ATTACHMENTS

II

4.5

R. O. No. 50 - 16 - 17. By DIRECTOR OF PLANNING AND DEVELOPMENT.
June 6, 2016.

Submitting a communication from Leslie Kohler, SEAS Chairman requesting permission to use the Marina Boat Launch parking lot to stage sailboats on September 19-25, 2016, for the World Sailing Championships for Blind Match Racing and Women's Match Racing.

Director of Planning and Development

Pub Wks.

SEAS

Sailing Education Association of Sheboygan

June 1, 2016

City of Sheboygan
Common Council Members
626 Center Ave
Sheboygan WI 53081

Dear members of the Sheboygan Common Council,

The Sailing Education Association of Sheboygan (SEAS), will be hosting the World Sailing Championships for Blind Match Racing and Women's Match Racing the week of Sept. 19th-25th. The primary location will be at the Sheboygan Yacht Club with spectating for races off of South Pier. We are very excited to be hosting these events as it brings focus to the City of Sheboygan to the sailing world.

As part of the events, SEAS will be hosting a brat fry which will be open to the public with Johnsonville's Big Taste Grill and a band, King Solomon, on Friday, Sept. 23 on the grounds of the Sheboygan Yacht Club. The area where the tent and band will be set up is where the lightning sailboats are stored during the sailing season. Although we will be asking the boat owners to have them cleared out for the event, we know not all will be moved.

Therefore, we request permission from the City of Sheboygan Common Council to use space in the parking lot located at the Harbor Centre Marina immediately north of the Sheboygan Yacht Club, in front of the Sheboygan Youth Sailing Center, to relocate the sailboats from the Sheboygan Yacht Club during the week of the event from Sept. 19-26. The day after the conclusion of the World Sailing Championships, the boats will be returned to the lot on the Sheboygan Yacht Club grounds.

Thank you for your consideration.

With respect,

Leslie Kohler
SEAS Chairman

PW.

PO Box 1317
Sheboygan WI 53082
info@seasheboygan.org ~ SEASheboygan.org
920-629-8986

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Communication from Jaclyn Quasius, Brat Days 2016 Administration Chairperson, requesting the review and approval of the operating hours for the annual Brat Day's Festival located at Kiwanis Park from August 4-6, 2016.

REPORT PREPARED BY: David H. Biebel, Director of Public Works

REPORT DATE: June 22, 2016 **MEETING DATE:** June 28, 2016

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	N/A
Budgeted Expenditure:	N/A
Budgeted Revenue:	N/A

STATUTORY REFERENCE:

Wisconsin Statutes:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS:
The Sheboygan Jaycees have sponsored the Brat Days festival for decades. This request is an annual request for extended hours for the music entertainment, beer sales and park closing. This is one of Sheboygan's major festivals bringing thousands of spectators.

STAFF COMMENTS:
Extending the hours has provided the Jaycees and the spectators a good process for closing the evening's activities and has been working well. The extended hours have been approved in previous years and this request is the same.

ACTION REQUESTED:
The Public Works Committee and Common Council are requested to accept and file the R.O. and approve the extended hours for the Jaycee Brat Days festival on the dates of August 4-6, 2016.

ATTACHMENTS:

I. R.O. 61-16-17

II

4.6

R. O. No. 61 - 16 - 17. By CITY CLERK. June 20, 2016.

Submitting a communication from Jaclyn Quasius, Brat Days 2016 Administration Chairman, requesting the review and approval of the operating hours for our annual Brat Day's Festival located at Kiwanis Park from August 4 through August 6, 2016.

Pub. Wks.

City Clerk

THE SHEBOYGAN JAYCEES PRESENT Johnsonville BRAT DAYS

June 3rd, 2016

Sheboygan City Council
c/o City Clerk's Office
828 Center Avenue
Sheboygan, WI 53081

To Whom It May Concern:

Upon receipt of this letter, the Sheboygan Jaycee's are formally requesting the review and approval of the operating hours for our annual Brat Day's festival located at Kiwanis Park. This year's festival will be from Thursday, August 4th, 2016 through Saturday, August 6th, 2016. We are requesting the same hours that we have had approved for Brat Days in 2015. The following table summarizes our request:

	Thursday	Friday	Saturday
Music Ends:	10:30 pm	11:00 pm	11:00 pm
Beer Sales End:	10:00 pm	11:15 pm	11:15 pm
Park Closes:	Midnight	Midnight	Midnight

The hours of operation that were in place the last few years were very successful, and we do not anticipate anything but the status quo going into 2016. I have contacted the Sheboygan Police Department regarding this request and Chief Domagalski will be sending a letter expressing his support.

The benefits of these hours of operation include:

- Allowing people to leave on their own accord and not be forced out by our security team or the police department (a cool down period of 45 minutes before the park closes).
- Give our patrons an opportunity to purchase food and beverages, if desired, after the band is done playing. This is meant to keep the noise down in the neighborhood.
- This festival has brought international attention and thousands of dollars to the City of Sheboygan. We welcome the opportunity to keep our patrons longer.

The Sheboygan Jaycees would like to attend the appropriate committee meetings and a city council meeting regarding this request. Should you have any questions pertaining to this request, please contact me at 920-331-8787 or via e-mail at jackie77q@gmail.com.

We thank you and appreciate your time and consideration in this matter.

Sincerely,

Jaclyn Quasius

Jaclyn Quasius
Brat Days 2016 Administration Chairman

CITY OF SHEBOYGAN

REQUEST FOR MARINA, PARKS AND FORESTRY COMMISSION CONSIDERATION

ITEM DESCRIPTION: Urban Forest and Emerald Ash Borer Management Plan

REPORT PREPARED BY: Joseph L. Kerlin, Superintendent of Parks and Forestry

REPORT DATE: June 03, 2016 **MEETING DATE:** June 07, 2016

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	Forestry
Budgeted Expenditure:	Five year expense
Budgeted Revenue:	Five year expense

STATUTORY REFERENCE:

Wisconsin Statutes:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS:

Bluestem Forestry Consulting, Inc. was hired by the City to write an Urban Forest and Emerald Ash Borer Management Plan.

STAFF COMMENTS:

The plan offers three scenarios for the management of ash trees. Staff is suggesting Scenario Number Two. Scenario number two consists of treating 2,800 ash trees over the next three years and removing 2,750 ash trees over the next four years. The plan suggests and provides budget estimates for tree planting, treatment and additional employees.

ACTION REQUESTED:

Motion of recommendation to accept the attached document as the City of Sheboygan's Urban Forest and Emerald Ash Bore Management Plan and recommend following Scenario Number Two for the treatment and removal of City ash trees.

ATTACHMENTS:

I. R.O. 62-16-17 (including the proposed City of Sheboygan Urban Forest and Emerald Ash Borer Management Plan)

II

4.7

R. O. No. 62 - 16 - 17. By BOARD OF MARINA, PARKS AND FORESTRY COMMISSION. June 20, 2016.

Submitted is a recommendation from the Board of Marina, Parks and Forestry Commission regarding the Urban Forest and Emerald Ash Borer Management Plan.

The Commissioners reviewed the Urban Forest and Emerald Ash Borer Management Plan as submitted by Bluestem Forestry Consulting, Inc. The plan offered three scenarios for the management of ash trees. Scenario Number Two consists of treating 2,800 ash trees over the next three years and removing 2,750 ash trees over the next four years. The plan suggests and provides budget estimates for tree planting, treatment and additional employees.

The Commissioners recommend following Scenario Number Two for the treatment and removal of City ash trees.

Pub Wks.

Board of Marina, Parks and Forestry Commission

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Urban Forest and Emerald Ash Borer Management Plan

REPORT PREPARED BY: Joseph L. Kerlin, Superintendent of Parks and Forestry

REPORT DATE: June 14, 2016 **MEETING DATE:** June 28, 2016

FISCAL SUMMARY:

		STATUTORY REFERENCE:	
Budget Line Item:	N/A		
Budget Summary:	Forestry	Wisconsin Statutes:	N/A
Budgeted Expenditure:	Five year expense	Municipal Code:	N/A
Budgeted Revenue:	Five year expense		

BACKGROUND / ANALYSIS:
Bluestem Forestry Consulting, Inc. was hired by the city to write an Urban Forest and Emerald Ash Borer Management Plan.

STAFF COMMENTS:
The plan offers three scenarios for the management of ash trees. Staff is suggesting Scenario number two. Scenario number two consists of treating 2,800 ash trees over the next three years and removing 2,750 ash trees over the next four years.
The plan suggests and provides budget estimates for tree planting, treatment and additional employees.
The Marina, Parks and Forestry Commission passed a motion of recommendation to accept the attached document as the City of Sheboygan's Urban Forest and Emerald Ash Bore Management Plan and recommend following scenario two for the treatment and removal of city ash trees.

ACTION REQUESTED:
Motion to recommend to the Common Council to accept the attached document as the City of Sheboygan's Urban Forest and Emerald Ash Bore Management Plan and recommend following scenario number two for the treatment and removal of city ash trees.

ATTACHMENTS:
I. Proposed City of Sheboygan Urban Forest and Emerald Ash Borer Management Plan.

CITY OF SHEBOYGAN

Urban Forest and Emerald Ash Borer Management Plan

Prepared by:
Bluestem Forestry Consulting, Inc.
May 17, 2016

This document was funded in part by an urban forestry grant from the State of Wisconsin Department of Natural Resources Forestry program as authorized under s.23.097 Wis. Stat.

City of Sheboygan Urban Forest & Emerald Ash Borer Management Plan

Table of Contents

Chapter I. Introduction, Purpose & Executive Summary

Introduction

The urban forest of Sheboygan provides a multitude of aesthetic, economical, and environmental benefits to citizens, businesses, and visitors alike. Beyond shade and beauty, trees also have practical benefits and real monetary value that communities sometimes are unaware of. Sheboygan's urban forest provides valuable public services and is worth millions of dollars. Unlike other public infrastructure components, properly planted and maintained trees increase in value over time.

