



THE CITY OF KEY WEST

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Memorandum

To: Tree Commission

From: Nicholas Osterhoudt, GIS Manager

Date: 11/4/2014

Cc: Karen DeMaria

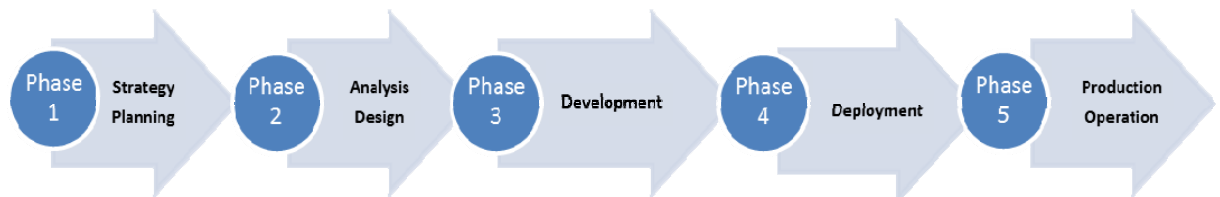
RE: GIS support for Tree Committee

The information provide to you on the North Carolina Tree Commission and GIS is intended for your review as a document for GIS capabilities. This article is a great statement in the support of how GIS supports and provides the added visuability of our island trees and effectiveness on environment. The substainability on the environment and air quality improvement efforts on our island. GIS can be the central database for City decision makers to review and visualize the impact of projects on Tree coverage concerns. This will assist in the daily infrastructure management efforts for the City as well as other Public or Private entities.

Briefly, the GIS system being planned has the following attibutes and components.

A **Geographic Information System (GIS)** provides the capability to collect, manage, manipulate, analyze, and distribute information that is tied to a location. It layers that information in a map-based environment to provide a better visual image of location, patterns and relationships. **GIS** is an integral part of the computing infrastructure that contributes to the success of a City's customer service delivery and operations.

This GIS Strategic 5 Phase Plan will serve as a road map for the next two years allowing the City to better leverage its technology investments and priorities.



GIS:

- Provides an efficient and cost-effective means for managing, maintaining, and monitoring geographic data;
- Improves access to the City's geographic information, as well to other agencies through data sharing opportunities;
- Maximizes existing resources devoted to the management and maintenance of geographic data;
- Reduces repetitive and redundant maintenance of GIS related data;
- Improves security, reliability, quality, and performance of GIS for staff and the community;
- Provides a corporate strategic direction for GIS investment and activities; Improves workflow in and between departments;
- Integrates with existing and planned business systems;
- Delivers GIS related services to the community that reduces cost and adds value.

The **GIS** department has meet with majority of the departments internally and conducted meetings with stackholders to ensure that we obtain the best model for each department. The Tree Commission is a vital piece to the city Canopy coverage and tree inventory for the Island. By learning the needs of the Tree Commission, This will ensure an efficient and effective business decision and operational city model. If you have any questions in advance of this meeting please contact Nicholas Osterhoudt, GIS Manager 305-809-3721 or nosterhoudt@cityofkeywest-fl.gov.

Charlotte, NC Tree Commission and GIS

GIS ASSISTANCE WITH TREE COMMISSION
NICHOLAS OSTERHOUDT-GIS MANAGER



The Charlotte, North Carolina, Urban Area Now Has a "Green Theme"

By Gary Moll, American Forests

The



Mecklenburg County's different land covers are highlighted. Dark green represents tree cover, light green represents grass and open space, and gray designates impervious surfaces.

Charlotte, North Carolina, metropolitan area is among the top 10 fastest growing metropolitan areas in the nation, and Mecklenburg County, which houses the city, has seen a 72 percent growth in population since 1980 according to the U.S. Census Bureau. With such a boom in population, some loss in natural vegetation is inevitable. However, the rate of urbanization and tree loss in Mecklenburg County surpasses even that of population growth. Between 1984 and



2001, the county saw a 127 percent increase in areas covered by impervious surfaces. Without a balance between impervious and tree-covered land, the county's citizens will face costly and unhealthy environmental consequences.

Consider the lessons learned about growth and development of the I-485 Outerbelt highway. An analysis of Landsat imagery from 1984 and 2001 shows a 42 percent loss in tree cover and a 194 percent increase in impervious surfaces. This change in land cover was measured using a two-mile buffer around a 12-mile section of the highway. Measuring the impact of this one section of the beltway provides community leaders with a feel for the future impact of the planned roadway. The environmental impact of the entire Outerbelt will be huge. If the highway development project continues its growth, it will push away from the city center in a sprawl pattern. The challenge to the community is how to manage growth while maintaining efficient use of its land and a robust green infrastructure. Finding a solution to this problem is the focus of this article.

Charlotte's mayor, Patrick McCrory, says, "Our trees are the city's signature." And, like John Hancock's on the U.S. Declaration of Independence, this signature is easy to read. The mayor challenged Charlotte's Tree Commission to establish a new tree ordinance for the city that would ensure the signature status of the trees in the future.

Rick Roti, citizen chairman of the Tree Commission, says, "It was a challenge that kept us busy for a year, but we now have a good ordinance."

The mayor's tree signature also appears on the regional air quality improvement effort, called Sustainable Environment for Quality of Life, centered around Charlotte's urban area and



organized by the Centralina Council of Governments. The city's air quality is dangerously close to the Environmental Protection Agency's "nonattainment" designation. If the air quality deteriorates, giving the area a nonattainment status, the region stands to lose \$6 billion in federal highway funding, not to mention risking the health of the area's residents. To improve the air, the area has agreed on a checklist of a dozen actions, and improving the tree canopy is one of them.

Charlotte's arboreal signature has become part of the city management fabric thanks to the power of GIS technology. A green data layer (tree theme) became part of the city's central database about a year ago. As a result of this technical action, managers throughout the city have access to the tree theme in the GIS and can include tree cover concerns in daily infrastructure management efforts. The city of Charlotte and Mecklenburg County have the technical expertise to use the green data layer effectively, but it is the Land Development Division of the Engineering Department in the city of Charlotte that has utilized the data most intensively. The department has joined the rest of city government in using the ArcGIS platform.

Laura Brewer, senior urban forestry specialist, and Nick Roberts, systems analyst with the Engineering Department, have long-time familiarity with ArcView software. Following a period of competitive analysis, they chose the CITYgreen extension from Esri Business Partner American Forests to evaluate the impact of development proposals received by the city on current and future tree cover.

For the large-scale analysis this means using ArcGIS Desktop software and CITYgreen to create a baseline of current conditions by combining land cover and land use data. The current condition is



then fed into a land use projection model to establish a metric for future land cover. The future land cover includes specific measures for tree cover that are then compared to the requirements set forth in the tree ordinance. This analysis provides direction to the public policy makers so they can determine the effectiveness of the development code at tree loss.

"This is accomplished by modeling the development proposals using GIS technology," says Roberts. "We use the green data layer produced by American Forests for the city's GIS, along with other growth and development data, to conduct our analysis."

The small-scale analysis allows the Land Development Division to evaluate the impact of all new development or rezoning on the tree cover and make immediate adjustments in development in keeping with the tree cover goals of the tree ordinance.

The efforts by the city of Charlotte to incorporate a green data layer into its central database and establish application of the data in the Engineering and Property Management section of the city government is a groundbreaking action that should be considered by every urban government.

For more information, contact Gary Moll, American Forests (e-mail: gmoll@amfor.org).

