PUBLIC WORKS
UTILITIES & OPERATIONS
DEPARTMENT
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Memorandum

Date:	July 21, 2022
To:	Tree Commission
From:	Stan Gryczko, Director - Public Works Utilities & Operations Charlie Murphy, Urban Forestry Manager Adrienne Heinig, Assistant to the Director Davey Resource Group, Inc.
Subject:	Item 6B – Urban Forest Management Plan: City Tree Resource Analysis

Recommendation

Informational Item.

Receive the City Tree Resource Analysis conducted for City trees by Davey Resource Group, along with a presentation from the consultant on the analysis, which will include how the data can contribute to the development of the Urban Forest Management Plan. The Commission will also receive additional background information on the Urban Forest Management Plan from staff in this memo.

A Commission-appointed representative of the Finance and Budget Commission (FBC), Historical Resources Management Commission (HRMC), Natural Resources Commission (NRC) and Open Space and Habitat Commission (OSHC) will participate in the discussion, provide feedback as needed, and report back to their respective Commissions on discussions on the Urban Forest Management Plan, as well as any Tree Commission recommendations related to the Urban Forest Management Plan.

Background

The City of Davis (partnered with the local non-profit organization Tree Davis) received a CAL-FIRE Grant utilizing Proposition 68 funds to develop an Urban Forest Management Plan and to plant 1,000 new trees within the city limits.

The City has been working with Tree Davis on planting the 1,000 trees (with 998 planted as of the end of the 2022 planting season), and is in the process of working on the Urban Forest Management Plan portion of the grant. The Urban Forest Management Plan will replace the current Community Forest Management Plan created in 2002. The focus is a 40-year plan that will guide the management of Davis' community forest under the City's purview, and establish overall goals for the City's

larger urban forest canopy, to aid in the continuation of a robust private/public partnership with the care and maintenance of the urban forest.

Urban Forest Management Plan Consultant and Scope
The proposed scope for the Urban Forest Management Plan was reviewed by the Tree Commission at their August 19, 2021 meeting. The discussion of the Commission and motions related to the Urban Forest Management Plan and scope are included in the City Council meeting item from August 31, 2021, linked below.

> **B. Urban Forest Management Plan Professional Services Agreement**
> (*Public Works Utilities & Operations Director Stan Gryczko/Urban Forest Manager Charles Murphy*)
> Recommendation: Approve Resolution Authorizing the City Manager to Negotiate and Execute a Consultant Contract with Davey Resource Group to Develop the Cal Fire Proposition 68 Grant-Funded Urban Forest Management Plan

Ultimately, the work underway for the Urban Forest Management Plan will help the City answer three important questions:

1. what is the state of our urban forest;
2. what does the future of the urban forest look like; and
3. how do we, as a community, get there?

Resource Analysis

The City Tree Resource Analysis presented to the Commission and attached to this report is generally utilized as a tool for urban forestry professionals to understand the current state of a particular urban forest. It is a summary report that highlights the structure, composition, and benefits provided by (in the case with this analysis) City trees, including public trees along streets, rights-of-way, in parks, and at City facilities.

This analysis offers a snapshot of the current conditions within the City's tree inventory and does not include private trees. Based on the data, recommendations will be made for incorporation into the larger Urban Forest Management Plan, palette review, work planning, resource resiliency, etc.

Highlights of the Analysis

- The City's tree inventory includes 207 unique tree species
- *Platanus x acerifolia* (London planetree, 7.8%) is the most common species, followed by *Pistacia chinensis* (Chinese pistache, 6.6%), and *Lagerstroemia indica* (common crapemyrtle, 6.2%)
- 36% of trees are less than 8 inches in diameter (DBH) and 9.8% of trees are larger than 24 inches in diameter, indicating a well-established age distribution

