

TREES, STORMWATER AND SUSPENDED PAVEMENTS: RESEARCH AND REALITY

PHOTOGRAPH BY JON HOLIDAY

PANELIST

ROB GRAY PLA, APA LEED AP, PRINCIPAL



is a Principal at Hoerr Schaudt Landscape Architects where he serves as a design and thought leader within the firm. Rob has a broad range of experience spanning the fields of planning and landscape architecture, including campus and community planning, streetscape design, healthcare, public parks, botanical and zoological gardens and theme parks and resorts. Rob has developed a strong commitment to developing design solutions that evoke the spirit of a place, drawing inspiration from both site and program to create settings that immerse the user in an enriching and memorable environment.

BRYAN SEIPP



is a Watershed Manager and Forester at the Center for Watershed Protection. His expertise is in forest management, stream assessments, watershed planning, and watershed modeling. Bryan's recent work at the Center has focused on implementing upland stormwater green infrastructure, monitoring studies of pollutant removal performance of tree based stormwater BMPs, and assisting MS4s (Multiple Separate Storm Sewer Systems) develop and implement TMDL (Total Maximum Daily Load) Implementation Plans. Bryan is a graduate of Virginia Tech, a licensed forester in Maryland, the Chair of the Maryland Chapter of the Society of American Foresters and serves on the Maryland Sustainable Forestry Council.

DR RYAN WINSTON PhD



is a Research Assistant Professor in Food, Agricultural, and Biological Engineering at the Ohio State University, where he leads the OSU Stormwater Management Program. For the past decade, his research has focused on urban water management, with specific interests in quantifying the hydrologic and water quality performance of green infrastructure. Much of his past research has focused on bioretention, permeable pavement, road runoff management, and using green infrastructure, including suspended pavements, to treat stormwater runoff.

SESSION OVERVIEW

Trees and soils are a key component in urban stormwater management with suspended paving systems proving to be a best practice towards increasing their vitality in these challenging environments. We will address the stormwater mitigation capacity of trees and use case studies to support their value as a resource.

LEARNING OBJECTIVES

1. Understand the important role that tree canopy and their associated soil systems can play in the management of urban stormwater.
2. Identification of key forest types/tree characteristics and other factors used in stormwater mitigation and how urban tree canopy has been credited as a stormwater mitigation tool in watershed jurisdictions.
3. Understand what suspended pavement systems are and the processes that they employ for stormwater management.
4. See how suspended pavement has been used as a mechanism to manage stormwater, promote urban tree vitality, and aid in the transformation of a downtown using a project case study.

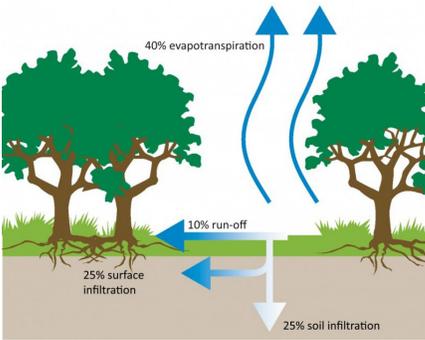
SESSION OUTLINE

This session will review history, basic applications, notable projects and stormwater mitigation potential for urban trees with a focus on suspended pavement systems. Suspended pavement makes two very important functions possible in urban settings: urban tree growth and on-site stormwater management.

1. Introduction - Soils, Stormwater and Trees

Rob Gray

- Healthy, mature trees play a key role in the urban landscape, providing biophilic, functional, and economic value to our cities.



2. Urban Forest Overview

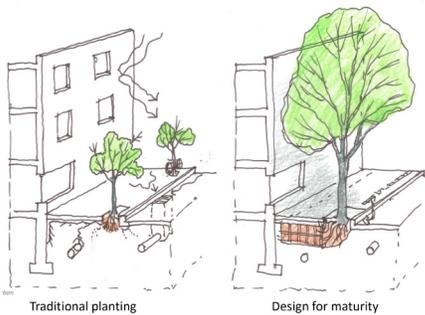
Bryan Seipp

- Effectiveness of urban trees on reducing runoff
- Existing crediting methods
- Example tree crediting
- New crediting framework
- Research Needs & Next steps

3. Suspended Pavement Systems vs Traditional Bioretention

Dr. Ryan Winston

- How Bioretention can fit in constrained urban spaces, especially in retrofit situations along street rights-of-way
- Silva cells provide the potential to use tree/soil systems as an urban stormwater BMP while growing a healthy tree
- Two Silva Cell systems were installed in Wilmington, NC to filter stormwater and were monitored for one year
- In terms of pollutant mitigation (nitrogen, phosphorus, sediment, and metals), Silva Cells performed similarly to traditional bioretention facilities



4. Case Study: Uptown Normal Redevelopment, Normal IL

Rob Gray

- Overview of a sustainably-driven downtown redevelopment project that utilizes a variety of stormwater mitigation techniques including suspended pavement
- Suspended pavement was utilized to create favorable growing conditions for trees within the project while providing additional stormwater management capacity
- Analysis of tree growth and health 10 years after the project was completed yielded above average results for trees in an urban setting
- Highly successful planting of trees has transformed the project area and helped drive value and redevelopment within the district



5. Question & Answer

