



CITY OF NORTH OAKS

Regular Natural Resources Commission Meeting
Thursday, January 20, 2022
7 PM, Community Meeting Room, 100 Village Center Drive
MEETING AGENDA

Remote Access - *Natural Resource Commission members will participate by telephone or other electronic means pursuant to Minn. Stat. §13D.021. Any person wishing to monitor the meeting electronically from a remote location may do so by calling the following Zoom meeting videoconference number: 1-312-626-6799, Webinar ID:*

847 1162 8795 or by joining the meeting via the following link: <https://us02web.zoom.us/j/84711628795>. Due to the existing COVID-19 Health Pandemic, no more than five (5) members of the public may be in Council Chambers (Community Room, 100 Village Center Drive, MN) during the meeting. Once room capacity is met, anyone wishing to attend the meeting above the five (5) members of the public who may be present in the room during the meeting will be required to monitor the meeting remotely.

1. Call to Order

2. Roll Call

3. Approval of Agenda

4. Citizen Comments - *Members of the public are invited to make comments to the Commission during the public comments section. Up to four minutes shall be allowed for each speaker. No action will be taken by the Commission on items raised during the public comment period unless the item appears as an agenda item for action.*

5. Approval of Previous Month's Minutes

5a. Approval of Meeting minutes of the December 16, 2021 Natural Resource Commission
[12.16.21 NRC Meeting Minutes.pdf](#)

6. Business Action Items

6a. Discuss 2022 NRC Meeting Schedule

6b. 2022 City Foresters Annual Report
[North Oaks 2021 Annual Report.pdf](#)

6c. Discuss Natural Resource Commission Priorities for 2022

6d. Status of Deer Management Program

6e. Brainstorm ideas for upcoming Education Articles

6f. Discussion and update on wetland matters

6g. Update on VLAWMO priorities 2022

7. Commissioner / Staff Reports - - Tick Task Force Report

- *Community Outreach*
- *NOHOA/ NEST Report*
- *City Forester Report*
- *VLAWMO Tech Report*
- *City Report*

8. Next Meeting: TBD

9. Adjourn

**North Oaks Natural Resources Commission
NRC Meeting Minutes
Virtual Meeting via Teleconference or Electronic Means Only
December 16, 2021 at 7 p.m.**

1. CALL TO ORDER

Chair Hawkins called the meeting of December 16, 2021 to order at 7:02 p.m.

2. ROLL CALL

NRC members participated by **telephone or other electronic means** pursuant to Minn. Stat. § 13D.021.

Present: Chair Andrew Hawkins, Commissioners Shannon Dunn, Penny Kianian, Bob Larson, Damien Lepoutre, David White, Kate Winsor, City Council Liaisons James Hara, Tom Watson, City Administrator Kevin Kress

Also Present: Neil Dahlquist, Addie Motta

Absent: City Forester Mark Rehder, NOHOA Liaison Patricia Orud

A quorum was declared present.

3. APPROVAL OF AGENDA

MOTION by Winsor, seconded by White, to approve the agenda as submitted.

MOTION carried unanimously by roll call vote.

4. CITIZEN COMMENTS

None

5. APPROVAL OF PREVIOUS MONTH'S MINUTES

Watson noted that the name in item 6c. should read City Manager Schwerm.

MOTION by Winsor, seconded by Kianian, to approve the November 18, 2021 meeting minutes as amended.

MOTION carried unanimously by roll call vote.

6. BUSINESS ACTION ITEMS

- a. Meet and greet candidates for NRC openings

- Addison Motta and Dr. Neil Dahlquist introduced themselves and talked about their interests in the Natural Resources Commission. Motta and Dahlquist also had the opportunity to ask questions of the Commissioners and vice versa. Both stayed for the remainder of the meeting to listen in and participate.
- b. Update on Wetland Ordinance
- Councilor Watson gave some history about the Wetland Ordinance, that it originally stemmed from a conversation with a DNR official who suggested it would be wise for the City to develop a wetland ordinance.
 - The process for developing this ordinance consists of three parts: 1. Inventory current ordinances for what is currently on the books. Watson noted that at this time, there are about 150 references in the zoning ordinances to water, wetland and shoreland. 2) Research what neighboring communities, particularly other VLAWMO members, have in their ordinances and identify what North Oaks might be missing, and whether there are areas that could be cleaned up. 3) Identify what all could be included in a central ordinance that codifies existing ordinances and adds additional layers as needed.
 - Councilor Watson said that they are currently in phase 2 of this process. He has 4 different documents that they are working with which he will circulate to the commission. He will have a report of the results of phase 2 for the commission in January.
 - Commissioner Lepoutre asked what level of detail Watson thought would be sufficient for a document such as this. Councilor Watson said he believed that we can reference current state and federal standards, but that we can also add our own, more stringent standards as appropriate. The city cannot be less stringent than state or federal guidelines, however. Commissioner Dunn noted that this is what other cities seem to be doing as well.
 - Commissioner Kianian asked if septic cesspools are included as a part of this issue. Councilor Watson said it is a separate topic, but that it will likely be connected in later phases of this process.
 - Commissioner Lepoutre added that if we add additional requirements, we must also understand what our capacity is for enforcement. We would need to coordinate with VLAMO as the body responsible for this.
 - Commissioner Lepoutre asked where we can find the most comprehensive info on wetlands - the PDA or the EAW? Councilor Watson said both would be good to review.
- c. Update on deer management
- Councilor Hara gave an update. At the last Council meeting the council approved the city to complete an aerial count of the deer. Snow cover is necessary to do an effective count, so we will wait until there is enough snow on the ground so.
 - City Administrator Kress reached out to the DNR and learned that the USDA is currently the only approved vendor to do any deer culling.
 - Councilor Watson noted that the DNR issued the permit for deer removal, and the maximum number of deer that can be removed is 100.
 - Commissioner White asked if there has been any opposition to potential deer removal Administrator Kress said that the city has not received any phone calls,

emails or drop-ins on the issue. Chair Hawkins said he has not heard from anyone on this issue either.