Based upon existing inventory data, Bluestem Forestry Consulting, Inc. completed this document that makes specific, prioritized recommendations for managing the urban forest resource for 2016-2020. This plan will provide management options that will allow the City to mitigate the disruption to its urban forest caused by the infestation of the Emerald Ash Borer (EAB), while developing a routine forestry program that will help protect and preserve the City-managed trees in a cost-effective and efficient manner.

Purpose of Plan

The purpose of having an urban forest management plan is to ensure that the citizens of City of Sheboygan will enjoy the benefits of trees through proper arboricultural techniques and management practices.

The development of a long-range urban forestry maintenance and management plan based on current research and inventory results will provide the foundation for an ongoing program that will result in a healthier and safer community. In particular, a management program can be used to monitor trees for safety risks on a continual basis, will help reduce storm damage, allow work to be executed more efficiently, and establish and prioritize annual budgets.

The plan is based on the most recent scientific studies and recommendations from key partners and multiple state and federal agencies. As this is a living document, updates to this plan will should made as new information and recommendations are released.

Executive Summary

Important points of the inventory and current tree management program include:

- *A total of 22,154 trees appear in the most recent tree inventory.*
- *5,139 trees (23.2%) are ash and are susceptible to Emerald Ash Borer. EAB was confirmed in Sheboygan in March 2016.*
- *The largest tree genus (family) occurring in Sheboygan is maple which represents 35.8% of the total population, followed by ash. Ideally, the forest should be comprised of not more than 5% of any one species and 10% of any one genus.*
- *Chemical treatments to prevent infestation of EAB on ash trees are very effective. The recommended treatment for ash is TREE-äge. The manufacturer label recommends treatments on a 2 year cycle, but research has shown it is effective for a 3 year cycle, allowing each tree to be treated every-third year.*

- *This plan recommends removing 90 ash initially that are either in 'dead' or 'poor' condition. Three scenarios are presented for ash management beyond these initial removals. These scenarios include:*

  Remove all remaining 5,049 ash
  Chemically treat 2,800 ash over 12" in diameter (55.5%) & remove 2,249 ash that are 0-12" in diameter (44.5%)
  Chemically treat 4,276 ash over 6" in diameter (85.0%) & remove 773 ash that are 0-6" in diameter (15.0%)

- *Wood disposal options have been thoroughly researched and it is possible to re-purpose trees boles that have been removed.*

- *Four additional employees are recommended to manage ash and address routine tree management duties.*

- *The Superintendent of Park & Forestry and Director of Public Works will be responsible for the implementation of this plan.*

- *A companion document reports on findings and recommendations of the planting site inventory that was completed in the fall of 2015.*

- *An i-Tree analysis found that trees contained within the tree inventory contribute $3.1 million in benefits per year. These benefits include: stormwater runoff reduction, carbon dioxide reduction, energy savings, property value increase and air quality improvement.*

- *Based upon projected budgets, there will be approximately 1,250 trees removed annually for the next few years. This accounts for 'regular' tree removals as well as 750 ash removals. That quantity of removals may warrant the purchase of a log truck and an additional chipper.*

Chapter II. Tree Inventory & i-Tree Analysis Findings

The first and most important step in managing a community's urban forest resource is to conduct a tree inventory. A tree inventory is the process of counting, characterizing, and recording information about the public trees that make up the publicly owned urban forest. It is a useful tool that documents important information related to the trees.

Documentation is useful for identifying trees a community is responsible for maintaining. This information can then be used to identify areas of susceptibility (i.e. high ash component), low species diversity (species and/or age), and future planting opportunities. The information can also be used to document a risk assessment program where trees prone to failure are identified and can be preemptively dealt with. Additionally, in the case of an accident, being able to produce a risk assessment and work history log indicates the community's active role in maintaining safe trees. The ultimate goal of an inventory is to provide information essential to developing a community urban forest management plan that provides direction for urban forestry initiatives.

A simple tree inventory was provided to Bluestem Forestry Consulting Inc. for purposes of the development of this plan. Three important pieces of data were included in this inventory including: species/family, diameter at breast height (dbh) and tree condition. This data is seven years old and while helpful, is likely to be somewhat out-of-date. For example, Bluestem has found that most trees grow between 0.5-1.5" in dbh annually. It is strongly recommended that Sheboygan complete a complete re-inventory of trees located on street rights-of-way, in City Parks and other City owned properties as soon as possible. This task will cost approximately $125,000. A re-inventory will provide more accurate data and because Sheboygan will be removing and/or treating a large number of ash beginning in 2016 it is imperative that the City know not only the current state of the ash population, but the state of all trees for the purposes of risk management and routine maintenance.

Bluestem completed a planting site inventory that located available planting sites located within city street rights-of-way. Findings and recommendations of the planting site inventory can be found in the companion document "Planting Site Inventory, Findings & Recommendations."

Species Composition and Diversity

Fifteen major tree types were identified within Sheboygan's urban forest. Three genera are over-represented. Ideally, the forest should be comprised of not more than 5% of any one species and 10% of any one genus. For illustration, maple is considered a genus and includes each different type of maple. Each type of maple such as sugar maple is considered a species. The three genera over-represented are maple, ash, and basswood/linden . Limited species distribution could result in a population crash if an insect or disease were to attack any one particular species.

Similar to Dutch elm disease which destroyed American elms in the 1970-1980's, the emerald ash borer (EAB) is fatal to ash trees. The City has 5,139 ash trees (23.2% of its public tree population), all of which are threatened by EAB. EAB planning recommendations appear in the next section of this plan.

The distribution of trees by major tree types and species is shown in following table.

TREE TYPE SUMMARY TABLE - TOP 5		
Genus	**Count**	**Percentage of Total Population**
Maple	7,921	35.8%
Ash	5,139	23.2%
Linden/Basswood	4,299	19.4%
Ornamental Tree	1,160	5.2%
Oak	616	2.8%

This table illustrates how limited tree diversity is in Sheboygan. It is imperative that many different species of trees are planted. Maple and linden should be planted in very special circumstances only. Ash should not be planted for any reason. Sheboygan does have a fair number of streets with overhead power lines and/or streets with narrow boulevards where small or medium sized trees will need to be planted. These conflicts will limit the number of large canopy trees that are planted. It is critical that whenever possible, large shade trees are planted. Do not plant medium or small sized trees where large trees will grow. Canopy provides the ecological and environmental services that improve livability within a city.

Size Distribution

To optimize the value and benefit of the urban forest, an uneven-aged population is desired to allow allocation of annual maintenance costs uniformly over many years and to assure continuity in the overall tree canopy. A desirable distribution in a community's forest is to have a high proportion of young trees to offset establishment and age related mortality, while the percentage of older trees declines with age. This "ideal", uneven distribution suggests the largest fraction of trees (40% of the total) should be young, with diameters less than 8" in DBH, while only 10% should be in the large diameter classes (>25" DBH). The following chart illustrates size distribution based upon current inventory data.

SIZE DISTRIBUTION			
Existing %	**Existing Size Classes**	**Ideal dbh***	**Ideal %****
17.8%	0-6"%	0-8"	40.0%
28.7%	6-12"%	9-16"	30.0%
53.5%	12"+%	17-24"	20.0%
		25+"	10.0%

*diameter at breast height (4.5' above ground)

** based on recommendations from 2011 Minnesota Shade Tree Short Course

While it is difficult to interpret the data accurately because the size classes currently recorded are narrow and differ, it is believed that the current population is top-heavy, meaning that the large size classes are over-represented. Small size classes appear to be under-represented. The City is actively considering a large scale tree planting operation. This is strongly recommended.

i-Tree Analysis

An i-Tree analysis was completed using existing tree inventory data. The analysis concluded that public trees in Sheboygan contribute $3.1 million in benefits annually!
i-Tree is a state-of-the-art, peer-reviewed software suite from the USDA Forest Service that provides urban forestry analysis and benefits assessment tools. The i-Tree Tools help communities of all sizes to strengthen their urban forest management and advocacy efforts by quantifying the structure of community trees and the environmental services that trees provide.

Benefits calculated include:

- **Stormwater Runoff Reduction** – Trees reduce stormwater runoff and improve water quality. Stormwater runoff reduction benefits derived from Sheboygan street trees = $931,298.
- **Carbon Dioxide Reduction** – Trees reduce atmospheric carbon dioxide by capturing and storing carbon dioxide as they grow. Benefits = $115,812
- **Energy Savings** – Trees save energy by reducing the demand for energy to heat and cool buildings. Benefits = $840,140
- **Property Value Increase** – Trees improve property values and beautify our communities. Benefits = $1.1 million.
- **Air Quality Improvement** – Trees improve air quality by trapping particulates, absorbing gaseous pollutants and releasing oxygen. Benefits = $143,585.

i-Tree allows quantifiable dollar figures and numbers from environmental benefits to be determined from tree populations. A benefit of $3.1 million annually is a terrific contribution to the Sheboygan community. And it need not be stated that as a community located on the shore of Lake Michigan these benefits are very important, particularly the stormwater runoff reduction.

The full analysis can be found as attachment 2.

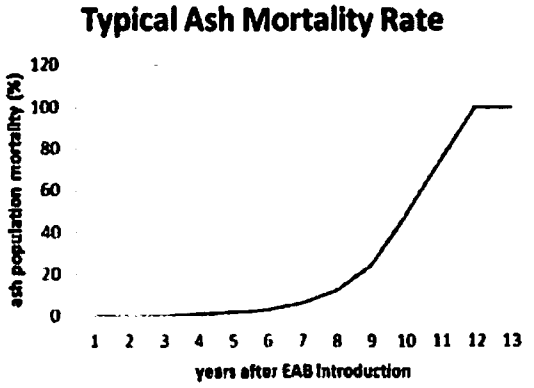
Chapter III. Emerald Ash Borer Planning

The Emerald Ash Borer (*Agrilus planipennis*) is an exotic pest native to Asia that was identified in southeastern Michigan near Detroit in the summer of 2002. The adult beetles munch on ash foliage but cause little damage. The real damage is caused by the EAB larvae that feed on the inner bark of ash trees, disrupting the tree's ability to transport water and nutrients. It is suspected that the insect was initially introduced to the United States via solid wood packing material carried in cargo ships or airplanes originating in its native Asia.

