Superior Urban Forestry Plan

SUPERIOR

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City of Superior, Wisconsin

October 2009

Superior Urban Forestry Plan 2009

Mayor Dave Ross

Mary Morgan, Parks & Recreation Administrator/City Forester
John Krivinchuck, Superintendent of Parks & Recreation/Certified Arborist

Common Council Members

1st	Dan Olson	6th	Chuck Hendry
2nd	Tom Bridge	7th	Bob Finsland
3rd	Warren Bender	8th	Mike Herrick
4th	Greg Mertzig	9th	Mick MacKenzie
5th	Ed Anderson	10th	Esther Dalbec

Superior Tree Board

Mary Kehoe (Chair)	Hugo Salmi
Scott Carlson (Vice Chair)	Ella Cross
Mike Herrick	Gary Foix

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Superior Urban Forestry Plan 2009

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City of Superior, Wisconsin

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I, Lindsay Hogfeldt, hereby certify that I am a graduate scientist as defined in s. NR 712.03(3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Lindsay Hogfeldt — 10/3/09

Lindsay Hogfeldt
Graduate Scientist

Date

Scott Weyandt — 10/3/09

Scott Weyandt, PE

Date

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Superior Urban Forestry Plan

1.0 Strategic Planning

Strategic planning is a process for developing a plan to achieve desirable future outcomes. This planning process comes with many questions such as what do we have, what do we want, how do we get what we want, and are we getting what we want? Discussions with the City Forester, Tree Board, city staff, and community members during four focus groups, enabled these questions to be answered. A mission statement, purpose and scope were developed early in the planning process to clearly define the city's intention for the city's urban forest.

What is an "urban forest"?

The trees and related organisms in urban settings, whether small towns, villages, communities, or large cities. These include street and park trees and can be in residential, commercial, and industrial settings.

2.0 Mission Statement

The mission of the Superior Parks and Recreation Division is to promote a healthy and sustainable urban forest throughout our Superior city.

3.0 Purpose and Scope

3.1 Purpose

The purpose of the Superior Urban Forestry Plan is to increase the number of boulevard trees and preserve, protect, and improve the existing urban forest within the city.

3.2 Scope

This plan provides goals and specific actions including priority, time frame, responsible party, and a preliminary estimate of costs, which have been determined for each action.

This City of Superior urban forestry strategic planning process began in January 2008.

4.0 The Benefits of Urban Trees

The following information was taken from a brochure entitled Benefits of Urban Trees and sub-titled Urban and Community Forestry: Improving Our Quality of Life prepared by the United States Department of Agriculture Southern Region.

Trees Improve Air Quality

Air pollution is the blame of most cities and many towns. At its worst, it can be seen, smelled and even felt. Since the emission of many air pollutants increases with higher temperatures, trees can improve air quality by lowering air temperatures. Trees further their cleansing work by absorbing gaseous pollutants into their leaves and trapping and filtering particulates on and through their leaves, stems and twigs. Trees have the potential to impact pollutants emitted from power plants by shading buildings and lowering air temperatures in the summer and blocking winds in the winter, which reduces the use of energy for air conditioning and heating. If trees shade a parking lot, they can also reduce pollutants emitted from vehicles.

Trees Reduce Stormwater Runoff and Erosion

Trees influence the flow of water in several ways. Their leafy canopy catches precipitation before it reaches the ground, allowing some of it to gently drip and the rest to evaporate. This interception lessens the force of storms and reduces runoff and erosion. Research indicates that 100 mature trees intercept about 100,000 gallons of rainfall per year in their crowns, reducing runoff and providing cleaner water. Tree roots also hold soil in place. Decaying leaves form an organic layer on the ground that allows water to percolate into the soil, which also reduces runoff and soil erosion. All of this helps reduce flooding in the streets and sedimentation in streams.

