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3:30 PM – 5:00 PM
SESSION 55: Planning II

Sustainable Water Planning for a New Urban Town Center - Erin Nelson, Parametrix, Bellevue, WA
(co-authors: Eric LaFrance)

The City of Sammamish is a city of 40,000 residents, and was incorporated in 1999. The City is situated next to Lake Sammamish on the east side of Lake Washington near Seattle. Development draining to Lake Sammamish has been under phosphorus discharge limitations since the early 2000s. As a result the City has had a history of sensitivity to environmental impacts from stormwater runoff since its inception. The City is in the process of planning for a new Town Center that will utilize sustainable development techniques including low impact stormwater development techniques. The stormwater will be managed to minimize impacts to significant wetlands, streams and natural areas in the two Town Center drainages. In addition to stormwater runoff, other water challenges in the City include declining groundwater resources used for domestic purposes. This planning effort involved evaluation of potential options for stormwater and wastewater reuse, groundwater recharge and ecosystem marketplace strategies to solve complex inter-related water issues. The effort required consideration of the roles and responsibilities of multiple agencies including the City of Sammamish, King County the local water and sewer district, and the Washington State Department of Ecology. Additionally, the goals and objectives of the development community were evaluated to determine the practicality and potential for incentivizing options considered.

Triple Bottom Line and Life-Cycle Cost Assessment of Sustainable Resource Management in Boston, MA - Joseph Farah, R. W. Beck, Inc., Seattle, WA

Triple Bottom Line and Life-Cycle Cost Assessment of Sustainable Resource Management in Boston, MA Urban planners today are facing a multitude of problems with the prevailing paradigm of development. Apart from being hydrologically unbalanced, and operating on a "fast-conveyance" premise, large cities suffer from high levels of greenhouse gas emissions and inefficient management of resources. This study examines the feasibility of a new urban management approaches based on the concepts of "Total Hydrologic Balance" and "Sustainability". Water conservation and reuse, energy conservation, vegetated roofs, decentralized water management in semi-autonomous urban clusters or "ecoblocks" , and integrated resource management were investigated in multiple configurations and assessed for benefits on a "Triple Bottom Line" basis. Green roofs were studied for water retention, runoff reduction and building insulation and were found to be effective in reducing runoff from the one-year storm. For water reclamation, facilities using biological nutrient removal and yielding a high quality reusable effluent were proposed inside the urban ecoblocks with their cost estimated from construction curves. Water and energy conservation were thoroughly dealt with and broken down to direct and indirect ways to conserve, while proposing low flow fixtures and energy efficient appliances with no or minimal additional cost. Anaerobic digestion of sludge and heat extraction from wastewater were also considered as renewable sources of energy. A "Life-Cycle Cost Analysis" was used in order to determine the economic viability and applicability of each proposed alternative. Such analysis revealed that sustainable management is feasible for different scales of clusters and various land use compositions. Alternatives centered on water management or green roofs only were not feasible on their own while comprehensive alternatives using a holistic approach and plans incorporating energy conservation were the most beneficial. Land use and population density were analyzed for their effects on the different scenarios. The results suggested that the payback period was not much affected by those parameters while the net present worth showed it highest values at 55-70% developed land cover and a population density in the range of 6000-9000 persons/km².

Regional Watershed Management Planning for a Multi-Jurisdiction Urban Area - Kimberly Z. Shorter and Steve Haubner, AECOM, Atlanta, GA and Atlanta Regional Commission, Atlanta, GA respectively (co-author: Pamela Burnett)

The Metropolitan North Georgia Water Planning District (Metro Water District) was created in 2001 to develop comprehensive water resource management plans in the 15-county area surrounding the City of Atlanta. This is the fastest growing region in the southeastern United States, highly water stressed, and impacted by stormwater and TMDLs resulting from urbanization. This paper summarizes the challenges and successes associated with the first five-year update of the regional Watershed Management Plan, completed in May 2009. With over 100 local governments in the Metro Water District, consensus building and public communications were a strong element of the plan update process. The Plan Update also balanced the needs of individual watersheds while respecting the political boundaries in which local governments operate. The Watershed Management Plan update was integrated with the updates of the water supply and wastewater management plans. The unprecedented growth and development in the Metro Water District is expected to continue with population increasing from 4.5 million residents in 2006 to 7 million residents by 2035. Over 1,500 miles of stream in the Metro Water District are considered impaired according to the Georgia 303(d) list of impaired waters. Growth, protection of drinking water supplies, competition for assimilative capacity, and protection of aquatic health are just some of the challenges facing the region. To address these challenges, the Watershed Management Plan creates a level playing field with minimum regulatory and programmatic requirements for all local governments, supplemented with basin specific recommendations to address unique features. Post-development stormwater is regulated by a series of model ordinances and standards. TMDLs are addressed through pollution prevention and watershed improvement projects. Asset management, with the region's aging infrastructure, is also a strong focus of the plan update. The Plan includes a regional education program with minimum requirements for the local education activities. Local governments within the Metro Water District are accountable for implementation of the minimum measures through existing NPDES permits and are audited regularly by the Georgia Environmental Protection Division. The Metro Water District Watershed Management Plan is comprehensive with accountability, and therefore a successful model for a regional program.

Adopting the Stepchild: Ecosystem Planning in Seattle's 'Other' Municipal Watershed - Cynthia Carlstad, Tetra Tech, Seattle, WA (co-authors: Brent Lackey, Michael Kern)

Seattle Public Utilities (SPU) provides water to 1.3 million Seattle area residents from two watersheds in the western Cascade Mountains. Through a Habitat Conservation Plan, SPU has focused considerable landscape management on the Cedar River Watershed (source of about two-thirds of the municipal water supply). However, before 2009, a comprehensive land management plan had not been developed for SPU's other major supply basin, the South Fork Tolt Watershed. The South Fork Tolt Municipal Watershed is 12,500 acres of forestland and municipal reservoir. SPU has owned 70% of that land within the municipal watershed (8,339 acres) since 1997, with the remainder in National Forest. The watershed was extensively clearcut and densely roaded between the 1940's and 1990's. The landscape today reveals a recovering but under-managed forest—though the City has decommissioned all but ~30 miles of forest roads. Beginning in 2007, SPU used a coordinated policy, technical and stakeholder approach to develop a new management plan for the Tolt basin. Technical staff work groups developed detailed problem assessments, evaluations, and management alternatives on eight integrated resource management subject areas. These products were brought to steering committee/work group leads meetings for discussion and integration with other plan elements. Management options were evaluated with an eye on “triple bottom line” (financial, environmental, and social) cost/benefit approach, informing the steering committee's recommendations about a preferred management scenario. An involvement process, tailored to the requests of interested tribes and stakeholders, accompanied Plan development. Individual interviews, group presentations, watershed field tours/round table discussions, email updates, and review of the draft plan were among the tools used to ensure involvement at desired levels. The process was coordinated by outside consultants, which allowed the work groups to focus on scientific analysis and facilitated productive information exchange between the work groups and the steering committee. This presentation will (1) explore the values discovered by undertaking this planning process strategy; (2) relay important lessons about stakeholder participation; and (3) provide a look into the challenges faced in the attempt to provide a detailed accounting of carbon sequestration and other ecosystem services.