TO: Mayor and City Council

FROM: Jed Petersen, Public Works Director

SUBJECT: Shade Tree Bonding Program

MEETING DATE: Tuesday, September 19, 2023

BACKGROUND

An Emerald Ash Borer infestation was identified in Cannon Falls by the Minnesota Department of Agriculture in early 2022. Since then, Public Works staff has identified and removed some ash trees that had been infected with EAB. The Minnesota DNR is offering grant money to help with the cost of dealing with the EAB infestation. Back in February, with the assistance of Laura Qualey authoring the grant application, the City applied for an Emerald Ash Borer Grant and was not successful receiving an award. The attached application is more or less the same application with some dates changed to accommodate the new program timeline.

Public Works, would like to apply for a $50,000 grant to assist with the cost of removal of infected or dead ash trees and replanting of native trees in public park areas. The grant program does not require a match, however, we feel using the budgeted $10,000 per year for tree maintenance /removal as a match, will increase the scoring and the chances for funding.

REQUESTED COUNCIL ACTION

I respectfully request a motion to submit the application for the DNR Shade Tree Bonding Program grant.

Shade Tree Program Bonding Grants

2023 Application

Please refer to the Request for Applications (RFA) when completing this application.

DEPARTMENT OF NATURAL RESOURCES

Submit this form, along with required attachments, to ucf.dnr@state.mn.us by October 2, 2023.

Checklist:

- ☑ Application Form (filled out, guided by the RFA)
- ☑ Budget Form (Attachment A)
- ☑ 3-Year Tree Maintenance Plan (Attachment B)
- ☑ Species Selection and Stock List (follow guidelines in RFA)

Local Unit of Government (LUG)	City of Cannon Falls
Project Coordinator	Jed Petersen
Coordinator Title	Public Works Director
Address	918 River Road
City, State, Zip	Cannon Falls, MN 55009
County	Goodhue
Coordinator Email	pwdirector@cannonfallsmn.gov
Coordinator Phone Number	507-263-9344
Grant Amount Requested	$50,000
Cash Match (refer to RFA for match guidance)	$20,000
In-Kind Match	
Total Match (combined In-Kind and Cash Match)	$70,000

Have you received a DNR community forestry grant in the past? ☐ Yes ☑ No ☐ Don't Know

Is this application limited to serving a community, or communities, with populations less than 20,000? ☑ Yes ☐ No

(To encourage applications from smaller communities across Minnesota, points will be awarded to grants that serve communities with populations less than 20,000)

Project Overview and Need (25 points; 2,050 character maximum including spaces) *Provide a summary of the project, why this funding is needed, what project work will not happen without these grant funds, and expected outcomes. This should include a description of the project location (community wide project, specific parks, etc.). A successful application will demonstrate a readiness to take on a project of the proposed scope and size, and will benefit environmental justice priority populations, and focus on significant public safety concerns.*

Cannon Falls is a small town of about 4,220 residents covering approximately 4.5 square miles (2,880 acres). Of that area, about 850 acres is business/residential and maintained area, the rest of the acreage is densely covered by bluffs and trees with a river running through it. $10,000 is budgeted for professional City tree removal, management, and maintenance of trees each year, which does not go very far in a community that is so densely blanketed in trees. According to the DNR 2010 Community Tree Study for Cannon Falls (Attachment C), over 4,100 Ash trees were inventoried in our maintained tree population and 98% of them were considered healthy at that time. If Cannon Falls is awarded funds from the Shade Tree Bonding Program, the Parks/PW Dept would be able to expedite the removal of the ash trees in the affected public areas in our community starting with those that are dead, diseased, or dying. Each year, the City has been able to remove a few ash trees to slow the spread or remove dead trees, the City has been unable to replant any new trees in their place which has left some areas looking sparse and bare. Based on recent assessment, the remaining ash tree inventory in the same maintained areas, is either dead or infected, therefore, conquering the EAB without outside assistance is a never-ending game of 'catch up.' In addition to the EAB, add in Dutch Elm disease, Oak Wilt and the tornadoes that struck Cannon Falls in September of 2018, this has also added to the devastation of the tree inventory in the community as well. The main areas of focus will be the City Parks first such as Hannah's Bend, Riverside, and John Burch Park which is our City baseball field, and then boulevard trees. If there are any trees that are posing an imminent danger to the public, those would be the first ones tagged

Project Timeline (15 points; 2,600 character maximum including spaces) *Describe the approximate project schedule showing intermediate steps and milestones. A successful timeline will provide specific dates, is easy to comprehend, and will follow best management practices*

The Parks/PW Dept has already done the assessment on which trees need to be removed & replaced. Last fall, they did receive quotes for removal of trees and replacement costs, but due to the rising costs in all industries, they would have the job bid again so they can be ready to go as soon as possible in 2024.

> February 2024: Work Plans Approved, Contracts Executed, Grant work begins
> March-April 2024: Removal of trees in impacted areas; plant trees.
> May- Sept 2024: Work Plan determined and tree variety and location for replanting determined. Plant any trees that are able to be replaced.
>October 2024-April 2025: Remove ash trees based on funds available (or awarded) in parks and along boulevard.
>Spring 2025: Continue to replant trees in parks.

Project Budget Explanation (20 points; 2,200 character maximum including spaces)
Provide additional remarks to clarify the budget request. If applicable, provide an explanation of how you are funding portions of your project that are not eligible with grant dollars. A successful budget will provide specific dollar amounts for anticipated use, will be financially realistic and cost effective. Budget will be correctly calculated.

EAB was confirmed in Goodhue County in Red Wing in March of 2017. Since then, Cannon Falls has been monitoring/removing public ash trees as the tree budget allowed. In order to maintain the tree 'up-keep' for 11 parks, multiple public parking lots, boulevard trees and other publicly maintained areas, on $10,000/year does not stretch very far. An official management plan to detect, remove and replace the effects of the EAB has not yet been adopted by the City Council, however, an effective Tree management plan will spread out the costs of selective tree removal/replacement over time. The City has a budget of $10,000 for professional tree maintenance/mgmt/removal every year. Ideally, the Park/PW Dept will be able to remove a majority of the dead/infected ash trees. These funds would be used toward the removal/replacement of 60+ trees which cost up to $1,000/tree. The City does not have plans on replacing the trees along the boulevard, however the City will replace the tree elsewhere within the parks with a variety of tree that is native to Goodhue County. For reference, in 2020, 14 trees of 5 varieties of native trees were planted in the City public parking lot (which is centrally located in town and the trailhead of the Cannon Valley Trail) to intersperse with the existing ash trees in the lot. The price range of the #15 gallon trees were $115-$179 so it is possible to replace 1.5 trees per tree removed. Ultimately, 60 trees could be removed and up to 90 could be replanted if the varieties of trees are available at the price range and size that are eligible and feasible per the Shade Tree Bonding program. By June 2025, our Park/PW Dept should be able to execute this plan. Ineligible expenses will be covered by the general maintenance budget and labor allocated for parks and public works. $10,000 has been allocated for each year of 2023, 2024, and 2025 that require immediate professional tree service attention. The budget spreadsheet will show a cash match of $20,000 which will be two years worth (2023 & 2024) of budgeted tree funds. Previously our local Lion's Club has also offered a financial commitment verbally to go toward environmental (green) efforts in the community so this is noted as the additional $2,000 cash match. The local High School FFA Chapter has also offered to help with any site prep and planting of trees that the City would like help with. This is merely an estimate for the budget column of $2,000.00 not knowing how many students or hours will be dedicated to the project over the next 2-3 years.