Trees Temper Local Climate

Trees modify local climate, chiefly by lowering air temperature and increasing humidity; they can also influence wind speed and reduce glare. Inner cities are commonly known as “heat islands” because the buildings absorb solar energy and radiate it back. Trees lining streets or near buildings provide shade that can reduce the heat-island effect, lessening the amount of air conditioning needed. Evaporation of water from trees through the transpiration process also has a cooling effect, especially in hot climates or seasons.

Trees Conserve Energy

In addition to reducing the heat island effect, community trees can conserve energy with their shading and evapotranspiration effect. For example, three or more large trees strategically placed on sunny sides of a house shade it from the hot sun, thus reducing the air-conditioning cost as much as 30 percent. Deciduous trees are best for this use because they lose their leaves in winter, exposing the house to the warming winter sun, which lowers the energy needed to heat the house. Coniferous trees, because they retain their needles year-round, make fine screens and serve well as windbreaks when placed in the path of the prevailing winds, usually the north and northwest

sides. These trees can also reduce energy use in a house by shielding it from the most severe cold.

These energy savings, spread over many houses and many neighborhoods, can reduce the demand for power production by utility plants, which, in turn reduces the air pollutants produced by these plants.

Trees Are Good for the Economy

Community trees provided subtle, but real economic benefits. The value of houses on lots with trees is usually higher than those of comparable houses on lots without trees. Studies have shown that shoppers linger longer along a shaded avenue than one barren of trees. Shaded thoroughfares are not only more physically comfortable but also psychologically more attractive. An abundance of trees "says something" about a community that makes it more appealing to newcomers, as well as residents. In addition to enhancing the home and business environment in an urban area, recreation areas such as parks, greenways, and river corridors that are "well stocked" with trees tend to keep recreation seekers "at home" rather than driving many miles to find suitable places to play. Here again, less fuel is used and less pollution created. It would be difficult to put a dollar value on such urban playgrounds, but if each visit were valued at only one dollar, the total for the typical city would be in the thousands of dollars per year.

Trees Create Habitat for Plants and Animals

Wherever trees are established, wildlife and other plants are sure to follow. Trees and associated plants provide shelter and food for a variety of birds and small animals. The presence of trees creates an environment that allows the growth of plants that otherwise would not be there, enhancing diversity. Again, the monetary value of such diversity is incalculable, but it is well known that residents of and visitors to a community appreciate and enjoy it. Simply put, the presence of trees creates an environment that is much more pleasant for living, working and playing.

Trees Improve Health

The health benefits of cleaner air and water are self-evident. But it is also known that green environments reduce stress in people, making them more productive at work and happier at home. Trees and their associated vegetation have a relaxing effect on humans, giving them a general feeling of calmness and well-being.

Among those who benefit from the proximity of trees are hospital patients. Studies show that patients with a window view of greenery recover faster and suffer fewer complications with medications than those without such views. Further, children with Attention Deficit Disorder (ADD) were found to have better behavior in green environments. The presence of trees and other vegetation seems to have a soothing effect that tempers excessive behavior.

Trees Serve as Screens

Densely planted rows of trees around homes, buildings, and along streets and roads can serve as screens to preserve privacy and shut out unwanted or unsightly views. Wide belts of such plantings can also help muffle sound.

Trees Promote Community

A stronger sense of community, an empowerment of inner-city residents to improve neighborhood conditions, and the promotion of environmental responsibility and ethics can be attributed to urban forestry efforts. Active involvement in tree-planting programs enhances a community's sense of social identity, self esteem, and ownership; it teaches residents that they can work together to choose to control the conditions of their environment. Planting programs also project a visible sign of change and provide the impetus for other community renewal and action programs. Several studies show that participation in tree-planting programs influences individuals' perceptions of their community. Conversely, a loss of trees within a community can have significant psychological effect on residents.

5.0 History of the Superior Urban Forest Program

The formalization of the Superior urban forest program began the year before the Common Council approved *The Strategic Action Plan for the Urban Forest of the City of Superior* (1998). Prior to that time, the City committed Parks & Recreation staff to boulevard tree planting, tree maintenance, and hazard tree removal.

