City of Whitewater
Urban Forestry Commission Meeting
Tuesday, June 21, 2011 – 4:15pm
Cravath Lakefront Room – 2nd Floor, City Municipal Building
312 W. Whitewater St., Whitewater, WI 53190

AGENDA

1. Call to Order
2. Roll Call
3. Approval of Agenda
4. Approval of Minutes for April 19, 2011 and May 10, 2011
5. Citizen Comments: No formal action will be taken during this meeting, although issues raised may become part of a future agenda. Participants are allotted a 3 minute speaking period. Specific items listed on the agenda may not be discussed at this time, however, citizens are invited to speak to those issues as designated on the agenda.
6. Planning and Architectural Board Representative
   a. Landscape proposal for new Prince St. student housing unit – replacing former campus Lutheran Center (Karen Coburn)
7. Parks and Recreation Board Representative
   a. Restoration plan for Whitewater Effigy Mounds Preserve (Prue Negley and Chuck Nass)
   b. Treyton's Field of Dreams
8. Whitewater Landscaping Guidelines (City, Development, and Redevelopment)
9. Citizen request to have dying terrace trees replaced (East Milwaukee St.)
10. Storm damage, pruning, cut list
11. Brainstorming on possible future Agenda items relating to the development of Whitewater's green sustainability program.
12. Adjourn

Next Meeting: Tuesday, July 19, 2011.

#7a

Master Plan Report for the:

Whitewater Effigy Mounds Preserve

Preservation and Maintenance Plan

June 3, 2011

Prepared for the:

Whitewater Parks and Recreation Department

Matt Amundson, Director

From the:

Parks and Recreation Board

Effigy Mounds Task Force

Friends of Whitewater Effigy Mounds

The Whitewater Landmarks Commission

jennings & associates

LANDSCAPE ARCHITECTURE

MASTER PLAN REPORT

Executive Summary

Preparing the plan for Whitewater's Effigy Mounds preserve has been a process of re-discovery. Participants discovered or re-discovered that this mound group has world-wide importance as a native-American cultural resource, and that the Oak Savanna remnant found in the preserve is the rarest plant community in the State of Wisconsin. While the City has taken action in the past to preserve this special place, it will be important to improve efforts to protect the effigy mounds from development pressure and take relatively inexpensive actions to preserve and understand this rare plant community and burial site.

During the end of 2010 and the early part of 2011 the Whitewater Parks and Recreation Department began the process to develop a new maintenance and preservation plan for the Whitewater Effigy Mounds Preserve. We interviewed stewards of other similar mounds groups in the State and held extensive public input to determine how best to preserve and honor this special place. Our plan recommends that a new burning regime be started to manage the health of the savanna. A number of improvement and research recommendations have been made by the Task Force. Here are some of the major ones:

- Begin a burning regime (potential spring 2011 burn planned) to encourage native vegetation establishment and help control weeds.
- Remove turf cover on each mound and restore with a short-stature, native seed mix.
- Plant native tree saplings in the larger open areas to encourage reestablishment of oak savanna, including the DOT "strip".
- Begin invasive species control regimen at appropriate times of the year and sow (by hand) native seed collected on-site at appropriate times of the year.
- Establish a scenic easement or park buffer as part of any future development on lands south and west of the preserve.
- Consider using "conservation subdivision" design principles on future residential developments south and east of the preserve.
- Remove private fences on public land. Work with neighbors to remove fences that have been built on the mounds preserve.
- Establish a permanent archeological advisory group that would approve and or solicit archeological research of the preserve.
- Partner with the Hoard Museum as a means to connect the history of these mounds and that of other sites in our State.
- Protect, preserve, and research the mounds group. Future decisions should be directed toward preserving the authenticity of the site.
- Conduct archeological research of the site.

The Whitewater Effigy Mounds Preserve is well loved by many Whitewater residents. It will play a meaningful role in the cultural and tourism future of Whitewater.

Background

The Whitewater Effigy Mounds Preserve represents a surprisingly intact example of a Late Woodland Effigy Mound Group. It contains 14 mound features built by native-American tribes 700 to 1,100 years ago and is listed on the National Register of Historic Places. As a burial site it falls under the Wisconsin Burial Sites Preservation Law described below. Five of the mounds are in the shape of native-American clan animals or icons based on animal shapes important to their daily life and religious practice. Two are shaped like birds, one of which is an even rarer bent-wing bird shape. Also present are panther-like water spirits, mink, and turtle. The site may also include an inverted mound or intaglio. Our report recommends that a detailed archeological study of the entire preserve be conducted and that the existence of this intaglio confirmed. If this feature is proved to be an intaglio – it would be only the second surviving intaglio located in the state.

Preservation Statutes

The Whitewater Effigy Mounds Preserve is a Wisconsin burial site. The following is from the Wisconsin State Historical Society:

Burial Sites Preservation Program
The burial sites preservation program was created with the passage of 1985 Wisconsin Act 316 (PDF, 940KB) and Wisconsin's Burial Sites Preservation law, Wis. Stats. 157.70 (PDF, 40KB), in 1987. The program is based at the Wisconsin Historical Society's Headquarters building at 816 State Street, Madison, Wisconsin 53706 and is part of the Division of Historic Preservation-Public History. Program staff works closely with members of the Burial Sites Preservation Board.

A burial site, under the law, refers to any place where human remains are buried and includes marked and unmarked cemeteries, Native American mounds, small family cemeteries, and other less obvious locations that are reported to the Wisconsin Historical Society. No burials, regardless of age, ancestry, cultural affiliation or condition may be intentionally disturbed without first obtaining a permit from the director of the Wisconsin Historical Society, even if that burial is on your own land.

Accidental discoveries of suspected human bone must be reported to the burial sites preservation program and work must stop until a determination of whether or not the bone is actually of human origin is made. If you suspect that the human remains you have found are of recent origin and may be of law enforcement interest, please do not move or handle the remains and contact your local police or sheriff's department as soon as possible.

If you have a burial site on your property you may be eligible for a property tax exemption. In order to benefit, the site must be catalogued including a minimum five-foot protective buffer around it. You may then submit the documentation we provide to your local or county assessor to receive a pro rata reduction (see Wis. Stat. 70.11).

If you have questions about the program or would like to report the location of a burial site, please contact us at (608) 264-6494 and provide county and township information as well as section number, if possible. If you know of, or would like to report a burial site disturbance and you are calling from Wisconsin, please use our toll-free number, (800) 342-7834. For technical information or questions, please call (608) 264-6507.

