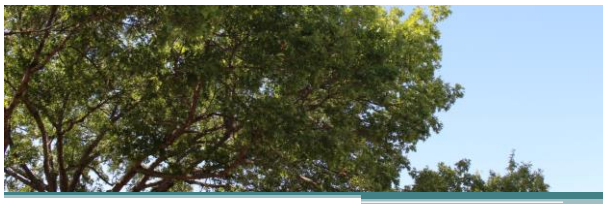## Proposal for Tree Canopy Analysis and Sample Inventory

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Presentation Outline

- Background – The "Why"
- Project Overview
  - Purpose
  - Details
  - Estimated Schedule
  - Fiscal Information
  - How Denton can use this data
 - Future Considerations
- Summary of Recommendations

The "Why"

Why Now?

- Desire from Council and public to obtain updated information on Denton's urban forest
  - Last available data is dated 2010 (19% canopy cover)
  - Canopy cover measurement has limitations for obtaining a comprehensive picture of the urban forest

City of Denton and Extra Territorial Jurisdiction
Tree Canopy Coverage - Summer 2010
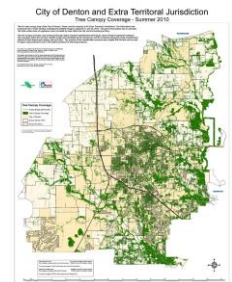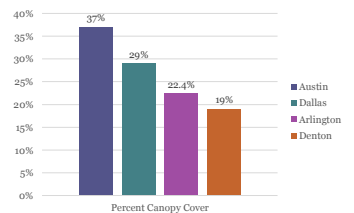

Why Now?

- Denton's strong commitment to trees and green infrastructure
  - Tree Preservation Code, 2004
  - Tree City USA – 25 years
  - Tree Fund Plantings
  - Denton Tree Initiative – 12,000 trees by 2019

Why Now?

- Rapid growth and creating a vision for the future
  - Trees are a material asset
  - Community health and quality of life, among other benefits
- Risk Assessment/Planning
  - Dead/dying/diseased trees
  - Insect and disease identification
- Baseline Data
  - Community Tree Planting Programs
 - Strategic Action and next steps for management

Canopy Cover Comparison for Texas Cities

Percent Canopy Cover

- Austin: 37%
- Dallas: 29%
- Arlington: 22.4%
- Denton: 19%

Why Now?

- Alignment with City Goals and Priorities
  - Denton 2030 Plan
    - Element 5 (Parks, Conservation & Environment - 5-5, 5-6, 5-7)
    - Resulting data could have additional influence on nearly all other Elements (Economic Vitality, Community Character, Neighborhoods, Community Health and Safety)
  - City Strategic Plan –
    - Key Focus Area 4 (Safe, Livable, and Family-Friendly Community - Goal 2)
    - KFA 5 (Sustainable and Environmental Stewardship - Goals 1, 2, 3, and 4)
  - Sustainability Plan
    - Goal 4 (Air Quality)
    - Goal 6 (Land Use)
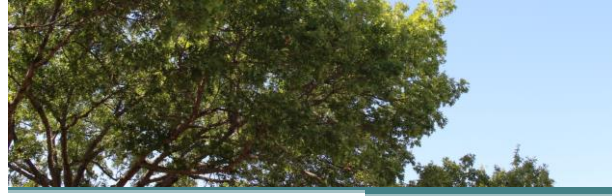
Project Overview

Project Overview

Definitions

Urban Forest: a collection of trees that grow within a city, town, or suburban area

Tree Canopy: the aboveground portion of the urban forest, made up of the overlapping leaves and branches of trees

Tree Inventory Systems: a field of study focusing on analysis of urban forests, their attributes, and benefits; encompasses various levels/degrees of assessment

Tree Canopy Analysis: uses aerial imaging to obtain a map of the urban forest; analyzes distribution, areas of planting opportunity, and other broad, spatial characteristics

iTree Sample Inventory: uses the industry standard iTree Eco Software tool to inventory and analyze tree attributes on a random sample of land plots, and derive community benefits for the urban forest

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Project Overview

Purpose of the Project:
1. Establish a baseline of data for Denton's urban forest
2. Obtain a comprehensive picture of tree health, risk, distribution, and infrastructural benefits
3. Assist in future policy and management decisions
4. Target distribution of trees through the new Denton Tree Initiative

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Project Overview

Two Projects in One:

- Tree Canopy Analysis
  - Uses aerial imaging to obtain a map of the urban forest
  - Statistical and spatial analysis to gauge health, distribution, planting opportunity, and canopy cover

- iTree Eco Sample Inventory
  - Uses the industry standard "iTree Eco" software tool to document tree location, species, and other attributes
  - A random sample of land plots is surveyed, tree by tree
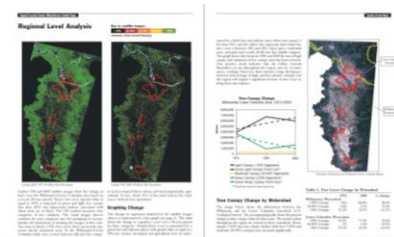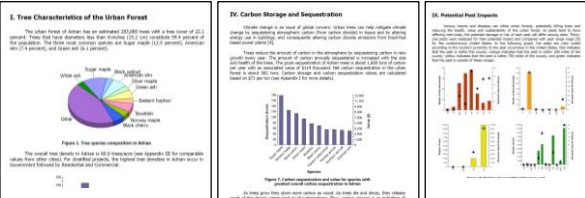 - Extrapolates benefits for the entire urban forest

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Ex: Tree Canopy Analysis

Source: City of Salem Canopy Analysis Performed by American Forests, 2001

2

Ex: iTree Eco Sample Inventory

| Characteristics or Attributes | Benefits and Infrastructure | Risk Assessment |

Source: iTree Eco; iTree Eco Sample Inventory performed for the City of Adrian by the U.S. Forest Service, 2013

Project Overview

- **Estimated Schedule**
  - Request for Proposals has been issued to account for seasonal constraints associated with this project, obtain accurate cost estimates
  - Project could begin as early as May; projected completion in September

- **Fiscal Information**
  - Total cost estimated at $150,000
  - Proposing that entire cost be paid from the Tree Mitigation Fund
  - Falls under permitted uses for the Tree Fund (Council previously set the cap at 5% for "tree inventory" expenses)

Project Overview

How Denton can use this data

- **Keep Denton Beautiful**
  - Calculate reach, impact, and return on investment for Denton Tree Initiative;
  - Determine future community forestry needs and priorities;
  - Public education on importance of trees for a cleaner, healthier, more beautiful community
- **Planning**
  - Work toward long-range goals outlined in the Denton 2030 Plan;
  - Track changes over time, and help steer Urban Forester priorities

- **Parks**
  - Baseline of information for management planning and strategic maintenance
- **Public Communications/Information**
  - Disseminate maps and information to residents and the general public;
  - Open data applications to involve the public;
  - Quantify value of trees for economic development, community health, and more
- **Additional Uses**
  - Identify risks from dead/dying trees, pests and disease
 - Focused Risk Assessment activities with volunteers

Future Considerations

A Draft Timeline for Urban Forestry Management

2016:
First Inventory and Canopy Analysis completed ($100-150,000)
Set percentage canopy and other baseline goals for Denton

3 years (2019):
Update Inventory and Canopy Analysis ($100-150,000)
Urban Forest Management Plan ($5,440)
Measure 3-year impact and progress
Add staff to maintain database and work on an interdepartmental basis for management

5 years (2021):
Citywide Inventory (cost TBD)
Urban Forest Master Plan ($55-90,000)

Every 5 years following:
Update Tree Inventory data

Summary
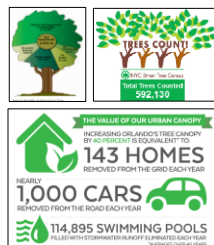
- Update is needed, valuable, and timely;
- Recommending a combined Tree Canopy Analysis and iTree Sample Inventory to obtain current information;
- Project queued to begin this summer, with funding from the Tree Mitigation Fund;
- Request for Proposals opened due to seasonal considerations for this project and to obtain accurate cost estimates;
- Asking support to proceed with the project and bring forth proposals for approval
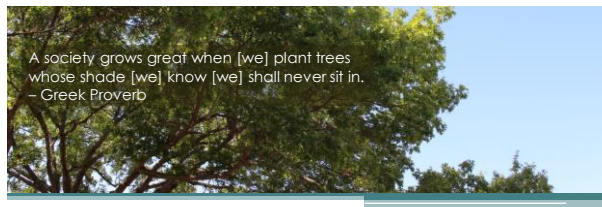
A society grows great when [we] plant trees whose shade [we] know [we] shall never sit in.
– Greek Proverb

Questions