City of Miami
Tree Master Plan

City of Miami Tree Master Plan
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Introduction

In 2005, Mayor Manuel A. Diaz signed a letter committing to the Kyoto Accord, which pledged to reduce carbon dioxide emissions per the outcomes of the Kyoto Protocol. The United Nations brought countries together to ratify this protocol, which commits to reducing country emissions of carbon dioxide and five other greenhouse gases or to engaging in emissions trading if a country maintains or increases emissions of these gases. The Mayor's commitment to join other mayors throughout the country was a bold statement that brought the issue of environmental policy to the forefront of South Florida priorities.

Over the past four years, the City has been addressing important environmental issues including the implementation of the Litter Busters program, efforts addressing environmental remediation (i.e., Wagner Creek, Grapeland Park and Fern Isle), and the work being done to restore the City's tree canopy after the onslaught of hurricanes that have impacted the City over the past two years. To truly address the environmental needs of our City today and over the years to come, the City's approach must become more strategic, aggressive, and inclusive of local, state, and federal partners and resources.

During the Mayor's 2006 State of the City Address, core steps for environmental policy were outlined, increasing the level of focus on innovation and developing a strong foundation for environmentalism. One of these steps was the development of the City of Miami Green Commission. The Miami Green Commission, a group of experts brought together by the Mayor, meets periodically to provide insight for the development of City of Miami "Green Policy". The Green Commission meetings are guided by a City Commissioner and has begun under the leadership of Commissioner Joe Sanchez

The Urban Forestry Working Group (a working group of the Miami Green Commission) and city staff have finalized a City-Wide Tree Master Plan that links to key urban forestry principles including a focus on appropriate tree selection, proper installation, and maintenance of trees. A key element of the plan includes an education and awareness campaign highlighting "hurricane horticulture" information, installation and maintenance facts, and guidance on tree selection.

The plan will be a unique coordination linking both city and county input and will be used as a framework to coordinate efforts to restore and enhance the City's tree canopy with a goal of a minimum of 30 percent tree canopy coverage, City-wide, by 2020.

City of Miami Tree Master Plan Goals

The City of Miami Tree Master Plan will focus on the following goals:

- **Identify the City's tree canopy needs and target areas that require the most attention for reforestation.**

- **Track all tree plantings in the City of Miami to quantify contributions to the City's tree canopy.**

- **Develop public/private partnerships to maximize and leverage community resources and funding for the benefit of the enhancement of the citywide tree canopy.**

- **Develop a public education and awareness campaign to inform and support citizens and local businesses regarding the City's tree canopy needs.**

- **Establish professional development standards that will ensure proper installation and maintenance of trees in the City of Miami.**

Data Collection

Recent losses in tree cover due to hurricanes, citrus canker, and urban development have had a negative impact on the City's green infrastructure and its ability to mitigate pollution and enhance air and water quality. The City of Miami, recognizing these concerns, will enter into a Memorandum of Agreement with Miami-Dade County authorizing the County, on behalf of the City, to contract with American Forests to conduct an Urban Ecosystem Analysis. This analysis will develop a series of green infrastructure data layers to serve as a fundamental framework for:

- Conducting ecological analyses of changes in the community's green infrastructure assets.

- Providing decision support tools and data for the City to incorporate into future planning.

Urban Ecosystem Analysis
American Forests will provide an Urban Ecosystem Analysis using CITY Green software. CITY Green Software is a powerful GIS application for land use planning and policy making. The software conducts complex statistical analyses of the city's

ecosystem and creates easy-to-understand maps and reports. CITY Green calculates dollar benefits based on the area's specific site conditions.

The data generated from CITY Green can be used by a variety of individuals for different purposes. Planners can model development scenarios and evaluate landscape ordinances. Engineers can estimate the impact of tree loss on stormwater management costs. Urban foresters can justify increases in maintenance, planting, and preservation. Educators can teach forestry, environmental studies, landscape architecture, and city planning. Citizen groups can advocate environmentally friendly solutions. Developers can save money on erosion control and stormwater management. Regulatory agencies can measure the air quality benefits of green space. The data is a multi-purpose information source that will drive the City's coordination of tree plantings.