Project Impacts on Priority Populations *(20 points; 2,200 character maximum including spaces)*
This grant opportunity aligns with state initiatives to reduce disparities in health and environmental quality for diverse populations. A successful proposal will serve and include areas of concern for environmental justice (communities with higher populations of low-income residents and/or people of color, including tribal communities), and the applicant will describe actionable items for these communities.

Although the population of Cannon Falls may not have a lot of cultural or racial diversity to it, there is a range of socio-economic levels. Based information found on the U.S. Census Bureau's five-year 2016-2020 American Community Survey on the MPCA'a website Cannon Falls' reported that 17.54% (+/- 7.12%) residents in the #806 Census tract earned income less than 185% poverty level and 5.42% (+/- 2.73%) were people of color. This census tract area encompassed a large territory outside of the Cannon Falls city limits. Due to the geographic location, there are many people that live in town, but commute to the Twin Cities or Rochester (or one each way if a dual-income family). There are many people that live paycheck to paycheck or fall in the 50-60% AMI and reside in subsidized housing. The population of Cannon Falls has not been rising and trending upward like other communities along the Highway 52 corridor even though it has many other recreational amenities and workforce options to offer; however the lack of housing is what has stifled the growth of the town. The wage restrictions, and aging population is also a detriment to the growth (or lack thereof) of the community. Fortunately, the park systems and walking/biking trail systems and the water resources of the Cannon River and Lake Byllesby provide free recreation for people of all ages, income levels and abilities. The City of Cannon Falls, the Parks and Public Works Departments really take pride in our amenities and that is why we try to keep them as well maintained as we can with the funds we have available.

Communication (10 points; 2,200 character maximum including spaces) *Describe the methods you will use to conduct outreach to citizens about this grant project. A successful communication strategy will use multiple formats that have the potential to reach the public about the use of grant funds and community forest practices.*

The residents of Cannon Falls are pretty dialed in to the same core communication platforms, so spreading the word when it comes to events and issues within the city can be done quickly. There is a weekly newspaper that is generally read by our older demographic and also the business community and parents. The City website will post 'alert' banners if there is an announcement to communicate to the community and of course there is social media. The City Facebook page is followed by many residents and there is also a Community TV Facebook page, the CF Police Department, the Chamber of Commerce and the local newspaper's Facebook page is also followed by many residents as well. So, when it comes to posting any messages or announcements about the tree removal, replacement or disposal process, there will be plenty of channels and platforms to reach people. Another opportunity would be announcing information at council meetings which are live streamed and also accessible to watch again on YouTube. Another option would also be to have our Public Works department add door hangers to those residents that would be personally affected by the tree removal process if they have an infected boulevard tree on their property that will be removed, or simply knocking on their door if the resident is home and informing them of what the status of their ash tree is that it will be removed.

Key Personnel (10 points; 2,200 character maximum including spaces) *Please list all certifications and education degrees for staff or contractors involved in the project. Describe the duties internal staff will conduct, and any work that will be contracted out, or the partnerships you will leverage to complete tasks. Include key personnel and their past experience with similar tasks. If you expect to contract work out, describe requirements you will have for contractors.*

Our Parks/Public Works Department has a pretty good grasp on the ash tree inventory in the City of Cannon Falls. The Parks Department, is led by the Public Works Director and our Parks Dept Supervisor and both of them are DNR Certified Tree Inspectors. The PW Director will be the liaison between the project and the City Administrator and Council, but will also be hands on when the work needs to be done. The Parks Dept Supervisor will oversee the public works crew that will be removing the infected trees that they are able to tackle on their own as well as the replanting of trees. The public works crew will divide and conquer once the timing of the ash tree removal may commence. When there are trees that are requiring professionals to remove the ash trees, the PW Director and Parks Supervisor will coordinate when they will hire that out. There are a couple different professional tree care service providers from Cannon Falls. Both of them have crew members that are DNR Certified Tree Inspectors.

Shade Tree Program Bonding Grants
Attachment A. Budget Form

DEPARTMENT OF NATURAL RESOURCES

Directions: *Complete this form in detail. Common line items are indicated for eligible expenses. Add or change categories and add rows as necessary. Be specific about expenses. A successful budget form will be detailed, financially realistic, and cost effective. Match is not required. This form has formulas; double check to be sure totals are accurate. Direct questions about the budget form to the DNR Urban and Community Forestry Team at ucf.dnr@state.mn.us.*

Local Unit of Government	City of Cannon Falls
Project Coordinator	Jed Petersen

Expense	Description	Hourly Rate/ Cost per Item	Number Hours or Items	Funds Requested	Cash Match	In-Kind Match	Total
1. Contractor costs (ex. labor, services, supplies, and equipment)	Cut down, grind stump, clean up, disposal	$ 1,000.00	60	$ 50,000.00	$ 5,000.00		$ 55,000.00
2. Trees	Replacement Trees	$ 150.00	60		$ 9,000.00		$ 9,000.00
3. Planting supplies (ex. water bags, grow tubes, bark protection, compost, etc.)	mulch, tree wraps	$ 100.00	60		$ 5,000.00		$ 5000.00
4. Site preparation	Auger, digging, volunteer labor				$ 1,000.00		$ 1,000.00
5. Equipment (up to $5,000 in total that are necessary to complete the project)							
6. Hired Staff or Consultant time	Reporting consultant time	$ 25.00	10				
				$ 50,000.00	$ 20,000.00	$	**$ 70,000.00**

DEPARTMENT OF NATURAL RESOURCES

Attachment B.

3-Year Tree Maintenance Plan Template for Newly Planted Trees

LUG: City of Cannon Falls **Year and Season of Planting:** 2024 Spring/Fall-2025 Summer

Project Coordinator: Jed Petersen

Phone: 507-298-4578 **Email:** pwdirector@cannonfallsmn.gov

# of Trees to be Planted: 60-90 **Size (caliper for deciduous, height for conifers):** #15-20 gallon

Type of Stock to be Planted (Bare root, etc.): 3/4 to 2 inch Bare root

Describe how the activities below will be completed.

1. **Tree Maintenance Personnel**
   a. Describe who is responsible for maintenance.

   The Public Works/Parks Department will be responsible for the maintenance of the trees once they have been planted. The Park Board oversees the tree maintenance plan for the City and makes recommendations to the City Council for any action or budgetary items necessary.

   b. VVolunteers, homeowners, or inexperienced staff that will provide maintenance should receive basic training and literature on proper maintenance techniques. Is training needed and how will you do it??

   The Public Works Department will work with any inexperienced staff to aid in the training of tree maintenance. However, the current staff is very experienced with tree and park maintenance.

   c. HHow will you inspect tree maintenance work periodically to make sure it is being done correctly??