In addition, as a result of the Dutch Elm crisis, the City had commissioned a tree survey that identified a portion of the City's boulevard trees in1991. The survey was conducted in conjunction with the Center for Lake Superior Environmental Studies at the University of Wisconsin-Superior. Sixty-two species of trees and shrubs were identified along City boulevards with sliver maple noted as the most common.

During the same time frame (approximately 1990), the Wisconsin Department of Natural Resources was establishing its formal Urban and Community Forestry Program. A state urban forestry coordinator and regional coordinators began to offer Wisconsin communities technical assistance, education and training, and financial resources "To Encourage and Enable Sound Management of Wisconsin's Urban Forest Ecosystems."

In 1997, the Superior City Forester asked the Superior Common Council to establish the Superior Tree Board by ordinance. The Tree Board's powers are advisory only and their duties consist of advising the Common Council on matters of the urban forestry program. The urban forestry program is defined in the ordinance to include planning for the planting, maintenance, and removal of trees located in city boulevards and public areas and educating citizens about the city's tree resource.

Thereafter, the Superior Tree Board spent the next year developing a strategic plan with assistance from a grant from the Wisconsin Department

of Natural Resources Urban and Community Forestry Program. That plan established four goals with 26 action items, most of which have been completed in the last decade.

6.0 Tribute Tree Program

The Strategic Action Plan for the Urban Forest of the City of Superior (1998) identified the need for a tree donation program in the City. Thereafter, the Tree Board designed and launched the Tribute Tree Program. The Tribute Tree Program encourages the purchase of trees as a means of gifting or paying tribute to individuals or groups, or for occasions such as a birth, anniversary, retirement, graduation, holiday, memorial, or honoring a friend or relative. The tributes have been creative, as well as varied. Tribute Trees have also been purchased by private sector firms as a gift to the citizens of Superior.

Since 2001, in excess of 100 Tribute Trees have been planted, typically along City boulevards as the original focus was to "re-tree the City" (or increase street tree stocking levels). Tribute Trees are currently offered at a cost of $150 each. The tree is planted by City crews on the boulevard of the donor's choice; as long as the location meets the City's planting standards. The City pledges to maintain the tree for its full life as it usually is planted in the public right-of-way, or occasionally, in a City park. The City guarantees the tree for a period of one year after planting, and will replace any Tribute Tree that fails within the first year.

Orders for Tribute Trees are taken until December 1st for planting the next spring. Donors have a choice of species; including maple, linden, or Japanese tree lilac (which is recommended for placement under overhead utilities as they are an ornamental tree). A planting ceremony takes place in the spring with members of the Tree Board, community leaders, the donors, and the media. A Mayoral Certificate is presented to each donor noting the species of tree, its location, and the reason for its purchase. A display advertisement identifying donors and their intent has been placed in the Superior Telegram near Memorial Day as a way to thank donors and highlight the program.

7.0 Tree City USA

Superior was proud to become designated as a Tree City USA in 1999, and every year since. Tree City USA is an honor bestowed upon communities by the National Arbor Day Foundation for making a commitment to an ongoing community forestry program. Tree City USA is sponsored in cooperation with the National Association of State Foresters and the United States Department of Agriculture Forest Service.

Tree City USA designation requires that the City meet four standards: establishing a tree board or department, approving a tree ordinance, instituting a comprehensive forestry program, and hosting an Arbor Day observance. Tree City USA signs have been placed along the roadway of five City of Superior entrances: HWY 35, HWYS 2 & 53, HWY 105, the Bong Bridge egress, and the Blatnik bridge egress.

8.0 Geographical Information System Tree Layer

The City created its first GIS tree layer in 1998-1999 noting distinct points for each public tree planted in the public right-of-way, at Nemadji Golf Course, and in City parks. A Geographic Information System tree layer is a map of the City depicting the points identified as trees. Approximately 11,000 public trees were identified by two student interns during the summer of 1998. The data was converted into a tree layer map using ArcView GIS software in 1999. The City was divided into six "tree zones" in order to better plan for tree planting and tree maintenance operations.