Unaided, the beetle is thought to move slowly through the landscape, approximately one mile annually, though the rate of spread varies by insect and host tree abundance. However, humans greatly accelerate the spread of the insect by moving infested nursery stock, firewood and logs to un-infested areas.

With the find of EAB in Sheboygan in March 2016, implementing management strategies will be essential in maintaining the urban forest canopy level and health. With no specific strategy or budget in place for managing EAB, Sheboygan has the opportunity to explore and select management option(s) that will provide the most economic benefit while increasing public safety.

To date, no community in North America has successfully eradicated EAB once detected. Symptoms of EAB are slow to appear, making initial infestations hard to detect. As shown in in the figure below, once EAB has been found, it is usually estimated that it has been present for 3-5 years. As the insect population builds, EAB eventually infests and kills all species and varieties of ash trees in the area. It is believed that Sheboygan is at year 4-5.



One of the first questions that arise when a community is making decisions regarding EAB is whether to maintain an ash component within their public urban forest. Any untreated tree can be expected to die. The options that exist are to remove all ash, save all ash with chemical treatment or treat a portion/remove a portion. There are pros and cons to each choice:

Removing all ash from the public forest:

Pro: Costs are definitive and finite	Con: High initial cost
Pro: No long term chemical treatment costs	Con: A unique species is lost to the forest
Pro: Diverse # of species replanted	Con: Mature trees are replaced with small trees
	Con: Public sentiment against removal

Save all ash thru the use of chemical treatments:

Pro: Ash remains a component of forest	Con: Long term treatment costs may be incurred
Pro: Public is generally supportive	Con: Potential environmental effects unknown
Pro: Large trees continue contributing to forest	Con: Some ash may need to be removed for other reasons

Remove a portion of trees and treat a portion of trees:

Pro: Ash remains a native component of forest	Con: Long term treatment costs may be incurred
Pro: Reduces high initial removal costs	Con: Public disapproval of decision criteria
Pro: Only trees in good condition retained	

The City of Sheboygan's most reasonable approach is to preserve a portion of ash trees and remove a portion. The following chart depicts three scenarios that were developed for the City based on interviews with staff. It was determined that 90 ash trees should be removed from the population because they represent a too-high risk based upon current condition.

An i-Tree analysis was completed on ash alone to highlight the good work public ash do in the community. They provide $631,294 in benefits annually. This graphic can be found as attachment 3.

Scenario #1: REMOVE ALL ASH

Trees to be removed: 5049

DBH	# of Trees	Days per crew to remove/4 person crew	Cost of treatment for one cycle (every 3rd year)	Days per crew to treat or grind/2 person crew
0-6	773	64 days per crew	$0	
6-12	1476	246 days per crew	$0	
12+	2800	933 days per crew	$0	
Stump Grind	5049	n/a	n/a	504 days per crew

TOTAL STAFF-DAYS REQUIRED: 5,980
TOTAL CHEMICAL COST: $0

Scenario #2 (SAVE ASH >12")

Trees to be removed: 2,249
Trees to be preserved: 2,800

DBH	# of Trees	Days per crew to remove/4 person crew	Cost of treatment for one cycle (every 3rd year)	Days per crew to treat or grind/2 person crew
0-6	773	64 days per crew	$0	
6-12	1476	246 days per crew	$0	
12+	2800	n/a	$37,800*	80 days per crew
Stump Grind	2249	n/a	n/a	224 days per crew

TOTAL STAFF-DAYS REQUIRED: 1,848
TOTAL CHEMICAL COST: $37,800**

Scenario #3 (SAVE ASH >6")

DBH	# of Trees	Days per crew to remove/4 person crew	Cost of treatment for one cycle (every 3rd year)	Days per crew to treat or grind/2 person crew
0-6	773	64 days per crew	$0	
6-12	1476	n/a	$33,210*	42 days per crew
12+	2800	n/a	$37,800*	80 days per crew
Stump Grind	773	n/a	n/a	77 days per crew

TOTAL STAFF-DAYS REQUIRED: 654
TOTAL CHEMICAL COST: $71,010**

*this will be an annual cost of chemicals (emmemectin benzoate) to treat each tree every third year

**cost of equipment for injecting is $1,700

For the purposes of this plan, scenario two was chosen as the best option. The reasons for removal and treatment are based upon common sense and reasonable expectations.

Remove the 90 ash trees identified as 'dead' or 'poor' in the inventory. The most logical method to reduce ash volume initially is to remove ash trees identified through the inventory as in need of removal. The trees on this list have a significant defect that presents a high risk. Any tree, which has the potential to entirely or partially fail and impact a target, can be considered a higher risk. A target can be a person, vehicle, building or any place where people gather (Source: Urban Tree Risk Management Guide, USDA Forest Service: www.na.fs.fed/us/spfo/pubs/uf/utrmm). There are 90 ash in this condition and they are being removed as a part of the risk tree removal.

Remove and replace small diameter ash trees. According to current research, chemical treatments to preserve ash will need to continue for the lifespan of the tree. When treatment stops, the tree begins to die. Smaller diameter trees are typically not worth preserving for a variety of reasons.

- They may require treatments for many decades
- They contribute less overall benefits than large diameter trees
- Removal with immediate replanting results in less impact than would removing a very large tree

For these reasons, removal of small diameter ash (1-12") are recommended for removal and replanting. There are 2,249 ash (44.5%) of this size in Sheboygan. These should be scheduled for removal and replanting over the course of three years beginning in 2016. Presently, this plan recommends removing 1/3 of the recommended ash removals each year for the next three years. If the insect appears to be moving more quickly than this, the removal schedule may need to be accelerated.

Chemically treat all other ash. After removals, 2,800 public ash (55.5%) will remain in the population. These trees are larger diameter (≥12") ash. These are the trees that should be targeted for preservation. Treatment should be started immediately with treatment of 1/3 of the population each year beginning in 2016. Again, this plan recommends treating1/3 of the recommended ash treatments each year for the next three years. If the insect appears to be moving more quickly than this, the treatment schedule may need to be accelerated.

The most common treatment, TREE-äge (emmamectin benzoate) is injected. This trunk injected insecticide is recommended by the manufacturer for treatment every-other year, but research has shown it is effective for every-third year application. They can only be applied by a certified applicator, but are extremely effective for larger diameter trees. Procedures for application including rate and timing must be followed closely.

When considering insecticide control options, some of the highlights are:

- Research has shown that insecticides can effectively and consistently protect even large trees from EAB, even under intense pest pressure.
- Recent economic analyses have concluded that treating landscape ash trees with effective systemic insecticides is much less costly than removing trees.
- An effective insecticide may stop additional damage, but it cannot reverse damage that has already occurred. Therefore, the best control can be achieved when insecticide treatments are started before the tree is infested or in the earliest stages of infestation before visible symptoms are present.

Treatments are meant to be evaluated after each treatment cycle (2 years). A treatment program is not envisioned to last 30 or even 20 years. It is meant to provide a more gradual transition towards the disappearance of ash in Sheboygan public spaces.

Insecticide treatment options information can be found at: http://www.emeraldashborer.info/files/multistate_eab_insecticide_fact_sheet.pdf.

EAB Regulations for Quarantined Areas

In order to prevent further spread of EAB through artificial (human assisted) means, the following materials are regulated in quarantined areas:

- Ash trees, limbs, branches, and roots
- Ash logs, slabs, or untreated ash lumber with bark attached
- Cut firewood of all non-coniferous species
- Ash chips and ash bark fragments larger than one inch in two dimensions
- Mixed wood residue that may contain ash
- Any wood items which could harbor living EAB eggs, larvae, or adults and thus transmit an infestation.

USDA- APHIS will primarily regulate interstate movement of regulated materials. DATCP will regulate intrastate movement of regulated materials. In addition, DNR Conservation Wardens have the authority to issue citations for quarantine violations through NR40 (Wisconsin's Invasive Species Identification, Classification and Control Rule). While movement of regulated material anywhere within a quarantine area is legal, caution should be placed on the movement of material across large expanses of the quarantine to limit any further spread of EAB. Quarantines will primarily affect nurseries, firewood dealers and users, and mills. DATCP will work with affected industries and communities to minimize the impacts. Compliance agreements are the most common tool used to allow industries to conduct business and move affected material while protecting areas of the state not yet affected by EAB. Compliance agreements allow for the movement of regulated material from quarantined areas to non-quarantined areas from October 1 to March 31 and require all material to be processed according to legal specifications by April 30. Under this treatment schedule, all life stages would be destroyed prior to adult emergence. The dates are determined based on the life cycle of EAB. EAB is in its larval stage under the bark of the trees from approximately October 1 to May 1, thus when transporting material during this time spread is minimized. However, due to EAB typically emerging from the trees in its adult "flight" stage between May 1 and September 30, no untreated material can be moved outside quarantine areas during this summer period. For a more extensive look at both federal and state summaries please refer to https://datcpservices.wisconsin.gov/eab/index.jsp or contact DATCP officials for further

Wood Utilization Options

The City of Sheboygan currently makes chips available for resident use and delivers boles suitable for firewood to a local vendor. The current vendor does not have capacity for additional wood waste. Several options were researched and it will be possible to dispose of wood waste in an environmentally sound and constructive method.

The two promising methods of wood waste disposal include:

Kettle Morraine Hardwoods - http://www.kmhardwoods.com/ This company currently works with the City of Milwaukee and receives tree wood waste. They will accept all boles in any size, but will not accept brush or stumps. The model developed by KM Hardwoods and Milwaukee should work well in Sheboygan. KM Hardwoods has large dump containers delivered to Sheboygan and the City fills these. As filled, they can be delivered to KM Hardwoods and replaced with empty containers. The only cost incurred by Sheboygan is the cost to transport the containers. This method could be used to dispose of private wood waste as well. Contact

Bob Wesp at 414-520-9378 to further discuss this opportunity. The cost per container is estimated to be between $300-$400 each.