Site Inventory

Plant Communities

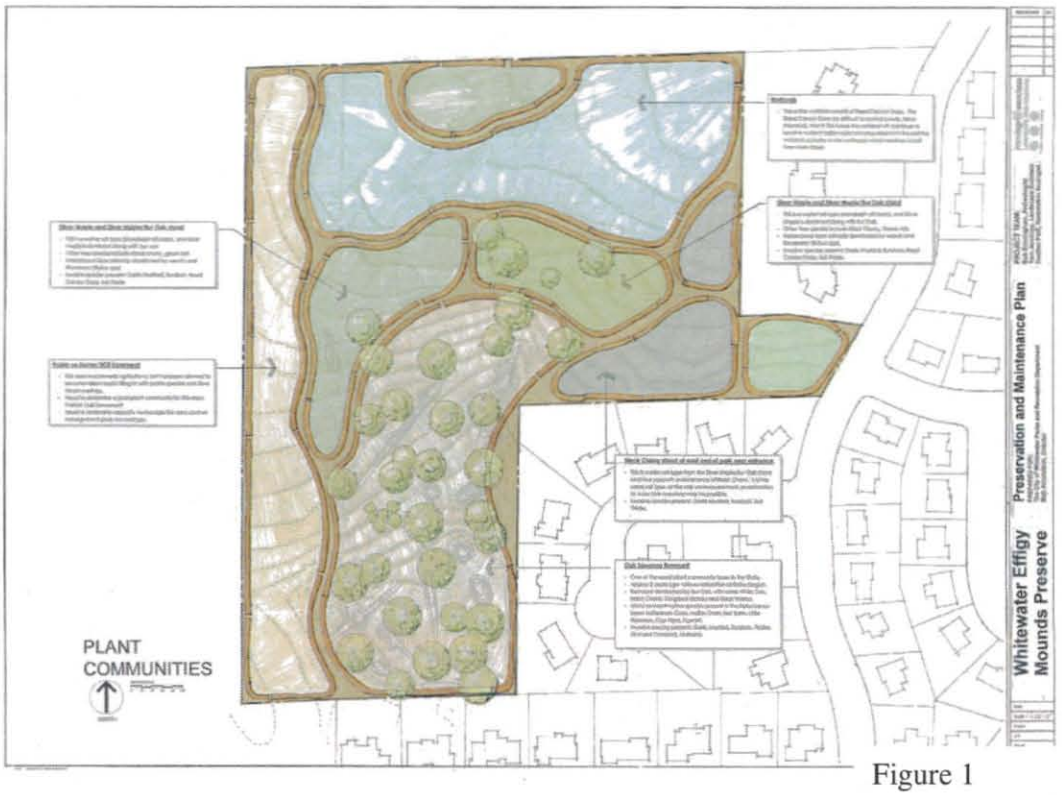


Figure 1

The most important finding during the plant community inventory was the of course the intact vigorous remnant of an Oak Savanna plant community. Today, the oak savanna is beyond question the rarest plant community in Wisconsin (Curtis, 1971). Our report includes a detailed maintenance plan that describes the native species found on site and how best to preserve the health and vitality of each group of plants. The following is a brief summary of the plant communities found on site.

Oak Savannah Remnant

- Approx 5 years ago various restoration activities began
- Savannah remnant dominated by bur oak, with some white oak, black cherry, shagbark hickory and black walnut
- Many remnant native species present in the herbaceous layer: bottlebrush grass, Indian grass, bee balm, little bluestem, cup plant, figwort
- Invasive species present: Garlic mustard, burdock, thistles (bull and Canada), Mulberry

Silver Maple and Silver Maple/Bur oak stand

- This is a wetter soil type (Mundelein silt loam), and silver maple is dominant along with bur oak
- Other tree species include black cherry, green ash

- Herbaceous layer primarily dominated by weeds and blackberry (Rubus spp)
- Invasive species present: Garlic mustard, burdock, reed canary grass, bull thistle

Black cherry stand at east end of park near entrance

- This is a drier soil type than the Silver Maple/Bur Oak stand and thus supports a dominance of Black Cherry. It is the same soil type as the oak savanna remnant, so restoration to a bur oak overstory may be possible.
- Invasive species present: Garlic Mustard, Burdock, Bull Thistle

Wetlands

- This entire wetland consists of reed canary grass. The reed canary grass be difficult to control (costly, labor intensive), and in the future the wetland will continue to receive nutrient laden water carrying rcg seed from the existing wetland complex to the northeast, which receives runoff from Main Street.

DOT Prairie

- This area was formerly agricultural, but has been allowed to become fallow and is filling in with prairie species and Silver maple saplings.
- Need to determine a goal plant community for this area: Prairie? Oak savannah?
- Need to determine capacity to manage the area and set management goals accordingly

Topography

The site is located along a ridge line that slopes to the north and east. The soils higher on the ridge are glacial silt loams and become heavier and less well drained as they get closer to the marsh. A creek used to exist near the site but has become an intermittent stream due to agricultural activities.

Figure 2

Public Input

During the planning process the Effigy Mounds Task Force and the Effigy Mounds Friends toured other effigy mounds sites in Wisconsin. They also received input from the public, advice from a Jay Toth a Native American manager of the Kingsly Bend effigy mound site, a presentation from Bob Birmingham, the former State of Wisconsin Chief Archeologist, and input from the Director of the Hoard Museum.

Whitewater Effigy Mound Preserve

Stakeholder and Public Meeting Summary
December 8, 2010

The initial public and stakeholder meeting for the Whitewater Effigy Mound Preserve was held at 7:00 PM in the Whitewater City Hall on December 8 2010. About 20 citizens attended the meeting, including; neighbors, members of the public, Effigy Mounds Friends, and Effigy Mounds Task Force members. The names of the participants are included at the end of this summary. Also in attendance were, Whitewater Parks and Recreation Director Matt Amundson, Tom Jennings, lead consultant and landscape architect; Heather Patti, a restoration ecologist; and Bob Birmingham, a former state archeologist with the Wisconsin Historical Society.

Please note that some of the input below is borrowed from a recent newspaper article about the meeting.

Matt Amundson began the meeting by introducing the consultants and giving some background about the project:

"A formal plan is being prepared for the restoration and preservation of this unique archeologically significant site on Whitewater's west side. The City has contracted with Jennings and Associates, a planning firm that has significant background in land restoration and planning, as well as archeological preservation."

"This has been a site with a lot of public interest and a lot of concern over how the site is currently being maintained," Amundson said at the start of the meeting. "This is an opportunity to restore and preserve the site for what can be an educational site."

He noted that interested citizens have been serving on an ad hoc committee of the Park and Recreation Board.

"They have brought us to the point to where the city has hired Jennings and Associates," Amundson continued. "They have been on site, toured other sites and have completed other restoration sites. They will be discussing what our options and opportunities are. But the purpose of this meeting is to know what our residents want at the site."