d. Discussion and possible action on internships

- Administrator Kress said that he, Commissioner Kianian and Commissioner Dunn have started the conversation on internships, but all have gotten sidetracked with other issues and not made much additional progress. They plan to discuss further after the new year.
- Commissioner Kianian noted that she runs an internship program at the University of Minnesota, and many students start looking for internships beginning in late December/January and that they often like to have something lined up by March for summer. The NRC should keep this in mind as they plan for the program.
- Councilor Hara asked if we have come up with a job description for the internship yet. Commissioner Dunn said that will be the goal after the holidays. Chair Hawkins noted that although we have a few ideas, he thinks it would be ok to be somewhat vague at first, and engage the student in an area of passion and develop the content after that.
- Councilor Watson suggested that Ramsey County Park and Rec could be a resource. The former director lives in North Oaks.
- Commissioner Dunn noted that Administrator Kress provided examples of job descriptions that could be used as a starting point.
- Motta shared that as an undergrad she interned for the Sustainable Forestry Program. As the first intern they had, she was able to help develop the job description and program, and she felt that was a valuable experience as opposed to having a defined role.
- Commissioner Kianian said we have to have buy in from the city – assuming these are going to be paid internships. Chair Hawkins said the original intention is that this would be a voluntary internship. Councilor Watson said we shouldn't limit ourselves to pay or not. There may be some money in the City Reserve fund to reimburse mileage, put together a stipend, etc.
- Commissioner White suggested that as part of the program, we build in an exit interview or other process by which to get feedback from the intern. Chair Hawkins agreed.

e. Presentation on pesticides

- Administrator Kress and Chair Hawkins had a conversation with resident Carolyn Stitt about the spraying of the herbicide Method 240sl by Bayer that Xcel energy had been doing in the area and wanted the Commission to be aware. The major issue is that the chemical was being sprayed close to the waters in North Oaks, and that it drifted and caused issues with vegetation near the resident's house. They are encouraging further conversation on the topic.
- Dahlquist has also been involved in the issue and he added some information. He said that they had been trying to get information from Xcel Energy for quite some time on what they had been spraying, and they did not get anything from them until November 10th of this year. They sprayed the chemical in August of 2019.

This caused quite a bit of destruction to his and Stitt's shoreline vegetation and other trees and plants in the area. Dahlquist learned that the compound came out in 2010 and in 2011 they had 56,280 complaints about the product. It was rescinded from residential use at that time, and was specifically not to be sprayed on any turf areas. In 2016 it was allowed back on the market as long as it was not used anywhere where it would contaminate groundwater. The breakdown product of this chemical is such that in about two years, it starts to leach out of the soil and reaches its high point at about 14 years and it basically never leaves after that, which is extremely problematic. Dahlquist is working on formal complaint to EPA.

- Commissioner Winsor invited Dahlquist to join the pesticide committee. She will share more information with him.
- Commissioner White suggested this has the makings of a class action suit.
- Chair Hawkins asked Dahlquist to send more information to Administrator Kress to share with the rest of the Commission. They will have further discussion about getting how to get involved.
- Administrator Kress noted there is currently some legislation up for debate in the state about giving cities more control over what chemicals can and cannot be used in their area.
- Councilor Watson suggested that he and Administrator Kress also take a look at the agreements that some of these utilities have with local units of government. Kress suggested that they talk to St. Paul Regional Water as well.
- Dahlquist noted that there is NOHOA statue from 2005 for Charley Lake Estates that you cannot do anything within 75 feet of Charley Lake other than trim vegetation. However, this is not applicable to some of the older lots in the area like his. Councilor Watson asked Dahlquist to share this document. He wondered if there was some administrative rule in the Department of Agriculture covering these things.

7. COMMISSIONER / STAFF REPORTS

a. Tick Task Force Reports

- Chair Hawkins noted that the survey is still open, please continue to direct friends and neighbors to complete whenever they have a tick encounter or tick-borne illness.

b. Community Outreach

- Commissioner Winsor Submitted an article to North Oaks News encouraging people to think about new years resolutions such as wasting less food, reducing the use of pesticides, etc.
- The annual pesticide report has been completed. They spent the last year focusing on mosquito and tick control. They will continue to educate residents on these issues, but will move on to focusing on herbicides next year. Winsor hopes to pass this report on to City Council.

MOTION by Hawkins, seconded by Winsor, to send the 2021 annual pesticide report to city council, as well as a representative to the next meeting to provide a summary and answer questions.