Hoppe Tree Service - http://hoppetreeservice.com/urbanwoodlab/ Hoppe Tree Service uses urban wood in fine furniture and other unique applications. They are interested in obtaining wood from Sheboygan, but are unable to accept larger quantities. This is a very innovative project and is repurposing wood in this manner is well - received by the public. Contact August Hoppe for additional information at 414-257-2111.

Other Insects for Consideration

Asian Longhorned Beetle (ALB)

ALB is an invasive insect originally from China that has become a serious problem to trees in certain parts of the United States. The beetle's larvae creates tunnels by girdling stems and branches on trees. The insect has been reported to have entered the United States via wood packing materials originating from China.

Although ALB seems to prefer maple species (*Acer* spp.) in the United States, it has also been found in horsechestnut/buckeye species (*Aesculus* spp.), alder species (*Alnus* spp.), birch species (*Betula* spp.), poplar species (*Populus* spp.), willow species (*Salix* spp.), and elm species (*Ulmus* spp.). This list in not conclusive since a complete list of host trees in the U.S. has not been determined.

The adult beetles are persistent from July to October, but can be found later in the fall if temperatures remain warm. After adults emerge from their larvae tunnels, they bore another tunnel through wood, creating a round exit hole in the tree bark. Adults generally remain on or around the trees they originated from, only traveling short distances to feed and reproduce.

At present ALB has not been found in Wisconsin. For more information on the identification and management of ALB please refer to http://asianlonghornedbeetle.com/.

Other Diseases for Consideration

Oak Wilt (OW)

The disease is caused by the fungi *Ceratocystis fagacearum*, which attacks the water-conducting (vascular) system of trees. A tree responds by blocking its vascular system to contain the disease and, in doing so, cuts off the water supply to its leaves.

Oak wilt can be spread by insects that carry the pathogen on their bodies from an infected tree to an uninfected tree. It also spreads via the vascular system of grafted roots of adjacent trees. If the disease is allowed to progress, it will spread to healthy oaks that are connected by the roots (root grafts) to the diseased trees. In forested areas where oak is common and root grafting is widespread, an ever-widening pocket of dead oaks will form. Where oak is mixed with other species and is a minor part of the forest, oak wilt will spread slower and may actually stop where roots are not grafted. New pockets of dead oak may also be formed by sap-feeding beetles spreading oak wilt above ground.

In urban areas oak trees are most easily infected by overland spread in the springtime, from bud swelling until two to three weeks past full leaf development. The Wisconsin Department of Natural Resources recommends that you avoid pruning, cutting, or wounding oak trees April through July (April, May, June, and July) in urban areas. Observations and unpublished research have shown that overland infection can occur after July, yet these mid-summer through early fall infections are not common. To take a very cautious approach, do not prune

or otherwise wound oaks from April to October. In some years, spring comes much earlier. If daytime temperatures begin to reach the 50-degree mark, stop pruning oak at that time, even if it is still the middle of March.

The first signs of OW occurs when leaves in the upper crown turn a dull green, bronze, or tan beginning at the leaf margin. Soon after, the leaves will drop off with various degrees of discoloration. Brown streaks develop in the new sapwood. Trees in the red oak group are not known to recover once infected. The white oak group varies in species resistance to OW, but they usually die slowly over a period of several years.

Chapter IV. Staffing, Equipment & Budgets

Sheboygan has the benefit of some quality equipment for tree work. They are able to use a loader, tandem trucks, 2 bucket trucks, chippers, stump grinders and a variety of saws and safety gear. The only significant piece of forestry equipment lacking is a log truck or similar. Based upon projected budgets, there will be approximately 1,250 trees removed annually for the next few years. This accounts for 'regular' tree removals as well as 750 ash removals. That quantity of removals may warrant the purchase of a log truck and an additional chipper. Work will need to be very efficient to stay on schedule and these pieces of equipment will assure that occurs.

The two biggest hurdles Sheboygan faces is budgeting and staffing. A schedule of activities can be found as attachment 1. It details activities, cost and staff time for activities for the next five years. Following this schedule will get Sheboygan through the worst of the EAB crisis and start them down the path of routine maintenance. The schedule illustrates how under-staffed and under-budgeted the existing forestry program is to deal with large numbers of ash removals as well as treating the remaining ash.

A summary of the activities is:

Activities to be Completed in 2016:

Complete removals that are 'dead' and 'poor' ash (90 trees)

Routine tree removals (1.5% of population annually) (500 trees)

Pruning 1/8 of population annually (2,750 trees)

Tree Planting (500 trees)

Remove ash trees (750 trees) (1/3 of projected removals)

Treat ash for preservation (930 trees) (1/3 of projected)

Stump grinding (1,400 stumps)

Staff training

TOTAL STAFF DAYS = 7 FTE

ADDITIONAL CONTRACT & CHEMICAL COST = $190,800

Activities to be Completed in 2017:

Routine tree removals (1.5% of population annually) (500 trees)

Pruning 1/8 of population annually (2,750 trees)

Tree Planting (500 trees)

Remove ash trees (750 trees) (1/3 of projected removals)

Treat ash for preservation (930 trees) (1/3 of projected)

Stump grinding (1,400 stumps)

Staff training

TOTAL STAFF DAYS - 6.5 FTE

ADDITIONAL CONTRACT & CHEMICAL COST - $190,300

Activities to be Completed in 2018 .

Routine tree removals (1.5% of population annually) (500 trees)

Pruning 1/8 of population annually (2,750 trees)

Tree Planting (500 trees)

Remove ash trees (750 trees) (1/3 of projected removals)

Treat ash for preservation (930 trees) (1/3 of projected)

Stump grinding (1,400 stumps)

Staff training

TOTAL STAFF DAYS - 6.5 FTE

ADDITIONAL CONTRACT & CHEMICAL COST - $190,300

Activities to be completed in 2019 & annually thereafter.

Routine tree removals (1.5% of population annually) (500 trees)

Pruning 1/8 of population annually (2,750 trees)

Tree Planting (500 trees)

Training prune on newly planted trees (500 trees)

Treat ash for preservation (930 trees) (1/3 of projected)

Stump grinding (1,400 stumps)

Staff training

TOTAL STAFF DAYS - 5.0 FTE

ADDITIONAL CONTRACT & CHEMICAL COST - $87,800

The department currently has four full-time employees (FTE). This will need to be increased by three *additional* FTE to help Sheboygan tackle the EAB crisis. Additionally, it is strongly recommended that a dedicated City Forester be hired. The current Superintendent of Parks and Forestry is doing an excellent job, however, when ash related activities begin he will be unable to complete both forestry and parks duties. It is recommended that a 'working' forester be hired. This should be an individual who can both work with the crew and manage forestry activities.

Likewise, the costs above represent *additional* costs to the program. The current funding must be maintained and increased by the numbers above. As EAB marches across the nation and state, communities are finding

they are simply unprepared to deal with a tree pest of this magnitude. Not unlike Dutch elm disease in the 1970's and 1980's, EAB does represent a crisis that must be managed quickly to ensure the safety of residents in Sheboygan.

Due to the large number of trees being removed and pruned, staff should receive training immediately on proper pruning and tree felling techniques. Each year, staff should receive training on some facet of tree care to continually expand their capabilities. A figure has been included in the budget for this. Staff will be completing most work in-house and training is critical for proper safety and tree care. Some trees may need to be contracted out to a qualified tree care firm if they are unsafe for staff to complete.

Chapter V. Urban Forestry Goals

This plan was the first step towards establishing a defined, efficient forestry program to maximize benefits and minimize costs for the City of Sheboygan. The next step is to identify goals and begin the process of implementation. The primary goals and objectives that have been identified to establish a management program in order of priority are:

GOAL 1: ELIMINATE HIGH RISK SITUATIONS.

Remove high-risk trees.
Prune high risk branches.
Remove and manage EAB/ash trees

GOAL 2: ESTABLISH A ROUTINE, COMPREHENSIVE URBAN FORESTRY PROGRAM FOR A HEALTHY FOREST

Perform yearly tree inspections/Evaluate risk management program.
Perform training prunes.
Perform routine pruning and removals.
Plant high quality trees with low maintenance requirements.

GOAL 1: Eliminate high-risk situations.

The first and foremost objective of any municipality entrusted with the responsibility of an urban forest is the safety of its residents and visitors. Until a safe environment has been attained, no other objectives can be tackled. The following is a prioritized list of actions that need to be taken to eliminate the high-risk situations identified during the inventory:

Remove High Risk Trees

Tree removals are an integral part of a sound forest management program. Removals are as necessary to the urban forest's life cycle as are tree plantings and maintenance. Removals do, at times, stimulate a public reaction because people grow attached to the trees in the vicinity of their homes. Nevertheless, a successful urban forestry program demands that a removal policy be adopted and applied uniformly throughout the City. A clear policy provides coherent guidelines to enable City officials and crews to make informed, defensible, consistent removal decisions. Furthermore, such a policy can help allay public concerns about tree removals. The City's potential losses from liability claims are also reduced due to healthier and lower risk trees.

The goal of a removal plan is to develop a comprehensive risk reduction program that will guarantee the timely removal of high risk or potentially high risk trees as well as to heighten awareness of hazard abatement procedures.

There are three important reasons for establishing a strong removal policy. The first is to maintain safe public areas by reducing potentially high-risk trees and the liability associated with them. Secondly, the removal of dead and declining trees allows the urban forest manager to make room for new, diverse plantings which in turn increases the overall health of the community forest. Thirdly, it is more cost effective to maintain healthy trees rather than decadent, senescing, over mature trees.

In Wisconsin, municipal governments have a legal duty to exercise reasonable care to protect the general public from foreseeable hazards. To minimize the liability associated with trees in high use areas, such as urban streets and parks, land managers must demonstrate reasonable care in maintaining these trees. Political pressure, inadequate time, untrained staff and inadequate funding are not valid reasons for inaction and may potentially leave the City liable should there be no designated risk tree removal program showing the effort to reduce the number of these trees.