   The Public Works Director & Parks Maintenance Supervisor does regular drive-by checks of the public spaces in Cannon Falls, therefore is aware of any irregularities that appear due to any storm damage or any other damage to the city owned trees. The residents of the town are also not shy about reporting anything out of the ordinary to City Hall or Public Works.

2. **Tree Watering Process**

   Describe in detail how trees will be watered, the time period and frequency of watering. Trees should be watered weekly for the first 3 to 5 years when the ground is thawed, unless it has rained an inch in a week.

   The Public Works Department will water the newly planted trees with the water tankard truck that is used for other watering needs throughout the City. During the summer months, the City crew is already out daily with the tankard to water the 40+ downtown floral baskets that hang from the street lamps, so any new trees will be incorporated into their daily watering routine while they have the truck and staff out already.

3. **Mulching Trees**

Will you mulch your trees and if so, how will you maintain mulch??

Yes, the PW department will maintain the mulch making sure there are not weeds or grass growing out of it. This will also help to retain moisture for the trees that has been distributed.

4. **Staking and Tying Trees**

ExExplain if staking is necessary due to mowing, vandalism, or wind conditions, and describe plans for inspection and removal.

On the larger trees, staking will be necessary due to the windy conditions that occur within the city. After a few years of it establishing itself, we will be able to remove the staking from the trees that are showing healthy, stable growth.

5. **Checking Tree Health**

The grantee will check trees every 6-12 months to identify and address problems. Describe inspection process and follow-up.

The PW Department makes regular visits around the community checking the public property and also during the spring, summer and fall months, weekly/bi-weekly mowing of park areas will allow for staff to incorporate inspection of the newly planted trees and their health status to ensure the trees are thriving.

6. **Tree Protection**

YYoung trees in busy urban areas may be easily damaged by human activity, animals, and equipment. Describe how planted trees will be protected.

Mulch and wraps around the bases of the trees will help to protect them from lawn mowers, animals, kids or any other elements and also that may occur from day to day interaction.

7. **Pruning**

Newly planted trees should need little pruning, if they were properly cared for in the nursery. In the first year after planting, remove only dead or broken branches. In later years, weakly attached limbs can be removed, and corrective pruning can be done if needed. Describe your pruning maintenance cycle.

Once the trees are established, the Public Works staff will remove unhealthy branches as needed to help maintain the look and overall health of the trees. Also during severe storms, a routine check around town is conducted to determine if any trees need to be trimmed to ensure safety of the citizens.

8. **Tree Warranty**

Tree planting should include a warranty from the nursery for replacement due to poor condition or mortality . The grantee should be prepared to fully replace all trees that are in poor condition or die prior to inspection at the end of the project grant agreement, unless loss was due to natural disaster. Describe your tree warranty or how trees will be replaced.

The nursery that we will be purchasing the trees from will offer a one year replacement warranty if the tree dies. The PW Director will either negotiate that the warranty includes the removal and replacement of the tree or will incorporate in-kind time/labor for PW staff to conduct the removal and replacement of the tree(s).

Recommended trees for Southeast Minnesota (Deciduous)

Species	Height (feet)	Width (feet)	Shape	Fall Color	Street use?	Under utility lines?	Shade Tolerance	Notable Flower	Notable Fruit	Other Notes
Alder, European black [Alnus glutinosa]	15+	15+	Pyramidal	Green	Yes	No	Partial	No	Yes	
Apricot, Manchurian [Prunus armeniaca var. Mandshurica]	15+	15+	Round	Yellow/Orange	Yes	Yes	No	Yes	Yes	Cultivars: 'Sungold', 'Moongold', 'Manchu'. May need winter protection from rabbits.
Birch, paper [Betula papyrifera]	40+	20+	Oval	Yellow	Yes	No	No	No	No	Native to all of Southeast Minnesota. Performs best where root system is cool and shaded, and free from grass competition. Attractive, exfoliating white bark.
Birch, river [Betula nigra]	40+	30+	Oval	Yellow	Sometimes	No	Partial	No	No	Native to the Blufflands and Twin Cities Highlands. Use single stemmed for street use. Bark is attractive, exfoliating, copper colored. Common birch is recommended. Cultivars: 'Heritage'.
Buckeye, Ohio [Aesculus glabra]	20+	20+	Oval	Yellow/Orange	Sometimes	Sometimes	Partial	Yes	Yes	Suitable for planting under some utility lines (primaries); deicing salt tolerant. Cultivar: 'Autumn Splendor'.
Burning Bush [Euonymus alata]	10+	10+	Round	Red	No	Yes	Partial	No	Yes	Salt tolerant. Red fall color develops best in full sun. Interesting corky bark. May need winter protection from rabbits.
Catalpa, northern [Catalpa speciosa]	40+	20+	Oval	Yellow/Brown	Sometimes	No	Partial	Yes	Yes	Intermediate salt tolerance. Due to messy fruit, a better tree for parks than most streets.
Cherry, sour [Prunus cerasus]	10+	10+	Round	Yellow	Yes	Yes	No	Yes	Yes	Cultivars: 'North Star', 'Meteor'. Fruit may cause problems if near pavement. All cherries may need winter protection from rabbits.
Cherry, Amur choke [Prunus maackii]	20+	18+	Oval	Maroon	Sometimes	Yes	No	Yes	Yes	Has potential as a street tree where budgets allow for early and frequent formative pruning. Probably better as a park tree. A very attractive, red-copper, peeling bark. All cherries may need winter protection from rabbits.
Cherry, black [Prunus serotina]	40+	20+	Oval	Yellow/Red	Yes	No	Partial	Yes	Yes	Native to all of Southeast Minnesota. All cherries may need winter protection from rabbits.
Coffeetree, Kentucky [Gymnocladus dioicus]	50+	30+	Oval	Yellow	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. Female trees produce pods, but male trees do not. Late to leaf out in spring.
Coffeetree, 'Espresso' [Gymnocladus dioicus 'Espresso']	50+	35+	Vase	Yellow	Yes	No	No	No	No	

Recommended trees for Southeast Minnesota (Deciduous)

