are 1-year terms renewed annually
 - As the covenant stands, lessees are required to abstain from applying atrazine; potential opportunity exists to look at additional regulations
7. Ensure that plants and seeds purchased for City landscaping are not treated with neonicotinoids. *Time frame: Short*
8. Explore including pollinator protection and support in the update of the City Comprehensive Plan. *Time frame: Short to Medium*
9. Provide training to frontline staff and supervisors in charge of mowing, planting, and other land management practices on the importance of

pollinators and how land management practices can help or hinder their populations. *Time frame: Medium*

Partnership Recommendations

Recommendation: Create and foster partnerships that assist in the advancement of pollinator health at the local, regional, and federal levels.

The City of Madison's efforts to strengthen pollinator habitat are supplemented by work being done by national and local organizations. There are several opportunities to partner with these organizations to further our missions and advance the region's position as a leader in increasing pollinator populations.

Recommended Actions:

1. Work with neighborhood-based groups and organizations to establish an "adopt-a-" program for volunteers to manage pollinator-friendly landscaping, such as terraces and bike paths. *Time frame: Long*
2. Work with Olbrich Gardens to promote their events, educational programs, and volunteer programs that support pollinator protection efforts around the City. *Time frame: Short*
3. Work with existing "Friends of Parks" groups to include pollinator protection in their work or support their ongoing work by offering resources, such as the master planting list and grant opportunities. *Time frame: Medium*
4. Work with the Children's Museum, the public libraries, or similar creative entities to host fun, interesting pollinator presentations. *Time frame: Medium*
5. Strengthen collaboration with the Madison Area GROW Coalition, as well as the Children & Nature Network, to provide outdoor learning resources focused on pollinators for area children. *Time frame: Short*
6. Encourage Madison Metropolitan School District to plant pollinator habitat on the grounds of all its buildings. *Time frame: Medium*
7. Expand the existing Parks volunteer program and highlight the focus on pollinator-friendly plantings and management. *Time frame: Short to Medium*
8. Collaborate with the University of Wisconsin on research-backed plans for enhancing community sustainability, such as the Master Plan for creating green infrastructure and the UW Living Cities Symposium for combating climate change and supporting sustainable, healthy communities. *Time frame: Medium*

9. Partner with appropriate parties (University of Wisconsin, Dane County UW-Extension, Public Health Madison & Dane County, etc.) to track the health of various pollinator populations in Madison with the goal of tracking local and regional progress. *Time frame: Long*
10. Include further development of the City's cost-sharing Terrace Rain Garden Program, the Dane County Plant Share program offering native plants at a discount, and Community Gardens in plans for expanding pollinator habitat. *Time frame: Underway*
11. Partner with the Gardens Network (Community GroundWorks, Dane County UW-Extension, and the City of Madison) to improve pollinator-friendly plantings near and in community gardens and to encourage no-till gardening to avoid disturbance of bee larvae. *Time Frame: Short to Medium*
12. Partner with the County PPTF to develop implementation strategies including, but not limited to: *Time frame: Ongoing*
 - Expand the number of municipalities included in regional work;
 - Address highway mowing practices to promote and create pollinator corridors that is complemented by city work; and
 - Explore regional grant opportunities to improve pollinator habitats, such as through the U.S. Department of Agriculture.

APPENDIX A: Common Council Resolution #35011

Title: Directing the Madison Food Policy Council to convene, develop, and provide implementation direction to city departments for strategies to promote the health of honeybees and other pollinators.

WHEREAS, the loss of pollinators, including honeybees, native bees, bats, birds, and butterflies, across the country have been severe over the past few decades;

WHEREAS, the loss of said pollinators has a dramatic impact on food production, especially fruit, nut, and vegetable production;

WHEREAS, while there are large factors in these losses at play, such as global climate shift, there are many strategies that localities can employ to limit the loss of native and other pollinators;

WHEREAS, scientists point to other factors in pollinator losses such as, loss of native habitat, exposure to pesticides, and lack of adequate diet, all of which can be improved on a local level;

WHEREAS, the White House issued a memorandum, dated June 20, 2014, to Federal Agencies creating a Pollinator Health Task Force and directing agencies to review current practices and prepare to implement strategies to improve pollinator health;

WHEREAS, taking the lead of the White House in raising the importance of pollinator health to our entire food system and the potential economic and health impact to our community, the Mayor and Common Council recognize the need to address the issue on the local level in addition to federal efforts;

NOW, THEREFORE, BE IT RESOLVED, that the Mayor and Common Council direct the Madison Food Policy Council to convene a taskforce on pollinator health that will be comprised of the following department/division heads or their representatives and other members. The taskforce shall be staffed by the Food and Alcohol Policy Coordinator and chaired by a member of the Madison Food Policy Council.