Based on the inventory data, Bluestem estimates that 90 trees should be immediately removed from the existing tree population. The City routinely removes approximately 500 trees per year (1.5% of the total population) that become unsafe or are an obstruction in some way. Additional removals are recommended due to EAB, causing the total number of removals recommended in 2016 to be around 1,400 trees. This plan recommends removing 1/3 of the recommended ash removals each year for the next three years. If the insect appears to be moving more quickly than this, the removal schedule may need to be accelerated.

Several factors can assist with prioritizing tree removals and management:

1. Utilize the Risk Management Guide (attachment 4). This guide is a step-by-step system for evaluating risk within the population. This guide was utilized during the inventory fieldwork and is a good guide for the City to use for day-to-day duties. For example, several steps are listed for tree evaluation. One step is to 'Identify Problematic Conditions'. The inventory identified a condition rating for each tree inventoried. Poor and dead trees need to be prioritized for removal. Other steps include identifying problematic species, diameters and defects. Some problematic species include willow and boxelder. These trees are typically weak wooded and tend to fail more often than other species such as oak. Problematic diameters include larger diameter trees. A 2" dbh dead tree poses minimal risk, while a 30" dead or very poor condition tree poses a very high risk. Target and location are also important factors to consider when prioritizing removals. Playgrounds and busy streets where pedestrians and vehicles frequent should receive higher priority than streets with wooded/naturalized rights-of-way. The combination of these factors should be used to determine the order in which trees need to be removed.

2. Prioritizing Funding. The safety risk of failing trees cannot be over-stressed. Staff time and funding needs to be prioritized to maximize public safety and reduce tree-related liability. The frequency of other non-safety tasks should be reduced so that staff can dedicate more time to pruning and removals? Will a reduced mowing schedule endanger residents? Will a 32" silver maple with a trunk cavity endanger residents? Again, a complete tree re-inventory is recommended. A new inventory should include much more specific information that will help Sheboygan determine risk more accurately.

A "high risk" is any tree or tree part that demonstrates a high risk of failure or fractures which would result in damage or injury to people or property. Usually, high-risk trees demonstrate visible defects.

There are two distinct aspects to the definition of a high risk tree: 1) a physical defect within a tree that increases its potential for failure, and 2) the proximity of the tree to people or property that increases the likelihood of personal injury or property damage. A decaying tree in the middle of the Chequamegon National Forest may have a potential for failure, but the chance that tree will cause personal injury is remote. However, that same tree located at a park in Sheboygan, should be considered a high risk because of its urban location.

One task of the urban forest manager is to anticipate tree failures before they occur. There are no absolutes in determining risks - only sound judgment based on experience at recognizing structurally unsound trees.

The number of trees marked for removal within a given year further describes a forest system's health, although in some instances trees need to be removed for reasons unrelated to health. The objective is to eventually have no City trees with a condition rating lower than fair.

The risk assessment that Sheboygan should use to evaluate trees was created by the International Society of Arboriculture. It is titled A Photographic Guide to the Evaluation of Hazard Trees in Urban Areas, 2nd Edition by Nelda Matheny and James R. Clark. This can be purchased for $45.00 at 1-888-472-8733. Additional resources include the US Forest Service's "Urban Tree Risk Management" guide. This is available at no charge from the WI DNR regional urban forester.

When a tree has been identified for removal or priority pruning, it may indicate an underlying deficiency. For this reason, all trees scheduled for removal need to receive a thorough inspection twice a year (once with the leaves on and once without the leaves) until the tree has been removed or the hazard has been eliminated.

City policy should require tree pruning and removal in accordance with national industry standards. Standards-based specification are commonly used when municipalities hire a contractor or purchases materials, but should also be applied to all work completed by staff. Industry standards and specifications include current editions of:

~ American National Standard for Safety in Tree Care Operations, ANSI Z133 (current revision). Can be purchased at: http://www.treecareindustry.org/public/gov_standards_z133.htm

~ American National Standard for Tree Care Operations - Tree, Shrub and Other Woody Plant Maintenance - Standard Practices, ANSI A300 (current revision). Can be purchased at: http://www.tcia.org/standards/A300.htm

A notification procedure should be enacted to alert nearby residents of the impending removal. Not only does this alert them to the high risk situation, it helps residents feel involved in the decision and gives them time to adjust to the loss of the adjacent tree. The tree can be "marked" and give the nearby homeowner written notification explaining why the tree is being removed, how the removal will be performed, when the removal will begin and if replanting will occur. Include a phone number to be contacted for any additional questions or concerns. By performing this pre-emptive task the City will find better compliance, cooperation and support from residents regarding the City's forestry program activities. Ordinances are currently undergoing revisions and will likely include a notification procedure.

Prune High-risk Branches

Often a tree may need to have a high risk branch pruned. These may be trees with obvious risks such as branch cavities, hangers or significantly sized deadwood. These trees should be pruned immediately as they present a great danger. The inventory did not identify trees with this need, but often residents will phone in a problem or the crew will note the problem as they travel throughout the community.

Manage Ash Population

Ash management strategies are a very large concern in Sheboygan. Please see Chapter III for a detailed discussion of these recommendations.

GOAL 2: Establish a routine, comprehensive urban forestry program for a healthy forest.

Systematic maintenance of existing trees is important for three reasons: safety, cost savings and aesthetics. Maintained trees have a greater lifespan and provide greater canopy benefits than trees that are not maintained. Proper maintenance can also reduce removal and replanting costs. With limited budgets and time, it is necessary to prioritize actions. High-risk tree situations should always be eliminated first (Goal 1) and then routine maintenance should proceed. The following routine objectives are listed from highest to lowest priority.

Perform Yearly Tree Inspections & Evaluate the Risk Management Program

It is important that *all* of the street and park trees in the City get a yearly inspection. Trees that have been identified during the inventory as needing immediate action should receive an inspection at least *twice* yearly. Complete this inspection once with leaf cover and once without until the hazard has been eliminated or the situation resolved. Additionally, all large diameter trees need an extra inspection after storms. If any hazards are identified, the situations need to be corrected immediately, and then continue with the list of routine maintenance.

It is important that an ISA Certified Arborist complete all tree inspections (greater than 6" in diameter).

Seven factors should be considered when evaluating trees:

Factor	Considerations
Crown Development	Characteristic of species and well balanced
	Branching throughout entire upper 2/3 of trunk area
	Lacking full crown
Trunk	One central leader is desired
	No defects
	Missing sections of bark
	Extensive decay or hollow
Major branch structure	Evenly distributed braches
	Structurally important branches not dead or broken
Twig growth rate	Typical for species and age
	Growth rate reduced
Foliage	Normal size and color
	Small leaves with deficiencies
Insects & Disease	No apparent problems
	Severe infestation
Roots	Extensive root loss
	Stem girdling roots present
	Trunk flare present indicating proper planting depth

An excellent resource guide is "How to Recognize Hazardous Defects in Trees" published by the USDA Forest Service (Guide # NA-FR-01-96). This can be found at:
http://www.na.fs.fed.us/spfo/pubs/howtos/ht_haz/ht_haz.htm

To reduce high-risk situations within Sheboygan, a qualified forester/ISA Certified Arborist should evaluate the risk management program annually. The evaluation can be accomplished by following the Risk Management Guide (Attachment 4). This inventory and management plan represents the first comprehensive inventory but is not a substitute for a hazard tree evaluation. This management plan is the first phase of the risk management program.

Perform Training Prunes
Training pruning is the structural pruning of all trees 10 years of age or younger. Some benefits of training pruning include:

- *Pruning 2-3 times in the first ten years of a tree's life will reduce 90% of the structural problems the tree will ever have.*
- *This is the easiest pruning to perform due to the small size of the trees.*
- *Increased safety to both the tree and public due to elimination of sight obstructing branches and less branch breakage from car/truck strikes.*
- *Training pruning is the most cost effective pruning because it reduces long-term routine pruning costs.*
- *It is the most economical pruning because an in-house crew can complete it quickly and efficiently.*

Trees that are structurally pruned at this stage require much less care as they mature. It is not necessary that they be pruned every year but an every-third year pruning is a good objective. This results in cost savings and still adequately prunes the tree. Staff can complete this task. All of the training prunes can be completed in-house until they are unable to be reached from the ground or are older than 10 years planted, and then they will be scheduled for routine pruning.

Perform Routine Pruning & Removals
One of the most beneficial and noticeable activities performed in the urban forest is routine pruning. Routine pruning is the cycle of pruning all trees on a rotating basis. Once all of the safety issues have been addressed, all trees 10 years of age or over (approximately 6" or over) need to be placed on a routine pruning cycle. Some benefits of routine pruning include:

- Increased health and viability of trees.
- Fewer tree mortalities and fewer structural deficiencies.
- Reduced liability from potential tree-related injuries or damages to property.
- Increased property values.
- Enhanced aesthetic value.
- Fewer complaints/requests.
- Increased longevity of tree.
- Reduced future costs associated with hazardous limbs and decay.
- Improved cost effectiveness of tree maintenance reducing the need for on-demand pruning and associated staff overtime.

Once risk issues have been resolved and ash management is under way, a feasible routine pruning cycle needs to be established. Industry guidelines are to prune each tree over 6" dbh once every 5-8 years. An eight year cycle is recommended for Sheboygan. Essentially, the City can be broken into eight zones and a different zone has work completed in a particular year. Taking into consideration Sheboygan's current level of stocking, the above mentioned routine pruning cycle of seven years will result in approximately 2,750 trees pruned annually.

Completing one cycle, combined with increased emphasis on training prunes, should greatly reduce the cost and time associated with future routine pruning. If a tree is pruned properly and is on a routine pruning cycle, no limb over 4" in diameter should need to be removed. The best time of year to prune is when the leaves are off the trees. If pruning does occur while the trees have their leaves on, it should be after the leaves have fully expanded and not when they are in the process of forming. Pruning should also be avoided when the leaves are turning colors in the fall and in the process of dropping. All American elms and oaks should be pruned during dormancy.

Another facet of routine maintenance includes 'routine' tree removals. Any given City can expect approximately 1-2% of trees will need to be removed per year due to high-risk situations that develop naturally as the tree population matures. This is in addition to the initial safety removals. In Sheboygan this estimates a total of 500 removals per year. This has also been figured into the schedule of activities that can be found as attachment 1.

