Urban Forest Management Plan

Village of Wellington
Palm Beach County, Florida

E Sciences Project No. 2-0981-005

May 2022

Prepared for:

William Gurney III, Landscape Superintendent
Village of Wellington
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May 12, 2022

William Gurney III, Landscape Superintendent
Village of Wellington
12300 Forest Hill Boulevard
Wellington FL, 33414

Subject: **Wellington Urban Forest Management Plan**
Village of Wellington, Palm Beach County, Florida
E Sciences Project Number 2-0981-005

Dear Mr. Gurney,

We are pleased to submit the enclosed Urban Forest Management Plan, prepared in general accordance with our proposal number 2-0981-P10, dated August 16, 2021.

We appreciate the opportunity to offer our professional services on this project. If you have any questions concerning this project, please contact us at (954) 484-8500.

Sincerely,
RES Florida Consulting, LLC d/b/a E Sciences

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1.0 VISION

The Comprehensive Plan for the Village of Wellington (herein referred to as Village or Wellington) has a stated mission related to the overall management of the Village: to *provide high-quality services that create economic, environmental, and social sustainability for residents.*

Management of the Village's urban forest is a key component of the *environmental* and *social sustainability* components of this stated mission. We propose the following vision for the Village's urban forest, which clearly ties into these key components of the Comprehensive Plan mission:

Wellington's urban forest is a vital, functioning part of the Village's infrastructure and should be included in the vision for all future development. Residents of the entire Village will experience a healthier wellbeing from the urban forest through reduced temperatures, reduced pollution, softened city noise, and a host of health benefits. The urban forest canopy cover should be extensive and reduce the heat island effect within the Village, as well as mitigate the effects of climate change. The Village's urban forest is an important part of the Village's character and as an indicator of the Village's health and livability.

2.0 MISSION

As previously noted, the stated mission of the Village's Comprehensive Plan is to *provide high-quality services that create economic, environmental, and social sustainability for residents.* Management of the Village's urban forest is vital towards achieving the environmental and sustainability components of the stated mission.

The Village's Comprehensive Plan currently includes numerous objectives/policies that relate to the Village's urban forest; these objectives/policies are listed below:

- Objective LU&CD 2.1 (Community Design & Appearance): Create vibrant, attractive streetscapes with appropriate materials and detailing, street trees.
- Objective LU&CD 4.4 (Tree Canopy): Increase Wellington tree canopy through the preservation of mature, specimen trees and installation of various tree species on public and private lands.
    - Policy LU&CD 4.4.1 (Enhance and Expand the Tree Canopy): Develop and implement tree canopy programs, policies, and regulations that:
        - Establish a diversity of tree species on both private and public lands.
        - Identify areas for tree canopy enhancement and expansion especially public areas in parks, open space, roadways, and pathways.
        - Educate the community on the importance of the tree canopy and the value to neighborhood character and environmental issues.
        - Evaluate landscape regulations to minimize tree removals, provide incentives for tree relocations, and increase mitigation requirements for tree replacements.
- Objective H&N 5.1 (Residential Construction – Environmental Impact)
    - Policy H&N 5.1.4 (Tree Preservation): Enforce minimum tree preservation and planting requirements for all existing and proposed development to reduce heat transfer and replenish oxygen in the atmosphere.
- Objective CSR 1.2 (Reduce Greenhouse Gas Emissions): Reduce greenhouse gas emissions to improve air quality for the health and welfare of the community (through several measures, including increasing tree canopy).
- Objective CSR 2.3 (Fisheries, Wildlife, & Habitat Protection)
    - Policy CSR 2.3.3 (Native Vegetation Protection): Continue to implement protections of native vegetative communities by enforcing the tree preservation requirements for the preservation of existing vegetation.
    - Policy CSR 2.3.4 (Tree City USA): Continue to maintain the "Tree City USA" designation to promote preservation of native vegetation and enhancement of the overall tree canopy in Wellington.
    - Policy CSR 2.3.5 (Evaluate Minimum Native Vegetation Requirements): Continue to evaluate the Landscape Code with respect to an increase of the minimum required native species of trees, palms, and plant material for all development proposals.
- Objective LU&CD 2.1 (Community Design & Appearance): Create vibrant, attractive streetscapes with appropriate materials and detailing, street trees.
- Objective CSR 5.2 (Green Infrastructure)
    - Policy CSR 5.2.1 (Green Infrastructure Development): Develop green infrastructure natural and semi-natural systems that are designed and managed to support the function of traditional infrastructure including infrastructure that replicates natural ecological

systems, manage stormwater, provide shade, filter air, and sequestering carbon, with rain gardens, tree planting, vegetated streetscapes, and reconstruction of wetlands.

