



Characterizing comprehensiveness of urban forest management plans in Washington State



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ABSTRACT

Urban forest management plans serve as a municipality's guiding document for management of its urban trees and urban forest. This paper presents results of a content analysis and evaluation of the comprehensiveness of 39 urban forest management plans in Washington State. Comprehensiveness is the degree to which a plan includes a review of the current state of the resource, a vision for the future state, goals and objectives, an action plan for implementation, and a plan for monitoring progress. We also explored whether municipality size, community involvement, plan author, or funding source influence plan comprehensiveness. Plan comprehensiveness varies, and although most plans included the results of a tree inventory, very few conducted a full assessment of the current state of the urban forest. Tree maintenance, tree establishment, and tree protection were addressed most frequently, and many of the plans included a vision statement. The majority of plans included detailed action steps for implementing goals related to tree maintenance and tree establishment, and about a quarter of the plans included an implementation plan. Very few plans addressed monitoring and adaptive management, and no plan included a detailed strategy for monitoring the implementation of the plan. Larger municipalities tend to have more comprehensive plans, and community involvement in the plan development process appears to positively influence the overall comprehensiveness score. No relationship was found between plan author or receipt of grant funding and plan comprehensiveness. Our approach for evaluating plan comprehensiveness suggests a useful framework for future plan development, revision, and evaluation.

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1. Introduction

The urban forest is the collection of street trees, park trees, residential trees, green spaces, and vegetated public lands in populated areas (Moll, 1995). Because urban forests are diverse, connected, and dynamic, they require a comprehensive approach to planning and management (Dwyer et al., 2003). Comprehensive urban forest management considers all trees in an urban area, as well as the competing land uses, ownerships, and community values, and is integral to shifting from reactive to proactive management (Nowak et al., 2010). An urban forest management plan is a community document that creates a plan for the management of the urban forest, and provides strategic direction and operational guidelines. Over the past decade, urban forest planning has become common practice in North America, and cities across the United States, from Tampa FL, to Pittsburgh PA, to Palo Alto CA are developing plans

to guide long-term management (Alliance for Community Trees, 2013). In Canada, Ordonez and Duinker (2013) link improvements in municipal urban forest programs to the rise in the number of urban forest management plans.

Over the last two decades, many Washington State (WA) communities have made efforts to plan for the future of their urban forests, and at least 38 municipalities have adopted an urban forest management plan or similar guiding document. Because of the diversity and complexity of the urban forest as well as unique community characteristics and values, an urban forest management plan should be both comprehensive and tailored to a particular municipality. A comprehensive urban forest management plan reviews the current state of the resource, includes a vision for the future state with goals and objectives, addresses goals and objectives with specific action steps for implementation, and includes a plan for monitoring progress toward those goals and vision. While plans remain one of a city planner's primary tools, few studies have evaluated plans or plan quality (Baer, 1997). Our study addresses this gap by characterizing and evaluating the comprehensiveness of urban forest management plans in WA municipalities, and examining the influence of municipality

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size, community involvement, plan author, and funding on plan comprehensiveness.

1.1. Planning the urban forest

The urban forest plays an essential role in maintaining healthy, livable communities and mitigating environmental impacts of urban development (Nowak and Dwyer, 2007). Planning is critical for managing and maintaining the benefits of an urban forest. As Robert Miller (1997) notes, “planning is nothing more than thinking out a course of action in anticipation of the future.” The process of planning can help improve coordination of management activities within local government as well as coordination with outside agencies, nonprofit organizations, and community groups (Escobedo et al., 2007). Comprehensive planning considers the connection of all the activities impacting the urban forest, such as residential and commercial development, to take a more holistic approach to management (Dwyer et al., 2003).

A plan has several core purposes, which include: offering a community vision that inspires action; providing goals, action steps, and policies that help translate the vision into on-the-ground change; addressing long-term considerations into short-term actions; and relating the management objectives to the larger community and regional context (Berke et al., 2006). Plans serve as an important resource for city managers, document agreement of the goals created through a community involvement process, and are a reference for public officials and residents (Berke et al., 2006). Urban forest management plans help municipalities create a unifying vision for the urban forest that will guide the development of goals and objectives (California Urban Forest Council, 2013). Plans also provide an opportunity for the municipality to create policies for managing the urban forest, define best management practices (BMPs), and outline ways to involve the community in shaping its urban forest management goals (Steenberg et al., 2013).