- Based on the City's most recent tree inventory (completed in 2018), 93.3% of City trees are in fair or better condition
- City trees provide an estimated 21.2% canopy cover
- To date, City trees have stored more than 16,158 tons of carbon (CO_2) in woody and foliar biomass
- To replace Davis' 30,692 City trees with trees of equivalent size, species, and condition, would cost over $91.5 million
- 69% of Davis' City trees are susceptible to identified pests and disease threats such as polyphagous shot hole borer, defoliating moths, thousand cankers disease and Dutch elm disease
- Annually, City trees provide quantifiable benefits to the community totaling $213,857. The average annual benefit per tree is $6.97. These benefits include:
    - 2.7 million gallons of avoided stormwater runoff, valued at $24,552, an average of $0.80 per tree
    - 10.4 tons of air particulates removed, improving air quality, and reducing adverse health incidents for a value of $117,423, an average of $3.83 per tree
    - 421.5 tons of carbon directly sequestered, valued at $71,882, an average of $2.34 per tree

Recommendations to incorporate into the Urban Forest Management Plan

Regarding the management of the City's trees:

- Protect existing trees and regularly inspect trees to identify and mitigate structural and age-related defects.
- Provide structural pruning for young trees and continue to work toward a routine pruning cycle for all trees.
- Monitor species performance (e.g., health, structure, longevity, pest and disease resistance) and increase resilience in the urban forest by planting species that perform best in local and regional conditions, including introducing new species that indicate promising traits.
- Maintain the benefits of key species by continuing to include them in new tree plantings.
- Plant tree species with consideration for species performance and increasing resilience in the urban forest.
- Discourage the planting of species that are classified as invasive (e.g., *Triadica sebifera* [Chinese tallowtree], *Schinus molle* [California peppertree], *Ailanthus altissima* [tree of heaven], and *Eucalyptus globulus* [blue gum]).
- Increase genus and species diversity in new and replacement tree plantings to reduce reliance on over-represented species. While no species represent more than 10% of the overall population, increasing diversity in the tree resource can provide additional benefits.
- Prioritize planting replacement trees for those trees that are removed.

- Consider successional planting of important species, as supported by relative performance index (RPI) and the relative age distribution (e.g., *Celtis sinensis* [Chinese hackberry]).
- Use available planting sites to improve diversity, increase benefits, and support an ideal age distribution of City trees.
- Plant large-stature species for greater benefits wherever space allows.
- Follow best management practices when monitoring for and dealing with pests and diseases.
- Maintain and update the inventory database to include new tree plantings, removals, as well as changes in diameter, condition for new trees.
    - Consider adding information on distance and orientation to nearest structure/building so that energy benefits can be calculated in future analyses.
    - Consider adding locations for available planting sites.

The presentation will also include a summary of land cover assessment which used aerial imagery of the entire community forest to evaluate tree canopy and its relationship with other primary land cover in Davis.

Highlights of the Analysis of the Entire Community Forest

Davis encompasses 6,426 acres. The following information summarizes land cover:

- 26.2% (1,681 acres) tree canopy, including trees and woody shrubs
- 43.9% (2,823 acres) impervious surfaces, including roads and structures
- 29.3% (1,881 acres) pervious surfaces, including bare soils and low-lying vegetation
- Less than 1% (40 acres) open water
- 92.4% of canopy is in fair or better health
- 73.7% (4,738 acres) of tree canopy is on privately owned property
- 83.5 acres of tree canopy is in parks for an average of 41%
- 641 acres of tree canopy in residential zoning for an average canopy cover of 33.6%
- Land zoned as mixed use has the highest level of canopy cover (41%) and 641 acres of tree canopy) while land zoned as public semi-public districts has the lowest canopy cover (6.5%)
- 1,377 acres of potential planting sites including areas of existing bare soil and grass/low-lying vegetation, for an overall canopy potential of 47.6%
- To date, Davis' community forest has stored 57,370 tons of carbon in woody and foliar biomass, valued at $9.8 million
- Avoided 7,995 tons of pollutants in stormwater runoff
- Annually, community trees provide quantifiable benefits to the community totaling $1 million.

Attachments:

- City Tree Resource Analysis for City of Davis
- Terms to Know
- Urban Forest Resource Summary