Then Bob Birmingham, our archeologist, described the archeological importance of the site and its characteristics:

"The effigy mounds are a world wonder, these exist nowhere else in the world; they're like Stonehenge, and they have not escaped foreign interests. But we often take them for granted. There is an old axiom that says if it is nearby, it can't be that interesting," Birmingham jested. "Otherwise, it would not be nearby – you would have to spend $5,000 and go to Egypt to see

something interesting. But we have these unique sites right here."

Birmingham explained that in his research, he has discovered that the mounds are related to the cultural and belief systems of the native peoples who built them.

"Over hundreds of years, native people sculpted the landscape in many areas as a three-dimensional representation of their religion," he said. "Sometimes these were a vast area; a vast environment has certain powers, and they're sculptures would bring out the spirits of that power. They constantly recreated the world, and ties the world to their ancestors in the form spirit beings."

He added that the mounds -often in the shapes of animals - represented the "clan animals" as well, as certain clans had more power than other clans and thus were represented by different animals.

The effigies in the Whitewater area include birds (called "thunderbirds") long-tailed panther-like water spirits and likely snakes. There also are round and conical mounds that Birmingham said possibly might be related to celestial bodies such as the sun and moon; also, conical mounds might also be burial locations.

Most of the mounds in Wisconsin were built between 700 and 1,100 A.D., Birmingham explained, noting that mounds always were close to lakes or rivers because water represented life. But some, like the one in Whitewater, was built as a "remote" ceremonial site.

"All remote sites have one thing in common, and that is they are close to springs," he said. "Springs were considered entrances into the spiritual world. It is life itself coming up. About 1,000 years ago, this was considered to be a very special spot, even before the mounds were built, because of the springs to the north of the site."

He added that no formal archeological excavation of the area has taken place.

Heather Patti of RA Smith then spoke about the native vegetation and invasive species in the preserve. She said the area is an Oak Savannah or an "Oak Opening."

"Oak Savannah's are very rare," she said. "They are restricted to just Wisconsin and Minnesota. This area is a mature, intact Oak Savannah. The hair on my neck stood up when I saw it. We have a real treasure here, and the presence of the mounds make it even more special."

Patti said there are several invasive species in the preserve, such as Garlic Mustard, Thistle and Reed Canary Grass. She added that these "could be worked on over time" to restore the area to a more native ecology. Heather also recommended creation of a controlled burn schedule.

Tom Jennings then led the public input part of the discussion, which comprised the majority of the meeting.

We have accumulated meeting notes from three sources: the flip chart that was written up as people spoke; Tom's notes he took during the meeting; and a description of the meeting that was in the Daily Union.

PUBLIC COMMENTS

- Look into water source east of Mounds parkway.
- Plant several different tree species. There was a concern if we only manage toward the Bur Oaks, the site could be decimated if a disease struck. Encourage more tree diversity.
- Weed problems/appearance are an issue. Drop-off in attendance as a result.
- Mound restoration, to enhance education.
- The site has a spiritual energy impact on visitors. Many visitors feel the energy of the place and in the mounds themselves.
- It is a natural place to teach and meet the needs of visitors with different goal sets and diverse groups. It is attractive to many age groups. It has spiritual, cultural, historical and nature based importance.
- Visitor Rob Nurie, a landscape historian noted the following: The place has natural and cultural importance. In the past it reflected the culture of the people who lived here. What experience do you, the community, want it to have? What do you want to save for future generations? What is important to you, the community?
- Plant local genotypes.
- Trails and orientation needs clarification they are currently confusing.
- Put more information on signs.
- Parking; add a pullover?
- Do an Archeological study.
- This is a unique site. We need to communicate with Wisconsin Historical Society and look into regulations.
- Better delineate mounds.
- Promote the preserve with seasonal activities and highlights, such as seasonal hikes, etc.
- Encourage and promote the Friends Group and volunteer activities.
- Continue to maintain prairie understory.
- Involve UW-Whitewater archeologist, or biology departments, Native American group?
- This is a Ho Chunk ceded area. Bob Birmingham explained that 'ceded area" means that the Ho Chunk were the tribe that ceded this land to European settlers.
- Incorporate landscape as a whole; regard nearby residences.
- Kori Oberle, Director of the Hoard Museum said that the City of Whitewater or the Friends Group could post information about the Effigy Mounds Preserve at Hoard Museum. She noted that the Hoard Museum has a significant display and section devoted to effigy mounds in this area of Wisconsin. She also suggested greater connection and linkages between the Hoard museum and the Preserve. It could be a mutually beneficial relationship that promotes tourism and events at both places.
- Look at the Jefferson County Parks Ho-Chunk site as an example and look at their parking and trail maintenance.
- Needs to fit in within its context and have better educational value, for example, for school groups.
- Potential for parking and access to the West, could potentially tie in with future development.
- Keep future generations and long term in mind.
- Insure continuity, no stops and starts. Make plans that are the "right size" and sustainable.
- Make investments into the preserve.
- Come to budget hearings and support improvements.

- Look into funding opportunities, federal?
- City's park budget is issue.
- Apply for grants, be aware of National Historic Places Fund status.
- Trails not clearly defined.
- Would like a kiosk at the entrance idea to introduce site then minimal signage along trails.
- Integrate open area better into rest of the site.
- Think about fences; a gradual draw or pull into the site.
- Use native plantings.
- Consider making the preserve more accessible for the disabled.
- Go to dailyunion.com for an article on tonight's meeting.
- Mound maintenance ideas;
  - No mow mix or short prairie grasses
  - Keeping it turf, visibility
  - Mow around base and have short grasses on top
  - Walking on or biking over mounds an issue
  - Not use large city mowers

- The site is has a number of positive aspects and we should have a number of goals aimed at improving it.
- Preserve is sacred.
- Inter-generational and teaching opportunities.
- Cultural artifacts.
- Educational opportunities.
- Trails and maintenance.
- Native people and current visitors attracted to the site because of the natural aspects and specialness of the place.
- Use plants that are native to this specific part of the State.
- Tie into bike path and hiking trails.
- Very important unique cultural site in a special environment.
- Want archeological study.
- Communicate with Landmarks Commission and National Historic Groups. Create volunteer position that acts as liaison to other State and National Groups.
- Use native grasses and plants.
- Prairie and savannah are sustainable.
- Delineate mounds.
- Keep people off mounds.
- Have seasonal approach to scheduling activities and seasons.
- Sacred place.
- Need to be good neighbor.
- Native American Association
- Trail not clearly delineated.
- This is a sacred space.
- Attempt to create a similar more authentic experience.
- Preserve views of neighboring country side.
- Have small visitor center for site that also has links to Hoard Museum.
- Introduce the mystery of these mounds and an overview of history and culture.
- Make the site more attractive to school groups. Or reach out to school groups.
- Make improvements small scale.
- We have a responsibility to the past.
- Encourage interest and participation in the site for future generations.
- Natural gardens at entry from the east.
- Protect views from the site.