Overall, it is clear the Village's Comprehensive Plan is focused significantly on its urban forest resources. Therefore, the Village's **mission for urban forest management** to achieve the goals of the Comprehensive Plan should be as follows:

Develop and maintain an urban forest that is healthy, resilient, sustainable, and expansive.

3.0 INTRODUCTION

Wellington is a village of 65,398 residents (US Census Bureau, 2019) and 31.4 square miles, located in western Palm Beach County, Florida. The cities of West Palm Beach and Lake Worth form the Villages' eastern boundary and the beautiful Arthur R Marshall Loxahatchee National Wildlife Refuge is located to its west.

The Village is internationally known for its equestrian activities and events. It's often referred to as "The Winter Equestrian Capital of the World," holding the Winter Equestrian Festival, the largest and longest running horse show in the world, along with being the home to one of largest polo facilities in the world, the International Polo Club. The Village contains a variety of parks, shops, bars, restaurants, and regularly holds movie nights, live music and comedy shows at the Wellington Amphitheater. The array of trees and palms in these areas and throughout the Village provide shade and character to the area and help define it as "A Great Hometown".

Wellington's tree canopy is comprised of a variety of trees and palms native to Florida, with species from tropical locations to the south and more temperate climates to the north, along with suitable non-native species which provide aesthetic and environmental value and services to residents and visitors.

The Village's trees provide many environmental, social and economic benefits. They filter pollutants, provide shade and homes for animals, create desirable living and working places, increase property values, attract businesses and visitors, help control storm water runoff and soil erosion and decrease energy and costs associated with cooling.

3.1 Historical Context

Wellington has made a tremendous effort to make its tree canopy integral to the Village's identity since incorporation in 1995. Since 1997, the Village has been designated as a Tree City USA, and it received the Tree City USA Growth Award for over 10 years.

In 2018, the Village received an Urban and Community Forestry Grant worth $12,500 from the Florida Department of Agriculture and Consumer Services which helped initiate a Village-wide tree inventory and management plan project to provide a baseline status of the Village's canopy and to plan for the future.

3.2 Environmental Context

As with Palm Beach County and South Florida in general, Wellington has a subtropical climate. Average winter high temperatures are around 75 °F and lows around 55 °F, with summer highs around 92 °F and lows around 75 °F. Based on these climate conditions (particularly winter low temperatures), the Village falls within USDA Plant Hardiness Zone 10a. The University of Florida Institute of Food and Agricultural Services (UF-IFAS) provides a *Florida Friendly Landscaping Guide to Plant Selection & Landscape Design* that includes the appropriate hardiness zones for tree and other landscape species. This guide can be used to ensure that any proposed trees are appropriate for Wellington's tropical 10a hardiness zone (https://ffl.ifas.ufl.edu/media/fflifasufledu/docs/FYN_Plant_Selection_Guide_2015.pdf).

Based upon a review of the USDA GIS soils data, the majority of mapped soil types consist of hydric soils (±26,064 acres) vs. non-hydric soils (±2,237 acres). Hydric soils are typically found in lower elevation areas, are poorly drained, and are better suited for vegetation adapted to wet conditions. Therefore, when considering landscaping within previously undeveloped areas, proposed planting areas should be raised in elevation if upland species are proposed/desired; otherwise, trees adapted to poorly drained soils should be considered where pre-existing ground elevations are left unaltered.

3.3 Purpose of Having a Management Plan

Per discussions with Village staff, the overall goals of developing this urban forest management plan were to assess the current condition of the urban forest, and to improve and expand upon the Village's urban forest management approach based on the current data.

The current condition of the urban forest has been assessed through the Village wide GPS tree inventory conducted by E Sciences (described in further detail in section 5.0). Evaluation of this data set can be used to conoduct the following:

- Identify hazardous trees (i.e. dead or critical trees) to be removed (i.e. reduce potential risks)
- Prioritize maintenance based on tree conditions to improve tree health
- Develop targeted maintenance regimen based on tree conditions and defects noted (and determine costs for maintenance)
- Calculate monetary benefits of the urban forest (both structural and ecological values) relative to maintenance costs (this in turn will help to justify maintenance budgets)
- Make recommendations for future species to be planted (e.g., add diversity and resiliency to the canopy by adding species that are not currently used and are wind resistant, flood resistant, etc.)