Species	Height (feet)	Width (feet)	Shape	Fall Color	Street use?	Under utility lines?	Shade Tolerance	Notable Flower	Notable Fruit	Other Notes
Coffeetree, 'Stately Manor' [Gymnocladus dioicus 'Stately Manor']	50+	30+	Oval	Yellow	Yes	No	No	No	No	
Corktree, Amur [Phellodendron amurense]	30+	30+	Round	Yellow	Yes	No	No	No	Yes	
Corktree, Sakhalin [Phellodendron sachalinensis]	30+	25+	Round	Yellow	Yes	No	No	No	Yes	Sakhalin is more difficult to find, but a better landscape tree due to its upright habit.
Corktree, 'Macho' [Phellodendron amurense 'Macho']	40+	40+	Round	Yellow	Yes	Yes	No	no	no	Performs well in poor soils. Male cultivar so no fruit.
Corktree, Shademaster [Phellodendron amurense Shademaster]	30+	30+	Round	Yellow	Yes	Yes	No	no	no	More compact size. All the other attributes of corktree.
Corktree, 'His Majesty' [Phellodendron amurense 'His Majesty']	40+	35+	Round	Yellow	Yes	Yes	No	no	no	Excellent boulevard tree. More upright than 'Macho' or the species.
Crabapple [Malus]	10+	8+	Round	Yellow	Sometimes	Yes	No	Yes	Yes	Cultivars: Adams , Calocarpa , David , Donald Wyman', 'Dolgo', 'Harvest Gold', 'Prairiefire', 'Professor Sprenger'. Due to the many varieties of crabapples available, you can almost customize the tree to the site. Select a variety that is disease tolerant, slower growing, and non-suckering. Because of the maintenance involved with crabapples, many of the varieties are best suited for parks; these cultivars may be considered for street use, however. All crabapples may need winter
Dogwood, Pagoda [Cornus alternifolia]	12+	10+	Oval	Maroon	Sometimes	Yes	Yes	Yes	No	Native to all of Southeast Minnesota.
Eastern Wahoo [Euonymus atropurpureus]	10+	10+	Irregular	Red	No	Yes	Partial	No	Yes	Native to all of Southeast Minnesota. Fall color develops best in full sun. May need winter protection from rabbits.
Elm, 'Cathedral' [Ulmus pumila hybrid]	40+	40+	Vase	Yellow	Yes	No	No	No	No	
Elm, 'Accolade' [Ulmus japonica hybrid]	60+	40+	Vase	Yellow	Sometimes	No	No	No	No	
Elm, 'Patriot' [Ulmus wilsoniana hybrid]	40+	40+	Irregular	yellow	Yes	No	No	no	no	Upright grower; excellent resistance to DED; fast grower.
Elm, 'New Horizon' [Ulmus pumila hybrid]	40+	40+	Irregular	yellow	Yes	No	No	no	no	Excellent resistance to DED; fast grower; very cold hardy.

Recommended trees for Southeast Minnesota (Deciduous)

Species	Height (feet)	Width (feet)	Shape	Fall Color	Street use?	Under utility lines?	Shade Tolerance	Notable Flower	Notable Fruit	Other Notes
Elm, 'Princeton' [Ulmus americana 'Princeton']	60+	40	Vase	Yellow	Yes	No	No	no	no	Good resistance to DED; been around a long time; looks like an American elm.
Elm, 'Valley Forge' [Ulmus americana 'Valley Forge']	60+	40+	Vase	Yellow	Yes	No	No	no	no	Excellent resistance to DED; looks like an American elm.
Elm, Jacan Japanese [Ulmus japonica selection]	30+	25+	Vase	Yellow	Yes	No	No	No		These elms are Dutch Elm Disease resistant, and have a shape similar to American elm.
Ginkgo [Ginkgo biloba]	40+	20+	Pyramidal	Yellow	Yes	No	No	No	Yes	Female trees produce a foul-smelling fruit. Deicing salt tolerant. Cultivars: 'Autumn Gold' is a male and produces no fruit.
Hackberry [Celtis occidentalis]	40+	30+	Oval	Yellow	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. Interesting corky bark. Does better than many other trees in alkaline soils. Sensitive to spray salt. Common hackberry is recommended over cultivars.
Hawthorn, thornless cockspur [Crataegus crusgalli var. inermis]	15+	20+	Irregular	Yellow	Yes	Yes	No	Yes	Yes	May need winter protection from rabbits.
Hawthorn, downy [Crataegus mollis]	20+	20+	Round	Yellow/Red	Yes	Yes	No	Yes	Yes	Native to all of Southeast Minnesota. May need winter protection from rabbits.
Hickory, shagbark [Carya ovata]	60+	20+	Oval	Yellow	Sometimes	No	Partial	No	Yes	Native to Oak Savannah and Blufflands.
Hickory, bitternut [Carya cordiformis]	50+	30+	Oval	Yellow	Sometimes	No	Partial	No	Yes	Native to all of Southeast Minnesota.
Honeylocust, thornless [Gleditsia triacanthos var. inermis]	40+	40+	Round	Yellow	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. Fruit pods occur on female trees. Cultivars: 'Shademaster', 'Skyline', 'Summerlace'.
Hop Tree [Ptelea trifoliata]	10+	10+	Round	Yellow/Brown	No	Yes	Yes	Yes	Yes	This tree does well in wet sites, as well as drained sites.
Hophornbeam (Ironwood) [Ostrya virginiana]	30+	25+	Pyramidal	Yellow	Yes	Sometimes	Yes	Yes	Yes	Native to all of Southeast Minnesota. Very strong-wooded and tough tree for the landscape; it needs watering during dry summers, though.
Lilac, Japanese tree [Syringa reticulata]	15+	12+	Oval	Yellow	Yes	Yes	No	Yes	Yes	Cultivars: 'Ivory Silk', 'Summersnow'. Bark has attractive lenticels. Deicing salt tolerant.

Recommended trees for Southeast Minnesota (Deciduous)

Species	Height (feet)	Width (feet)	Shape	Fall Color	Street use?	Under utility lines?	Shade Tolerance	Notable Flower	Notable Fruit	Other Notes
Hornbeam, American [Carpinus caroliniana]	15+	15+	Oval	ellow/Orange/Maroc	Yes	Yes	Yes	No	Yes	
Linden, littleleaf [Tilia cordata]	35+	20+	Pyramidal	Yellow	Yes	No	Partial	Yes	Yes	Cultivars: 'Morden', 'Shamrock', 'Norlin'. All lindens are sensitive to deicing salt.
Linden, Crimean [Tilia x euchlora]	40+	20+	Oval	Yellow/Green	Yes	No	Partial	Yes	Yes	All lindens are sensitive to deicing salt.
Linden, American [Tilia americana]	50+	25+	Oval	Yellow	Yes	No	Partial	Yes	Yes	Native to all of Southeast Minnesota. Common linden is recommended over cultivars. All lindens are sensitive to deicing salt.
Linden, Redmond [Tilia hybrid]	50+	25+	Pyramidal	Yellow	Yes	No	Partial	Yes	Yes	All lindens are sensitive to deicing salt.
Maackia, Amur [Maackia amurensis]	20+	20+	Round	Green	Yes	Yes	Partial	Yes	Yes	Drought tolerant, and soil pH adaptable. Sensitive to deicing salt run-off.
Magnolia, cucumbertree [Magnolia acuminata]	40+	25+	Pyramidal	Yellow	Yes	No	Partial	No	Yes	
Maple, Amur [Acer ginnala][1]	15+	15+	Irregular	Yellow/Red	Yes	Yes	Partial	Yes	Yes	Can spread. Do not plant near natural areas. Select a cultivar for better foliage, summer and autumn. May need winter protection from rabbits.
Maple, red [Acer rubrum][1]	40+	30+	Oval	Yellow/Red	Yes	No	Partial	Yes	Yes	Native to Big Woods, Anoka Sand Plain, Twin Cities Highlands, and Blufflands. Cultivars: 'Northwood', 'Olson' are worth a try. Common maple is recommended over cultivars.
Maple, freeman [Acer saccharinum x A. rubrum][1]	45+	20+	Oval	Yellow/Red	Yes	No	No	No	No	This hybrid probably occurs naturally where silver maple and red maple grow together.
Maple, Shantung [Acer truncatum][1]	25+	25+	Round	Yellow/Red/Maroon	Yes	Yes	No	No	No	
Maple, tatarian [Acer tataricum][1]	20+	18+	Round	Yellow/Red/Maroon	Yes	Yes	Yes	No	Yes	May be invasive near natural areas.
Maple, sugar [Acer saccharum][1]	40+	30+	Oval	Yellow/Red	Yes	No	Yes	No	Yes	Native to all of Southeast Minnesota. Common sugar maple from a nearby seed source recommended over cultivars.
Maple, 'Sienna Glen' [Acer x freemanii 'Sienna']	50+	30+	Oval	Red	Yes	No	Yes	no	no	Best Freeman maple for form. Excellent performance on urbanized soils/sites.