The analysis will utilize widely accepted scientific and engineering formulas to make these ecological value calculations. The data delivered will be geo-referenced, and formatted to be used with a GIS database. American Forests will provide:

- A CD of digital, value-added classified Landsat data of the City using Landsat Satellite imagery from 1995, 2001, and 2006. The information provided on this CD will demonstrate how the City's tree canopy has progressed / digressed over time, as opposed to a one time snapshot. This will help to correlate the status of the City's tree canopy to other events including canker reduction, hurricanes, changes in land value, etc.

- A CD of digital value with added classified data of pre- and post-hurricane land cover analysis of the City using recent high resolution, multispectral imagery.

- Fifteen licenses of CITY Green software for the City's use in various departments. The software will be used to determine the areas in the city that are in the most need of immediate attention and help to prioritize areas for future plantings within individual departments.

Tracking of Citywide Tree Plantings

In order to ensure that all new tree plantings are accounted for and properly measured, the city will enter each tree planting into its 311 CitiSTAT System. Departments currently using this data collection tool include Office of Grants Administration, Public Works, Neighborhood Enhancement Teams, Capital Improvement and Transportation and Parks and Recreation.

Information entered into this system will include location, date of the planting, commission district, type of tree planted, age group of volunteers performing work (if applicable), city dollars spent, in-kind dollars (donation) and strategic partners involved (if any). Reports may be formatted by any of the above categories for tracking purposes.

Coordination of City-Wide Plantings

In order to meet the ambitious goal of a minimum of 30 percent tree canopy coverage, City-wide, by 2020, the City will need to focus on all potential avenues for new tree installations. These will include tree plantings made directly by government agencies, those sponsored by government but accomplished through public/private partnerships, as well as, those required in association with private development projects.

Public Right-of-Ways

There are three hierarchies of public roadways within the City: State, County and City streets. The City routinely coordinates any street improvement projects within the city limits with the agency responsible for the roadway. New tree plantings are to be included on all projects and are to conform to applicable roadway design standards, such as horizontal clearance, sight distance, and avoidance of utility conflicts.

In recognition of the need to promote urban livability in conjunction with providing a safe and reliable transportation system, the federal government recently adopted standards for Transportation Design for Livable Communities. The Florida Department of Transportation (FDOT) recently incorporated these design principles into their Plans Preparation Manual design guidelines via a new chapter entitled, 'Transportation Design for Livable Communities'. These guidelines are further promoted in the Manual for Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways, commonly known as the Florida Greenbook. These standards allow greater flexibility regarding tree plantings in public rights of way, while not compromising or sacrificing motorist public safety.

For transportation projects administered on state or county roadways the City routinely coordinates with FDOT or Miami-Dade County Public Works to insure that landscape plans are incorporated into the project plans. For state roadways the City further assumes long term maintenance responsibility for the landscape. On all projects administered directly by the City of Miami on city street rights of way, such as roadway rehabilitation, traffic calming, flood mitigation or others, new tree plantings are incorporated wherever possible. All of the new tree plantings are captured in the newly established citywide database. Maintenance for the new tree plantings is typically covered by an initial six (6) to twelve (12) month plant establishment period under the responsibility of the landscape contractor. After the initial establishment or warranty period, the maintenance responsibility transfers to the roadway jurisdictional agency or others as stated previously.

Parks

City of Miami parks potentially provide even greater opportunities for new tree plantings than public rights of way due to the lack of planting restrictions based on roadway design criteria. The key here is striking a balance between passive green space and park space used for recreational programming activities. New tree plantings are typically included in conjunction with park improvement projects. It is the City's goal to assure that park improvement projects include an emphasis on proper tree selection, installation, and maintenance of trees planted.

Community Plantings

Several very successful tree planting events have been held by the City and local community groups coordinated through the city's Neighborhood Enhancement Team (NET) offices. These new tree plantings are typically focused on public rights of way and involve the collaboration of various city departments with the sponsoring community group volunteering to assist the City's efforts for the Greening of Miami.