Plant high quality trees with low maintenance needs

A planting site inventory was completed in the fall of 2015 and a companion planting document has been produced. Please refer to that document for specific information, but it is important to diversify the urban forest as much as possible. Every effort should be made to continue diversification. Planting many different species and varieties keeps the urban forest healthy and attractive. Ideally, no more than 5% of any one species and 10% of any one genus should comprise the City's trees. It is recommended at present and into the future (next 10 years) that planting of maples should not occur or be very limited due to this genus representing a quarter of the current public tree population.

Many excellent tree planting resources can be found online. A newer publication developed by the WI DNR division of forestry can be found at dnr.wi.gov/forestry/publications/newtreeplanting.pdf. Some planting techniques to utilize include:

All plant quality should follow the American National Standard for Nursery Stock; ANSI Z60 (current revision) should be used when purchasing plant material. Can be found at: http://www.isa-arbor.com/education/onlineResources/cad/resources/educ_CAD_DevelopingPlantingSpecifications.pdf

ATTACHMENT 1:

Schedule of Activities

2016 Activities

Activity	# of Trees	Contract Cost or Staff Hours Required	Misc. Comments
Tree Removals - All 'dead' trees and 'poor' ash	142	35 days for a 4 person crew	crew averages 4 daily
Tree Removals - Annual (1.5% of population)	500	100 days for a 4 person crew	crew averages 5 daily
Pruning (1/8 of population annually)	2,750	110 days for a 3 person crew	crew averages 25 daily
Tree Planting	500	$150,000 & 100 days administration/inspection	this activitiy is anticipated to be contracted out for 3 years dunng intensive EAB actions
EAB Activities	n/a	remove 750 trees annually = 83 days (avg 9/day) treat 930 trees annually = $37,800 & 26 days (2 person)	based upon scenario #2; remove & treat 1/3 of trees per year
Training	n/a	$2,500	check WAA Fall Conference for potential training opportunities
Stump Grinding	1,400	140 days for 2 person crew	crew averages 10 daily

TOTAL STAFF DAYS	1,034 days (7 FTE)
TOTAL CONTRACT & CHEMICAL COST	$190,300

**Each tree should be evaluated for safety of removal by in-house crew. Contract those deemed unsafe to be completed in-house.*

Activity	# of Trees	Contract Cost or Staff Hours Required	Misc. Comments
Tree Removals - Annual (1.5% of population)	500	100 days for a 4 person crew	crew averages 5 daily
Pruning (1/8 of population annually)	2,750	110 days for a 3 person crew	crew averages 25 daily
Tree Planting	500	$150,000 & 100 days administration/inspection	this activity is anticipated to be contracted out for 3 years during intensive EAB actions
EAB Activities	n/a	remove 750 trees annually = 83 days (avg 9/day) treat 930 trees annually = $37,800 & 26 days (2 person)	based upon scenario #2: remove & treat 1/3 of trees per year
Training	n/a	$2,500	check WAA Fall Conference for potential training opportunities
Stump Grinding	1,250	125 days for 2 person crew	crew averages 10 daily

Activity	# of Trees	Contract Cost or Staff Hours Required	Misc. Comments
Tree Removals - Annual (1.5% of population)	500	100 days for a 4 person crew	crew averages 5 daily
Pruning (1/8 of population annually)	2,750	110 days for a 3 person crew	crew averages 25 daily
Tree Planting	500	$150,000 & 100 days administration/inspection	this activitiy is anticipated to be contracted out for 3 years during intensive EAB actions
EAB Activities	n/a	remove 750 trees annually = 83 days (avg 9/day) treat 930 trees annually = $37,800 & 26 days (2 person)	based upon scenario #2; remove & treat 1/3 of trees per year
Training	n/a	$2,500	check WAA Fall Conference for potential training opportunities
Stump Grinding	1,250	125 days for 2 person crew	crew averages 10 daily

Activity	# of Trees	Contract Cost or Staff Hours Required	Misc. Comments
Tree Removals - Annual (1.5% of population)	500	100 days for a 4 person crew	crew averages 5 daily
Pruning (1/8 of population annually)	2,750	110 days for a 3 person crew	crew averages 25 daily
Tree Planting	500	20 days for a 4 person crew in-house; contract cost is approximately $100/tree = $50,000	contract growing is strongly encouraged; crew averages 25 daily
EAB Activities	n/a	treat 930 trees annually = $37,800 & 26 days (2 person)	continue treating 1/3 of remaining ash annually
Training	n/a	$2,500	Check WAA Fall Conference for potential training opportunities
Stump Grinding	500	50 days for 2 person crew	crew averages 10 daily
Training Prunes	500	20 days for single crew person	person averages 25 daily

ATTACHMENT 2:

i-Tree Analysis for ALL Trees

City of Sheboygan

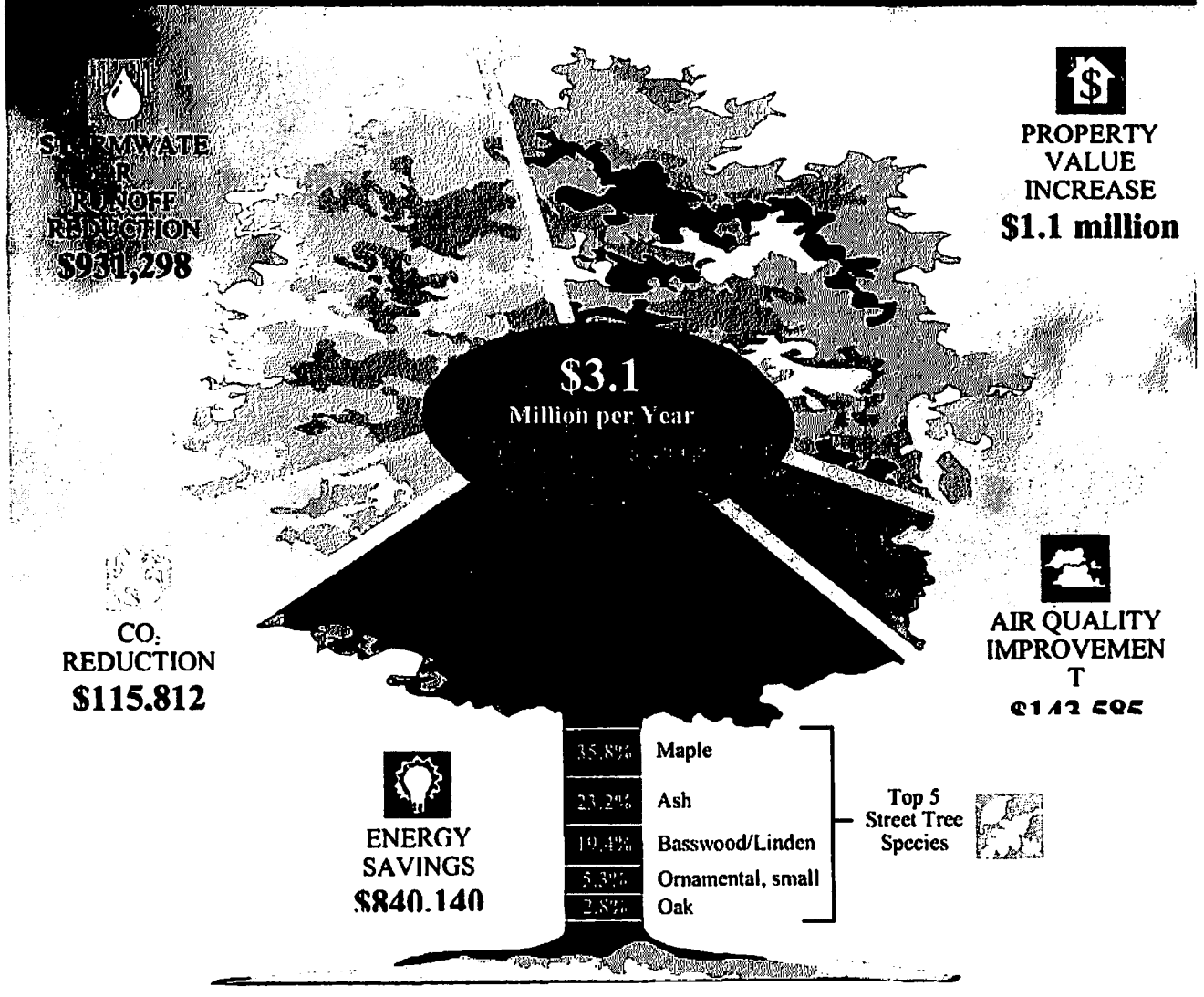
Street Tree Benefits

Sheboygan street trees provide millions of dollars of environmental, economic and aesthetic benefits to the community. Over their lifetime, street tree benefits exceed the costs of planting and care, representing a 300 percent return on investment. Tree benefits increase over time highlighting the importance of not only planting trees, but of providing ongoing maintenance and protection. These benefits are a reminder of the worthwhile investment in our community forestry program.

Trees:

- **Reduce stormwater runoff**
- **Lower summer air temperatures**
- **Reduce air pollution**
- **Reduce heating and cooling costs**
- **Reduce atmospheric carbon dioxide (CO_2)**
- **Enhance property values**
- **Provide wildlife habitat**
- **Improve health and wellbeing**
- **Improve learning and concentration**
- **Provide aesthetic benefits**

Annually, Sheboygan public street trees provide[1]...



Trees Reduce Stormwater Runoff and Improve Water Quality

Trees reduce peak stormwater runoff and associated pollutants entering local water bodies. Trees reduce stormwater volumes by intercepting a portion of rainfall, which evaporates and never reaches te ground. Tree roots also increase rainfall infiltration and storage in the soil. And tree canopies reduce soil erosion by diminishing the impact of raindrops on barren surfaces.

Street trees in Sheboygan intercept 34,365,249 gallons of water annually for a savings of $931,298.