Recommended trees for Southeast Minnesota (Deciduous)

Species	Height (feet)	Width (feet)	Shape	Fall Color	Street use?	Under utility lines?	Shade Tolerance	Notable Flower	Notable Fruit	Other Notes
Mountain Ash, Korean [Sorbus alnifolia]	25+	20+	Oval	Yellow	Yes	Yes	No	Yes	Yes	Sorbus is tolerant of deicing salt spray.
Serviceberry, Allegheny [Amelanchier laevis]	15+	10+	Round	Yellow/Orange/Red	Yes	Yes	Partial	Yes	Yes	Native to all of Southeast Minnesota. Cultivars: 'Cumulus',, 'Prince Charles', 'Princess Diana', 'Autumn Brilliance'. Tolerant of spray salt.
Oak, white [Quercus alba]	50+	40+	Oval	Red/Brown	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. More oak wilt resistant than red oaks; tolerates partial shade when young.
Oak, bur [Quercus macrocarpa]	50+	50+	Round	Brown	Yes	No	Partial	No	Yes	Native to all of Southeast Minnesota. More oak wilt resistant than red oaks; one of the best trees for urban sites.
Oak, bicolor [Quercus bicolor]	40+	30+	Oval	Yellow/Brown	Yes	No	Partial	No	Yes	Native to all of Southeast Minnesota. More oak wilt resistant than red oaks; needs an acidic-neutral soil; adapts better than other oaks to heavy/wet soils.
Oak, black [Quercus velutina]	50+	30+	Pyramidal	Red/Brown	Yes	No	No	No	Yes	Native to Blufflands. Susceptible to oak wilt.
Oak, red [Quercus rubra]	50+	40+	Pyramidal	Red	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. Susceptible to oak wilt.
Oak, northern pin [Quercus ellipsoidalis]	40+	25+	Pyramidal	Orange/Brown	Yes	No	No	No	Yes	Native to all of Southeast Minnesota. Susceptible to oak wilt; prefers acidic soils.
Pear, Ussurian [Pyrus ussuriensis]	25+	25+	Round	Yellow/Orange	Yes	Sometimes	No	Yes	Yes	Fruit is not edible. Very cold hardy. Cultivar: 'Prairie Gem'.
Serviceberry, downy [Amelanchier arborea]	20+	10+	Oval	Yellow/Orange/Red	No	Yes	Partial	Yes	Yes	Native to Blufflands.
Viburnum, nannyberry [Viburnum lentago]	12+	6+	Oval	Red/Maroon	Sometimes	Yes	Yes	Yes	Yes	Native to all of Southeast Minnesota.

[1] All of these maples are sensitive to deicing salt. All maples perform better in lawn or park settings, and in groups, rather than specimens in fully exposed boulevard settings. **Planting with the root collar at ground line is important to see and treat stem girdling root syndrome.**

3-Year Tree Management Plan

2023-2026

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Introduction

Emerald ash borer, or EAB, is a non-native beetle that feeds on and causes widespread mortality in all native species of ash (genus *Fraxinus*). The insect bores into the tree, eating the phloem tissue, the innermost layer of bark, and disrupts the transportation of nutrients and water. If left alone, EAB can kill an ash tree in 2 to 7 years, depending on age, size, and initial tree vigor. EAB was first found in the United States in 2002 near Detroit, MI. Its presence in Minnesota was first detected in Ramsey County on May 13, 2009. As of November 1, 2016, it has spread to 30 states and the Canadian provinces of Ontario and Quebec, decimating ash tree populations wherever it becomes established.

EAB was confirmed in Goodhue County in the City of Red Wing in early 2017. Since then, the City of Cannon Falls has been monitoring, removing and replacing ash tree inventory throughout the community as they are able to. An official management plan to detect, improve, treat, remove and replace the effects of the EAB has not yet been adopted by the City Council, but with the application of the DNR Emerald Ash Borer Grant, it has motivated the public works department to do so. An effective EAB management plan will effectively prioritize the spending of funds associated with the EAB to stretch dollars allocated for ash tree protection, removal, management and communication over a longer period of time to ensure the best possible use of funds.

Overview of Emerald Ash Borer

Emerald Ash Borer (EAB), *Agrilus planipennis* Fairmaire is an extremely destructive tree-killing flatheaded boring beetle. This insect is a non-native species from China that likely arrived in the United States as larvae living in wooden shipping pallets. The beetle was first discovered in the U.S. in Michigan, in 2002. In the forests near the site of initial infestation in southeast Michigan, over 99% of the ash trees with stems larger than 2.5 cm in diameter died. The invasive pest has spread and is now devastating the ash tree genus throughout the eastern half of the United States, with mortality rates in the tens of millions. These insects can quickly decimate ash populations in an infested area, which poses a significant loss of tree benefits to communities as well as the high financial burden of treating or removing trees for municipalities and property owners.

Adult EAB are defoliators, but the damage caused by the adults feeding on leaves is not what causes mortality. Tree decline caused by EAB happens in the larval stage. After initial infestation, EAB populations increase throughout the tree. As populations increase in the tree, more larvae are feeding on the phloem, girdling the tree. The loss of the phloem layer prevents the transportation of vital nutrients throughout the tree. Research estimates symptoms of decline occur after about 5 years of infestation, making early visual detection difficult. Once canopy dieback occurs, trees typically die within 2-4 years.

The borer has been shown to endure winter temperatures as low as -30°F, though only a small percentage of larvae survive such cold events. This may be good news for parts of Minnesota as it is not unheard of to experience temperatures below -30°F, which could cause mortality in EAB populations. According to www.usclimatedata.com, average low temperatures in Mantorville in the coldest months sit above zero in December, January, and February.

Life cycle

From mid-June through August, adult female EAB beetles will deposit eggs on the trunk and major branches of ash trees. After the larvae hatch, they tunnel through the bark to the cambial region just under the bark. Larvae begin feeding on the phloem tissue for several weeks. The phloem tissue is part of the tree's vascular system where sugars and nutrients are conducted throughout the tree, making a great meal for the larvae. As the larvae feed they leave S-shaped galleries under the bark. Most larvae are full grown by September and overwinter in a pupation cell in the bark of the ash. Larvae that have not reached maturity by the time winter comes may feed for another summer before reaching adulthood. This biennial life cycle typically occurs only in healthy ash trees with low larval densities. In April or May the following year, the larvae in the pupation cells will fully pupate. After about two weeks, the adult beetles will emerge from the bark, leaving the D-shaped exits holes associated with flat-headed borers. Emergence starts

in May and peaks in July. The beetles are active during the day, feeding on leaves in the ash canopy. About a week after emergence, adult beetles begin to mate. Females begin laying individual eggs on the bark surface of ash shortly after mating. The average female will oviposit about 55 eggs but has potential to lay more than 150 eggs.