In addition to partnerships with community groups, Miami-Dade County Public Schools have also agreed to be an active participant in the efforts outlined by the Miami Green Commission. The school system has committed to place a greater emphasis on the establishment of new tree canopy when planning new school facilities or major school facility renovations or upgrades within the City. They will provide information regarding their new tree plantings to the City for incorporation into the tree planting tracking database.

<u>Funding Considerations and Sources</u>

The City's current typical cost for installation of an average size tree ranges between $700 to $1000, dependent on whether the tree is installed by City staff or by a City vendor and including a plant establishment period. The intent of the City is to leverage public funds and staff resources with private sector contributions to fully maximize the number of new tree plantings.

Tree Trust Fund

The Tree Trust Fund was established by final City Commission action in December 2004 to facilitate the compliance of tree mitigation requirements, to facilitate the receipt of equitable contributions for replacement trees and to restore the loss of tree canopy cover in the City of Miami. Since the inception of the Tree Trust Fund, approximately $638,000 has been collected by the City. Expenditures from this trust fund require authorization by the City Manager, or his designee, upon written recommendations from the directors of the departments of Planning and Zoning and/or Public Works. Not less

than eighty (80) percent of the Trust Fund shall be expended on tree replacement and restoration during each fiscal year. However, if the City Manager, or his designee, determines that there are insufficient reserves in the Trust Fund to implement a viable tree replacement program, funds may be carried over to the next fiscal year. The Tree Trust Fund currently serves as the City's primary funding source for city sponsored tree canopy restoration efforts. The Tree Trust Fund monies can be leveraged when applying for grants.

Public/Private Partnerships

The City recognizes that its ability to single-handedly spearhead the new tree planting efforts is constrained based on routine citywide Public Works obligations and historic experience regarding bid prices obtained for tree installation and maintenance. As a result, the City intends to vigorously pursue public/private partnerships with local private not-for-profit entities expert in the horticulture area, such as tropical botanical gardens, tree and plant societies, garden clubs, etc. It is envisioned that the City will be able to significantly leverage the Tree Trust Fund resources to reach the 2020 tree planting goal. Through the City's participation in the collaborative development of the Miami-Dade Street Tree Master Plan and through our own efforts with the Miami Green Commission, the City has already successfully established relationships with many private not-for-profit entities that can greatly assist in increasing tree canopy citywide. Further outreach will occur to broaden this private sector base willing to partner with the City. Expected benefits include supplementing city staff resources with volunteer staff for plantings and maintenance, leveraging established relationships with local nurseries and growers to achieve bulk discounts, greatly broadening total tree planting capacity, to name a few.

Bulk Purchasing

In addition to public/private partnerships the City intends to pursue bulk purchases directly from local nurseries and growers to maximize the spending power of the Tree Trust Fund monies. The City will work closely with the County and other municipalities to leverage bulk purchases that will benefit the South Florida community as a whole at the best prices possible.

Professional Development

To assure that the City of Miami's tree canopy is maintained and enhanced properly, the professionals working within these efforts must be appropriately trained and/or monitored by individuals that can recognize the key elements that lead to a healthy sustainable canopy. Professional development and enforcement must be addressed both internally and externally based on a recognizable standard that will heighten the professional knowledge of individuals working within the field of landscaping. It is the City's goal to have a certified arborist supervising all City projects. This will require that all City

vendors hired to install or maintain trees have a certified arborist on staff. Additionally, City departments participating in tree plantings will need to be held to the same standard.

Professional Certification Process

The International Society of Arboriculture (ISA) tests and certifies arborists who install and maintain trees. An arborist is a specialist in the care of individual trees. Arborists are knowledgeable about the needs of trees and are trained and equipped to provide proper care.

There are five different types of ISA certifications, the most basic of which is a General Certified Arborist. City vendors and City departments involved in tree plantings will be required to have a General Certified Arborist on staff or available through other means by December 2007. Landscaping vendors will be deemed non-responsive if they do not provide staff with ISA certification. Only those vendors with ISA certification will satisfy the minimum qualifications required for bidders.