In addition to a review of the current tree data, the management plan will also include recommendations for improvements to the Village Landscape Technical Manual to ensure that the latest best management practices for site selection (i.e. appropriate species for particular site conditions/constraints), species selection, individual tree selection, installation, pruning, root pruning, and other management efforts are incorporated.

4.0 PLAN DEVELOPMENT

4.1 Planning Scope

This urban forest management plan considers the entire urban forest, which includes the following:

- Village of Wellington trees, such as street trees in medians and swale areas, park and natural area trees and trees in Village-owned properties such as government buildings and public resource buildings;
- Privately owned trees; and
- Trees owned by other public entities within the Village boundaries, including County, School Board, State of Federal lands.

Trees within these spaces include the following:

- Planted horticultural trees in urbanized settings (most trees in developed areas); and
- Retained native trees in urbanized settings.

The first step in the development of this plan was to understand the existing structure and condition of the urban forest. This was accomplished by the following:

- Conducting an inventory of the trees within Village streets and properties; and
- Perform an assessment of the ecosystem services and structure of the inventoried trees using the i-Tree "Eco" program.

The second step in this plan was to analyze the data and make recommendations to improve the management of the urban forest, including ways to better the structure and health of the canopy, standardize the maintenance of the Village's trees and improve the Village's code, which serves as a tool to require the planting, maintenance, and preservation of the Village's trees.

4.2 Relationship to Other Planning Documents

The Village's Comprehensive Plan currently includes objectives/policies that relate to the Village's tree canopy that were listed in Section 2.0 of this report. The Village has also created a Tree Board, comprised of qualified Village employees to oversee the development and implementation of an annual plan for planting and maintenance of Village trees. The latest Tree Board annual plan is included for reference in **Appendix A**.

5.0 STATUS OF THE URBAN FOREST

5.1 Tree Resource Assessment

The status of the urban forest was assessed by conducting a GPS tree inventory and an analysis of the tree inventory data using the i-Tree "Eco" program, which replaced the i-Tree Streets program in 2019. These two assessments are described below.

5.1.1 Tree Inventory

The table below provides an overview of the number of trees collected and general locations of those trees for each of the three phases comprising the Village-wide inventory:

Table 1. Summary of Wellington Village-Wide Tree Inventory Phases

Phase No.	Completion Date	Total Number of Trees Inventoried	Areas Inventoried
1	October 2018	5,544	12 major roads and 11 parks
2	June 2019	2,402	27 municipal sites, parks and other greenspaces
3	September 2020	5,233	8 parks and other greenspaces
Total		**13,179**	

Notes:

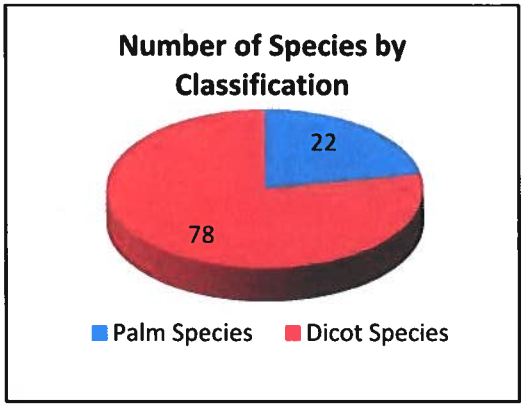
1. Major roads included Forest Hill Boulevard, State Road 7/US 441, South Shore Boulevard, Wellington Trace, Greenview Shores, Binks Forest Drive, Paddock Drive, Greenbriar Boulevard, Birkdale Road, Big Blue Trace, Stribling Way, and Pierson Road.
2. Parks included Village Park, Greenbriar Park, Summerwood Park, Primrose Park, Margate Park, Amesbury Park, Tiger Shark Cove Park, Farmington Park, Brampton Cove Park, Block Island Park, Dorchester Park, Foresteria Park, Wellington Green Park, Wellington Rotary Peace Park, Scotts Place Park, Wellington Patriot Park, Block Island Park, and Olympia Park.
3. Municipal sites included City Hall, Community Center, Wellington Veterans Memorial, Wellington Tennis Center, and Wellington Aquatic Center.

A total of 13,179 trees were inventoried between the three phases of the Village-wide inventory. The locations of these trees are depicted on the attached Tree Location Maps (**Appendix B**), and the associated tree data is provided in **Appendix C**. The following tables and charts provide an analysis of the total data set:

Table 2. Summary of Tree Quantity and Number of Species	
Description	**Quantity**
Number of Trees	13,179
Number of Tree Species	100

Large, woody, flowering plants are commonly referred to as trees, however, they are classified into two groups based on the presence of one or two embryotic leaves known as cotyledons. Cotyledons are the first leaves present upon sprouting. Palms are classified as monocots because they have one cotyledon and trees are classified as dicots because they have two. For clarity in this report, dicotyledonous trees will be referred to as dicots, while trees will be used to refer to dicots and palms.