The original data included identification of the species of each tree, its location, and its condition (meaning a simple determination if the tree was considered a hazard). Approximately 100 trees were determined to be a hazard, and were subsequently removed. Later, City crews also identified tree planting spaces using tree planting standards (for spacing) that had been developed. Approximately 11,000 planting spaces were identified, indicating a stocking level of 50%.

The City has attempted to maintain the data of its tree layer annually, noting tree removals and tree plantings. In the ten years since the first GIS tree

layer was established, the technology has improved. A new GIS tree survey has been proposed for the future using more advanced technology. The benefit of such a survey includes: locating individual trees more precisely, adding new fields (for example, a maintenance field to assist in pruning operations), and more accurately identifying the location of ash trees City-wide.

9.0 Education

The City currently retains a large urban forestry library of materials for use internally and with the public. In addition, an Arbor Day Observance is conducted annually in order to continue the City's designation as a Tree City USA, as well as highlight urban forestry activities.

The City and Tree Board have developed a series of door hangers that are used to educate the public at specific times. When trees are planted, pruned, or removed, homeowners receive information regarding the care of trees or the reason for their removal. A new Emerald Ash Borer (EAB) door hanger has been purchased, which will be used when trees are planted or in other settings such as speaking engagements.

The Superior Tree Board, the City Forester, the City Arborist, and Parks & Recreation staff are routinely offered training and conference opportunities relating to urban forestry issues.

10.0 Emerald Ash Borer

The Emerald Ash Borer (EAB) is a small metallic green beetle whose larvae feed under the bark of ash trees, causing the death of the tree within one to four years. EAB is an exotic pest that was introduced into the Detroit, Michigan area from Asia in the early 1990s. It was not discovered until 2002 and since then, it has spread through Michigan and on into Ohio, Indiana, Ontario (Canada), Illinois, and Wisconsin. It has also been found in Pennsylvania, Maryland, West Virginia, Virginia, Missouri, and Quebec (Canada).

EAB has decimated 25-30 million ash trees in the United States and Canada since its arrival. Since August of 2008 (as of this writing), EAB has been detected in seven Wisconsin counties: Kenosha, Brown, Crawford, Ozaukee, Vernon, Washington and Milwaukee. The presence of EAB has also been confirmed in the Upper Peninsula of Michigan and in St. Paul, Minnesota.

The state of Wisconsin has adopted a multi-agency approach to the problems associated with EAB. Wisconsin's efforts in planning, prevention, and response to EAB involve the Department of Agriculture, Trade and Consumer Protection, the Wisconsin Department of Natural Resources, the University of Wisconsin and UW-Extension, and the United States Department of Agriculture Forest Service and Animal and Plant Health Inspection Service.

The Wisconsin Department of Natural Resources has prepared an *Emerald Ash Borer Toolkit for Wisconsin Communities* and the state has established a comprehensive web site at www.emeraldashborer.wi.gov The Superior Parks & Recreation Division currently uses these materials in planning for the arrival of this pest.

EAB has been a constant agenda item for the Superior Tree Board since April of 2006. Using an EAB Readiness Checklist provided by the WDNR EAB Toolkit, the Tree Board has agreed to serve as an EAB Readiness Team, along with the City Forester and Parks & Recreation staff.

To date, the EAB Readiness Team has received training regarding EAB, and has provided training to the Superior Common Council and the Douglas County Board of Supervisors. The team has reviewed the City's tree ordinance and is currently in the process of assessing the community's risk for EAB.

Future steps include conducting a tree survey to determine the precise number and placement of public ash trees, estimating the costs of removal and replacement of ash trees if an EAB infestation is identified, and developing a strategy for removal and replacement of the community's ash trees. The strategy will need the approval of the Superior Common Council as well as buy-in by the general public.