To become a certified arborist, one must pass a test consisting of 200 multiple choice questions and 10 tree identification questions. The exam can be taken in English or Spanish. Additionally, applicants must have a minimum of 3 years of work experience and/or years of education in a related field to qualify for certification. Detailed requirements can be found at www.isa-arbor.com.

The City of Miami will work closely with the ISA to assure that testing workshops will be provided to interested individuals. Additionally, the City will provide venues for testing sites to secure accessible and frequent testing opportunities.

To assure that the City of Miami professional development standard remains at a caliber that will ensure commitment and advocacy for a sustainable urban forestry program, the City will have at least one ISA Certified Arborist/Municipal Specialist on staff by December 2007 and at least two ISA Certified Arborist/Municipal Specialists on staff by June 2008 or available through other means.

An ISA Certified Arborist / Municipal Specialist is a professional arborist who is an ISA Certified Arborist in good standing and has additional experience in the specialty area of urban trees. Municipal Specialists work for cities and states, parks, contractors or consultants. One of the certification objectives is to provide the public and those in government with a means to identify those professionals who have demonstrated, through a professionally developed exam and education program, that they have a thorough knowledge of establishing and maintaining trees in a community.

Enforcement of Codes

Clear standards for the City's canopy can be set, but without proper enforcement of these standards, changes in policy will not become engrained within the residents' expectations. To address the growing need for adequate monitoring of tree code infringement, the Code Enforcement Department will have a Code Enforcement officer

focusing only on tree issues by August 2007. This individual will be trained to recognize code infractions. An additional officer will be trained by December 2007 as support for the Code Enforcement officer assigned to tree canopy infractions.

Public Awareness Campaign

Developing a sustainable tree canopy requires educating the residents, local businesses and developers of the value of learning more about trees. The purpose of the City of Miami Public Awareness Campaign will be to make people aware of the importance of trees, the correct way to plant, proper tree selection, and to highlight the importance of water conservation. The public awareness campaign is an important component to the successful implementation of the City of Miami Tree Master Plan. The campaign will have several facets: a unified marketing plan, a City website dedicated to "green issues", public service announcements, and planting kits.

Marketing Campaign

City staff from both the Mayor's Office and the Communications Department will work with the Miami Green Commission to develop a logo and slogan that will be utilized throughout all literature, media outreach efforts, community workshops, and professional development programs that link to the City of Miami Tree Master Plan. A consistent message will link all components of the program together communicating a unified focus and message across departments and participating community organizations.

Public Service Announcements

Public Service Announcement (PSA's) will be developed with content guidance generated from the Urban Forestry Working Group and the technical support of the City of Miami Communications Department. The content will be linked to a citywide marketing plan that will also integrate information shared with the public through the distribution of planting kits.

A series of Public Service Announcements will be developed addressing a variety of "green topics" including proper maintenance of trees, water conservation, healthy living environments, the benefits of planting trees, etc. The topic of "Hurricane Horticulture" will be emphasized to dispel hurricane "tree myths". Many residents currently have the perception that trees can be dangerous during hurricanes, because of the many incidents that occur during hurricane season, such as the destruction of property and the tearing away of the trees themselves. The campaign will educate the public on having the correct trees, in appropriate locations to minimize the impact made by hurricane storms.

The City of Miami will run the PSA's on City of Miami Television (Channel 77) and on City of Miami Radio (1680 AM). Additionally, already established partnerships with the

school system and other entities will allow for the airing of the announcements on WLRN and local cable networks.

City Website

The City's website will have a webpage dedicated to providing information to the public regarding the City Tree Master Plan. The website will include information provided in Planting Kits and Public Service Announcements. Additionally, citizens will be able to register their information online in order to receive notification via e-mail on tree planting events, workshops, and regular "City of Miami Green Updates".

The content for the website will be reviewed by the City of Miami Green Commission and regularly updated by identified City Staff.

Informational Kits:

Homeowners

Homeowners will receive a kit upon completing a Community Forester Workshop. Kits will also be available at City of Miami NET offices and other select locations.