Table 3. Trees by Classification		
Type	**Number of Species**	**Total Number of Individuals**
Palms	22	4.585
Dicots	78	8,594



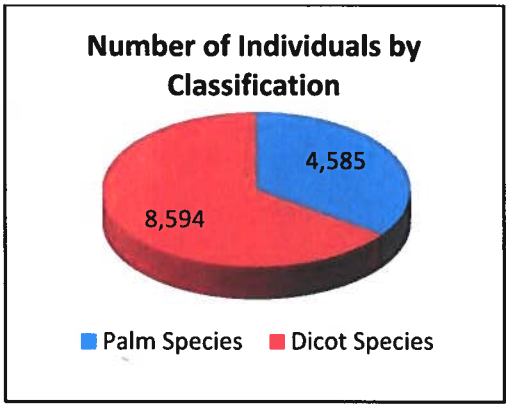
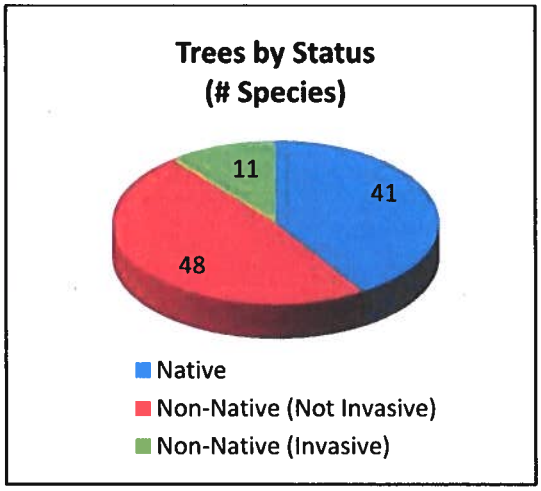
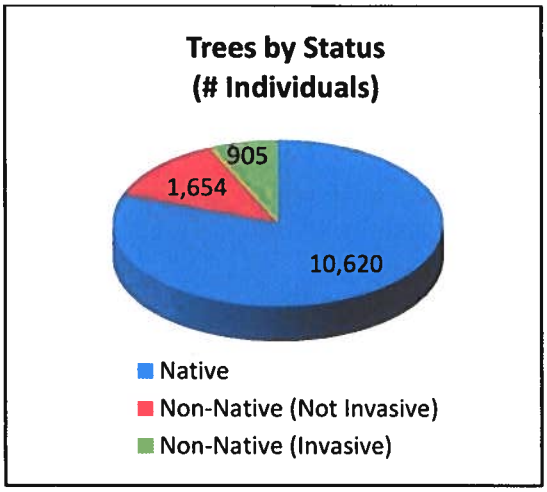


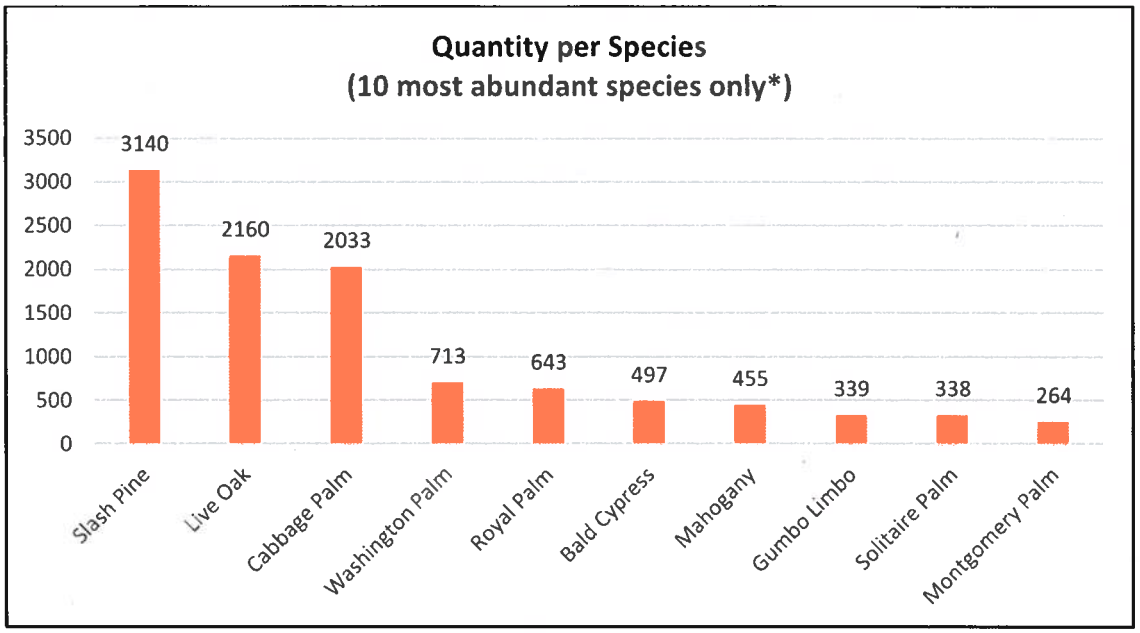
Table 4. Trees by Origin/Status		
Type/Status	**Number of Species**	**Total Number of Individuals**
Native	41	10,620
Non-Native (Not Invasive)	48	1,654
Non-Native (Invasive)	11	905