MOTION carried unanimously by roll call vote.

c. NOHOA Nest

- Chair Hawkins noted that he is now on the NOHOA Board. He was with NOHOA Liaison Orud earlier and has nothing new to report. He noted that he may need to step down as chair due to his new role, but hopes to stay on the commission and possibly become the NOHOA Liaison.

d. City Forester Report

- Report included in packet.

e. VLAWMO Tech Report

- Councilor Watson gave an update on the VLAWMO board. The meandering project for Wilkinson is proceeding. An engineer has been hired to do design work. They went to the Minnesota Land Trust because they hold some of the easement land. Everything is ready to go.
- Councilor Watson also noted that the VLAWMO board will be doing a strategic planning day on January 26. Topics likely to be surfaced include pesticides, herbicides, and aquatic invasive species. Please send additional topics of interest to Watson. For reference, see the VLAWMO strategic plan and annual report on VLAWMO website.

f. City Report

- Administrator Kress said the we will have the Lake Gilfillan aeration permit soon. That is typically handled by Jim Fox from the Lake Gilfillan association.
- The city will be making new appointments/assignments in 2022 to the NRC, Planning Commission
- A special thanks to Commissioner Winsor for her 11+ years of service! Winsor noted that although she will be ending her term on the NRS, she still plans to stay on as the Pesticide Committee Education Chair.

8. NEXT MEETING: Thursday, January 20, 2021 at 7 p.m.

MEETING ADJOURNED:

MOTION by White, seconded by Winsor, to adjourn the meeting at 8:28 p.m.

MOTION carried unanimously by roll call.

Kevin Kress, City Administrator

Chair, Andrew Hawkins

Date approved: _____



CITY OF
NorthOaks
Building on a tradition of innovation

2021 Forestry Report

Prepared by



Rehder Forestry Consulting

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Open Letter to the City of North Oaks

Dear Mayor, Council Members, Residents, & Staff

Fatal shade tree diseases and insect infestations such as the Emerald Ash Borer (EAB), Oak Wilt, and Dutch elm Disease can be effectively managed. Active management, while not eradicating the pest, results in more trees being preserved. Tree preservation, with its trickle-down economies, benefits the rest of the environment more than we can possibly imagine.

Through the efforts of the City and its residents the shade tree disease program remains highly effective. The loss of oaks to oak wilt has remained consistent and manageable for 50 years, underlining the benefits of the program. However, challenges lie ahead with regards to these and other fatal shade tree insect pests such as the Gypsy Moth, the Asian long-horned beetle (ALB), and other yet unknown tree killers. Bur oak blight (BOB) and other less fatal tree diseases are also having serious impacts in North Oaks. Include in that impacts from weather related events and one can see that times can be challenging for trees as well.

To comply with the DNR Shoreland Management Act, the city requires that residents seeking to work within 100 feet of the shoreline apply for a Shoreland Forestry Permit. Oftentimes residents are not aware of the requirements of working along the shoreline and the Forestry staff will help them make sure they are following State, City, and Association regulations, ordinances, and policies.

Still other residents like the fact that they can call the City Forester and request a general health visit or diagnosis of their trees. They appreciate working with our knowledgeable staff and receiving the unbiased advice that is provided. It is in fact one of the best parts of our jobs.

Hazard trees and trees that lean excessively into the street are also an ongoing concern by maintenance staff and residents alike. Operation Clearview, based on our field observations, was designed to address these issues. City staff sent out numerous letters requiring residents to remove or cut back vegetation that was within five (5ft) of the street and within thirteen (13) feet of height. As a result of this program, Mel's crew reports that they remove fewer dead or leaning trees from the streets keeping walkers, bikers, and joggers safer from vehicle traffic.

All of our tree inspectors are certified through the State by the Certified Tree Inspector (CTI) Program. Continuing education is an important component for any Tree Inspector as well as attendance at the annual Minnesota Shade Tree Short Course put on by the University of Minnesota.

One hundred eighty (180) trees were marked for Oak wilt within the city of North Oaks in 2021. Removal of these trees is critical as it is the first part of the treatment protocol. If diseased oak trees are left standing, they can contribute to the over land spread of the disease.

The overland spread creates new infection centers on neighboring properties to the detriment of all homeowners within the community. Residents are also informed, educated, and encouraged to seek further treatment options to include root pruning and or fungicide treatment injections. These treatments have the potential to save countless trees not only as it relates to oak wilt but Dutch elm disease and Emerald Ash Borer as well. Two (2) additional trees were marked for Dutch Elm disease in 2021. Both the number of Oak wilt and DED are within the usual thresholds for this disease annually.

Emerald Ash borer is now becoming more prevalent throughout the community. Twenty-five (25) ash trees were marked for removal in 2021 and this number is sure to rise. Countless numbers of diseased ash trees will be marked for removal to help slow the spread and keep the community safe and looking its best. Encouraging residents to re-plant and maintain the forest understory and canopy will be keys in keeping the community a highly functioning natural environment.

It is critical that the City continues to work with multiple partners to the benefit of its natural resource. To date the City has worked with and has fostered positive relationships with the Minnesota Department of Agriculture and the Department of Natural Resources. Collaborative projects have also been undertaken with the University of Minnesota, St. Paul Regional Water Utilities, Vadnais Lakes Area Watershed Management Organization (VLAMO), and Ramsey County. Locally, the Natural Resource Commission (NRC) and the City has excellent stewardship partners in the North Oaks Homeowners Association (NOHOA), North Oaks Company, and the Golf Course, all of which understand the benefits of a healthy environ. Partnering together is the most effective tool in preserving and protecting our natural environment.