- Four (4) Members of the Madison Food Policy Council
- Parks Department
- Engineering
- Planning
- Library
- Water Utility
- Public Health Madison and Dane County
- Any other members the taskforce deems appropriate

NOW, THEREFORE, BE IT FURTHER RESOLVED, that the taskforce shall conduct and complete the following actions/duties:

- Review available research on pollinator decline and effectiveness of strategies employed.
- Review current department practices that affect pollinator habitat and health.
- Solicit input from local stakeholders with additional information on the issue (e.g. UW-Extension).
- Monitor White House Pollinator Health Task Force work and use information and recommendations to supplement work.
- Explore private-public partnerships to help address the issue.
- Develop recommendations for departments to improve the habitat for pollinators on city-owned land.
- Develop recommendations for citizens to plant pollinator-friendly habitats and guidance on pesticide use around their homes.
- Provide guidance for a long-term strategy to departments to promote pollinator health.

NOW, THEREFORE, BE IT FINALLY RESOLVED, that the taskforce complete its review within six months of its initial meeting, and make final recommendations to the Mayor and Common Council by August 15, 2015.

APPENDIX B: Department Questions

This is a comprehensive list of questions that will address the issues we want to analyze through the sustainability framework, and having the answers will form a sound basis for the PPTF's recommendations.

For all departments and staff teams working on this, it will be important to provide some of the background information that has been shared with the task force members regarding the current threats to pollinators and ways to support and protect them. This will impart context for what might otherwise seem like a lot of detailed questions with difficult answers.

All Departments should attempt to answer these prompts/questions:

1. Land Management Practices, including:
 - a. Pesticide practices
 - b. Mowing practices
 - c. Passive, active, and intensive land uses, including acreage and any maps
 - d. Species lists for planting
 - e. Building-related landscaping
2. What opportunities do we have for demonstration projects?
3. What opportunities do we have to create nesting habitat? What are we already providing?
4. What public education and communication is needed?
5. What partnerships are possible?

Departments should consider providing maps of buildings and land areas they manage, and include the following information:

1. Number of buildings they control
2. Amount of land they control
3. Types of open space land uses, e.g. passive, active, and intensive
4. Acres in each category

Based on the first set of answers, please provide more detailed answers as needed, based on the following:

Describe your department's **land management practices**, including:

1. Pesticides (insecticides and herbicides)
 - a. Names of products used in 2014

- b. Number of acres currently treated with each pesticide
 - c. Available alternatives to each pesticide
 - d. Whether there are non-chemical approaches to each pesticide
 - e. Cost of each chemical and non-chemical alternative
 - f. Trade-offs of each approach
 - g. If you have a pest management policy, please provide a copy
2. Mowing and maintenance practices. We acknowledge that not all departments manage their own lands, e.g. CDA, and that summer staff is hired for mowing on all types of lands, including the medians of streets.
 - a. Total acreage of open space by type of maintenance utilized (mowed, passive, natural, etc.)
 - b. Cost of each maintenance approach
 - c. Current cost of mowing per acre (including fuel, staff time, vehicle maintenance)
 - d. Number of acres mowed in 2014
 - e. Alternatives to these mowing & maintenance practices
 - f. Cost of each alternative
 - g. Trade-offs of each alternative
3. Plantings
 - a. Does your department have a list of approved plantings? If so,
 - i. Which species are also on the provided “pollinator-friendly” list
 - ii. Which species are not on the “pollinator-friendly” list
 - iii. Which species from the “pollinator-friendly” list could be added
 - b. Cost of the plantings in 2014
 - c. Cost of staff time to install plantings
4. Landscaping around buildings
 - a. Describe the landscaping around any buildings your department manages
 - b. Opportunities to add pollinator-friendly plantings
 - c. Opportunities to create nesting habitat for pollinators
5. Habitat. This indicates general supply of food and nesting resources for animal pollinators that your department provides.
 - a. Type of pollinator-friendly habitat already being provided
 - b. Opportunities to create nesting habitat for pollinators
6. Demonstration projects. These are areas where the City can increase nesting habitat and food sources for pollinators in a way that engages the public and offers an education opportunity.
 - a. Opportunities on your department’s lands or in buildings
 - b. Public education and communication that is needed
 - c. Does your department have a Public Information Officer?
 - d. How does your department communicate policies to the public?