The majority of the individual trees inventoried were native species. Non-native/invasive trees (i.e. species listed as invasive per the Florida Exotic Pest Plant Council [FLEPPC]) accounted for a relatively small percentage of both the total number of trees (6.9%) and the number of species present (11%). The majority of these invasive species were listed by FLEPPC as "Category 2", which are less invasive/prolific than the FLEPPC "Category 1" species; Category 2 species include common species such as Washington Palm (*Washingtonia robusta*) and coconut palm (*Cocos nucifera*).

The following chart displays quantities of trees per species present in relatively high abundance throughout the inventoried roads and properties:



*The tree inventory is included in the Tree Data Table in **Attachment 2.**

The majority of the inventoried trees (86.6%, or 11,410) were determined to be in "good" or "fair" condition, with minimal defects observed. The remaining trees displayed a variety of defects ranging from minor (e.g. stubs, dead wood) to severe (major canopy loss, topped, constricted roots). Severe defects were uncommon, and less than 4% of the inventoried trees receiving a rating of "poor" or lower. The grading system used for the inventory is from the Council of Tree and Landscape Appraisers *Guide for Plant Appraisal* (10th Edition).

The most frequently observed defects included co-dominant leaders without included bark and dead wood. Below is a list of defects observed in relatively high abundance:

Table 5. Summary of Observed Tree Defects

Defect	Number of Observations	Percent of Total Trees Inventoried
codominant leaders/no included bark	1,648	12.5
dead wood	686	5.2
discolored foliage (possible nutrient deficiency)	506	3.8
codominant leaders/included bark	495	3.8
over-trimmed (predominantly applied to palms)	411	3.1

5.1.2 Tree Benefits Assessment

i-Tree "Eco" is a web-based tool developed by the U.S. Forest Service designed to use data collected in the field from single trees, complete inventories (*as is the case with this project*), or randomly located plots throughout a study area along with local hourly air pollution and meteorological data to quantify forest structure, environmental effects, and value to communities.

The i-Tree Eco program provides an assessment of the vegetation structure, function, and value of the Wellington urban forest based on the GPS tree inventory. Data from 13,172 trees located throughout Wellington were analyzed using the i-Tree Eco model developed by the U.S. Forest Service, Northern Research Station.

A general overview of the report findings is provided below:

- Tree Cover: 93.62 acres (within Village-managed areas only)
- Percentage of trees less than 6" (15.2 cm) diameter: 42.3%
- Pollution Removal: 2.522 tons/year ($13.4 thousand/year)
- Carbon Storage: 2.441 thousand tons ($416 thousand)
- Carbon Sequestration: 112.7 tons ($19.2 thousand/year)
- Oxygen Production: 300.5 tons/year
- Avoided Runoff: 237.6 thousand cubic feet/year ($15.9 thousand/year)

Based upon an analysis of dollar values assigned to annual ecological benefits (i.e., carbon storage, carbon sequestration, avoided runoff, and pollution removal) along with replacement values (i.e., structural values), the total value of the 13,172 trees within Village owned streets and properties is $6,958,346 (see i-Tree Eco Benefits Summary of Trees by Species [**Appendix D**] for dollar values per species). For comparison, the total annual cost of tree care within the Village is $640,056 (see **Appendix E**), or only ±10% of the value of the ecological benefits provided by the canopy.

A summary report of the findings from the i-Tree Eco assessment is included in **Appendix F**).