- Would Ho-Chunk want to manage this place?

Some of the prevalent themes heard during the meeting: spiritual, good neighbor, more archeology, naturally connected, educational, sustainable, special/unique, stewardship, advocacy, connections.

NEWSPAPER

In summary, other concerns voiced by the audience included:

• Maintaining a proper appearance for both the mounds and surrounding area.

• Keeping surrounding housing projects to a minimum to preserve the "natural view" that the native people had when the mounds were first built.

• Possibly rebuilding parts of mounds that have been damaged.

• Maintaining tree diversification to make sure that single species of trees are not devastated by diseases.

• Integrating paths and bike paths.

• Fix the signs that are out there now to create an easier way to navigate the preserve.

• Adding more informational signs or, possibly, building an interpretive kiosk with more detailed information before walking through the area.

• Possibly extending the existing street to allow for more parking, or possibly adding another entrance to the area from the west side.

• Holding seasonal hikes. For instance, the mounds are best seen in the spring and autumn.

• Possibly increase the tourism aspects of the preserve.

• Preserving the "sacred geometry" and "positive spiritual energy" of the area.

There appeared to be wide agreement among attendees that the preserve should have a major education factor, including historical, cultural, geographical and environmental aspects.

Mat Amundson noted that the next step in the process would be a Draft Program or outline of what should be included in the final plan. We would also present a preliminary conceptual plan.

Sign-up Sheet Info.

Name	Address	Phone
Dan Sable	131 N. Fremont Street	262-473-6219
Andrew Crone	1590 Wildwood Road	262-458-2006
Carol Christ	445 W. Center	262-745-9676
Roberta Taylor	1226 W Florence # 24	262-473-3622
Rod Berg	1716 Turtle Mound Lane	262-473-2681
Sue Scherer	1672 Mound View Place	262-473-6797

Jon Kachel	1690 Mound View Place	262-473-4141
Mariann Scott	421 E Cravath Street	262-473-4219
Linda Loomer	726 E Cravath	262-473-2330
Richard Helmick	227 W Boone Court	262-473-7884
Rod Nurre	N1624 County Road N Columbus WI	920-623-2479
Kari Oberle	Hoard Museum Fort Atkinson WI	920-563-7769
Thomas Kutz	Fort Atkinson	920-728-2063
Ron Ebel	N3485 Bente Road Jefferson WI	262-593-8784
Tom Harmon	N3305 County Road F Helenville WI	262-593-8436
Denay Trykowski	248 Woodland Drive Whitewater WI 53190	262-473-2300

Maintenance Plan

Introduction

Whitewater Effigy Mounds Preserve (formerly Indian Mounds Park) contains one of the largest collections of effigy mounds in the country. The mounds were built sometime in between 800 – 1200 A.D., and consist of both geometric and animal shapes. This preserve is listed on the National Registry of Historical Places (1991), and was identified as a local landmark in 1994. Because the mounds are a burial site, the site is protected under Wisconsin's State Burial Law.

The primary objective of this land management plan is to provide recommendations that preserve the cultural and natural diversity at Effigy Mounds Preserve while providing public access for recreational and educational activities. Like many other natural areas and parks in Wisconsin, Effigy Mounds Preserve exhibits signs of past human disturbances such as invasive plant species and habitat fragmentation by roads, agricultural use and residential development. However, due to past stewardship and restoration activities conducted by the Parks and Recreation Department and the Friends of the Mounds group, Effigy Mounds Preserve remains as a high quality natural area. The natural plant communities at Effigy Mounds are identified on the Plant Communities Map, and specifically include an Oak Savanna remnant (which contains the effigy mound sites), a Silver maple/Bur oak stand, and a fresh (wet) meadow wetland. These communities, along with management and restoration recommendations, are discussed below.

I. Existing Habitat Types

Oak Savanna

In Wisconsin, savanna once constituted one of the most widespread communities in presettlement times. The term "savanna" was credited to the native Carib Indians, defined by an area with widely spaced tall trees, but at a density so low that it allows grasses and other herbaceous vegetation to become dominant (Curtis, 1971).

Today, the oak savanna is beyond question the rarest plant community in Wisconsin (Curtis, 1971). This has been mainly due to the absence of fire, conversion to agriculture (e.g., wheat) and urban/residential development. Therefore, the oak savanna remnant at Effigy Mounds preserve is especially important to protect and maintain as one of the last remaining stands of oak savanna.

According to the Parks and Recreation Department, various stewardship activities have been occurring within the oak savanna over the recent years, including periodic mowing, weed pulling and trail maintenance. There exists a healthy stand of bur oak, with some white oak, black cherry, shagbark hickory and black walnut in the oak savanna. Many remnant native species are also present in the herbaceous layer, including bottlebrush grass, Indian grass, bee balm, little bluestem, cup plant, and figwort. However, a number of invasive, weedy species are currently dominating the herbaceous understory, including garlic mustard, burdock, thistles (bull and Canada), and mulberry shrubs.

For purposes of this maintenance plan, the oak savanna area includes the oak savanna remnant itself (including the effigy mounds), a stand of black cherry near the preserve entrance, and the majority of the fallow field currently referred to as the DOT "strip".

Silver maple/Bur oak stand

The silver maple/bur oak stand is located to the north of the oak savanna remnant (Figure 1), and consists of a slightly moister soil type. This community type wraps around the northern portion of the preserve, extending eastward towards the entrance. Other native tree species are present within this area, including black cherry and green ash. The herbaceous layer is primarily dominated by weeds and blackberry vines (Rubus spp.). The abundant weeds include garlic mustard, burdock, and bull thistle.

Fresh (wet) meadow wetland

Fresh (wet) meadows are wetlands that are dominated by grasses, such as redtop grass and reed canary grass, and by forbs such as giant goldenrod, growing on saturated soils (Eggers and Reed, 1997). The fresh (wet) meadow wetland (Figure 1) area at Effigy Mounds Preserve currently consists of a monoculture of reed canary grass. Reed canary grass can be almost impossible to control (costly, labor intensive, and a long term effort), and in the future the wetland will continue to receive nutrient laden water carrying reed canary grass seed from the existing wetland complex to the northeast, which receives runoff from Main Street. As such, we do not recommend reed canary grass removal and native vegetation establishment activities at this time unless ample funding becomes available.