We appreciate the opportunity to work with the you and feel your passion for the beauty of North Oaks forested resource. We are living in uncertain times, times when we value, even more, the tranquility and enduring beauty of our community and home sites.

Respectfully,

Mark Rehder
Contracted City Forester

Forward

A forestry program is something that every community desires, especially with the unique makeup of North Oaks and its forested environment. Rehder Forestry Consulting is proud to offer a comprehensive program and variety of services to meet North Oaks' urban forestry needs. This report describes those services, details findings and results, and provides recommendations to aid the City in maintaining and improving the quality of its urban forest.

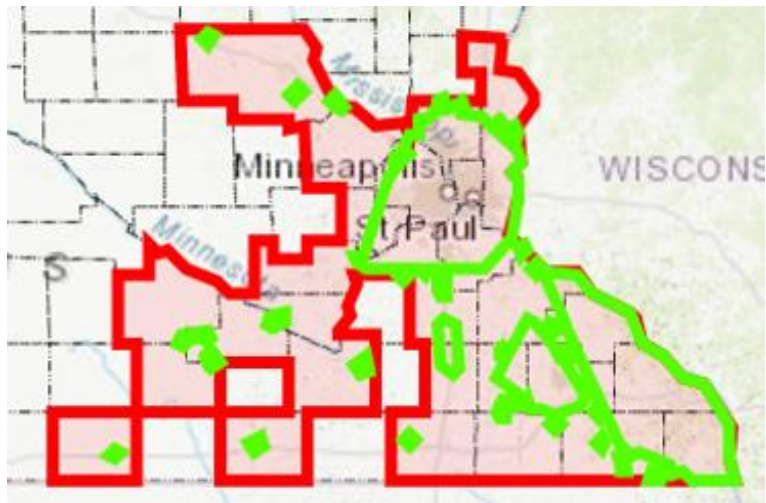
Emerald Ash Borer

In March of 2019, a Minnesota Department of Agriculture (MDA) scientist confirmed the Emerald Ash Borer beetle (EAB) to be in North Oaks. The site was near the pumphouse on the south side of Pleasant Lake. EAB is a tiny beetle that is devastating forests and neighborhoods in Canada and the United States. To date, EAB has killed tens of millions of ash trees and infested over 50,000 square miles in Michigan, Ohio, Illinois, Indiana, Iowa, Missouri, Tennessee, Virginia, Pennsylvania, New York, Kentucky, Wisconsin, Minnesota, and Canada.



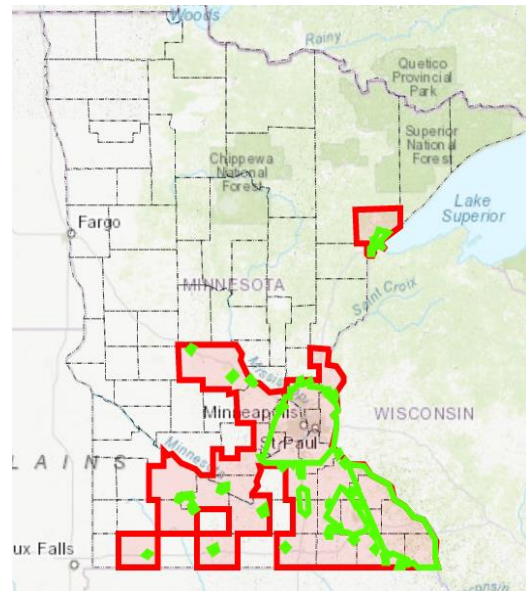
Ash was used extensively as street trees to replace elms lost to Dutch elm disease in the 1970s and 1980s. The state has the third largest volume of ash timber in the nation.

In 2009, Emerald Ash borer was discovered in St Paul, a mere 8 miles away from the borders of North Oaks. Since then, the City has been under an ash quarantine, meaning that no ash trees, limbs, or debris can be removed from the county. In 2011 EAB was discovered in Shoreview just over two miles from the North Oaks border. The key to combating the insect is early detection.



Extent of EAB in Southern MN

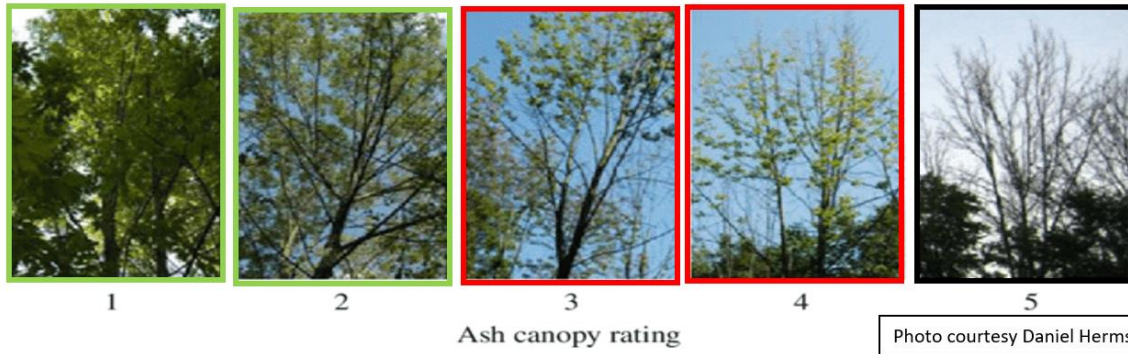
One of the major concerns about the rapid rate of mortality from EAB is public safety. The city conducted an inventory around Pleasant Lake and the main streets and found the potential for a high percentage of potentially hazardous tree situations as a result of expected tree mortality. Ash trees, which are common in lowland areas (near water bodies and trails), tend to shed bark and large limbs shortly after they die due to their brittleness. It is anticipated that many of the trees will die quickly within the next 10 years, meaning the removal of thousands of trees in a brief period, and straining budgets. It is estimated that as many as 75 semi-loads of ash debris could be created from the trees around Pleasant Lake alone. While the environmental impacts may be great, the financial burden may be even greater. The city will need to be vigilant that these problems are addressed as they arise. The map shows the current location of EAB in Minnesota. The insect seems to get further and further into greater Minnesota every year.