7. Partnerships. We want to highlight other groups with which your department can work on pollinator protection within the City.
 - a. Partnerships that exist already
 - b. Partnerships you believe are possible
 - c. Natural partnerships you would like to cultivate

Please list the staff members who are working on this project in your department, and in what capacity they are involved.

APPENDIX C: Project Charter



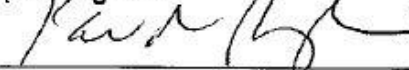
CITY OF MADISON PROJECT CHARTER 2015 August 2015

Project Name	Pollinator Protection Task Force	
Executive Sponsor	Mayor's Office	
Project Coach/Facilitator	Nan Fey, Chair of the Madison Food Policy Council	
Project Manager	Satya Rhodes-Conway, Chair of the Pollinator Protection Task Force	
Primary Stakeholder(s)	City Departments and Divisions	
Business Case / Statement of Need <i>(Why is this project important now?)</i>		
<p>The loss of pollinators, including honey bees, native bees, bats, birds, moths and butterflies across the country has been severe in recent decades. The loss of these pollinators has a dramatic impact on food production, especially fruits, nuts and vegetables that depend on them for propagation. While there may be considerable, and some global, factors at play in these losses such as changes in weather and climate, there are many strategies that can be employed by localities to limit the loss of native and other pollinators. Scientists point to factors such as loss of native habitat, exposure to pesticides and lack of adequate food sources as contributing to the loss of pollinators, all of which can be improved at the local level.</p> <p>Following the lead of the White House, and the office of the President of the United States, the City Council directed the Madison Food Policy Council to convene the Pollinator Protection Task Force to acknowledge the importance of pollinators to the food system and community health, and to address these impacts on a local level.</p>		
Project Description / Statement of Work		
<p>The Task Force, which is comprised of department/division heads or their representatives from the agencies listed below as Stakeholders, will conduct and complete the following actions/duties by August 15, 2015:</p> <ol style="list-style-type: none"> 1. Review available research on pollinator decline and effectiveness of strategies that could be employed to address the problem 2. Review current department practices that affect pollinator habitat and health, 3. Solicit input from local stakeholders with additional information on the issue, e.g. Dane County/UW-Extension, 4. Monitor the White House Pollinator Health Task Force work, using its information and recommendations to supplement our work, 5. Explore public-private partnerships to help address the issue, 6. Develop recommendations for departments to improve the habitat for pollinators on City-owned lands, 7. Develop recommendations for citizens to plant pollinator-friendly habitats, and guidance on pesticide use around their homes, 8. Provide guidance for a long-term strategy for departments to promote pollinator health. 		
Customers	Customer Needs / Requirements	
City Agencies	Sustainable practices that protect pollinators	
City Residents	Healthy food systems and adequate supplies of local food	
Local Food System	Healthy environments for pollinators	
Stakeholders Roles and Responsibilities		
Stakeholders	Roles	Responsibilities
Parks Department	Internal review, consider options	Planting, mowing, pesticide use, community education
Engineering Department	Internal review, consider options	Planting, mowing, facilities management, community education
Water Utility	Internal review, consider options	Planting, mowing, community education
Planning Department	Internal review, consider options	Guidelines for landscaping buildings, planting ordinances
Public Library	Internal review, education strategies	Facilities management, community education
Public Health Department	Internal review, education strategies	Community education
Dane Co/UW Extension	Internal review, education strategies	Integrated Pest Management training, community education
City Residents	Resource to task force	Planting suitable habitat, using fewer pesticides
Scientists & practitioners	Resource to task force	Community education and planting implementation
Native Planting Advocates	Resource to task force	Public education and planting implementation
Local Food Growers	Resource to task force	Community education, propagation
Neighborhood Associations	Potential partnerships	Continue and encourage protection & support of pollinators
Private Landowners	Potential partnerships	Manage open spaces to support recommendations
School District, UW and other institutional landowners	Potential partnerships	Manage open spaces to support recommendations
Dane County Pollinator Protection Task Force	Partnership	Direct communication during active task force work in 2015; recommend continued close collaboration
Dane County Beekeepers' Association	Partnership	Provided important input to Task Force, valuable partner in ongoing education and implementation strategies