II. Restoration & Management Recommendations (including Effigy Mounds)

Based on the fall 2010 site visit and stakeholder meeting in December 2010, the following stewardship recommendations are provided and discussed below:

1) Begin a burning regime (potential spring 2011 burn planned) to encourage native vegetation establishment and help control weeds
2) Remove turf cover on each mound and restore with a short-stature, native seed mix
3) Plant native tree saplings in the larger open areas to encourage reestablishment of oak savanna, including the DOT "strip"
4) Begin invasive species control regimen at appropriate times of the year
5) Sow (by hand) native seed collected on-site at appropriate times of the year
6) Add additional oak savanna westward into the DOT prairie (Figure 1)

Begin a burning regime to encourage native vegetation establishment

Prior to European settlement, wildfires and human-caused fires traversed prairies, wetlands and oak savannas. Native Americans often burned grasslands to flush out game when hunting. Lightning strikes were known to ignite dry prairies that could build up and traverse across miles of prairie. Although the precise frequency of these fires was not well documented, it is thought that fires burned through an area every 2-5 years.

The goal of prescribed burning is to mimic the natural disturbance of fire as much as possible. A burn frequency of 2-5 years, 2 years for "younger" prairies/oak savannas and 5 years for more established areas is recommended. The mound sites should be burned as well.

Burn seasons in Wisconsin generally occur each spring (April – May) and fall (late October - December). The season of burn can affect growth and development of many amphibian, insect and plant species. For example, a spring burn can stimulate late flowering forbs, while a fall burn may open ground for early spring sunlight and encourage growth of cool season grasses such as Junegrass. Some species take 2 to 3 years to flower and set seed after a burn, some species will flower within months following a burn. It is important then to stagger frequencies and seasons for the benefit of the entire plant and animal community.

An example burning regime for Effigy Mounds Preserve is provided in Table 1 below. Due to the small nature of the park, the entire preserve could be burned during one event or could be divided into smaller units and burned separately. At this time, it is likely most cost efficient and effective to burn the entire preserve at once.

It is understood that a land management company who specializes in prescribed burning would carry out the burn(s) and provide the necessary equipment and permits.

Table 1. Example burning schedule for Effigy Mounds Preserve.

2011	2012	2013	2014	2015	2016	2017	2018
Spring** burn	--	Fall* burn	--	Fall burn	--	-	Spring burn

*Fall: Early November through mid-December.
**Spring: Early April through early May.

Remove turf cover on each mound and restore with a short-stature, native seed mix

The effigy mounds are currently vegetated with Kentucky bluegrass and maintained by periodic mowing. While this vegetative cover allows for good visibility of the mounds, it is maintenance intensive and invites pedestrian traffic, causing compaction. In addition, compaction has occurred from mowing and brushcutting activities. To convey a more cultural and natural appearance of the mounds, we are recommending that the mounds be re-vegetated with a short stature, native seed mix. The species that are recommended below are native to this area of Wisconsin. After the seed mix becomes established, the shorter height of this mix compared to the taller vegetation in the surrounding oak savanna will help to delineate each mound. We are also recommending that the base of each mound be mowed to help delineate the shapes for visitors.

To remove the existing turf over the mounds, treat with a glyphosate-based herbicide (e.g., Roundup™) per label requirements. The turfgrass will die off after 1 – 2 herbicide treatments (two treatments is ideal). When the turfgrass has died off, burn the surface of each mound to get rid of the dead thatch. After the mounds have been removed of turf and bare soil is exposed, hand-sow the native seed mix per the instructions in Table 2.

Table 2. Native seed mix and specifications for Effigy Mounds at Effigy Mounds Preserve.

	Common name/Scientific name
1	Thimbleweed (*Anemone cylindrica)*
2	Columbine (*Aquilegia canadensis)*
3	Side-oats grama (*Bouteloua curtipendula*)
4	Prairie brome (*Bromus kalmii)*
5	Bottlebrush grass (*Elymus hystrix*)
6	June grass (*Koeleria macrantha)*
7	Jacob's ladder (*Polemonium reptans*)
8	Brown-eyed Susan (*Rudbeckia triloba*)
9	Little bluestem (*Schyzachyrium scoparium*)
Cover crop	Canada wild rye (*Elymus canadensis*) (20 lbs/acre)

Notes:

- The seedbed should be prepared for optimal native seed germination.
- Canada wild rye should be used as a temporary ground cover/nurse crop.
- Seeding should be completed between 4/10 and 5/31; or between 10/15 and 12/01 – Grasses germinate well when planted in the early spring.
- Apply native grass seed at a rate of 10 Lbs. per acre.
- Apply cover crop at 20 Lbs. per acre.
- Choose at least 3 of the 5 grasses.
- No single grass species should comprise more than 30 percent (by weight) of the species in the mix.
- Seeds should be viable and will be mixed using an appropriate filler material.
- Seed should be hand sown and raked, to ensure good seed to soil contact.
- A light mulch of clean, weed-free straw or similar should be spread on the sown areas to ensure good seed-soil contact and prevent erosion if a large rain event occurs.
- Contact a local native seed nursery for a cost estimate of the seed mix, such as Prairie Ridge Nursery, Taylor Creek Nursery, or Agrecol, Inc.

Once the seed mix and cover crop has been planted and mulched, monitor the establishment of the plantings every couple of weeks for the first few months. Watering should not be necessary. For the first 2 growing seasons following seeding, maintenance should primarily consist of mowing. Mow to approximately 5" in height, once in the late spring (June) and once in the late summer (September). Weeds should not be allowed to set seed. Around the third year following seeding, mowing can stop and the mounds can be incorporated into the overall burning regime. Over time, weed control should be less necessary.

Plant native tree saplings in the larger open areas to encourage reestablishment

Parts of the oak savanna contain large open areas that do not contain native tree saplings or mature trees. In addition, the DOT "strip" is essentially a fallow agricultural field that does not contain desirable trees or saplings. Planting several tree saplings in these areas in spring or fall is recommended in order to maintain the oak savanna and encourage reestablishment after existing mature trees have died off. Refer to Table 3 for a list of suggested species.

Table 3. Suggested tree species for planting within the Oak Savanna.