Trees Reduce Atmospheric Carbon Dioxide

Trees reduce atmospheric carbon by capturing and storing CO_2 as they grow. By reducing demand for heating and cooling, trees indirectly reduce CO_2 by avoiding power plant emissions associated with energy production.

Street trees in Sheboygan capture 9,485,113 tons of atmospheric CO_2 per year. Annual savings including indirect costs are $115,812. Street trees also store approximately 97,236,186 tons of atmospheric CO_2 for a total savings of $729,271.

Trees Improve Air Quality

Trees improve air quality by trapping particulates, absorbing gaseous pollutants, and releasing oxygen. By cooling urban heat islands and shading parked cars, trees indirectly reduce ozone levels. The Environmental Protection Agency recognizes tree planting as an ozone reduction measure in state implementation plans.

Street trees in Sheboygan remove 3,195 lbs. of particulate matter, 6,538 lbs. of ozone, 295 lbs. of sulfur dioxide and 1,110 lbs. of nitrogen oxides annually. Total annual savings including indirect costs are $143,585.

Analysis was conducted using iTree Streets. iTree Streets is a street tree management and analysis tool for urban forest managers that uses tree inventory data to quantify the dollar value of annual environmental and aesthetic benefits. The iTree Suite is a free state-of-the-art peer reviewed software suite from the USDA Forest Service. www.itreetool.org.

Tree graphic concept courtesy of City of New York Department of Parks & Recreation.

Trees Save Energy

Trees reduce the demand for energy to heat and cool buildings by providing shade, lowering summertime temperatures, and reducing windspeeds. Secondary benefits are reduced water consumption and pollutants emissions by local power plants.

Street trees in Sheboygan save approximately 3,853 MWH of electricity and 558,835 Therms of natural gas annually for a savings of $840,140.

Trees Improve Property Values and Beautify Our Communities

Trees are the single strongest positive influence on scenic quality in our community! They increase the attractiveness of retail business areas. Studies found shoppers are willing to pay up to 11% more for goods and services in a well-landscaped business district. Trees increase property values. People will pay 3-7% more for properties with many trees. Trees foster safer and more sociable neighborhoods. Views of trees ease mental fatigue and stress, help concentration, reduce sickness, and provide settings for recreation and relaxation. Trees also help reduce noise, provide a refuge for wildlife, and help connect residents with their natural environment.

Street trees in Sheboygan increase property values annually by $1,075,514.

Diversity Improves Urban Forest Resilience

A diverse palette of trees helps guard against catastrophic loss to insects and diseases or environmental stresses. A general guideline for urban forest diversity is no more than 5% of any one species, 10% of any one genus.

Maple, ash and linden trees are over-represented on Sheboygan streets. This jeopardizes $2,679,817 of the city's urban forest's benefits from pests such as emerald ash borer (EAB) and Asian longhorned beetle (ALB). Enlist the public to help increase Sheboygan forest resilience by planting less common trees on their own property.

ATTACHMENT 3:

i-Tree Analysis of ASH Trees

Sheboygan ASH Benefits

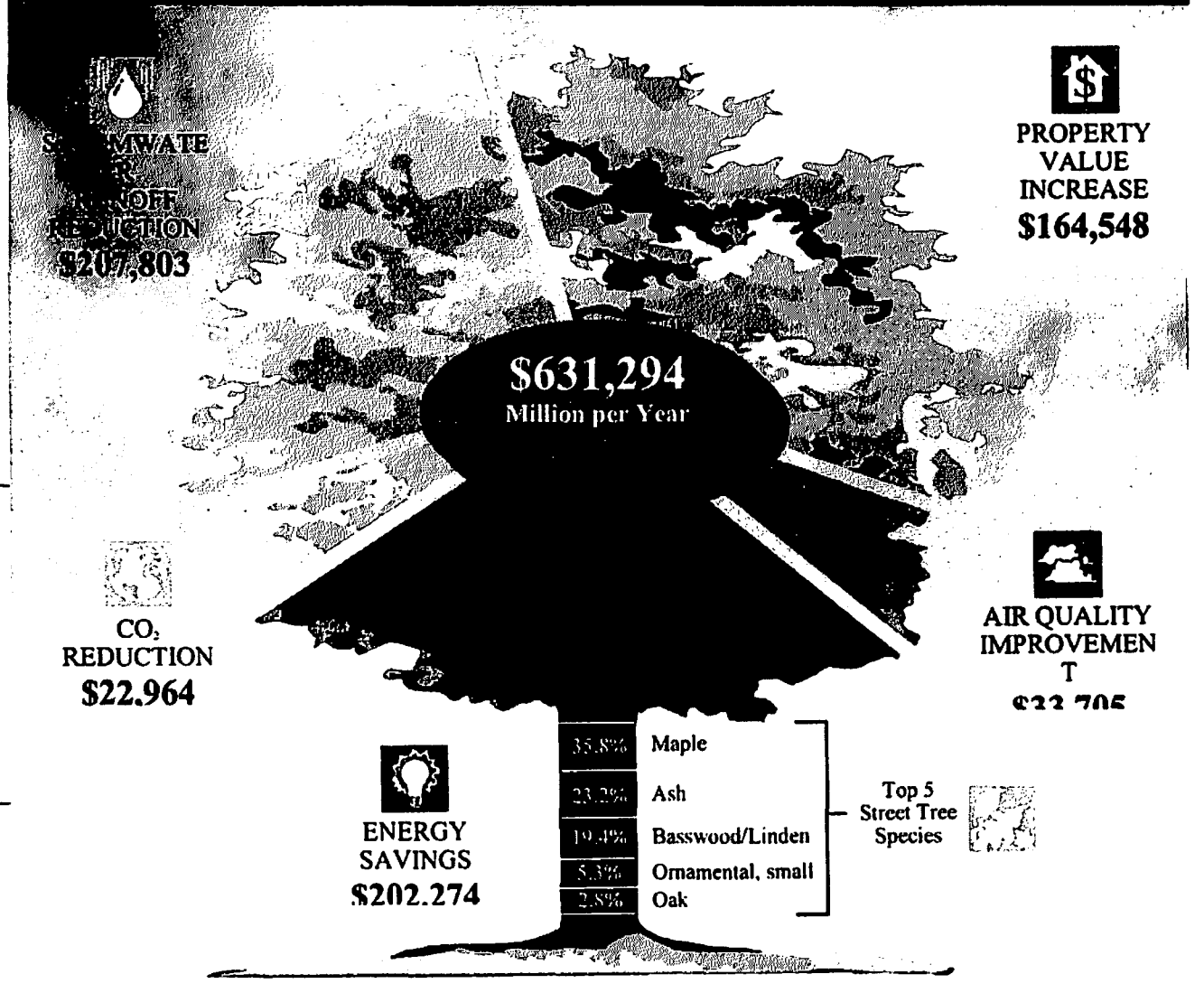
Ash Tree Benefits

Sheboygan ash trees provide millions of dollars of environmental, economic and aesthetic benefits to the community. Over their lifetime, ash tree benefits exceed the costs of planting and care, representing a 300 percent return on investment. Tree benefits increase over time highlighting the importance of not only planting trees, but of providing ongoing maintenance and protection. These benefits are a reminder of the worthwhile investment in our community forestry program.

Trees:

- **Reduce stormwater runoff**
- **Lower summer air temperatures**
- **Reduce air pollution**
- **Reduce heating and cooling costs**
- **Reduce atmospheric carbon dioxide (CO_2)**
- **Enhance property values**
- **Provide wildlife habitat**
- **Improve health and wellbeing**
- **Improve learning and concentration**
- **Provide aesthetic benefits**

Annually **Sheboygan** public ASH trees provide[1]...



ATTACHMENT 4:

Risk Management Guide

RISK MANAGEMENT

Risk: is the potential for suffering harm or loss
Risk Management: is the ability to minimize the potential for harm or loss from occurring by implementing a sound risk reduction strategy.

Types of Risk

- Financial
- Physical harm

A Risk-Reduction Strategy for Trees

- Evaluate the natural resource being managed
- Evaluate the resources available to you (fiscal, staff, equipment, etc.)
- Develop a policy statement
- Develop an action plan
- Periodic review of all four components

EVALUATE THE NATURAL RESOURCES BEING MANAGED

Evaluate the Entire Population

An understanding of the entire population allows you to identify the key problem areas within the population.

- Species distribution
- Diameter distribution
- Condition distribution
- Defects
- Locations and targets

Identify Problematic Species

Identify the species that, based on your knowledge and experience, pose the greatest physical threat.

- High history of failure
- High storm damage potential
- Prone to high-risk structural defects

Identify Problematic Diameters

Identify the diameters that, based on your knowledge and experience, pose the greatest problem in your population.

- Large diameter trees

Identify Problematic Conditions

Identify the conditions that, based on your knowledge and experience, pose the greatest problem in your population.

- Very poor trees
- Poor trees

Identify Problematic Defects

Identify the defects that, based on your knowledge and experience, pose the greatest problem in your population.

- Basal decay and cavities
- Major dieback
- Poor branch attachments

Identify Locations and Targets

Identify the locations and targets that, based on your knowledge and experience, pose the greatest physical threat in your population.

- Busy streets
- Playground areas

EVALUATE THE RESOURCES AVAILABLE TO MANAGE

Staffing

- Number
- Training
- Work load

Equipment

- Diagnostic
- Capabilities/limitations
- Availability

Fiscal

CREATE A TREE RISK MANAGEMENT POLICY STATEMENT

Components of a Policy Statement

- State your agency's understanding of its responsibility to maintain a safe public area.
- Identify the manager of the risk reduction program.
- List any general constraints on managing hazard trees such as financial or personnel.

The following is an example of a Hazard Tree Policy Statement:

> The City of Metropolis has an active policy to maintain the safety of public lands from potentially hazardous trees. The City will strive to eliminate, in a timely fashion, any tree deemed hazardous. When available fiscal and human resources limit the ability of the City to remove high-risk trees, priority shall be placed on trees deemed to carry the highest risk. The standard for rating the potential risk of a tree will be the International Society of Arboriculture's twelve point hazard evaluation system. The Director of Public Works will administer this program and have final judgment in all matters concerning the mitigation measures taken for any tree deemed hazardous.

