Maximizing the Benefits of Green Stormwater Infrastructure

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With the latest municipal regional stormwater permit requiring permittees to develop watershed-based Green Stormwater Infrastructure (GSI) plans, the Bay Area is poised to enter a new era of street design, engineering, and maintenance. The anticipated long-range improvements to the public realm will have transformative effects within our urban communities. The session will key on the status and future of municipal GSI planning efforts; strategies for understanding and meeting community needs; and highlight efforts to better quantify the co-benefits of urban greening.

Keywords: Greening, infrastructure, stormwater, community, planning, watershed, benefits

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Speaker Biography: Josh Bradt is an Environmental Planner and Project Manager at the San Francisco Estuary Partnership. His work primarily focuses on the promotion of Green Infrastructure practices and policies at the local and regional levels. Josh's current projects range from design & construction of site specific stormwater retrofits to developing planning tools and funding streams to ensure widespread implementation. Josh is brings watershed planning and urban stream restoration expertise to the Partnership from his previous career stops at the City of Berkeley, the Urban Creeks Council of California, and the Contra Costa Countywide Clean Water Program. He is enthused by place-making, community engagement, and opportunities to be in the field.

Municipal Green Stormwater Infrastructure Planning Overview

Jill Bicknell, Santa Clara Valley Urban Runoff Pollution Prevention Program, jcbicknell@eoainc.com

To promote increased use of green stormwater infrastructure in urban areas and assist with compliance with TMDLs, the current Bay Area Municipal Regional Stormwater Permit (MRP) includes a requirement that Permittees complete and implement Green Stormwater Infrastructure (GSI or GI) Plans. The GI Plans must show how the Permittee will incorporate low impact development (LID) drainage design into public and private streets, parking lots, building roofs and other facilities to achieve water quality, flow reduction and other environmental and community benefits. Implementation of the Plans is intended to, along with other actions, achieve quantitative load reductions for PCBs, mercury, trash, and other contaminants over the long term.

Around the same time that the GSI requirements were issued, the California Water Code was amended per SB 985 to require that, as a condition of receiving State bond funds for construction, GSI projects must be prioritized projects within a Stormwater Resource Plan (SWRP). Through Proposition 1 stormwater planning grants and other funding sources, SWRPs (or equivalent) have been or are being developed in at least five Bay Area counties (San Mateo, Santa Clara, Contra Costa, Marin, and Sonoma). Development of a SWRP includes tasks to identify, evaluate benefits, and prioritize local and regional GSI projects that capture and treat stormwater within a watershed. These projects can be incorporated into GSI Plans and will help achieve the pollutant load reductions called for in the Mercury and PCBs TMDLs for the San Francisco Bay, as required by the MRP.

This presentation will review the requirements for and status of municipal GSI planning efforts in the region and the role of Stormwater Resource Plans in evaluating benefits, prioritizing projects, and getting stakeholder input.

Keywords: green infrastructure plans, stormwater resource plans, project benefits

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Speaker Biography: Jill Bicknell, P.E., is a water resources engineer and manager at EOA, Inc. in Sunnyvale, CA and has served as the Assistant Program Manager for the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) since for over 20 years. Jill has been a leader in the Bay Area in development of green infrastructure and LID requirements for new and redevelopment projects. She is currently leading SCVURPPP's efforts to develop a Stormwater Resource Plan for the Santa Clara Basin, prepare countywide tools for green infrastructure planning, and assist member agencies with development of local green infrastructure plans.

The Watershed Planning Game: Engaging Community Members in Assessing Infrastructure Tradeoffs

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Watershed managers are constantly faced with competing challenges and stakeholders who have difficulty seeing beyond their own issue area. Playing games can be an effective tool for community engagement with the potential to help players encounter tough tradeoffs in a friendly context. The Watershed Planning Game is an award-winning and innovative community engagement tool that was used as part of the San Francisco Public Utilities Commission's Sewer System Improvement Program. The multi-year planning process included an interactive watershed planning game to generate ideas for green and grey infrastructure investments for the next 20 years for the City's eight watersheds. The design "game," played six times by more than 300 people, brought together technical and non-technical participants to understand system challenges and to grapple with tradeoffs in budgets and the performance goals. Through playing the game, the teams developed project ideas consisting of multi-purpose green and grey infrastructure concepts to be further evaluated for technical feasibility and cost effectiveness. The game won the award for Outstanding Public Involvement/Education Program by the Association of Environmental Professionals in 2013. This presentation talk will address lessons learned and suggestions for improving the process.