Common name	Scientific name
Bur oak	*Quercus macrocarpa*
Shagbark hickory	*Carya ovata*
White oak	*Quercus alba*
Black cherry	*Prunus serotina*

Tree Planting Notes:

- Trees should be planted within 48 hours of delivery from the nursery.
- Tree plantings should occur in the spring (April 1 – May 31) or fall (October 1 – November) timeframe.
- Tree planting locations should be selected with care to avoid overcrowding and/or unnecessary competition
- Any potential tree substitutions must be approved by the City Parks Dept.
- Plant all trees slightly higher than the soil surface at root flare. Remove excess soil from top of root ball, if needed.
- Backfill tree planting holes with 80% existing soil removed from excavation and 20% plant starter mix, blended prior to backfilling holes. Avoid any air pockets and do not tamp soil down. Discard any gravel, heavy clay or stones. When hole is two-thirds full, trees shall be watered thoroughly, and water left to soak in before proceeding.
- Provide a 3" deep, 2-3 ft. diameter shredded hardwood bark mulch ring around all trees. Do not build up any mulch onto trunk of any tree. Over time, allow the surrounding oak savanna vegetation to fill in around the base of each planted tree.

Begin invasive species control regimen at appropriate times of the year

Several non-native, invasive plants that can invade oak savannas and inhibit the establishment of native species are found in Effigy Mounds Preserve. Table 4 summarizes the non-native, invasive plants at Effigy Mounds Preserve along with some effective control method(s). Invasive plants found in the oak savanna include garlic mustard (*Alliaria petiolata*), bull thistle (*Cirsium vulgare*), Canada thistle (*Cirsium arvense*), and common burdock (*Arctium minus)*. The most effective control method for these species is to remove the flowering heads, preventing them from setting seed. Garlic mustard and common burdock are biennial, where the first year plants exist as a basal rosette and the second year plants flower and set seed. The thistles are biennial and perennial in nature, producing flowering heads each year.

Remove flowering heads by pulling the entire plant if the ground is moist, or, cutting the heads with pruners, bag and discard off-site. For the perennial weeds, it is more desirable to pull the plant so that one does not need to revisit the same plants each year. Herbicide application of glyphosate-based herbicide (e.g., Roundup) to the basal rosettes in the spring and fall is also effective.

There are several other non-native species in and on the trails around the savanna, such as creeping Charlie (*Glechoma hederacea*), chicory (*Chicorum intebus*) and clovers (*Trifolium* spp.). These species are usually found along roadsides, trails, and wood edges, and do not tend to invade natural areas and restorations as readily as the previously mentioned plants. Rather than allocate resources towards controlling pathway weeds, focus efforts on control of more problematic species in the savanna interior and prescribed burning.

Table 4. Invasive species at Effigy Mounds Preserve and recommended control methods.

Common Name	Cut at base and treat stump	Foliar herbicide application	Prescribed Fire	Cut or pull (get root)	Biological Control
garlic mustard		**X – early spring and fall**	**Preventative**	**X – pull when flowering**	**Being researched**
common burdock		**X – early spring and fall**	**Preventative**	**X – taproot can be difficult to pull**	
thistles			**Preventative**	**X – Cut in June, August and September**	
multiflora rose	**X**		**Preventative**		
Queen Anne's lace			**Preventative**	**X – pull during flowering**	
reed canary grass		**X – in late summer (Sept)**	**Preventative**		
cut-leaved teasel			**Preventative**	**X – cut flowering stems**	
Bush honeysuckle	**X**		**Preventative**		
common buckthorn	**X**		**Preventative**		

Sow (by hand) native seed collected on-site at appropriate times of the year (oak savanna areas)

Hand-sowing native seed within the oak savanna areas (including the DOT strip) will help supplement the seed bank and "speed up" native species establishment while discouraging weeds. Care must be taken in selecting the most appropriate species for seeding. A private specialist or native plant nursery that specializes in restoring oak savannas should be contacted to assist with the timing and methods of seed collection and storage.

Sowing native seed needs to be timed accordingly. In general, fall or late spring (past snow-melt) plantings do the best. Sowing seed in the fall gives it the advantage of a natural dormant season, which generally increases germination success in the spring. Sometimes a combination of the two seasons is most desirable to ensure successful plant establishment.

Based on the fall 2010 site visit, the seed of the following species could be collected on-site and sown by hand (Table 5):

Table 5. Oak savanna species suitable for seed collection and hand sowing

Common Name	Scientific Name
Bee balm	*Monarda fistulosa*
Bottlebrush grass	*Elymus hystrix*
Cup-plant	*Silphium perfoliatum*
Figwort	*Scrophularia lanceolata*
Indian grass	*Sorghastrum nutans*
Little bluestem	*Schizachyrium scoparium*

Master Plan

Based on input from the public and additional research we then prepared two preliminary options for the preserve. These options were presented to the public for review and revisions. Those revisions were made and a draft master plan was prepared. It plan includes a number of recommendations in addition to those described in the maintenance plan. They are:

MOUND VIEWING trail to be located in field after the first burn. The trail will be a mowed grass surface laid out in a continuous loop taking visitors past all mounds. It will be 4' wide and at least 5' from the mounds.

REMOVE PRIVATE FENCES ON PUBLIC LAND. Work with neighbors to remove fences that are have been built on the mounds preserve.

ENTRY KIOSK with brochures and information for linkage to mobile applications. Once the kiosk and trail maps are in place remove the existing interpretive signs near the mounds.

MANAGE TOWARD OAK SAVANNA. Plant Oaks as openings develop. Burning will promote the establishment of savanna ground cover.

ENTRY KIOSK with brochures and information for linkage to self guided mobile applications and connections to Hoard Museum.

PROPOSED VISITOR CENTER maps, brochures, links to self guided mobile applications and connections to Hoard Museum.

NATIVE PLANT GARDEN
Demonstrate shrubs trees and forbes native to soils and climate.

CONSERVATION NEIGHBORHOOD
Modern residential development could create adverse pressure on the Effigy Mounds and rare Oak Savanna remnant on the site. It is recommended that adjacent development be designed using conservation neighborhood planning techniques that would protect views from the site and reduce harm to the mounds.