Several frameworks have been presented in the literature to aid in urban forest planning and plan development. A sustainable urban forest has become the standard goal and vision of many municipalities. Clark et al. (1997) present a theoretical model for urban forest sustainability, which addresses the interdisciplinary nature of urban forest management and is divided into three main components: the vegetation resource, the community framework, and resource management. Robert Miller's (1997) “Urban Forest Planning Model” has been used by many cities in the development of urban forest management plans. The model provides a framework for planning and organizing the components of any management plan and asks four basic questions: (1) What do we have? (2) What do we want? (3) How do we get what we want? and (4) Are we getting what we want? The model suggests a cyclical planning process that is easily adapted to the concerns of a particular municipality. The Urban Forest Management Plan Toolkit—developed by California Urban Forest Council and the Inland Urban Forest Council (ufmptoolkit.com)—structures its guidelines around these four questions. The Toolkit acknowledges that each municipal urban forest management plan is unique and that this planning process can be used to create an individualized plan for a particular city and geographic location (California Urban Forest Council, 2013). Ordonez and Duinker (2013) offer “a model of urban forest management plan elements,” after conducting an extensive literature review on the elements commonly found in Canadian urban forest management plans, which mirrors Robert Miller's (1997) urban forest planning model. The Ordonez and Duinker (2013) model presents a three level planning process with a separate implementation process, including monitoring and evaluation.

Due to the ecological and social diversity of the individual urban forest, an urban forest management plan should be unique and encapsulate a municipality's unique social and cultural values,

with locally specific strategies. While plans should be unique, all municipal plans should address the key components of a comprehensive management plan, which include providing adequate background and baseline assessment of the urban forest, a long-term vision and set of goals covering the main themes in urban forestry (e.g. tree establishment, municipal coordination, budget), an action plan for implementation, and a plan for monitoring and evaluation (Gibbons, 2014).

1.2. Evaluating plans

The planning literature concludes that it is difficult to distinguish a ‘high quality’ plan from a ‘low quality’ one. However, plan evaluations have been conducted in a wide variety of fields including environmental planning, sustainability, and natural hazard mitigation using evaluative criteria (Edwards and Haines, 2007). Criteria for determining plan quality are necessary to evaluate what a plan should include and how its quality should be judged, and the “appropriate criteria to evaluate a plan are implicit in the concept that the plan embodies” (Baer, 1997). Plan evaluation criteria are usually derived from the regulations mandating the development of a plan or by guidelines presented by the supervisory agency. The field of urban forestry in the United States does not have overarching regulations or specific requirements for the formation of a plan. Therefore, developing criteria to evaluate a plan can help clarify the mission and purpose of a plan and help planners and urban foresters develop plans that are comprehensive and effective (McDonald et al., 2005). Baer (1997) suggests that a set of positive criteria with a list of what an ideal plan should include are helpful to planners beyond a list of what a plan should not include. Evaluative plan criteria are useful during both plan development and plan evaluation (Baer, 1997).

2. Methods

To increase our understanding of municipal urban forest management planning in WA, the first step was to identify urban forest management plans from around the State. An urban forest management plan was defined as any guiding urban forest management document with a focus beyond natural area planning, i.e. trees in public parks. Plans were identified in summer 2013 with the help of the WA Department of Natural Resources (DNR) Urban and Community Forestry Program, a Municipal Research Services Center Study (2010) on WA urban forest management, communication with urban forest plan writing consultants, and individual email and phone contacts with municipal planners, arborists, and public works directors. The search for plans, while exhaustive, likely did not yield every plan in the State.

The final sample included 39 municipal plans, ranging from strategic plans to purely operational tree maintenance plans. The titles of the plans differed and included strategic plans, master plans, and management plans; however all plans in the sample represented the municipality's guiding urban forest management document. The study includes two plans from the City of Covington. Instead of combining the two plans for the purpose of evaluation, the plans were evaluated separately because both serve different purposes for urban forest management and both are currently in use. Email and phone communication with the majority of the municipalities confirmed that the plans included in the study serve as the municipality's most recent urban forest management plan.

2.1. Evaluating urban forest management plans

To characterize the comprehensiveness of the 39 urban forest management plans in WA, we needed a framework and set of

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