Extent of EAB in MN

One key to early detection will be to offer assistance to residents to identify, locate, and devise a strategy for managing EAB on their property. If desired, a member of the Forestry Department would meet with them on their property and educate them on what to expect in the future. By locating the insect in a particular area, we can quickly take measures to remove the diseased trees and hopefully many of the immature larva still in the trees. In this way we can limit the spread to new areas and within the existing area. The goal is not necessarily to remove the insect completely but to slow the spread thereby giving us more time to take the appropriate steps. While North Oaks does not have the typical “boulevard” trees its ash resource is none the less extensive. It has been suggested by the MN DNR that North Oaks has an ash population of around 7%, which equates to roughly 35,000-50,000 trees, a staggering number.

Another challenge is when to mark an ash tree for removal. Unlike oak wilt or Dutch elm disease, it takes multiple years for an ash tree to die. The Forestry Department is following the recommendations made by the Minnesota Department of Agriculture in their guidelines on slowing the spread. During the first two years of infection there are few outward signs the tree is diseased and in fact it can look perfectly healthy. While a trained eye can see the initial signs, for example, wood-pecker activity, blanding of the bark, etc., there are not many ash borers leaving the tree. In fact, the tree can still be effectively treated. However, in later years, years three through five, more signs will become apparent, and the tree will start to rapidly decline. At this point the tree could no longer be treated and will soon be a standing dead, diseased tree, and will be marked for removal.



A green square means the tree could still be treated and the number of EAB leaving the tree is minimal

A red square means it is too late to treat the tree and it should be sanitized as an exponentially high number of EAB is leaving the tree

A black square means the tree is dead, brittle, and depending on its size and location, a potential public safety issue.

Another concern about waiting too long before removing diseased ash trees is for the safety of the tree care company arborists who must remove these trees. While we do not want to remove ash trees without any signs of EAB, if other trees in the near vicinity (for example on the same lot) are already showing initial signs, it may make sense to consider removing these trees while it can still be safely done. Dead/dying ash trees that stand too long become extremely brittle and the safe removal of the tree can be in put in doubt. Many trees are removed with a tree climber physically climbing the tree and lowering small sections one at a time. If the tree is too brittle the climber cannot safely climb the tree. Large machinery with additional costs may need to be brought in to safely remove the tree. Or the tree may remain standing if access is not feasible- an option we hope to avoid. It will be a fine line between early removal and waiting for as long as possible but by meeting with residents we hope to get an understanding of the strategy they wish to take in managing this fatal tree disease on their property.



Telltale woodpecker damage from EAB, it's time to remove



How not to manage EAB

Previous maps showed the extent of EAB in Minnesota. The green line on the map represents what are considered to be “generally infested” areas by the MDA. While the pest does continue to spread in Minnesota it may not be moving as quickly as originally forecasted. There are many reasons for this. First would be the colder winter temperatures. When winter lows get below 30° Fahrenheit large numbers of larvae will perish. It is estimated that up to 75% of the population may have perished in the Twin Cities area as a result of frigid February temperatures in 2019.

Secondly, preemptive and diseased ash tree reduction programs have been implemented by most communities over the last 10 years reducing the population by a significant amount and, at least temporarily, preserving many trees in the process. Trees have also been preserved with treatments that are stated to be 99% effective. Some communities have decided to treat all their boulevard ash trees, while other communities have decided to treat none of their ash trees. Most other communities have used a blend of the two treatment strategy options. The treatments need to be repeated every 2-3 years in order to be effective.

Lastly is the introduction of three different types of parasitoid insects. These insects lay eggs on the EAB larvae under the bark. When the eggs hatch they feed on the EAB larvae. This program, started in 2019, is being used by the Minneapolis Park & Recreation Board as a strategy within its woodlands. This may be the best option for preserving trees in woodland settings such as we have in North Oaks. The parasitoid insects have undergone extensive testing from the USDA but their effectiveness remains to be seen since they have only recently been released. Success will be determined by how many parasitoid insects can be observed in the following years (survivability) and how effective they are at reducing the EAB population.

It is obvious that great cooperation will be needed amongst the homeowner’s association (NOHOA), the residents, North Oaks Co., the Golf Course, and the City. To that end, the Natural Resource Commission established an EAB Preparedness Plan, which has been adopted as part of the Cities ordinances. The Plan calls upon the City to treat EAB infested trees as it does Dutch elm disease and Oak wilt. All diseased ash trees will need to be removed and their removal will be enforced. The Plan also set parameters for treatment protocols that follow best management practices as well as numerous other practical steps that can be taken to limit the impact from the devastation caused by the EAB.