PROTECTION ZONE

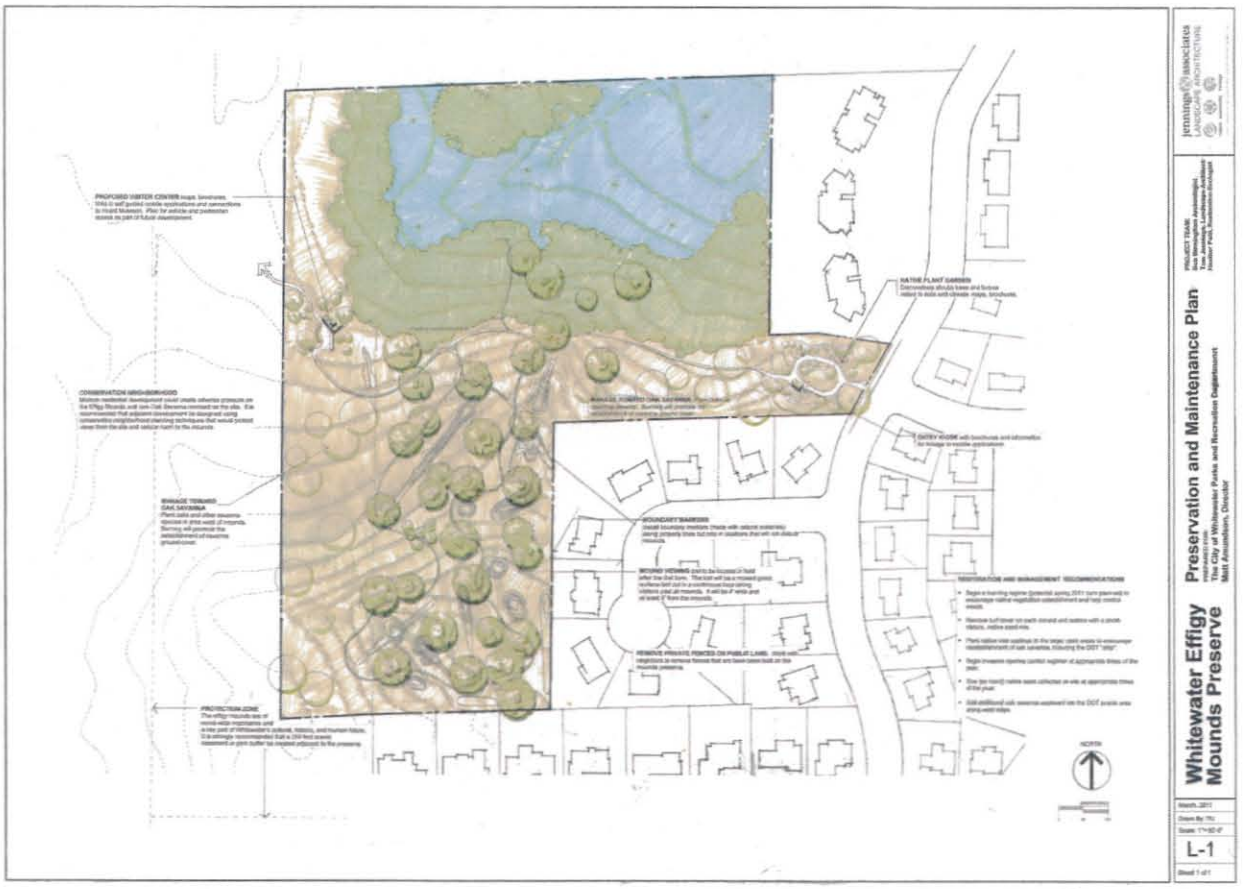
The effigy mounds are of world-wide importance and a key part of Whitewater's cultural, historic, It is strongly recommended that a 250 foot scenic easement or park buffer be created adjacent to the preserve.

BOUNDARY MARKERS

Install boundary markers (made with natural materials) along property lines but only in locations that will not disturb mounds.

ADDITIONAL MAPPING and TREE INVENTORY

The existing mapping of tree locations and mound shapes needs to be updated to better inventory the existing resources. A detailed survey using an archeologist and a surveyor should be conducted. We should also conduct a tree inventory of existing Oaks and their condition.



Archeological Advisory Group and Research

An in-depth archeological study of the mounds has never been conducted. In order to better understand the cultural and historical importance of the site, the Task Force recommends that archeological research be encouraged. They also recommend that UW Whitewater participate in future research effort. To oversee and encourage research we recommend that an Archeological Advisory Group be established.

The following is a description from Bob Birmingham of the archeological work that could begin the process:

The depression area or suspected intaglio can be quickly investigated by small bore soil coring to see if it is likely natural or cultural. The first step in an depth archaeological survey. This can consist of selection shovel testing (small holes dug by shovel) to locate areas of artifacts or features. However, remote sensing is highly recommended also in the form of ground penetrating radar or magnetometer both which could locate subsurface disturbances related to the mound group that could then be further investigated. The survey would have to approved and coordinated by the Wisconsin Historical Society since both public and burial sites (the mounds) are involved. A permit would be needed Naturally the survey would have to avoid the mounds and areas right around them.

An archaeological survey with at least some remote sensing would cost $5,000-10,000.

Additional information about the ancient occupation of the area could be also gained by investigating four other sites located near the mound group found some years ago by UW-Milwaukee. These are in farm fields and could be surface collected again, with landowner permission to see if there are diagnostic artifacts. Previous surface collection at the time of discovery yielded only generic chips associated with stone tool making. Once plowed, reexamination of these sites would take only a total of a few hours.

Hoard Museum and Educational Outreach

The Hoard Museum in Fort Atkinson has a very good educational display and exhibit with extensive information about effigy mounds in Wisconsin. The Task Force recommends that continued connections and cooperation be established with the museum. They could over tours of the site to tourists and student groups.