Project Definition					
Project Goals		Within City departments and on City-owned lands, goals include maximizing favorable habitat for pollinators; providing a wide range of food sources throughout the growing season for pollinators; reducing the use of pesticides and other chemicals that have the potential to harm pollinators. City operations set an example for the community.			
Project Scope		Recommendations for implementation will address the work and services of City agencies on city-owned properties. Education of community members			
Project Deliverables		Written policy recommendations to City agencies and departments to improve habitat and reduce harm to pollinators on its properties. Educate the community about ways to improve habitat and reduce harms to pollinators on private property. Monitoring process.			
How will progress be measured?		Developing lists of plantings that are favorable to pollinators and provide food sources throughout the growing season. Increase in acres planted in habitat that supports pollinators throughout the growing season and nesting areas. Monitor the use of pesticides that harm pollinators; record in annual reports to Department of Public Health. Note policies and ordinances developed to implement task force recommendations.			
Project Team Roles and Responsibilities					
Team Members		Roles		Responsibilities	
Satya Rhodes-Conway		Food Policy Council member		Chair, Pollinator Protection Task Force	
Nan Fey		Food Policy Council member		Chair, Madison Food Policy Council	
Ledell Zellers		Food Policy & Common Council member		Policy-maker	
Nathan Clarke		Food Policy Council member		Urban beekeeper, technical advice	
Natalie Erdman		Executive Director, CDA; Director, DPCED		Lands owned and managed by the CDA Recommendations involving units of DPCED	
Katherine Cornwell		Director, Planning Division		Planning Division guidelines, planting lists	
Linda Horvath		Planning Division		Report input and review	
Matt Tucker		Zoning Administrator		Zoning guidelines	
Doran Viste		City Attorney		Policy and guideline drafting, implementation	
Mike Dailey		Engineering Department		Operations including planting, mowing and pesticide use	
Charlie Romines		Parks Department		Operations including planting, mowing and pesticide use	
Does this project move the City towards sustainability?					
	SYSTEM CONDITION 1. Reduces dependence upon fossil fuels, extracted underground metals and minerals?	SYSTEM CONDITION 2. Reduces dependence on chemicals and other manufactured substances that can accumulate in Nature?	SYSTEM CONDITION 3. Reduces dependence on activities that harm life-sustaining ecosystems?	SYSTEM CONDITION 4. Reduces dependence on activities that interfere with other people’s abilities to meet their basic needs?	
Specify how project moves City towards improving or achieving each system condition.	Fewer acres mowed will consume less fossil fuel	Fewer synthetic chemicals used	Increased habitat and biodiversity for native pollinators and their food sources	Protecting pollinators supports the local food system, increasing potential food production and food security in the human community	
Identify trade offs involved as relates to each system condition	Aesthetic complaints from community residents who prefer heavily managed and mowed land	Aesthetic complaints from community residents who prefer heavily managed and weed-free land	Public fears about stinging insects, allergic responses in humans	Public fears about allergic responses in humans to both stinging insects and pollens	