A key component of any successful program will be education. Since residents will be the ones most affected by EAB it will be critical to keep them informed and hopefully easing the burden of the introduction of EAB into our community. To that end the Forestry Department is available to meet with residents and assess their ash population. The landowner will then know how many, where, and how valuable the ash trees are on their property. They will then be able to make informed decisions with that information.

Oak Wilt

Oak wilt is found in the upper Midwest and as far south as Texas. The fungus probably established itself in this area long ago but was not identified until 1948. The American Phytopathological Society has determined that oak wilt is an invasive species and probably originated somewhere in Central America. Oak mortality had been observed in Minnesota for many years, but until that time it was not known what caused the trees to die. It is interesting to note that in the 1970's, when Dutch elm disease was decimating so much of the State's elm population, more oaks were dying from oak wilt. Urbanization of metro area suburbs has increased the number of people affected by oak wilt by wounding valuable oaks during road building, home construction and other development. Damage that occurs during these activities has accelerated the spread of this disease. There is now a high incidence of the disease throughout the seven-county metropolitan area. Today, new infections are often correlated to large storm events and new construction in wooded areas. The symptoms of decline and death due to construction damage can mimic oak wilt, complicating diagnosis, and inflating numbers of marked trees in some cases. Currently, oak wilt is the most serious shade tree disease in Minnesota (photo below). Thousands of trees die every year in areas without control programs, but both prevention and control are possible. New techniques also add to the tools available for saving this valuable community resource.



Oak Tree with Oak Wilt

Cities that have any sizable American elm population also have an unavoidable problem with Dutch elm disease. But a continuing elm sanitation program can reduce the incidence of Dutch elm disease. The best way to control this disease is prompt and proper disposal of the diseased wood. The best and only way to assure this is with an inspection and sanitation program.

We continue to find the citizens of North Oaks greatly interested in their City's urban forest. They continue to be concerned enough to ask questions and happy to learn about their important tree resource. Compliance within the shade tree disease program remains at an all-time high.

Oak Wilt Program Summary

The following is a brief summary of the inspection and control procedures for the City of North Oak's Oak Wilt Program. The City's Oak Wilt program provides a comprehensive approach to protecting and maintaining its valuable forest resource. The program provides homeowners with detection and treatment of the disease, along with follow-up assistance for proper reforestation.

Oak Wilt is detected through a series of ground inspections, aerial photography, and responses to homeowner calls. Our inspectors locate and map the infected trees and evaluate the site for potential spread. In neighborhoods with either active infection centers or recent (past two to four years) infections, our inspectors will perform a walking survey of the area to assure all infections are located. In areas of town without a recent history of disease or many oaks, we perform windshield surveys where we can cover a wide area in a relatively short time.

Our tree inspectors are all tested and certified through the Minnesota Dept. of Natural Resources Tree Inspector Certification Program. We have our inspectors wear company work shirts and vests, along with signs on their vehicles for a professional look. Prior to entering a property, our inspectors will first knock on the homeowner's door to introduce themselves, explain the purpose of their visit, and answer any questions the people may have. Over the years we have found the citizens of North Oaks to be very receptive and supportive of the Oak Wilt program and the efforts to maintain a healthy natural environment in the City's parks and neighborhoods.

We also respond to private homeowner calls over concerns about their oaks. If we can't answer their questions over the phone, or if we have not previously identified Oak Wilt on their property, we will make a personal call to the property.

The treatment facet of the program involves controlling the spread of Oak Wilt via the grafts that readily form between the root systems of adjacent oak trees. For years the only effective method of control involved severing the root grafts with a five-foot long blade pulled by a large tractor. While this is a very effective method, recent University of Minnesota studies show 87% effectiveness at stopping the spread of the disease, it is not always feasible, due to obstacles such as landscaping, underground utilities, fencing, wetlands, or steep topography. Many years ago a chemical fungicide with the active ingredient propiconazole was licensed for use on Oak Wilt in Minnesota.

Research is also ongoing on the potential use of herbicides to kill a number of oaks within root graft distance. The intent is to kill the fungus in the root system so that it can not spread. However, initial reports are not too encouraging, but the research is ongoing. It also sacrifices a large number of oak trees that could be preserved with traditional treatment methods.

Not every Oak wilt infection center requires treatment, only those sites with oaks close enough to form root grafts. Sites where there are enough trees of other species to form a natural barrier, or where other barriers such as roads or houses exist, do not require treatment. North Oaks is blessed with a diverse forest, which help limit the spread and impact of Oak wilt.

Diseased oak trees create spore mats (photo sequence below) which are responsible for the overland spread of the disease. We are limiting the number of new infections that can start by removing diseased trees. Diseased trees often times carry the fungal pads that contribute to the overland spread of the disease.



Crack in Bark from Pressure Pad



Exposed Oak Wilt Spore Mat



Spore Mat resembles a Mushroom, note the gills

After the dead trees have been removed and properly disposed of, we encourage and assist people to reforest the area with suitable species. Without taking positive action to replace the missing trees, the area tends to be overtaken by ‘weed’ species like buckthorn, honeysuckle or Garlic mustard. Reforesting an area can be as simple as protecting and encouraging existing seedlings, to moving small seedlings from other areas of the yard, or to planting nursery stock of all sizes. Regardless of the method, we want to make sure we provide the homeowners with the information needed to choose trees that will be suitable and proper for their yard and meet the homeowner’s desires.