Tree Inventory Summary

According to the Minnesota DNR Community Tree Survey conducted in 2010, Cannon Falls had an estimated 4,200 Ash trees in their maintained tree inventory population and 98% of them were considered in 'healthy' condition. (See Attachment C.) As of 2010, the EAB had not yet struck Cannon Falls nor had it been spotted in Goodhue County.

Proposed Management Plan

When EAB was first found in Minnesota, it was believed that the state would eventually lose all ash trees. Due to advances in treatment options, early detection and management, and potentially successful biocontrol, EAB may spread differently in Minnesota than it has in the states that were initially infested. It has been detected relatively early making it possible to slow ash tree mortality through integrated pest management strategies. So far, the percent of infested counties over time is much lower than the national average for infested states.

However, since 2017 when EAB was first spotted in Goodhue County, Cannon Falls' ash tree population has suffered tremendously. In 2018, the Emerald Ash Borer had invaded Cannon Falls' ash tree population and the Public Works Department has been doing its part to combat the EAB. Due to the EAB infestation and recent damaging storms, the tree inventory in Cannon Falls has declined rapidly in many of the public areas that were once densely populated with ash tree inventory among other varieties as well.

Administration

The Public Works Department and Park Board will be responsible for implementing this plan and will monitor grant opportunities and apply for grants when appropriate to help fund this management plan.

Monitoring and Inspection

Public Works staff need to be key players in detection. Parks and public works crew members should undergo EAB training so they can monitor the ash trees in the areas where they work. Additionally, EAB training should be provided for all employees interested in learning about the insect and its threat.

- Branch sampling is the process of pulling back the bark of ash trees to monitor for larval galleries. This inspection technique is best done during fall or winter months.

- Visual inspection includes monitoring for crown dieback, decline and thinning, epicormic sprouts (suckers) on limbs or trunk, vertical splits in bark, D-shaped adult emergence holes, or excessive woodpecker activity. These signs are usually apparent only after heavy infestation.

Insecticide Use

One aspect of the integrated pest management strategy for EAB is the preventative treatment of ash trees with the insecticide, Emamectin benzoate. This has been shown to be more effective than alternative insecticides, such as imidacloprid. However, the ash trees in the City of Cannon Falls that have been inventoried and identified as infected are beyond treatment and removal is the only option.

Although the City is choosing to remove any ash trees from the public areas, the City will encourage property owners to carefully evaluate environmental impacts before using pesticides to treat EAB on private property. Owners who decide to use EAB pesticides are urged to use trunk injection rather than soil drenching, which will help reduce pesticide drift and reduce impacts to groundwater and surface water. Pesticide tree injection/applications must be done by a MDA certified pesticide applicator.

Community Outreach

Adult beetles have been reported to travel about a ½ a mile from the tree they emerge from. Because EAB does not travel very far on its own, it is important for the public to be aware that the spread of this pest is primarily anthropocentric, which means that many infestations are started when people move infested ash nursery trees, logs, or firewood into uninfested areas.

Keeping residents informed on the status of EAB, and encouraging involvement plays a key role in managing the pest. The City will provide community members with the resources to learn how to identify EAB on their land and highlight the importance of restricted movement of hardwood ash materials. There will also be a link on the City website with links to resources to educate the community as to how to mitigate and remove ash trees if and when necessary.

The Public Works Director and Parks Department Supervisor are certified MN DNR Tree Inspectors and will continue to conduct tree evaluations and assessments of all trees in the City of Cannon Falls. Although manpower will not be dedicated to the assessment of private ash trees infested with EAB, if the PW Department does notice a tree that is infested, the property owner will be notified verbally or with a note on the door hanger to contact the PW Director to educate them on their options for treatment or removal at the owners expense.

Providing links to educational tutorials for community members with affected trees will be part of the community outreach process so the same message is communicated to thwart the spread of EAB. This will be communicated via Social media directing the audience to the website where the links can be found. Information will also be available at City Hall.

The MDA and the MNDNR have community outreach in place to discourage movement of firewood throughout the state. Residents are informed via signage and pamphlets of the importance of slowing the spread of EAB and other invasive species. MN Statute 89.551 discourages the spread of forest insect pests and restricts movement of unapproved firewood on MN DNR state land. Violators are subject to penalties and fines.

Ash Tree Removal

Prompt removal and sanitation of infested boulevard trees is recommended and is part of the City of Cannon Falls' EAB management plan. Based on the degree of infestation and health, ash trees must be removed to limit hazardous conditions (large falling branches) and minimize the public safety risk associated with dead and declining trees. It will take a few years, but all infected ash boulevard trees will have be removed from the City of Cannon Falls. Recent research has shown that dead ash trees are extremely dry and brittle and require removal within a 12 to 18-month period after death to avoid the risk of structural failure.

The City plans an aggressive structured removal plan. Structured removal is the proactive, systematic removal and replacement of non-infested ash trees in a planned or "structured" approach. The removal of non-infested ash trees, and trees in declining health, reduces the overall number of ash trees that will have to be dealt with while spreading out the available time, cost and resources to implement the plan.

Persons or private entities have the option to treat ash trees in the public right-of-way at their own expense with the approval, and at the discretion of, the City. Treatment must be with an injection system with plugs, not a soil drench or drip-line drench and must be administered by a licensed tree care specialist. The City reserves the right to remove a treated municipal tree that becomes a hazard to the public.

The currently, thousands of ash trees need to be removed from the City of Cannon Falls. After infestation is confirmed, Park Maintenance Staff will keep a record of the trees and will mark the ash tree prior to removal.

The removal of dead ash trees in parks, boulevards and open spaces is done on a risk management basis. Dead trees in parks, boulevards and open spaces that are adjacent to public areas will be the first to be removed.

The City will not require the removal of ash trees on private property unless an ash is a hazard to the public. In the event a private ash becomes a hazard to the public, the property owner will be notified by the Park Maintenance or PW Department and be given notice that the tree must be removed.

Trees removed from boulevards and parks have economic value. If infested wood is to be utilized it must be processed before it can be used as lumber. See the ash wood disposal section below for more information.

Ash Wood Disposal

As of March 1, 2017, Goodhue County was placed under an EAB quarantine by the Commissioner of the Minnesota Department of Agriculture. The quarantined area includes the entire area of Goodhue County including all towns, cities and townships within it. No wood shall be transported across county lines for use of firewood or any other use.

Subsequently, the movement of ash wood waste with bark and sapwood intact, green lumber, ash nursery stock, and all hardwood firewood is regulated by the MDA. Movement from a quarantined area to a non-quarantined area is prohibited within the State of Minnesota. Frequently asked questions regarding the quarantine and a map of the current quarantined areas can be found at: http://www.mda.state.mn.us/plants/pestmanagement/eab/quarantinefaq.aspx.