6.0 TREE MANAGEMENT

The Public Works Landscape Division is the sole Village department responsible for the planning and oversight of tree plantings on Village properties. The Landscape Division provides tree trimming services "in-house" and is responsible for pruning approximately 50% of the Village's hardwood trees, with an annual operating budget of approximately $2,170,000. The Landscape Division's tree trimming crew is led by an ISA Certified Arborist who adheres to ANSI A300 tree pruning standards.

Pruning for the remaining hardwoods, and palm care (pruning and fertilization) is performed by outside contractors. These contractors are required to adhere to the Village's own internal guidelines for tree trimming (i.e., the work must be performed under the guidance of an ISA Certified Arborist following ANSI A300 tree pruning standards).

6.1 Summary of Existing Tree Ordinances and Policies

Chapter 8, Section 7.8.1 of the Village's Code of Ordinances outlines the Village's landscape regulations. Section 7.8.1 includes following components: landscape requirements for new development; tree preservation procedures during construction; existing tree management guidelines (i.e., pruning guidelines); tree removal permitting guidelines; policies and penalties for non-compliance. The Village Comprehensive Plan (previously noted) also includes goals and policies that guide the Public Works Landscape Division and the Tree Board.

6.2 Community Advocacy

In addition to developing a work plan and assisting the Village with the development and implementation of tree planting projects and tree care guidelines, the Village Tree Board assists the Village with tree annually recurring educational/outreach events. These events include the following:

- Informational pamphlets on tree trimming inserted into utility bills in April
- Seedling give away to schools and to the public for Earth Day
- Tree planting with the Garden Club and Cub Scouts in September

7.0 RECOMMENDATIONS

E Sciences performed an evaluation of the Village's urban forest resources and current regulations to generate recommendations for improved tree management. This evaluation included a review of GPS tree inventory data (and associated i-Tree Eco analysis) and a review of the Village's landscape code and management structure. The following are our recommendations.

7.1 Perform Tree Maintenance Based on Prioritization Categories

The GPS tree inventory provides specific per-tree information on tree conditions. This data may be used to develop a focused maintenance plan. This plan can allow for immediate removals of critical trees as well as a tiered approach to address trees with progressively less health/structural issues. Based on the results of the tree inventory, the following maintenance priorities are recommended.

1. Priority 1 Maintenance Items (*Recommended Completion within Three Months*)
    a. Remove "Dead" and "Very Poor/Critical Trees".
    b. Inspect trees listed as "Poor".
        i. Remove trees if risk of failure is high (e.g. high probability of hitting a target).
        ii. Corrective bracing, and/or restoration pruning per ANSI A300 standards if tree can be salvaged.
        iii. Leave tree in place (with or without corrective measures) if likelihood of impacting a target is low; e.g. tree within densely forested areas with no adjacent targets.
    c. Update condition of tree based on corrective action.

2. Priority 2 Maintenance Items (*Recommended Completion within One Year*)
    a. Consider removal and replacement of all FLEPPC Category 1 invasive/exotic trees (e.g. Australian pine, Brazilian pepper) – particularly if the trees are in park settings vs. street settings where there is a greater likelihood that they can spread.
    b. Inspect all trees listed as "Fair".
        i. Add fertilizer or perform pruning (e.g. crown cleaning, clearance pruning, structural pruning, etc.) per ANSI A300 standards as necessary.
    c. Update condition of tree based on corrective action.

3. Priority 3 Maintenance Items (*Recommended Completion within Two Years*)
    a. Inspect all trees listed as "Good-Fair".
    b. Apply corrective measures such as fertilizer or pruning (e.g. clearance pruning, structural pruning, etc.) per ANSI A300 standards as necessary.
    c. Update condition of tree based on corrective action.

4. Priority 4 Maintenance Items (*Initiate After Completion of Above Items, at Two Year Mark)*
    a. Re-inspect all trees listed as "Good-Fair", "Fair", "Poor" and "Critical"
    b. Apply corrective measures such as fertilizer or pruning (e.g. clearance pruning, structural pruning, etc.) per ANSI A300 standards as necessary
    c. Update condition of tree based on corrective action

7.2 Tree Risk/Emergency Storm Response Plan

The Village currently has pre-post storm response plans that include references to address tree damage (see **Appendix G**). The pre-storm plan should be augmented to include a reference to prompt coordination with the Public Works Landscape Department to verify that all dead or critical trees from the latest tree inventory dataset have been removed (i.e., so that efforts can be focused prior to a coming storm event on removing any dead/critical trees that may not have already been removed to reduce potential hazards).