Not every tree will be suitable for every site. Our knowledge of the soils and environmental conditions in North Oaks allows us to recommend to people trees and shrubs that will be healthy and thrive on their lot.

We have also expanded the information provided to the citizens by developing and maintaining a natural resource tab on the City’s new web page. There residents can find useful

information to help them make informed decisions about what species to plant and where to plant them. We will continue to develop this resource as seems fit.

RECAP OF 2021 DISEASED TREES

	Dutch Elm Disease Trees	Oak Wilt Trees	EAB
Private	2	158	25
NOHOA	0	8	0
NO Company	0	14	0
TOTAL	2	180	25

Propiconazole Fungicide Injections

We keep abreast of recent developments in disease control techniques. One such option that is showing great promise is the injection of the fungicide propiconazole for control of Oak wilt.

Although there has been good success with vibratory plowing for the severing of root grafts, occasionally there are cases where it is not applicable or feasible. Situations where access for the plow is limited due to terrain or other obstacles sometimes preclude its use. Other times only a single high-value tree may be at risk, in these cases a fungicide injection can be a relatively low-impact, effective option.



The most common utilization of Propiconazole is on Red oaks that share root systems with infected trees but cannot be protected by mechanical root graft barrier. There are many valuable trees that are in inaccessible areas (near homes, terraces, underground utilities or septic systems) that are at high risk, which now can be protected by Propiconazole injections. White and Bur Oaks are less susceptible to the Oak Wilt fungus but can still become infected.

If caught early enough, Propiconazole treatments can be used to treat the infected trees, both suppressing the fungus and allowing the trees to recover.

Results from injecting oaks with propiconazole in the metro area over the last 10 years are encouraging. The process consists of minor excavation to expose the tree's root flare below grade, drilling a series of shallow holes in the tree in this area, and placing a system of plastic tees and tubes connected to a container that supplies the chemical. Time for uptake of the chemical varies with the weather conditions but usually ranges from 1 to 3 hours.

Research has shown that the chemical does not move much beyond the root area where the injections take place. Injections do not keep the fungus out of the tree but keep it from expressing oak wilt symptoms. Only high value oaks should be considered for treatment or bur and/or white oaks which are showing signs.

We recommend the use of propiconazole injections for the control of Oak wilt with the following conditions:

- Use is limited to situations such as mentioned above where the presence of Oak wilt has been confirmed, but mechanical severing of root systems with the vibratory plow is not practical.
- *Preventative use* in Red oaks is used only if a healthy tree at risk shows no symptoms.
- *Therapeutic use* (for curing a tree that is infected but not too advanced) is used on Bur and White oaks only. In Red oaks, the fungus is already systemic by the time any symptoms appear, and the chemical use is ineffective.
- Not all trees are good candidates for injection. The presence of cracks, rot, decay, other structural defects that cause a hazard, or too advanced an infection, are things that can preclude injection.

We will continue to assess the use of fungicides as part of North Oaks' shade tree disease program.

Severing Grafted Roots

The oak wilt fungus can remain active in roots of diseased oaks for 2 to 3 years after the tree has died or been cut at ground level. The fungus can travel through the root system into healthy oaks quickly or remain in the root system before infecting the next tree. The purpose of root graft disruption is to separate the common root systems between oaks, so that the disease becomes isolated and cannot continue to spread.



The above picture shows a root graft. Roots can graft when as small as pencil-thickness, when their diameter becomes large enough to cause enough soil pressure to stimulate a graft to form. Soil type will also affect root structure, and therefore grafting distance between trees.



The vibratory plow is a large and heavy machine in order to be able to cut to an effective depth. The only part that enters the ground is the blade at the right of the photo. It is a powerful machine that is pulled by large tracks and usually involves minimal ground disturbance.

The best mechanical method of separating roots involves the use of a large articulated tractor with a specially designed 5' plow blade. The vibrating blade is pulled through the ground, physically cutting and separating the roots. Numerous contractors are available to provide this service to residents. Studies by the University of Minnesota analyzed the success of root graft disruption with a vibratory plow. The data show an 87% success rate on plow lines placed as primary barriers. This low rate of failure can nevertheless involve very significant and valuable trees. These losses can be devastating to a homeowner expecting control measures to save all of their trees. By reviewing the barriers placed and participating in current research, we are learning more about the biology of the fungus and its spread vectors. This information will help us to increase the success rate of our control programs even more.

Bur Oak Blight

Impacts from Bur oak blight (BOB) continue to be felt. The symptoms can be very dramatic as large bur oak trees can be severely effected. The cause is a leaf fungus which will attack the leaves of the tree causing early browning. The symptoms can be very similar to oak wilt and it is easy to mis-diagnose. I have seen many cases where 4 or 5 large bur oak trees have become severely infected leaving the homeowner in a state of panic. Fortunately, it is believed that a dry spring may break the cycle of this disease. The leaf fungus stays on the leaf petiole of the tree over the winter and when the spring rains come it moves to the newly emerged leaves and infects them. This cycle can continue for many

years and can cause significant stress to the tree.

It's important to remember that bur oaks can lose up to 50 percent of their canopies every year but still remain relatively healthy.

However, when a bur oak loses more than half its leaves for several consecutive years, it may become stressed and susceptible to other problems, such as two-lined chestnut borer and Armillaria root disease. The same bur oak in Zimmerman, Minnesota, photographed in September 2017, 2016, and 2015, from top to bottom.