Resources provided in the kits will be developed through a collaborative effort between the City, County, and the South Florida Water Management District. Kits will include brochures from all partners, seed packets, and coupons from local hardware stores and nurseries to purchase trees at a discounted cost.

Some brochure examples may include:
- 50 Ways to be Water-Smart, Sensible Sprinkling in South Florida
- Xeriscape: How to save water through water-smart landscaping
- Water Wise: South Florida Landscape (Xeriscape guide)
- City of Miami's Go Native Brochure
- Supplemental information in Spanish/Creole will also be available

Developers

The City will create an "Urban Canopy Program" for developers incentivizing local developers to contribute positively and effectively to the City's Tree Master Plan efforts.

Informational kits on the program will include fact sheets detailing the WaterSIP program, drought-tolerant vegetation, Xeriscape landscaping, information on L.E.E.D Certification criteria that is linked to project landscaping, and additional information on "green" programs that will be available to the developer upon applying for a permit.

Workshops will also be provided for developers interested in learning about "building and planting green" on a quarterly basis by August 2007.

If developers' utilize the suggested information within their plans, developers will have the ability to obtain "credits" and an expedited permitting process.

A program will be developed by the City to allow the usage of earned credits for specific incentives. The program will be directly linked to Miami 21 and the Mayor's Green Building Initiative.

Citizen Education Program

The goal of the Citizens Education Program is to increase knowledge regarding the importance of trees and an urban tree canopy, as well as how to maintain and protect existing trees within the City of Miami. Urban Forestry education can be provided to adults through Citizens Forester Workshops in partnership with local non-profits such as Citizens for a Better South Florida and to youth through hands-on environmental education programs such as the Community Science Workshop (CSW) model.

Adult Community Workshops
The Citizens Forester Workshops will empower and support community leaders and citizens alike to take personal responsibility for their urban forests by educating, training and supporting citizens to plant and care for trees in their neighborhoods, thereby dramatically increasing tree survival. The program is modeled after a highly successful urban forestry program in Los Angeles created by TreePeople, which boasts a 93% tree survival rate – an exceptional rating for urban trees. The program utilizes and builds upon partnerships with successful government and non-profit programs such as Adopt-a-Tree and Hands on Miami.

The City of Miami will work with community based organizations to create an annual calendar of citizen education workshops to be held at parks, NET offices, and community-based and faith-based organizations.

Youth Community Workshops
The Community Science Workshop model is an innovative science after-school program that provides at-risk youth opportunities to engage in environmental science projects and pursue hands-on learning through science, technology, drama and art. The mission of the CSW is to "Expand knowledge, thinking, and imagination with tools of discovery and things to discover." Citizens for a Better South Florida currently has three CSW sites within the City of Miami. The program can be expanded to integrate hands-on urban forestry education into existing City of Miami Parks & Recreation Department after-school programs and elementary schools throughout the City of Miami. The City of Miami Grants Department will work with the local community-based organizations, the Parks and Recreation Department and the Miami-Dade County Public School System to expand the already established local best practice model.

City and County Collaboration

As stated earlier, the City has been an active participant with Miami-Dade County in the development of their Miami-Dade Street Tree Master Plan. Miami-Dade County has similarly collaborated with the City on the Miami Green Commission and Urban Forestry Working Group. The County master plan document is included as an appendix to the City's Tree Master Plan. The County plan includes a listing of recommended trees suitable for planting in public rights of way. The City fully supports the establishment of countywide standards and further recognizes the need to periodically revisit and update the plant listing. The City's Public Works department has accepted and incorporated the principles of the County plan into the routine approval processes utilized for tree plantings. The City intends to utilize our public sector partners as well as our recognized, expert private partners to continuously review and update the City's Tree Master Plan.