Keywords: watersheds, planning, stormwater, community engagement, games

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Speaker Biography: Rosey Jencks, Vice President, Brown and Caldwell, specializes in urban watershed planning and stormwater management. Prior to joining BC, Rosey served as a program manager at San Francisco Public Utilities Commission (SFPUC), where she provided strategic direction to local practices and supported regional and local initiatives that advance innovation in the field. She was responsible for overseeing the award-winning Living Machine at the SFPUC headquarters -- the first building-scale sewage treatment system in San Francisco. Also at SFPUC, Rosey recently led the Urban Watershed Assessment, a multi-disciplinary watershed and collection system planning project focused on integrated flood management, combined sewer overflow reduction, and integration of stormwater management in urban design and city policies.

Environmental Justice Benefits and Consequences

Nahal Ghoghaie, The Environmental Justice Coalition for Water, nahal@ejcw.org

California environmental practitioners are increasingly turning toward an inclusive and equitable planning process to ensure resilience to climate change. While it is encouraging that we live in a state that mandates community involvement, it is rare for such efforts to result in truly *equitable* processes. There is a deep history to Social and Environmental Justice and myriad lessons that must be considered in order to make substantial and sustainable strides towards advancing inclusivity and equity, especially in our climate change reality. Shifting towards a planning model that is more collaborative and empowers those not typically engaged in [climate] planning builds a larger and more lasting impact than simple project-focused engagement. Meaningful community input and decision making is required to prevent the often unintentional negative effects of planning such as gentrification. We will address what is required to make this a truly inclusive movement, and how we can work together to building lasting relationships and powerful coalitions through our climate and environmental planning process.

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Speaker Biography: Nahal Ghoghaie is the Bay Area Program Lead for The Environmental Justice Coalition for Water (EJCW), as well as the Policy Chair for the Bay Area's Resilient Communities Initiative Coalition (RCI). She holds a Master's Degree in Environmental Studies with an emphasis on Tribal Leadership in Watershed Management and Climate Change Adaptation. She has devoted close to a decade to fostering alliances for a resilient planet through her roles at the Washington State Department of Natural Resources, Earth Economics, Sound Ecosystems, The California Resiliency Alliance, Alameda County Waste Management Authority, and now with EJCW and RCI. Nahal leads EJCW's work as the Bay Area Proposition 1 Disadvantaged Community Involvement Program Manager, and serves as an Advisory Committee member for the San Francisco Bay Restoration Authority, as well as for the Resilient by Design Bay Area Challenge.

Urban Infrastructure Innovations for Environmental Health

Brent Bucknum, Hyphae Design Lab, brent@hyphae.net

Brent will focus on two public-health-outcome-driven greening plans he has worked on in West Oakland and Louisville, Kentucky.

Brent will advocate for how green infrastructure can go beyond stormwater management, to provide multi-benefit that improves air, soil, water and human health.

1) In partnership with local environmental justice group West Oakland Environmental Indicators Project (WOEIP), and funding from the Governor's Office of Research & Planning, Brent's non-profit Urban Biofilter, recently launched *Adapt Oakland* (adaptoakland.org). It is a 1) multi-benefit greening plan for West Oakland, as well as a 2) a toolkit for Oakland and other neighborhoods with high impact Port, TOD, and industrial land uses and 3) a framework for health based adaptive management plans.
2) In partnership with the University of Louisville, Environmental Cardiology Department led by Dr. Aruni Bhatnagar, Urban Biofilter, recently launched *Greenheart*, a clinical trial, studying cardiovascular, psychological and other health benefits from vegetated buffers and urban greening. The project was initiated by the Institute for Healthy Air Water & Soil and supported by The Nature Conservancy.

Keywords: green infrastructure, public health, environmental justice, multi-benefit infrastructure, air quality

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Speaker Biography:

Brent Bucknum: Brent is the founder of Hyphae Design Lab, a design and engineering firm as well as Urban Biofilter, a research and policy focused nonprofit, both based in Oakland. Brent has worked on high profile infrastructure projects like the Academy of Sciences and living wall at sfMOMA, as well as a lot of more low profile work in environmental justice. As an urban ecologist, Brent's work aims to improve the health and diversity of all species in the urban environment. He pays particular focus to the city's dominant megafuana, humans. Brent's work brings together academic research, innovation, environmental justice, green infrastructure engineering and public health policy.