In addition, the EAB Readiness Team has discussed developing a public awareness campaign to introduce the problem of EAB to citizens. The public awareness campaign is likely to include power point presentations, EAB door hangers, and a variety of public education initiatives.

11.0 Plan Development Process

The City Forester and Tree Board applied for and were awarded a Wisconsin Department of Natural Resources Urban Forestry grant to update their urban forest strategic action plan. A new mission statement, purpose, and scope were developed for the new plan and are stated in Sections 2.0 and 3.0. The Tree Board developed five new goals for the action plan and are listed below.

11.1 New Goals

1. Increase the number of boulevard trees.

2. Develop and maintain support for the urban forest through public awareness and education throughout the community.

3. Monitor and maintain the tree asset to the highest possible standards.

4. Manage and administer the urban forestry program.

5. Provide funding to conduct a successful urban forestry program.

Tree Board meetings were held to establish new goals and actions for the updated plan. A total of four focus groups were also held for citizens within the city to provide feedback and suggestions for the updated plan.

11.2 Focus Groups

A SWOT analysis is a planning method used to evaluate the **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats in a project. Four focus groups were held from August 2008 to October 2008 to explain the urban forestry program and to hear any comments/feedback about what the community members would like to see stay the same or change within the urban forestry program. These focus groups consisted of 5 to 15 people and were held for church members, seniors, youth, rotary, and city councilors. The focus group consisted of a power point presentation explaining the current urban forestry program and then an open discussion was held for the SWOT analysis. The focus group discussions were a great method to interact with the community members and to listen to their comments and suggestions regarding the urban forestry program. The results of the focus groups were reviewed by the Tree Board and some of the suggestions were added to the action plan chart as actions. The results from the focus groups are shown in Appendix A.

11.3 Strategies: specific details for each goal

Once the goals were determined, specific actions were developed by the City Forester, the Superior Tree Board, the city tree crew, and community members to accomplish each goal. Each action contains detailed information such as a time frame when the action is/will be accomplished, priority, responsible party, projected costs, and various notes regarding each action. This detailed action plan chart is located in Section 13.0 below.

12.0 Evaluation

This plan will be evaluated annually by the Superior Tree Board at a meeting which is open to the public. Goals and action items will be reviewed for progress, with completed items noted.

13.0 Action Plan Chart

Goal 1: Increase the number of boulevard trees										
Action	2009	2010	2011	2012	2013	Beyond	Priority	Responsible Party	Projected Costs	Notes
Redevelop species lists for trees appropriate for boulevards, city parks and city entrances.							1	·City Forester ·City Arborist ·Tree Board ·Tree crew ·WDNR Urban Forestry Program Coordinator ·Tree nurseries	Time Money	· Remove flowering crab trees from boulevard list. · B&B vs bare root trees should be reviewed.
Redevelop species lists for residential, commercial, industrial and buffer areas.							2	·City Forester ·City Arborist ·Tree Board ·Tree crew ·WI DNR Urban Forestry Program Coordinator ·Tree nurseries	Time Money	
Assist the Public Works Division to develop a system to protect existing public trees during construction.							3	·City Forester ·Assistant Director of Public Works ·Tree Board ·Homeowners ·Business owners	Time > $1,000	· Funds are available from the sidewalk program for tree replacement. · Review models for saving private trees during construction.
When road projects arise, discuss the possibility of medians.							2	·City Forester ·Assistant Director of Public Works	Time	
Develop a plan for tree plantings on boulevards, parks, and city entrances.							2	·City Forester ·City Arborist		City entrances still need work.
The Tree Board will support vegetation in commercial areas.							3	· Tree Board	Time	
Develop a partnership with private sector for tree replacement during road/sidewalk projects.							1	·City Forester ·Assistant Director of Public Works ·Private sector	Time	

Priority:

1. Start in 2009 and complete in 2010
2. 1-5 years to be completed
3. 1-10 years to be completed
4. Ongoing

Goal 2: Develop and maintain support for the urban forest through public awareness and community education