7.3 Future Inventories and Canopy Assessments

It is recommended that a Village-Wide inventory be conducted at a maximum interval of every five years to maintain updated information on the status of the Village-managed trees, including overall tree counts, tree conditions, etc. It is also recommended that the Village perform an assessment of the overall tree canopy coverage throughout the Village (within both public and private properties); separate assessments may also be performed for different sections of the Village to compare coverage between sections. These canopy assessments can be performed efficiently through use of the i-Tree "Canopy" desktop software which analyses canopy coverage based on aerial imagery signatures. The results of the i-Tree Canopy analyses can be used to determine the overall canopy coverage relative to the Village's goals, as well as to identify total areas of "plantable space" within the Village, which may be used to determine the potential for increased canopy coverage. The canopy coverage analysis should be performed at a frequency of every 2-5 years.

7.4 Canopy Structure Recommendations

Urban trees face a variety of risks, including pests, poor site conditions, development, weather and climate related challenges. Wellington's canopy faces risks associated flooding and wind damage from climate change and severe storm events, and a variety of insects and plant diseases including ficus white fly, rugose spiraling white fly, southern pine beetle, lethal yellowing, lethal bronzing, and ganoderma butt rot. The Village can add resilience to the structure of the tree canopy by increasing diversity and favoring trees that are suitable for the anticipated future climate conditions.

Based on the findings from this project, E Sciences makes the following recommendations to improve the structure of the Village's tree canopy:

7.4.1 Add Resilience to the Canopy

Based upon studies performed by the First Street Foundation (a non-profit research organization focused on assessing climate risk), it is anticipated that 35% of the properties in the Village of Wellington have a greater than 26% chance of being severely affected by flooding in the next 30 years. First Street Foundation provides a "Flood-Factor" tool that includes a map of the Village depicting varying levels of flood risk:
https://floodfactor.com/city/wellington-florida/1275812_fsid

The Village should encourage the use of flood-tolerant trees in relatively lower lying areas that have resilience to flood conditions through the plan review and permitting process, as well as through its own tree planting programs. Trees such as dahoon holly (*Ilex cassine*), pond cypress (*Taxodium ascendens*) and bald cypress (*Taxodium distichum*) are good choices in locations prone to flooding.

The Village should encourage use of trees that are known for wind resistance, including live oak (*Quercus virginiana*), green buttonwood (*Conocarpus erectus*), orange geiger (*Cordia sebestena*), dahoon holly, black ironwood (*Krugiodendron ferreum*), cabbage palm (*Sabal palmetto*) and Florida thatch palms (*Thrinax radiata*). Conversely, the Village should discourage the use of trees known for low wind resistance, yellow Poinciana (*Peltophorum pterocarpum*), golden shower tree (*Cassia fistula*), weeping fig (*Ficus benjamina*), queen palm (*Syagrus romanzoffiana*) and Mexican fan palms (*Washingtonia robusta*). The Village should also work to remove and replace invasive trees such as Brazilian pepper (*Schinus terebinthifolius*) and carrotwood (*Cupaniopsis anacardioides*). Trees known to succumb to pests should be discouraged as well.

7.4.2 Add Diversity to the Canopy

Another way to increase resilience and improve the structure of the canopy is to add diversity. Like most cities in south Florida, there are a small number of tree species within Wellington that constitute a relatively significant percentage of the urban canopy:

- Slash pine – 3,140 trees (23.8%)
- Live Oak – 2,160 trees (16.4%)
- Cabbage palm – 2033 trees (15.4%)

The Village should consider increasing/encouraging the use of some of the underutilized native trees such as willow bustic (*Sideroxylon salicifolium*), black ironwood (*Krugiodendron ferreum*), and satin leaf (*Chrysophyllum oliviforme*).

7.5 Landscape Technical Manual

The Village has a Landscape Technical Manual (LTM) that is included in the Village Development Review Manual and referenced in the Landscape Code. By utilizing this LTM, the Village can provide guidance to its residents and developers that will assist them in meeting the Village's goals. The LTM currently contains information on landscape design/tree placement, pruning, and species selection. We recommend that the LTM be enhanced to include the following additional information:

- Add information on tree grading per the *Florida Grades and Standards for Nursery Plants* (possibly a brief description of tree grading along with a web link to the document – this will help homeowner select quality tree material with a greater lifespan potential.
- Add industry standard diagrams for tree installation specification - possibly include links to UF-IFAS references such as this example: https://hort.ifas.ufl.edu/woody/details-planting.shtml (Stress should be placed on not over-mulching, a common landscaping problem)
- Add industry standard diagrams for tree staking – possibly include links to UF-IFAS references such as this example: https://hort.ifas.ufl.edu/woody/CDF%20Education%20Grant/Details/PDF's/Staking/L_tree%20staking_lodgepoles_3_E.pdf
- Add tree watering specifications – consider referencing Best Management Practices from Florida Grades and Standards for Nursey Plants.
- Add link to reference for proper techniques for transplanting trees: https://hort.ifas.ufl.edu/woody/CDF%20Education%20Grant/Details/PDF's/Staking/L_tree%20staking_lodgepoles_3_E.pdf
- Consider adding a reference guide to stress the importance of adequate tree root space for healthy tree growth – consider referencing this document: *Urban Design to Accommodate Trees - Sidewalk Solutions* (https://hort.ifas.ufl.edu/woody/powerpoints)

7.6 Management Recommendations

7.6.1 Maintain the Tree Board to Support the Landscape Division of Public Works

The Public Works Department, Landscape Division (with guidance from the Tree Board) is currently responsible for all aspects of the Village's urban forest management, with appropriate coordination with other agencies and entities as needed. This is a great advantage for the Village, as it allows for a unified vision for the tree canopy. In many cities, tree management is split between departments, including public works, planning and parks and there is not cohesive vision. By having centralized management, the Landscape Division can shape the future of the urban forest by the following:

- Planting public space trees appropriate for their location based on the species, site and maintenance requirements.
- Control which trees are planted during development and as replacements for removed trees.

- Ensure that trees are maintained and protected through the Village's maintenance standards and enforcement of the tree protection provisions in the code.

The Landscape Division should continue to work closely with the Tree Board as it allows the Village to ensure community engagement for its policies and procedures.

7.6.2 Public Relations and Education

The Village's Landscape Division, in conjunction with the Tree Board, currently performs public education and outreach activities for tree care. We recommend that the following items be considered to expand upon the current activities:

- Have public meetings to go over the findings from the i-Tree Eco assessment to stress the ecological and financial benefits of the Village's trees to encourage private property owners to better manage their own trees and plant additional trees where possible.
- In addition to the pamphlets the Village provides on tree trimming, provide additional pamphlets on the tree ecological and financial benefits determined from the i-Tree Eco assessment.
- Perform additional tree giveaway events in addition to the annual tree giveaway event on Earth Day.
- Expand upon the tree planting events
- Organizing community planting events through Landscape Division (beyond the September Garden Club and Scouts Club events) with local non-profit organizations (e.g., Community Greening)
- Reach out to HOA's to plant additional trees in underutilized common areas
- Reach out to churches, the Board of Education and other institutional land-owners to encourage them to plant trees on their property
- Consider making the GIS tree inventory data available to the public through a web-based interface.

Appendix A

Wellington Tree Board Annual Plan (2022)

STANDARD #3 For Tree City USA

Wellington Tree Board Annual Work Plan
2022

The following is an annual work plan that has been developed by staff and the Wellington Tree Board. The work plan has been developed with the Tree City USA guidelines in mind and includes tree-related projects and tasks to increase the Wellington tree canopy.

Initiatives:

A) Education and Public Relations

- Offer informational brochures at City Hall (from County, Tree City USA, etc.)
- To work with staff to review and recommend F.L.O.W.E.R. Award (Fabulous Landscapes Of Wellington Earning Recognition) recipients.
- Distribute tree pruning brochure with utility bills annually.
- Updating information on the F.L.OW.E.R. Award Criteria Sheet.

B) Partnerships

- Work with Wellington Garden Club to identify planting project opportunities on Village owned property and supply the number of trees planted in Wellington, in an annual "Tree Planting Report."
- Assist and help organize planting and awareness projects with local schools.
- Work with Wellington Garden Club to participate in National Public Lands Day (September).
- Participate in the annual Great American Clean Up.

C) Planning & Management

- Wellington to continue with a tree inventory on Village owned property through State administered Federal grants.
- Identify potential vendors for participation in the annual Arbor Day event.
- To assist the Planning, Zoning and Building Department, as requested, with research pertaining to any Village Ordinances concerning tree/landscape issues.

D) Tree Planting and Maintenance

- Identify areas in need of trees and prioritize them.
- Tree Removals (hazardous, invasive exotics) and replanting.

Goals for 2022

1) Participate in Arbor Day Activities (April).

2) Participate in the Great American Clean Up (March – June).

3) Participate in an "Earth Day" event (April).

4) Participate in National Public Lands Day (September).

5) Complete Tree Management Plan with consultant.

6) Initiate aerial Urban Land Cover Survey.