Urban Forestry Working Group Task Assignments

Task	City Coordinating Point of Contact for Task
1. Urban Ecosystem Analysis	Robert Ruano, Director, Office of Grants, rruano@miamigov.com
2. Data Tracking of Tree Plantings	Robert Ruano, Director, Office of Grants, rruano@miamigov.com
3. Public Right of Way Plantings	Mary Conway, Chief of Operations, mconway@miamigov.com
4. Park Plantings	Ernest Burkeen, Director, Parks and Recreation Department, eburkeen@miamigov.com
5. Community Plantings	David Rosemond, Director, Neighborhood Enhancement Teams, darosemond@miamigov.com
6. Documentation of Tree Trust Fund Usage	Mary Conway, Chief of Operations. mconway@miamigov.com Mariano Loret De Mola, Director, Code Enforcement, MDeMola@ci.miami.fl.us
7. Development of Public Private Partnerships	Mary Conway, Chief of Operations, mconway@miamigov.com Lisa Martinez, Director of Policy and Legislation, Office of the Mayor, lmartinez@miamigov.com
8. Professional Licensing	Glenn Marcos, Director, Purchasing Department, gmarcos@miamigov.com Stephanie Grindell, Director, Public Works Department, sgrindell@miamigov.com
9. Professional Development	Mary Conway, Chief of Operations, mconway@miamigov.com

	Mariano Loret De Mola, Director, Code Enforcement, MDeMola@ci.miami.fl.us
10. Marketing Campaign	**Lisa Martinez, Director of Police and Legislation, Office of the Mayor, lmartinez@miamigov.com** **Kelly Penton, Director, Office of Communications, kpenton@miamigov.com**
11. Public Service Announcements	**Kelly Penton, Director, Office of Communications, kpenton@miamigov.com**
12. City Website	**Kelly Penton, Director, Office of Communications, kpenton@miamigov.com** **Manny Otero, Web Administrator, Information Technology, motero@miamigov.com**
13. Homeowner Kits	**David Rosemond, Director, Neighborhood Enhancement Teams, darosemond@miamigov.com**
14. Developer Kits	**Orlando Toledo, Senior Director Planning Department, otoledo@miamigov.com**
15. Community Workshops for Adults	**David Rosemond, Director, Neighborhood Enhancement Teams, darosemond@miamigov.com**
16. Community Workshops for Youth	**Ernest Burkeen, Director, Parks and Recreation Department, eburkeen@miamigov.com**

Miami Green Commission Members

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Mr. Gustavo Berenblum	Principal	BEA International
Mr. German Brun	Architect	Oppenheim Architecture
Dr. Jason Chandler	Assistant Professor	Florida International University
Mr. Scott Palmer Fuhrman	Project Coordinator	Holly Real Estate
Mr. Jose Gelabert-Navia	Managing Director	Perkins & Will
Mr. Ben Gilbert	Vice President	Montenay Power
Mr. Joey Goldman	President	Goldman Real Estate
Mr. Nicholas Gunia, Esq.	Executive Director	Dream in Green Inc.
Mr. Rob Hink	Principal	The Spinnaker Group Management, Inc.
Mr. William Holly	President	Holly Real Estate
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Mr. Chad Oppenheim	Principal	Oppenheim Architecture
Ms. Elizabeth Plater-Zyberk	Dean, School of Architecture	University of Miami
Colleen Ahern-Hettich	Earth Ethics Institute	Miami Dade College
Ms. Rose Diamond	Chief Facilities Officer	Miami-Dade County Schools
Mr. Jose Fuentes	Director	South Florida Water Management District
Ms. Carolyn Mitchell	President	USGBC Miami Chapter
The Honorable Harvey Ruvin	Clerk of the Court	Miami-Dade County Courthouse
Ms. Amy Creekmur	Program Coordinator	Tree Mendous Miami
Dr. Marvin Dunn	Chair	Department of Psychology
Mr. Bruce Greer	President of the Board of Trustees	Fairchild Tropical Garden
Mr. Lin Lougheed	Trustee	Fairchild Tropical Garden
Ms. Edith McClintock	Executive Director	Citizens for a Better South Florida
Mr. Jim McMaster	President	Tree Man Trust
Ms. Carmen Mendez-Mackesy	Founder	Southern Blossoms
Ms. Alyce Roberson	Community Image Manager	Office of the County Manager
Mr. Jeff Shimonski	Director of Horticulture	Parrot Jungle Island

<u>Appendix</u>

**A Green Print for Our Future:
Miami-Dade County
Street Tree Master Plan**