<p>Does this project provide a stepping stone towards sustainability?</p> <p><i>This project improves the health of the community's environment for both citizens and pollinators by increasing native habitat and food sources, increasing biodiversity of pollinators, and reducing the community's reliance on fossil fuels (by reducing the need for mowing) and chemical compounds (by reducing the use of pesticides). It also provides an opportunity to educate the community on the importance of pollinators to the human food system and thereby public health.</i></p>
<p>Does this project provide a sufficient return that the City could use to seed future investments? (Include fiscal, environmental and social returns)</p> <p><i>Financial returns will depend on information collected re: chemicals, fuel and staff time. Environmental returns will include increased biodiversity, improved air and water quality. Social returns will include public participation in the protection of pollinators, appreciation of city-owned lands planted in native species, more flowering plants and the pollinators that feed on them including birds, moths and butterflies.</i></p>
<p>Project Constraints / Risks / Key Inputs (Elements that may restrict or place control over a project, project team, or project action; results from other projects or input from other sources needed for project to be successful)</p> <p><i>Public perception (and fears) about allergic reactions to stinging insects and pollens. Public expectations of aesthetics in open spaces, e.g. mown turf, non-native plantings, and weed-free golf courses. Budget constraints (if savings on fossil fuels and chemicals don't offset the cost of native plantings and recommendations for management of pollinator habitat areas)</i></p>
<p>Implementation Plan / Milestones (Due dates and durations)</p> <p><i>In its report, the PPTF will make specific Recommendations and suggest timeframes for their implementation. Regular progress reports will be made by staff when requested by the Food Policy Council and Common Council.</i></p>
<p>Communication Plan (What needs to be communicated? When is communication needed? To whom? How?)</p> <p><i>The Food Policy Council will be responsible for communicating with departments and divisions regarding implementation of the recommendations contained in the report, and educating the community about the City's efforts through their Public Information Officers, the Mayor's Office, and Information Technology outlets.</i></p>
<p>Change Management / Issue Management (What is process for addressing concerns of those impacted? How decisions will be made? How changes will be made?)</p> <p><i>The Food Policy Council will oversee the implementation of its recommendations and work with City departments and divisions to address any concerns that may arise.</i></p>

Sponsor Sign-Off


Paul R. Soglin, Mayor

Date: 10/5/15

Direct questions about this document to: Mark Woulf, Office of the Mayor, at 608-266-4611 or mwoulf@cityofmadison.com

APPENDIX D: Additional Resources

Bee Safe Neighborhoods Campaign:

<http://livingsystemsinst.org/content/bee-safe-neighborhoods>

Burgh Bees Community Apiary in Pittsburgh:

http://www.ci.westminster.co.us/Portals/0/Repository/Documents/CityGovernment/Community%20Development/Bees%20and%20Chickens/Public%20Apiary_Open%20Space%20Article.pdf

Children & Nature Network:

<http://www.childrenandnature.org/>

City of Madison Minimum Housing and Property Maintenance Code, Safe and Sanitary Maintenance of Property,

Chapter 27 Section 5:

https://www.municode.com/library/wi/madison/codes/code_of_ordinances?nodeId=Chapter%2027%20-%20Minimum%20Housing%20and%20Property%20Maintenance%20Code

City of Madison Pesticide Policy:

<https://www.cityofmadison.com/parks/about/documents/PesticidePolicy2004.pdf>

Edmonton, Alberta, Canada's Unique Bee Protection Program:

Cummings, Madeleine. "Bee hotels' give solitary pollinators rooms of their own." *Edmonton Journal*. July 20, 2015.

<http://www.edmontonjournal.com/hotels+give+solitary+pollinators+rooms+their/11229676/story.html>

Keeping Honeybees on Private Property in the City of Madison:

<http://www.cityofmadison.com/dpced/bi/obtaining-a-city-of-madison-beekeeping-license/108/>

National League of Cities:

<http://www.nlc.org/>

Oslo, Norway's Pollinator Protection Efforts:

Stone, Maddie. "Oslo Builds World's First Bee Highway." *Gizmodo*. June 28, 2015.

http://gizmodo.com/oslo-builds-worlds-first-bee-highway-1714532862?utm_campaign=socialflow_gizmodo_facebook&utm_source=gizmodo_facebook&utm_medium=socialflow

Pecha Kucha Efficient Presentation Style:

<http://www.pechakucha.org/>

Pollinator Pathway Program:

<http://www.pollinatorpathway.com/>

Sector 67 Collaborative Workspace:

<http://www.sector67.org/blog/>

Xerces Pollinator Conservation Seed Mixes:

<http://www.xerces.org/pollinator-seed/#UpperMidwest>

"Bee City USA Communities." *Bee City USA*. Accessed August 4, 2015.