Benefits of a Policy Statement

- It defines for staff the overall mission of the company or agency as it relates to high-risk trees.
- Minimizes political influence

- Allows staff to do their job

DEVELOP AND IMPLEMENT AN ACTION PLAN

Goal

After evaluating your resources, define problem areas and broad solutions to those problems. View this as a wish list.

Objectives

Define clear objectives that address the general goals you have established. The details should be more specific. A good objective defines what is going to be done and in what timeline.

Actions

A series of actions should be identified that address each objective defined

PERIODIC REVIEW OF ALL FOUR COMPONENTS

Review all four components of your risk management plan frequently.

CITY OF SHEBOYGAN

REQUEST FOR PUBLIC WORKS COMMITTEE CONSIDERATION

ITEM DESCRIPTION: Second meeting to discuss the location, name and terms of allowing Angie and Ryan Shaw, who have partnered with the Sheboygan Jaycees, to construct a universally designed playground in a city park.

REPORT PREPARED BY: Joseph L. Kerlin, Superintendent of Parks and Forestry

REPORT DATE: June 23, 2016 **MEETING DATE:** June 28, 2016

FISCAL SUMMARY:

Budget Line Item:	N/A
Budget Summary:	Parks
Budgeted Expenditure:	N/A
Budgeted Revenue:	Fund Raising

STATUTORY REFERENCE:

Wisconsin Statutes:	N/A
Municipal Code:	N/A

BACKGROUND / ANALYSIS:

Angie and Ryan Shaw, representatives for the Sheboygan Park Project, (SPP) have partnered with Steve Schmitt and the Sheboygan Jaycees to create a universally accessible playground for children of all abilities. A plan was provided by Landscape Structures. The SPP Team and city park staff have looked at three locations for the playground. It was determined, by all involved, that Evergreen Park Area Two would be best suited for this playground.

STAFF COMMENTS:

Last month the Marina, Park & Forestry Commission voted unanimously to support the SPP. Staff agrees with the actions below and making a motion to approve the actions to the Public Works Committee. The below conditions are listed for the purpose of a motion of recommendation from the Marina, Parks & Forestry Commission to have the City Attorney draft an agreement as deemed necessary to protect the City's interest, for review and approval by the Public Works Committee and the Common Council.

ACTION REQUESTED:

Motion to recommend the Common Council authorize the City Administrator to enter into an agreement to accept the Sheboygan Park Project donation with the conditions as listed in the Memorandum of Understanding between the Sheboygan Park Project and the City of

ATTACHMENTS:

I. Res. 44-16-17 (including the Memorandum of Understanding)

III

5.4

Res. No. 44 - 16 - 17. By Alderperson Belanger. June 20, 2016.

A RESOLUTION authorizing the appropriate city officials to enter into a memorandum of understanding with the "Sheboygan Park Project" (SPP) regarding fundraising, location, ownership, construction, and naming rights for a universally accessible playground designed for use by children of all abilities.

WHEREAS, Angie and Ryan Shaw, representatives for SPP, have partnered with Steve Schmitt and the Sheboygan Jaycees to create a universally accessible playground for children of all abilities; and

WHEREAS, a plan for such a playground was provided by Landscape Structures, Inc., a playground design firm based in Delano, Minnesota; and

WHEREAS, after some delays resulting from fundraising difficulties, members of SPP and city park staff have reviewed three locations for the playground, with all parties involved determining that Evergreen Park Area Two would be best suited for this playground; and

WHEREAS, the Public Works Committee and the Board of Marina, Parks, and Forestry Commissioners have each reviewed the plans, approve of them, and desire to enter into an agreement with SPP related to the playground.

NOW, THEREFORE, BE IT RESOLVED: That the appropriate City of Sheboygan officials are hereby authorized to enter into the attached memorandum of understanding related to fundraising, location, ownership, construction, and naming rights in order to create a universally accessible playground designed for use by children of all abilities.

Pub Wks.

I HEREBY CERTIFY that the foregoing Resolution was duly passed by the Common Council of the City of Sheboygan, Wisconsin, on the _____ day of _____, 20____.

Dated _____ 20____. _____, City Clerk

Approved _____ 20____. _____, Mayor

Memorandum of Understanding

Between

Sheboygan Park Project

and

City of Sheboygan

This Memorandum of Understanding ("MOU" or "Agreement") sets forth the terms and understanding between the Sheboygan Park Project ("SPP") and the City of Sheboygan ("City") regarding fundraising, location, ownership, construction, and naming rights for a universally accessible playground designed for use by children of all abilities.

Background

Angie and Ryan Shaw created an organization called the Sheboygan Park Project in order to raise funds for a universally accessible playground designed for children of all abilities. They did this after Angie gave birth to conjoined twins, Mateo and McHale, in 2006. The Shaws and SPP had previously worked with city officials on a plan for such a park, but fundraising difficulties and the economic downturn stalled their efforts. The Shaws have now been able to restart their fundraising efforts.

SPP has partnered with Steve Schmitt and the Sheboygan Jaycees to help create the playground. SPP worked with Landscape Structures, Inc., a playground design firm based in Delano, Minnesota, to create a plan for such a playground. Members of SPP and city park staff reviewed potential locations for the playground, and all parties involved agreed that Evergreen Park Area Two would be best suited for this playground.

This plan was then presented to the City of Sheboygan Public Works Committee and Board of Marina, Parks, and Forestry Commissioners. Each body reviewed the plans, approve of them, and desire to enter into an agreement with SPP related to the playground;

Purpose

The purpose of this MOU is to acknowledge the agreement of the parties and set forth the parties' understanding as to their respective obligations and responsibilities with respect to the fundraising, location, ownership, construction, and naming rights for a universally accessible playground. This MOU outlines certain responsibilities for each party during the period of this Agreement and outlines the general nature of the agreement among the parties. This MOU is intended to enhance the success of the Agreement.

Section 1

1. The playground will be called the "Shaw Family Playground."

2. The playground is to be located at Area Two of Evergreen Park.

3. City shall authorize and permit SPP and their contractors to construct the park once all plans and fundraising have been completed to the satisfaction of the Director of Public Works or his designee.

4. No construction work shall commence prior to January 1, 2017.

5. All funds used to construct the park shall be raised by SPP, with no additional funds to be spent by the City for construction.

6. As a contingency for allowing construction, SPP shall raise an additional $75,000.00 to be used to aid the City in the construction of a new restroom facility or a restroom/shelter facility. Said facility shall include men's, women's and family areas. The SPP team members shall be given input into the design of the family area.

7. The City will apply for a State and Federal Stewardship grant in 2017 to assist in the cost of constructing the restroom and or restroom/shelter.

8. Any funds raised in excess of construction costs shall be placed into an endowment fund for the playground. Said fund shall be controlled by the Sheboygan Jaycees. The City may request funds from the endowment fund in order to fund the repair or replacement of playground structures, signs, poured-in-place fall areas, fencing, or any item that is part of the playground structure, and SPP shall make every effort to ensure that the Jaycees do not unreasonably withhold such funds as requested.

9. The City agrees not to remove or change any structure or ramp that provides accessibility within the playground without first receiving permission from the Jaycees and SPP.

10. The City will permit recognition of donors within the playground area. All signage would need to be approved by the City through its normal procedures.

11. The City agrees to overlay and paint parking lines on parking lot in area two.

12. The City will review the possibility of increasing the parking area, and may, in its sole discretion, construct a new or expanded parking area near the playground.

13. The City will aid construction of playground by providing excavation, some engineering services, and construction of walkways. The timeline for City in-kind-labor will be at the discretion of the Public Works Department. Every effort will be made to work within the planned and agreed upon timeline.

14. Any agreement related to the playground is intended to last for the intended life of the playground, which shall be no longer than 25 years, but may be extended by mutual agreement of the parties. It should be noted, however, that warranty periods on items in the playground range from three years for smaller movable parts, 15 years for steel structures and plastic slides and 100 years for posts.

15. SPP shall complete the park by no later than December 31, 2021. If construction of the park is not completed that by that date, the agreement shall terminate. SPP may, prior to December 31, 2021, request the Common Council to extend the timelines.

Section 2

By entering into this Agreement, the parties do not intend to create any obligations, expressed or implied, other than those set out herein. Further, this Agreement shall not create any rights in any party not a signatory hereto.

Section 3

Indemnification. City and SPP agree to defend, hold harmless, and indemnify the other against any and all claims, liabilities, damages, judgments, causes of action, costs, loss and expense, including reasonable attorney's fees, imposed upon or incurred by the other party arising from or related to the negligent or intentionally tortuous acts or omissions of the indemnifying party's officers, employees, or agents in performing the services pursuant to this agreement. Each party shall promptly notify the other of any claim arising under this provision and each party shall fully cooperate with the other in the investigation, resolution, and defense of such claim.

Section 4

Except as otherwise provided in this Agreement, each party to this Agreement will be responsible for its own actions in providing services under this Agreement and shall not be liable for any civil liability that may arise from the furnishing of the services by the other party.

Section 5

This Agreement shall become effective upon the signature of the parties hereto through their authorized representatives.

Section 6

This Agreement may be terminated by either party for cause if the other party shall default in the performance of this Agreement and the default shall continue for a period of thirty (30) days after written notice to the other party stating specifically the default. Expiration or termination of this Agreement for any reason shall not release any party from its obligations thereunder that have accrued prior to the termination or expiration date.

Section 7

Any notice or other communication required or permitted to be given pursuant to this Agreement shall be in writing and shall be either personally delivered or sent by first class mail, postage prepaid, to the address each of the parties keeps on record for the other party, or to such other address as either party may give notice of from time to time in accordance with this section. Delivery shall be deemed effective upon personal delivery or deposit in the United States mail.

Approved by the parties through signature of the following authorized representatives:

CITY OF SHEBOYGAN:

_____	_____
Mayor	Date
_____	_____
City Clerk	Date
_____	_____
Director of Public Works	Date

SHEBOYGAN PARK PROJECT:

_____	_____
	Date
_____	_____
	Date
_____	_____
	Date