Northbrook Park District

Village Green Park Oak Tree

Management Recommendations Report

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Introduction

The purpose of this report is to provide recommendations for Northbrook Park District in their ongoing management of the oak tree community at Village Green Park. These recommendations include and build upon the conversation during a site meeting with staff in October 2018.

Site and Background

Village Green Park is a historic 10 acre park located in downtown Northbrook, Illinois. According to the agency's website the site - formerly known as Barrensheen's Grove - was purchased in 1944. The park is located centrally in the village, and in the intervening years it has been developed to include many amenities and recreation features. In addition, Village Green Park is the venue for numerous well attended community events and concerts throughout the year (1).

Over the years the use – and the impacts - have increased at Village Green Park. Many of these demands are not immediately visible to a casual observer but are well understood by land managers who are charged with the stewardship of these facilities. Among these demands are the various environmental pressures that can impact the plant materials – including the focus of this report- the mature oak trees at the site.

In the summer of 2018 two bur oaks (*Quercus macrocarpa*) the oaks at the site were found to be diseased. One specimen had fungal canker and the second had bacterial leaf scorch. These pathogens were verified by samples that were sent to and analyzed by the University of Illinois Extension Plant Clinic in August 2018.

Fungal canker, according to the Morton Arboretum, is one of many types of cankers – which is essentially an open wound that becomes infected by a bacteria or fungus. There are numerous types of cankers that impact plants, and they can cause death of branches and can weaken plants until they die. The best control of cankers is to keep plants healthy and vigorous (2).

Bacterial leaf scorch (BLS) is, according to University of Illinois Extension Service, "is an infectious disease caused by bacterium *Xylella fastidiosa* that spreads systemically and causes a slow decline and death of the tree" – for which there are no known effective treatments (3).

In both cases, treatment recommendations for mitigation of these two pathogens amount to maintaining the health and vigor of impacted plants.

In many instances such diseases may have been brought on as a result of the environmental stresses that are often found in settings that are urbanized and developed. Mature trees, and native oaks in particular, are sensitive to typical site alterations, including changes in soil grades and composition, changes in drainage, changes in adjacent plant materials, soil compaction,

root loss, changes to soil chemistry, et cetera. Less obvious can be the impacts of air and water pollution and local effects of climate and phenological disruption.

The oaks at Village Green Park are exhibiting – in varying degrees – some of the stresses that are common to oaks in similar settings throughout the Chicago region. The challenge then becomes how to maintain this remnant population of oaks for the long term, in a way that recognizes and finds a balance with the high value and usage of this site. The recommendations that follow will provide some methods and practices to that end.

Recommendations

- Identify/target priority areas. An important early step in the process is to identify and prioritize the areas and individual oak trees within Village Green Park to be included in the proposed management tasks. In a park of this size this should be a straightforward process and would include an inventory of trees targeted for future action.

  After that review is completed a decision should be made as to which trees may be in too poor a condition to warrant additional treatments. This type of determination can be made by reviewing the amount of deadwood in the crown, presence of decay, etc. In other words, target the trees that appear robust enough to take advantage of proposed management tasks for years to come.

  This is also a good time to consider potential design ideas into these priority areas – for reasons that will become clear below.

- Develop a timeline and metrics for the management work. Once the priority areas have been determined, develop a timeline to track both operations and results of the work. It is recommended that a minimum of five years be used as a timeline to monitor the progress of the management efforts.

  Along with development of the timeline, identify some objective metrics to help measure results. These could include qualities such as leaf color, growth rates, percentage of deadwood, and the like. Such qualities can be tabulated from year to year, and management tasks can be adjusted as conditions warrant from these results.

- Conduct soil tests. After the priority areas have been determined take comprehensive soil samples within the driplines (at minimum) of the targeted oak trees. Make detailed notes of the location and depth of where the samples are taken – so that future samples may be gathered from the same areas for comparison.

Soil testing is important as it provides information about soil chemistry and nutrient makeup that can help inform management needs. This is particularly important in areas where ongoing turf management treatments are taking place.

If possible, soil testing should also include samples from nearby similar undisturbed areas for purposes of comparison.

- Develop oak tree protection zones. Along with the previous recommendations is the consideration of creating oak tree protection zones with Village Green Park.

  As mentioned earlier mature trees can be vulnerable to a wide array of environmental stresses. Some of these, such as soil compaction, chemical applications, etc. can be mitigated by creating tree protection zones to help protect tree roots. One useful starting point goal is to minimize disturbances within an area equaling one foot of root zone radius for every inch of trunk diameter. This can be defined as the critical root zone of a tree. For example, an 8 inch diameter tree would have a 16 foot diameter critical root zone (via the 8 foot radius).

  Such areas can be a challenge to develop in a highly used space such as Village Green Park, and it is recommended that a landscape architect be included in the early planning process to help determine the feasibility of developing tree protection zones.

  Even if such areas cannot be developed on a permanent basis, consideration could be made to install temporary oak tree protection zones during crowded public events, concerts, and the like. These could also be installed during the wet months when soil is more easily compacted by foot traffic, mowers, etc.

- Expanded tree rings. One common practice to help protect tree roots is to install, or expand existing, mulch rings around mature trees. Mulch rings help to eliminate competition with turfgrass for moisture and nutrients, reduce exposure to herbicides from lawn treatments, add more organic material to soil as mulch breaks down.