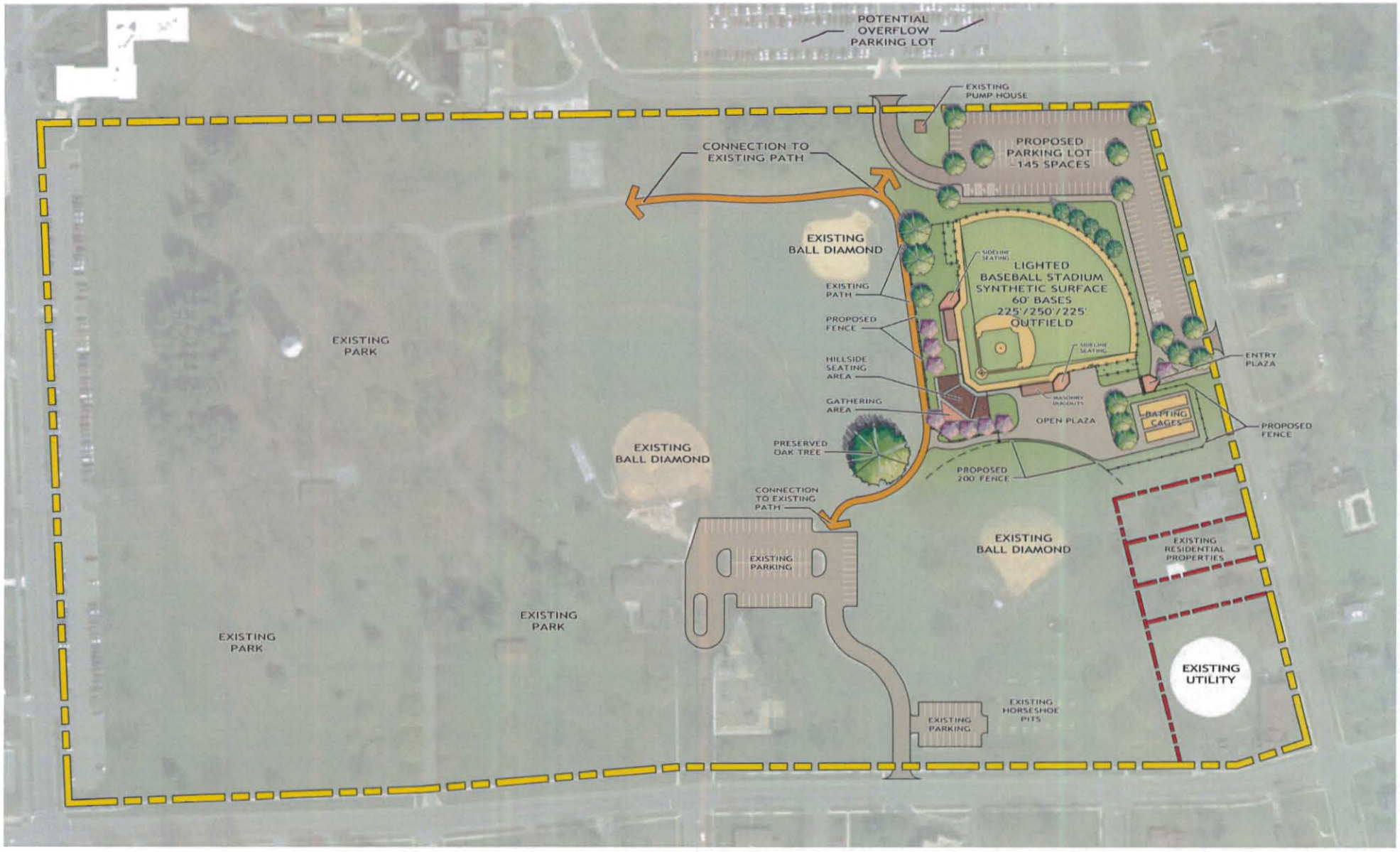
Budget and Staff Training

We propose that the tasks described in the maintenance plan and master plan be completed by volunteers, City staff, and contractors. Much of the work to control invasive species, replant the mounds, and collecting and sowing seeds collected on site will be done by volunteers assisted by City staff. Our budget includes a general volunteer and training amount to cover expenses associated with this work. During the first few years of restoring the site, numerous unforeseen costs may come up. We have also included contingency amounts to cover these expenses. The physical improvements could be built in phases or with funds donated to the preserve.

There will be ongoing maintenance work including mowing the new trails, removing deadfalls, and administration. These costs are not in our budget.

WHITEWATER EFFIGY MOUNDS PRESERVE BUDGET				
Revised June 3, 2011				
Item	**Qnty.**	**Unit**	**Unit Cost**	**Total Cost**
Begin Burn Regime Spring 2011				
Burn	1.00	Lump Sum	3,500.00	$ 3,000.00
Subtotal				$ 3,000.00
15% Contingency				$ 450.00
Total				$ 3,450.00
Remove turf cover on each mound and restore with a short-stature, native seed mix				
Round-up Treatments (City Staff)	2.00	Lump Sum	2,000.00	na
Prep and seed mounds (City Staff)	1.00	Lump Sum	1,250.00	na
Special Seed Mix for Mounds 35,000 sf	35.00	1000sf	80.00	$ 2,800.00
Subtotal				$ 2,800.00
10% Contingency				$ 280.00
Total				$ 3,080.00
Training and Volunteer Assistance				
Training	10.00	Hrs.	110.00	$ 1,100.00
Volunteer Assistance	1.00	Lump Sum	1,000.00	$ 1,000.00
Miscelaneous supplies and contractor expense	1.00	Lump Sum	2,500.00	$ 2,500.00
Subtotal				$ 4,600.00
10% Contingency				$ 460.00
Total				$ 5,060.00
Native Plant Garden at Entrance				
Savanna Trees	5.00	ea	250.00	$ 1,250.00
Native Shrubs	20.00	ea	75.00	$ 1,500.00
Native grasses and perennials	300.00	ea	12.00	$ 3,600.00
Stone Path	150.00	lf	18.00	$ 2,700.00
Soil Amendments	100.00	cy	12.00	$ 1,200.00
Miscelaneous	1.00	Lump Sum	5,000.00	$ 5,000.00
Subtotal				$ 15,250.00
10% Contingency				$ 1,525.00
Total				$ 16,775.00
Planting in Preserve Area				
Savanna Trees	45.00	ea	250.00	$ 11,250.00
Native Shrubs	80.00	ea	75.00	$ 6,000.00
Native grasses and perennials	300.00	ea	12.00	$ 3,600.00
Subtotal				$ 20,850.00
10% Contingency				$ 2,085.00
Total				$ 22,935.00
Structures, Signs, Benches				
Visitor Center	1.00	Lump Sum	30,000.00	$ 30,000.00
Displays in Visitor Center	1.00	Lump Sum	5,000.00	$ 5,000.00
Entry Kiosk	1.00	Lump Sum	10,000.00	$ 10,000.00
Benches	5.00	ea	600.00	$ 3,000.00
Boundary Markers	10.00	ea	200.00	$ 2,000.00
Subtotal				$ 50,000.00
Professional Fees (8% of building cost)				$ 4,000.00
10% Contingency				$ 5,000.00
Total				$ 59,000.00
Archeological Research				
Archeological Consultant Fee	1.00	Lump Sum	10,000.00	$ 10,000.00
Subtotal				$ 10,000.00
Professional Fees (5% of building cost)				$ 500.00
10% Contingency				$ 1,000.00
Total				$ 11,500.00

Item	Qnty.	Unit	Unit Cost	Total Cost
Tree Inventory & Detailed Survey				
Tree Inventory	1.00	Lump Sum	2,000.00	$ 2,000.00
Detailed Survy	1.00	Lump Sum	5,000.00	$ 5,000.00
Subtotal				$ 7,000.00
Professional Fees (5% of building cost)				$ 350.00
10% Contingency				$ 700.00
Total				$ 8,050.00



TREYTON'S FIELD OF DREAMS

PHASE I - MASTER PLAN

PARK MASTER PLANNING PROJECT

WHITEWATER, WISCONSIN

MARCH 4, 2011

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0' 50'

RETTLER corporation
3317 Business Park Drive, Stevens Point, WI 54482
Telephone: 715 - 341 - 2633, Fax: 715 - 341 - 0431
email: info@rettler.com web: www.rettler.com

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TREYTON'S FIELD OF DREAMS

PHASE II - MASTER PLAN

PARK MASTER PLANNING PROJECT

WHITEWATER, WISCONSIN

MARCH 4, 2011

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0' 50'

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