Reforestation and Canopy Replacement

Reforestation with a variety of native tree species is the primary objective to manage and retain Cannon Falls' tree population. Ash trees were one of three or four species heavily emphasized by Midwest communities, to replace the American elms lost to Dutch elm disease. Ash was chosen because of its tolerance of a range of environmental conditions and resistance to other pests. The choice to replace elm with ash resulted in yet another large monoculture. At the time, species diversity was not a well understood concept as a means to manage unforeseen devastation to plant communities. Learning from the mistakes made in the past, the city will avoid monocultures through diversity and mixed planting schemes. Species diversity will reduce the impact of devastating tree loss events caused by future biological factors.

The Parks Maintenance Department will dedicate the spring and fall to replanting the ash trees removed according to this plan. The reforestation goal is to plant one (or more) trees for every ash tree removed. Staff will continue to remove hazard trees but all other pruning on non-ash species will be delayed.

As part of the replanting plan, the city will have a 3-year aftercare program for trees planted after removals. Stressed trees are more susceptible to diseases and insect pests. It is essential to water regularly and prune properly to maintain tree vigor. The Park Maintenance Department will be responsible for new tree aftercare. In an effort to ensure the new tree flourishes in its new home, the tree vendor will offer a one year warranty on all new trees purchased with the DNR EAB grant funds and the PW staff will follow the EAB maintenance plan accordingly.

Biological Control

The Minnesota Department of Agriculture (MDA) releases three types of small, non-stinging parasitoid wasps to help reduce emerald ash borer (EAB) populations in Minnesota. The three species of parasitoid wasps released in Minnesota (Tetrastichus planipennisi, Spathius galinae and Oobius agrili) are reared in a specialized USDA facility in Michigan. They are provided at no charge to state cooperators such as the Minnesota Department of Agriculture to release.

The MDA initiated releases in 2010 in southeastern Minnesota with adult parasitoids. To increase the efficiency of parasitoid rearing they began receiving and releasing immature stages of the parasitoids in 2013. They are in protective structures that are placed in the field then the adult wasps emerge within the next few weeks. There are now over 40 release sites in EAB infested areas of Minnesota. At this time, the City of Cannon Falls does not intend to integrate the pest management strategy by using biological control agents.

Attachment C

DNR 2010 Community Tree Survey for the City of Cannon Falls, Goodhue County

** Only maintained areas are surveyed. Maintained areas are periodically mowed or fall within an artificial surface, (e.g. parking lot).

Table 1. Diversity of tree genera, size class distribution, and healthy tree population and percents.

	Dead trees are included in population numbers & all percents.						Only live trees are included in numbers & percents.		
			Size Classes ++				All Classes		
Genera	Population	Genera %	Small	Medium	Large	Super	Population	Genera %	Healthy
Acer (Maple)	4,100	23.1%	23.3%	50.6%	22.8%	3.3%	4,100	23.1%	97.8%
Fraxinus (Ash)	4,100	23.0%	14.0%	54.7%	30.2%	1.1%	4,100	23.0%	98.9%
Picea (Spruce)	1,700	9.8%	19.7%	63.2%	14.5%	2.6%	1,700	9.8%	100.0%
Ulmus (Elm)	1,400	7.7%	3.3%	28.3%	55.0%	13.3%	1,400	7.7%	100.0%
Malus (Apple)	1,100	6.2%	70.8%	29.2%	0.0%	0.0%	1,100	6.2%	97.9%
Gleditsia (Honeylocust)	1,000	5.8%	28.9%	53.3%	17.8%	0.0%	1,000	5.8%	100.0%
Tilia (Basswood)	800	4.5%	5.7%	62.9%	20.0%	11.4%	800	4.5%	100.0%
Betula (Birch)	500	2.6%	30.0%	50.0%	20.0%	0.0%	500	2.6%	100.0%
Celtis (Hackberry)	500	2.6%	15.0%	70.0%	5.0%	10.0%	500	2.6%	100.0%
Quercus (Oak)	400	2.2%	29.4%	47.1%	0.0%	23.5%	400	2.2%	94.1%
Pinus (Pine)	300	1.9%	6.7%	73.3%	6.7%	13.3%	300	1.9%	93.3%
Japanese Lilac	300	1.5%	100.0%	0.0%	0.0%	0.0%	300	1.5%	100.0%
Prunus (Plum)	300	1.5%	66.7%	33.3%	0.0%	0.0%	300	1.5%	91.7%
Juglans (Black Walnut)	200	1.3%	0.0%	40.0%	50.0%	10.0%	200	1.3%	100.0%
Juniperus (Red Cedar)	200	1.3%	30.0%	20.0%	40.0%	10.0%	200	1.3%	100.0%
Abies (Fir)	200	1.2%	55.6%	44.4%	0.0%	0.0%	200	1.2%	100.0%
Populus (Poplar)	200	1.0%	25.0%	25.0%	12.5%	37.5%	200	1.0%	100.0%
Sorbus (Mountain Ash)	100	0.8%	83.3%	16.7%	0.0%	0.0%	100	0.8%	83.3%
Boxelder	100	0.6%	0.0%	20.0%	80.0%	0.0%	100	0.6%	100.0%
Robinia (Black Locust)	<100	0.5%	25.0%	50.0%	25.0%	0.0%	<100	0.5%	100.0%
Aesculus (Buckeye)	<100	0.4%	0.0%	33.3%	66.7%	0.0%	<100	0.3%	100.0%
Morus (Mulberry)	<100	0.4%	0.0%	33.3%	33.3%	33.3%	<100	0.4%	100.0%
Catalpa	<100	0.1%	0.0%	0.0%	0.0%	100.0%	<100	0.1%	100.0%
Salix (Willow)	<100	0.1%	0.0%	100.0%	0.0%	0.0%	<100	0.1%	100.0%

