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Title: Receive a report, hold a discussion, and give staff direction regarding findings and recommendations from Denton's recently completed citywide tree resource assessment.

Sponsors:

Indexes:

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Attachments: 1. Presentation of Findings - the State of the Denton Urban Forest

Date	Ver.	Action By	Action	Result
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Agenda Information Sheet

DEPARTMENT: Solid Waste & Recycling

CM/ ACM: Jon Fortune

Date: December 6, 2016

SUBJECT

Receive a report, hold a discussion, and give staff direction regarding findings and recommendations from Denton's recently completed citywide tree resource assessment.

BACKGROUND

A city's urban forest is comprised of all the trees that grow on public or private land within the city limits and extraterritorial jurisdictions (ETJs). Much can be learned through surveying the urban forest's condition, characteristics, and associated risks. The City of Denton first conducted an inquiry into urban forest condition in 2010, through a partnership with faculty and students from the University of North Texas (UNT) Geography Department. This project obtained an estimated percentage of canopy cover for the city using aerial satellite imagery, but had limited applicability in terms of urban forest resource management and planning. Since 2010, advances in tree assessment technology, along with Denton's ongoing residential and commercial growth, have created the opportunity to obtain in-depth information on the state of Denton's urban forest.

In early 2016, the City's key community partner for urban forestry programs, Keep Denton Beautiful, was tasked with leading the effort to complete a citywide tree resource assessment and tree canopy analysis. In coordination with key City staff from Planning, Parks, Environmental Services & Sustainability, and other departments, a Request for Proposals (RFP) was issued, and Preservation Tree Services was selected to complete the study. Field work began in June, and the final project report was delivered at the beginning of November.

Research and Analysis

The goals of the Tree Resource Assessment project include: 1) establish a baseline of data for the state of Denton's urban forest; 2) obtain a comprehensive picture of tree diversity, age, distribution, locations, and condition; 3) assist in future policy and management decisions; and 4) allow for more strategic, targeted distribution and planting of new trees through the Denton Tree Initiative, and other efforts led by Keep Denton Beautiful and the City of Denton.

The project consisted of two assessment methods:

- 1) an i-Tree ECO Resource Assessment, which used a random sample of 251 study plots to quantify tree population, species composition, and distribution, as well as structural and environmental benefits; and
- 2) an Urban Tree Canopy (UTC) Analysis, which used detailed land cover data from high-resolution aerial imagery to determine overall tree canopy cover, tree distribution, and opportunities for planting and preservation.

Results and Deliverables

A total of four project deliverables have been produced by Preservation Tree: 1) Canopy Planner, a cloud-based GIS tool that can be used to set management goals for Denton's urban forest; 2) complete project files and raw data from the study; 3) a presentation of project findings; and 4) an in-depth State of the Denton Urban Forest Report. The report and other deliverables provide detailed information to help Denton policymakers and residents increase their understanding of the urban tree population, and assist community leaders in making informed decisions about the future management of this important natural asset. Key findings from the project include:

- A total population of 3,463,000 trees, with a total structural (or replacement) value of \$2.06 billion.
- Denton's trees provide an additional \$7.2 million annually in environmental benefits (i.e., pollution removal, energy savings, avoided run-off, and carbon sequestration).
- 46% of Denton's urban tree canopy is located on undeveloped land.
- 14% of the surface area in Denton is covered with impervious surface, such as buildings, cement, roads, and parking lots.
- Denton's most common tree species are Sugarberry (a.k.a. Hackberry), Cedar Elm, and Post Oak.
- Trees such as Post Oaks and Pecans made up a relatively small percentage of the total tree population, yet accounted for a very high percentage of total benefits value for the city. For example, Post Oaks accounted for only 9% of the total tree population, yet provide 23% of the total environmental benefits of our urban forest.
- Nearly 50% of Denton's tree population is comprised of just three species, indicating low species diversity, which presents higher risk for loss from pest and disease.

Recommendations and Next Steps

Taking into consideration the key findings of this study, Preservation Tree has compiled a list of five recommendations to help guide Denton's next steps in urban forestry management:

- 1) **Use results of this assessment to preserve and promote urban tree canopy**, especially in undeveloped and single-family residential land use classes.
- 2) **Conduct further analyses of the Urban Tree Canopy data** produced by this study, including comparisons of public versus privately owned parcels on undeveloped land.
- 3) **Use this assessment to help drive policy** to strengthen tree protection during development, and manage professional care of trees.
- 4) **Use results of this assessment to enhance current tree planting initiatives.**
- 5) **Use trees and green infrastructure to off-set urban heat island effect, and reduce storm water**

impacts.

PRIOR ACTION/REVIEW (Council, Boards, Commissions)

May 3, 2016	Budget Amendment Approved by Council
April 5, 2016	City Council Work Session Discussion
January 21, 2016	Keep Denton Beautiful Board Resolution
March 3, 2015	City Council Work Session Discussion
January 13, 2015	City Council Work Session Discussion
February 5, 2013	City Council Work Session Discussion

FISCAL INFORMATION

The original estimated cost for the project was \$150,000; actual cost after completing an RFP was \$93,000. Funding came from the Tree Mitigation Fund, under which permitted uses include “to perform and maintain a City-wide tree inventory” (DDC Section 35.13.7.A.7.e).

STRATEGIC PLAN RELATIONSHIP

The City of Denton’s Strategic Plan is an action-oriented road map that will help the City achieve its vision. The foundation for the plan is the five long-term Key Focus Areas (KFA): Organizational Excellence; Public Infrastructure; Economic Development; Safe, Livable, and Family-Friendly Community; and Sustainability and Environmental Stewardship. While individual items may support multiple KFAs, this specific City Council agenda item contributes most directly to the following KFA and goal:

Related Key Focus Area: Safe, Liveable & Family-Friendly Community
Related Goal: 4.2 Seek clean and healthy neighborhoods in Denton

EXHIBITS

Exhibit 1 - Presentation of Findings: the State of the Denton Urban Forest

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