

Landscape Performance: Determining What and How to Measure

Performance measures are essential to demonstrate impact and show how design solutions contribute to sustainability. But what should be measured? And how? This session presents widely-applicable metrics and methods for environmental, social, and economic performance. Practitioners share insights on gathering baseline data, setting objectives, and evaluating performance of built projects.

Learning Objectives:

- Understand opportunities and challenges for measuring landscape performance.
- See examples of widely applicable metrics and methods for environmental, social, and economic performance.
- Learn how to begin the process of evaluating the performance of a landscape project.
- Understand different types of data sources, approaches to producing and collecting data, and associated limitations.

Measuring Landscape Performance



Environmental Performance

Andropogon's **University of Pennsylvania Shoemaker Green** in Philadelphia, PA

- Managed 100% of all rain water during the monitoring period
- Transpires up to 25-30 gallons of water a day in each tree
- Develops organic matter and available plant nutrients in the soil through an organic turf care program
- Attracts neotropical migratory birds, such as yellow warbler and song sparrow, in addition to red-tailed hawk, an undetermined bat species and an eastern cottontail



Social Performance

OLIN's **Canal Park** in Washington, DC

- Attracts an average peak of 58 visitors, ranging from a high average peak of 88 in summer to a low of 25 in fall.
- Provides well-designed space with 86% of respondents describing the park in positive terms and 44% saying they would not change anything about the park.
- Provides an inviting space that encourages social interaction, with 27% of survey respondents confirming they have made new acquaintances in the park.
- Contributes to a 14% decrease in vehicular speed with table-top crosswalks.



Economic Performance

Design Workshop's **Cherry Creek North Improvements** in Denver, Colorado

- Decreased retail vacancy rates from 13.6% in 2009 to 7.2% in 2012
- Increased the District sales tax revenues by 16% in the first year after construction
- Reduced crime in the district by approximately 39% from 2009 to 2011
- Reduces annual energy consumption by 223,000 kW and saves \$14,000 per year by using LED lights

Session Outline

- I. **Introduction: Performance Measures** (Heather Whitlow, LAF)
 - a. Why evaluate performance: Opportunities and challenges
 - b. Metrics and data in the design process: Before, during, after
 - c. Tools to help begin the process of evaluation
- II. **Environmental Performance Measures** (Emily McCoy, Andropogon)
 - a. Overview of landscape performance metrics for environmental criteria and why it's important- soil, vegetation, water, people (maintenance, management, end-user use)
 - b. How to set up a monitoring project on a restricted budget and the role of the landscape architect
 - c. Green Infrastructure Goals/ Projects (Shoemaker Green, University of Pennsylvania)
 - d. Ecological Restoration Goals/ Projects (Loantaka Gas Pipeline, Morris County, NJ; Summit Bechtel Scout Reserve, Mount Hope, WV)
 - e. Brownfield Remediation Goals/ Projects (Bartram's Mile, Philadelphia, PA)
 - f. Lessons learned and advice for incorporating environmental feedback loops in the design process
- III. **Social Performance Measures** (Skip Graffam, OLIN)
 - a. Framework of Social Sustainability – metrics to understand the quality and “harmonious evolution of civil society”
 - b. Benefits and challenges of measuring social performance at the project scale
 - c. Project Example: Canal Park, Washington, DC – context and design
 - d. Methodology
 - e. Data Gathering and Interpretation
 - f. Lessons Learned
- IV. **Economic Performance Measures** (Allyson Mendenhall, Design Workshop)
 - a. Empowering landscape architects to measure economic benefits
 - b. Win/Win: Many economic benefits are also environmental and social benefits
 - c. Construction and Life Cycle Cost Savings (High Desert Community, Albuquerque, NM)
 - d. Increased Sales Tax Revenue and Decreased Retail Vacancy Rates (Cherry Creek North, Denver, CO)
 - e. Planning for Long-Term Operations and Maintenance (Blue Hole Regional Park, Wimberley, TX)
- V. **Moderator-Facilitated Panel Discussion**
- VI. **Audience Q&A**

Presenters

Emily McCoy, ASLA, PLA Andropogon



As Associate and Director of Integrative Research, Emily leads a rigorous review of Andropogon's past landscape interventions in order to integrate the best scientific knowledge and the most effective design solutions into future projects. Emily is passionate about contributing to the knowledge base of landscape architecture by exploring the interplay between professional practice and research, as evidenced in her roles as an adjunct professor and member of LAF's Education Committee. Emily holds an M.L.A. with concentrations in natural resource management and GIS, a B.S. in Ecology and Environmental Biology; and has past professional experience as a horticulturist and researcher.

Skip Graffam, ASLA, PLA OLIN



As Partner and Director of Research, Skip Graffam, leads design and planning projects as well as strategic research initiatives for the office. OLIN's research explores how landscape architecture can positively enhance life and the environment with particular focus on green infrastructure, designed ecologies, and landscape performance metrics. Skip holds degrees in architecture and landscape architecture from the University of Virginia. He is a former Assistant Professor of Landscape Architecture at Temple University and recently served as visiting faculty at SCI-Arc and a visiting critic at the University of Virginia, University of Pennsylvania, and the Pantheon Institute in Rome.

Allyson Mendenhall, ASLA, PLA Design Workshop



As Director of DW Legacy Design at Design Workshop, Allyson Mendenhall leads the firm's efforts to set comprehensive sustainable project agendas with measureable economic, environmental, social and aesthetic outcomes. She develops research and practice models, develops partnerships with academics and research institutes, and teaches performance-based methodologies across the firm's ten offices. Distinguished for her project leadership of complex, multidisciplinary design and planning efforts, Allyson leads Design Workshop's quality assurance program. She serves on the board of the Landscape Architecture Foundation and is Chair Elect of the Harvard Graduate School of Design Alumni Council.

Heather Whitlow Landscape Architecture Foundation



As Director of Programs and Communications, Heather leads LAF's *Landscape Performance Series* initiatives, scholarship programs and communications. For over a decade, she has used her background in urban planning, environmental engineering, and education to promote sustainable development through the use of green infrastructure and alternative transportation. Her projects have earned an ASLA Award of Excellence in Communications and two ASLA Honor Awards for Research. Heather holds B.S. degrees in Environmental Engineering and Chemistry, and a Masters of Community Planning.

References & Resources

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