Action	2009	2010	2011	2012	2013	Beyond	Priority	Responsible Party	Projected Costs	Notes
Educate and train the tree board, tree crew, city forester, and the city council on urban forestry, tree selection, planting, removal of hazard trees, maintenance, and monitoring the boulevard street tree asset.							4	·City Forester ·City Arborist ·Tree Board ·Tree Crew ·Consultants	> $1,000	
Educate the public in tree planting and maintenance. Education should include city materials, awareness, awards, professional and volunteer programs which would send the "value of trees" message.							4	·Tree Board ·City Forester ·Tree Crew ·Others	Time > $1,000	New fresh ideas are necessary for public education.
The City of Superior will continue to maintain Tree City USA status.							4	·City Forester ·Tree Crew	Time	Tree City USA status began in 1999.
The Parks and Recreation Division will maintain a certified arborist on staff.							1	·City Forester	Time > $1,000	
Encourage civic groups to become partners with the City on tree projects. Develop a speakers bureau to make presentations to the community. Discuss tree planting opportunities with existing clubs. Begin annual visits with garden clubs.							4	·City Forester ·City Staff ·Tree Board ·Volunteers	$500-$1,000	
The Parks and Recreation Division will continue to maintain a library of current reference materials.							4	·City Forester	Time	
Develop an education program for tree permit awareness.							2	·Tree Board ·City Forester	Time $500-$1,000	
Develop creative ways to engage children in the Urban Forestry Program.							2	·Tree Board	Time > $500	
Include Tribute Tree and free tree permit information with local utility bill.							1	·Tree Board	Time > $1,000	Research feasibility.
Explore options to resolve tree vandalism.							3	·Tree Board	< $1,000	

Priority:

1. Start in 2009 and complete in 2010
2. 1-5 years to be completed
3. 1-10 years to be completed
4. Ongoing

Goal 3: Monitor and maintain the tree asset to the highest possible standards.

Action	2009	2010	2011	2012	2013	Beyond	Priority	Responsible Party	Projected Costs	Notes
Update the tree inventory, adding new fields.							1	·City Forester ·City GIS Coordinator ·WDNR	$22,598	In process, summer of 2009.
Develop a recording system for tree removal, tree planting, and tree maintenance.							2	·City Forester ·City Arborist ·City GIS Coordinator	Time	
Develop a hazard tree assessment.							3	·City Forester ·City Arborist ·Tree Board	Unknown	Need a model acceptable to community.
Complete the Emerald Ash Borer readiness plan.							4	·Tree Board ·City Forester ·City Arborist	Unknown	
Develop a storm damage plan.							3	·City Forester ·City Arborist ·Tree Crew	Time	Need a model acceptable to community.
Develop priority for boulevard tree planting locations.							2	·Tree Board ·City Forester	Time	
Explore options to decrease conflicts between snow removal and trees.							2	·City Forester ·City Arborist ·Assistant Director of Public Works	Time	

Goal 4: Manage, administer, and fund the urban forestry program

Action	2009	2010	2011	2012	2013	Beyond	Priority	Responsible Party	Projected Costs	Notes
Advocate for resources and ensure city commitment to provide labor, equipment, and supplies.							4	·City Forester ·Tree Board	Time	
Seek a varity of funding sources and partnerships for the tree program.							4	·City Forester ·Tree Board	Time > $1,000	This could include private developers, utilities, foundations, memorials, major corporations, the State of Wisconsin, the federal government, local taxes and special assessments. Identify urban forestry grant opportunities (local, state, and national).
Visit with the mayor/new city councilors about the value of the urban forestry program.							4	·City Forester ·Tree Board	Time	
Update the Tribute Tree Program.							1	·Tree Board ·City Council	Time	

Priority:

1. Start in 2009 and complete in 2010
2. 1-5 years to be completed
3. 1-10 years to be completed
4. Ongoing

Appendix A

SWOT Analysis Focus Group Results

Appendix B

Tree Ordinance

Appendix C

1998 Strategic Action Plan