<http://www.beecityusa.org/about.html>

Bessin, Ric. "Varroa mites infesting honey bee colonies." University of Kentucky College of Agriculture, Food and Environment. Last modified January 22, 2013.
<http://www2.ca.uky.edu/entomology/entfacts/ef608.asp>.

Brancel, Ben. "The Buzz About Bees: Let's Protect Our Pollinators." *The Wisconsin Master Gardener Program*. October 28, 2013. <http://wimastergardener.org/?q=BuzzAbout%20Bees>.

Driscoll, Matt. "Seattle Sticks Up For Bees, Bans Neonicotinoids. But Will It Help?" *Seattle Weekly News*. September 26, 2014. <http://www.seattleweekly.com/home/954782-129/seattle-sticks-up-for-bees-bans>.

European Commission. "Bees & Pesticides: Commission goes ahead with plan to better protect bees." *Animal Health and Welfare*. Last modified May 30, 2013.
http://ec.europa.eu/food/archive/animal/liveanimals/bees/neonicotinoids_en.htm.

Heid, Markham. "You Asked: Are the Honeybees Still Disappearing?" *Time*. April 15, 2015.
<http://time.com/3821467/bees-honeybees-environment/>.

Lutey, Tom. "Bumbles stumble: U.S. Honey bee colonies decline 42 percent in 2014." *Helena Independent Record*. May 16, 2015. http://helenair.com/news/local/bumbles-stumble-u-s-honey-bee-colonies-decline-percent-in/article_8e866537-e034-559f-b592-1f47411d67d5.html.

Marcotty, Josephine. "Calling all milkweed: Federal pollinator plan needs a billion plants for monarch butterflies." *Star Tribune*. June 6, 2015. <http://www.startribune.com/calling-all-milkweed-federal-pollinator-plan-needs-a-billion-plants-for-monarchs/306383591/>.

Minnesota Department of Agriculture. "Pollinator Bank, Habitat Protection, and Pesticide Special Review." *Pollinator Report to the Minnesota State Legislature*. January 15, 2014.
<http://www.mda.state.mn.us/protecting/bmps/~media/Files/news/govrelations/pollinators/leg rpt-pollinators14.pdf>.

Neuhauser, Alan. "Buzzkill: Global Warming is Wiping Out the Bees." *US News & World Report*. July 9, 2015. <http://www.usnews.com/news/articles/2015/07/09/study-global-warming-is-wiping-out-bumblebees>.

North Dakota Department of Agriculture. *North Dakota Pollinator Plan*. 2014.
<http://www.nd.gov/ndda/files/resource/NorthDakotaPollinatorPlan2014.pdf>.

Rundlöf, Maj, Georg K. S. Andersson, Riccardo Bommarco, Ingemar Fries, Veronica Hederström, Lina Herbertsson, Ove Jonsson, Björn K. Klatt, Thorsten R. Pedersen, Johanna Yourstone, and Henrik G. Smith. "Seed coating with a neonicotinoid insecticide negatively affects wild bees." *Nature* 521 (2015): 77-80. doi: 10.1038/nature14420.

"Save the honey bees." *Pesticide Action Network Europe*. Accessed July 8, 2015.
<http://savehoneybees.info/risk>

United States Department of Agriculture. "Honeybee Health and Colony Collapse Disorder." *Agricultural Research Service*. Last modified May 13, 2015. <http://www.ars.usda.gov/News/docs.htm?docid=15572>.

United States Department of Agriculture. "Insects and Pollinators." *Natural Resources Conservation Services*. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/plantsanimals/pollinate/>.

The White House. Presidential Memorandum—Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators. June 20, 2014.
<https://www.whitehouse.gov/the-press-office/2014/06/20/presidential-memorandum-creating-federal-strategy-promote-health-honey-b>.

The Xerces Society for Invertebrate Conservation. "Pollinator Conservation in Minnesota and Wisconsin." *A Regional Stakeholders Report*. January 2011. <http://www.xerces.org/wp-content/uploads/2011/01/pollinator-conservation-in-minnesota-and-wisconsin.pdf>.

Zuckerman, Laura. "Portland bans insecticide to protect declining honey bees." *Reuters*. April 1, 2015. <http://www.reuters.com/article/2015/04/01/us-usa-bees-oregon-idUSKBN0MS5KL20150401>.