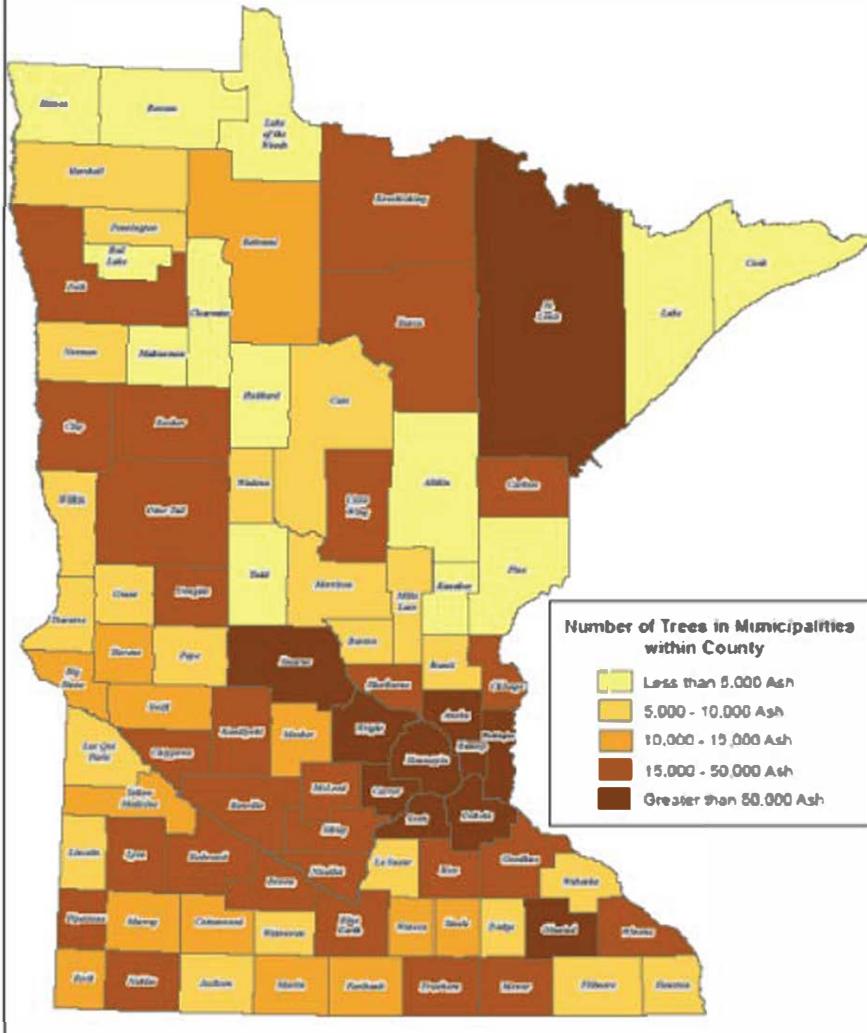
Table 2. Tree condition by size class.

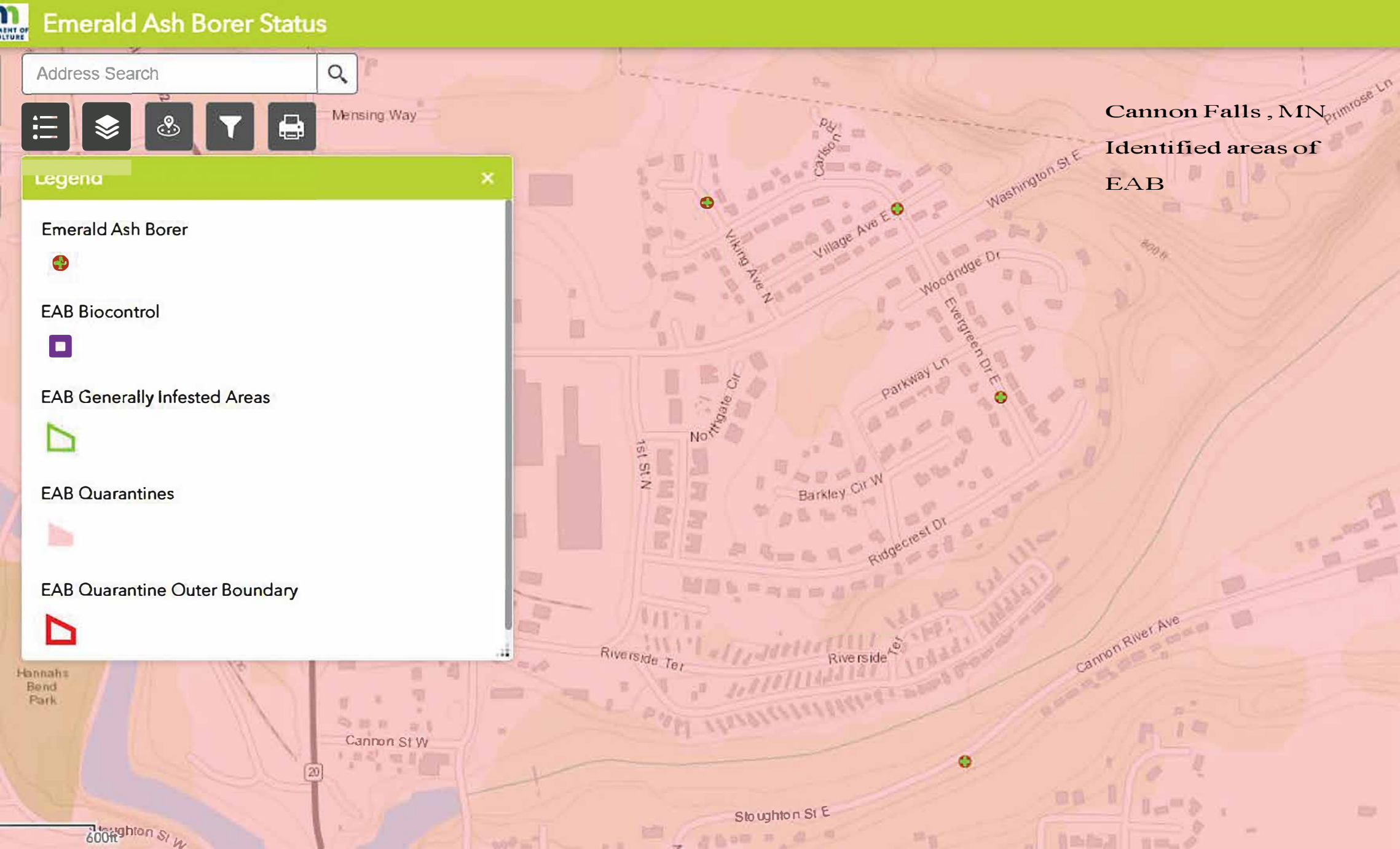
Size Classes ++	Population	Size Class %	Healthy	Dieback	Discolor	Both	Dead
Small (1" - 4.9")	4,200	23.6%	99.5%	0.5%	0.0%	0.0%	0.0%
Medium (5" - 11.9")	8,700	48.8%	97.6%	1.8%	0.3%	0.0%	0.3%
Large (12" - 20.9")	4,100	22.8%	99.4%	0.6%	0.0%	0.0%	0.0%
Super (21" +)	800	4.7%	97.3%	2.7%	0.0%	0.0%	0.0%

The numbers above (both tables) do not include shrub-like trees (e.g. Arbovitae) or non-maintained areas such as vacant areas.

**Area within city limits is 2,556 acres. The Business & Residential area is 822 acres, of which 98.6% (810 acres) is considered Maintained while 1.4% (12 acres) is considered Non-Maintained.

Ash Population of Urban Trees




Emerald Ash Borer Status
Address Search
Legend
Emerald Ash Borer
EAB Biocontrol
EAB Generally Infested Areas
EAB Quarantines
EAB Quarantine Outer Boundary
Cannon Falls , MN
Identified areas of
EAB
Mensing Way
Carlson Rd
Washington St E
Village Ave E
Viking Ave N
Woodridge Dr
Evergreen Dr E
Parkway Ln
Northgate Cir
1st St N
Barkley Cir W
Ridgecrest Dr
Riverside Ter
Riverside Ter
Cannon River Ave
Primrose Ln
Hannahs Bend Park
Cannon St W
Stoughton St E
600ft