  In addition, such expanded mulch rings can have native perennials installed in them to help them become more visually appealing to the public. Such plantings can also help to further the environmental leadership goals of the agency as noted in the 2017 Stewardship Report (4).

- Relieve soil compaction. In areas of severe soil compaction more aggressive practices such as vertical trenching and or air spading could be employed to help provide relief of

compaction. It is recommended that such practices be limited to areas that can be protected from further disturbances.

- Drought Monitoring. It is recommended that future management plans include drought monitoring and supplemental watering as needed during extended dry periods.

- Installation of new oak trees. On a broader scale, the Chicago Regional Tree Initiative has identified the lack of young oaks as one of the most pressing threats to the long-term viability of our local oak populations (5). This is a problem even in nearby local natural areas that are being aggressively managed to preserve native oak communities.

  It is strongly recommended that one element of the Village Green Park oak tree management plan include the installation of new oak trees. Ideally, these new trees would be grown from the acorns of the existing local population. If the park district cannot propagate these themselves perhaps a contract growing arrangement can be made with a local nursery.

- Ongoing monitoring and refinement. Any mix of practices that the park district develops should be assessed and refined annually. This should be done in tandem with annual monitoring and recording of growth metrics of the oak trees as outlined above.

Communications

Village Green Park is a tremendously important site to the residents of Northbrook. During the course of the site meeting it became apparent that there were a number of stakeholders in the community that should be included as the oak tree management plan is developed.

For example, how might the creation of oak protection zones impact the functioning of popular annual events and concerts – especially in a setting with a limited amount of space? One of the goals of this report was to suggest ways to help strike a balance between the needs of the residents and the goal of preserving a remnant community of historic oak trees that help make Village Green Park the wonderful amenity that it is.

One key element of striking that balance is to develop a communication plan that helps to inform and educate the users of the park what the goals of the oak management plan are. Such a plan would begin internally with park staff and managers but would quickly include the local stakeholders to solicit their input and approval.

A communication plan can – and should – include or adapt appropriate elements of the previous stewardship plans that the park district has already promoted and committed to. The

preservation of the oak community of Village Green Park could be an important multi-year undertaking that the entire village should be aware of and be proud of.

Communications about this project could be done through signage in the park. Such signage can be permanent or temporary. Temporary signage/kiosks could be especially effective during the summer season to align with popular summer events and could help answer questions from the public about the work itself.

In addition, there is a tremendous opportunity to share this effort with local schools, civic, and religious organizations. The preservation of the oaks of Village Green Park crosses ecological and historic boundaries, and the potential for educational engagement is worthy of consideration.

This is an important new chapter in the ongoing history of Barrensheen's Grove. It is a story that is worth sharing, and effective and creative communications with the community could be a vital contributor to its success.

Conclusion

The mature oaks of Village Green Park are an iconic element in both the history and the landscape of Northbrook, Illinois. Thousands of people have enjoyed their presence and the beauty they add to the community. These oaks are living things. They are a living reminder of the terrain of northern Illinois, now seen ever less so in the early 21st century.

For many years the observed decline of oaks throughout the Midwest has been nothing short of dramatic. Simply put, these oaks are not regenerating. There are a multitude of reasons for this – which an interested reader can easily glean from local arboreta and forestry agencies. The oaks of Village Green Park may appear strong and indestructible, but from an ecological standpoint they are in fact remnants of a native tree community that is quite vulnerable.

These oaks, as much as any other natural organism in the Midwest, will need a great deal of help to persist. The discovery of two diseased bur oaks in Village Green Park are a bit like the proverbial canary in the coal mine. Their presence is a warning, a call to action. There are no simple one-shot fixes and preserving these oaks will likely take a combination of management tactics over the years to come.

The purpose of this brief report was to provide some recommendations and ideas to help the Northbrook Park District staff develop a management plan to protect and preserve the oaks of Village Green Park. The ongoing stewardship of the Northbrook Park District – and the entire village – will help insure that these trees remain growing in the center of the community spirit for many years to come.

References Cited:

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2. Canker diseases. (n.d.). Retrieved from http://www.mortonarb.org/trees-plants/tree-and-plant-advice/help-diseases/canker-diseases
3. Home Yard & Garden Newsletter at the University of Illinois. Bacterial Leaf Scorch (BLS): What You Need to Know and How to Get It Tested. (n.d.). Retrieved from http://hyg.ipm.illinois.edu/article.php?id=629
4. Plans and Reports. (n.d.). Retrieved from https://www.nbparks.org/about/plans-and-reports/
5. Oaks Need Your Help. (n.d.). Retrieved from http://chicagorti.org/sites/chicagorti/files/16CRTI_TrifoldBrch-OakEcosystem_FINv3_042717.pdf

Additional Resources:

1. **Chicago Wilderness Oak Ecosystems Recovery Plan** https://www.dnr.illinois.gov/conservation/IWAP/Documents/Chicago%20Wilderness%20Oak%20Ecosystem%20Recovery%20Plan.pdf
2. **A framework for adapting urban forests to climate change**. Brandt. et al (2016) https://www.fs.fed.us/nrs/pubs/jrnl/2016/nrs_2016_Brandt_001.pdf