Still, even when a bur oak has had severe BOB, it may be relatively healthy. The best time to evaluate bur oak health is in June: if the tree does not have branch dieback or epicormic shoots (small, young branches growing out of the trunk and big limbs), it is probably not stressed. We need to educate residents to give these trees the benefit of the doubt and to not remove healthy trees. Articles in the North Oaks News will be forthcoming on this tree disease.

Yard Trees

Yard trees are high value and additional measures are often possible with them. Two-lined chestnut borers (TLCB) populations can be reduced by cutting and removing infested trees before the start of the next growing season. Infested oaks are those trees which died or showed heavy dieback this year.

Remove oaks that are completely dead. TLCB populations can be reduced by cutting and removing infested trees before the start of the next growing season. Since TLCB larvae can survive in cut and split wood to emerge next spring, the complete removal of infested logs and branches should be done by May 1st of next year.

The preferred methods of wood and slash disposal are removal to an approved landfill or sale of tree for lumber. If any woody materials larger than 1 inch in diameter remain, pile and burn them before May 1st in an approved fire pit. If you want to keep the wood for firewood, cover the wood pile with a heavy plastic tarp and bury the edges of the tarp in the soil for an airtight covering. Keep the firewood covered until at least July 30th next year. Then the wood can be moved or burned as you like.

If droughty, water healthy and declining oaks on a regular basis during the growing season. Trees with less than 50% dieback may be saved by heavy watering during droughty weather. If rainfall is inadequate, make sure trees get at least 2 inches of water per week in May and June and 1 inch per week in July and August. Water so that the entire root system receives this amount of moisture all at once. Remember the absorbing roots are at the dripline and beyond.

Strictly avoid using fertilizers and/or herbicides on lawns and gardens within 50 feet of an oak tree. Fertilizers will only hurt an ailing tree and herbicides kill tree roots too, leading to more root system loss.

Avoid practices which destroy or smother roots. Root loss will drastically affect tree vigor. Practices which damage roots include trenching or burying utility lines which sever the roots; compacting the soil around the roots by driving and parking of vehicles on roots systems; smothering roots by paving or temporarily storing excavated soil over the root system; or, by changing soil grade, either adding or removing soil.

Control other insects that cause defoliation before 60% of the foliage is lost. Once defoliation reaches this level, the trees may re-foliate and this decreases tree vigor. Develop and implement spray plans if heavy defoliation is predicted to occur for the second or third consecutive year.

Avoid bringing fresh firewood into your yard. Bringing more infested wood into an area can compound the problem of Oak wilt and EAB.

Chemical insecticides are not useful against TLCB because of difficulties with timing and obtaining thorough coverage on large trees. However, certified arborists or commercial pesticide applicators may be able to treat high value shade trees.

Invasive Species

Invasive species continue to negatively impact the natural resources of North Oaks. Recently a large infestation of Oriental Bittersweet, an aggressive vine that will completely overtake a forested area, was found within North Oaks. The plant is on the States Noxious Weed List as one that needs to be eradicated and that it is unlawful to knowingly possess this plant. Oriental bittersweet is an invasive vine that has showy fruit that is often used in landscapes and holiday decorations and displays. It out-competes our native American bittersweet (and most all other woodland plants) by having a longer growing season and by the extreme area and size the vines can reach. Vines can be many inches in diameter and can completely smother mature trees, limiting their ability to photosynthesize. Oriental bittersweet has been observed covering half-acre wood lots in just seven to 10 years reminiscent of the Jack-in-the-bean-stalk fairy tale. If they have nothing to latch onto the vines will simply cover the forest floor choking out native plants. Finding and controlling Oriental bittersweet when it is not widespread is the key to managing this extremely aggressive vine.



Oriental Bittersweet fruit

Funding was appropriated through a grant from the MN Department of Agriculture to help eradicate the infestation. Diligently working with over a dozen landowners, the City received permission to have a vendor cut the plants, apply a light herbicide after they re-sprouted, and re-planted the site with native forest plants. The 15-acre site has been treated and will continue to be monitored for future spread with the cooperation of the landowners.



Oriental Bittersweet Vine Overtaking a Mature Tree

Based on this find, and working closely with the County Weed Management Program, a volunteer from the County walked and drove down many streets and trails looking for this and other invasive species such as Japanese Knotweed. Fortunately, the area previously mentioned was perhaps the worst that was observed by the inspector. Landowners were informed and educated about the damage caused by this plant to native plant communities.

Education will be the key to managing invasive species throughout North Oaks. Even something as simple as trying to identify Oriental Bittersweet versus the native America Bittersweet can be a challenge. If the experts have a hard time identifying it, how can it be expected that a resident would be able to tell the good from the bad, understand the best treatment options, and know how to re-plant the site. Continued workshops, both indoors and out, articles in the North Oaks News, and literature available at City Hall are constantly being provided and updated.

Rehder Forestry Consulting looks forward to working closely with all North Oaks' partners in 2022. Addressing problems such as shade tree diseases, invasive species, and public safety will be at the forefront of our objectives. By proactively addressing these issues we can make a real difference for the future. A forest canopy provides myriad benefits to a community (clean air, clean water, wildlife habitat, privacy, aesthetics, erosion control, etc.), and it is all our responsibility to educate and inform residents of these benefits. By being proactive we can make a considerable difference in the health of our community forest - now, and in the future.