

Workshop 2: The Changing Landscape/Guadalupe River Tour

Robin Grossinger, Director of **Historical Ecology** for the San Francisco Estuary Institute, gave a presentation entitled *Using the Past to Understand the Present: Emerging Lessons for Environmental Planning in the Santa Clara Valley*. This presentation showed how historical maps, photographs and other documents may be used to inform creek restoration projects and development policies. For example:

- Historical maps show that prior to modern engineering projects, many Santa Clara Basin creeks did not reach the Bay but infiltrated into soils in the alluvial fan. This may help explain current channel instability and sediment removal problems.
- Historical documents show that upper Coyote Creek was a winter stream with extensive sycamore alluvial woodland, a relatively rare habitat. The remnants along the creek may be lost without preservation actions.
- Historical photographs were used to identify remaining old growth valley oaks, indicating that this species can coexist with suburbanization.

Ken Kortkamp, an engineer with Sherwood Design Engineers gave a presentation on how to **protect water quality** and **integrate natural features** into the built environment. Examples included:

- Rainwater cistern that uses collected water for residential laundry and toilet;
- Site planning for vacation homes that preserved sensitive wilderness areas from development; and
- Incorporating a stormwater channel into the design of a restaurant seating area.

Santa Clara Valley Water District and City of San Jose staff conducted the Guadalupe River walking tour, showing how a recent **flood control project** in downtown San Jose incorporated the following multiple objectives:

- Resolve flooding problems while avoiding habitat loss for special status species, including steelhead;
- To meet flood control objectives, some portions of the riverbed had to be hardened; habitat loss was mitigated by adding riparian vegetation downstream and habitat restoration in the upper watershed;
- The open space design balanced riparian habitat protection with flood storage and recreation needs, while adding a trail system; and
- Design guidelines for future development propose public paths and a plaza connecting Almaden Blvd. to the river walk.



Photo credit: R. Grossinger

What's Next?



Photo courtesy of www.abag.ca.gov/bayarea/baytrail/vtour

In December 2006, the Program and LUS are planning a walking tour of the **Don Edwards National Wildlife Sanctuary** in Alviso. The tour is for municipal staff who have little or no training in wetlands and water resources but are responsible for implementing regulations for protecting these resources. The Program and LUS are looking to help plan a water quality-related session at the October 2007 conference of the **California Chapter of the American Planning Association**, to be held in San Jose.



SCVURPPP is an association of the thirteen cities and towns (Campbell, Cupertino, Los Altos, Los Altos Hills, Los Gatos, Milpitas, Monte Sereno, Mountain View, Palo Alto, San Jose, Santa Clara, Saratoga, Sunnyvale) in the Santa Clara Valley, together with Santa Clara County and the Santa Clara Valley Water District. Program participants share a common permit to discharge stormwater to South San Francisco Bay.

For additional information, visit the Program's website at www.scvurppp.org or contact Laura Prickett at (510) 832-2852
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Santa Clara Valley Urban Runoff Pollution Prevention Program

TRAINING MUNICIPAL DEVELOPMENT REVIEW STAFF

Permit Provisions of the Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP or Program) National Pollutant Discharge Elimination System (NPDES) permit have heightened the need for training on how to incorporate stormwater controls in **new development and redevelopment projects**. In addition to offering its annual training workshops, the Program, over the past three years, has partnered with the Land Use Subgroup (LUS) of the Santa Clara Basin Watershed Management Initiative (SCBWMI) to expand training opportunities to help strengthen municipal staffs' understanding and commitment to incorporating water quality protections in new and redevelopment projects.



The SCBWMI is a collaborative, stakeholder driven effort to protect and enhance the Santa Clara Basin watershed, creating a sustainable future for the community and environment. Its stakeholders include representatives from regional and local public agencies; civic, environmental, resource conservation and agricultural groups; professional and trade organizations; business and industrial sectors; and the general public. The Program's involvement in the SCBWMI is organized by the concept of continuous improvement, as described in the Program's Urban Runoff Management Plan (URMP). The SCBWMI identifies specific watershed issues and recommendations that are brought to the Program's Management Committee for consideration and action as appropriate. In addition, results from SCVURPPP studies related to watershed monitoring, assessment and management are frequently distributed, presented and discussed with SCBWMI subgroups. This approach creates an **informed and coordinated partnership** between the Program and SCBWMI.

"Overcoming Hurdles" Dialogues and Workshop

Communities have encountered difficulties since encouraging or requiring development projects to incorporate site design measures for water quality. The new site design measures or **"low-impact designs"** may conflict with existing municipal codes and standards, or pose technical challenges to developers, builders, and municipal staff. During the Fall 2003, the Program and LUS presented a four-part series of dialogues designed to develop a deeper understanding of issues needed to successfully incorporate better site designs into new and redevelopment. This dialogue series was entitled *Understanding Potential Hurdles To Using Better Site Designs for Water Quality Protection: A First Step Towards Resolving Conflicts, Real or Imaginary*. Topics included various types of low-impact design measures to protect water quality (e.g., narrow streets, pervious paving, and ways to incorporate on-site treatment of storm water into landscape features). Each dialogue addressed a different topic and stimulated active participation from an audience of municipal staff, developers, regulatory personnel and other stakeholders. The series culminated in a one-day workshop in January 2004, which featured development projects that successfully implemented low-impact designs. Over 100 people attended the January 2004 workshop. Highlights of the dialogues and workshop are provided below.

Dialogue 1: Fire and Public Safety



The panel of experts included representatives from the City of Santa Clara Fire Department, the Home Builders Association of Northern California, Valley Transportation Authority, and the consulting firm Community Design + Architecture. The panelists considered hurdles (e.g., **fire and public safety access on narrow streets**, and requirements for fire sprinklers in roofed trash enclosures). These include:

- Locating hydrants strategically to reach buildings within the typical 150 feet of hose length;
- Using parking pull-outs or turn-outs so that residents on narrow streets can park in front of their homes;
- Designing grid streets, rather than cul de sacs, to provide alternate emergency access routes;
- Using turf block for streetside or fire lane landscaping and emergency access width;
- Installing sprinklers in residences, especially those located at the far end of narrow streets; and
- Using permeable paving for parking areas.

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Dialogue 2: Landscaped Drainage Features

Panelists – including representatives from the City of Livermore, the Homebuilders Association of Northern California, Walk San Jose, Santa Clara Valley Water District, DES Architects and Engineers, and Community Design + Architecture – considered design issues for landscaped-based stormwater treatment measures. Local examples of **vegetated swales** were described, noting the importance of selecting appropriate plantings to give a thick vegetative cover, including an underdrain in poorly-drained soils; and using cobbles or other techniques to prevent erosion where water enters the swale. For projects with insufficient area for swales, **bioretention areas or flow-through planters** were recommended. These stormwater treatment measures feature landscaped areas in highly permeable soil mixes with an underdrain.

Dialogue 3: Building Design



Panelists – including representatives from the City of Menlo Park, Homebuilders Association of Northern California, Rana Creek Habitat Restoration, and the Stevens, Ferrone & Bailey Engineering Company – discussed techniques to reduce the building footprint and impervious surfaces, including the use of **green roofs**. The following observations regarding green roofs were offered:

- Modern designs have reduced the roof load for green roofs;
- The main liability issue is ensuring against leaks and roof membrane manufacturing companies offer warranties against leaks;
- Root penetration can be prevented with anti-penetration roof barrier materials and by using plants with shallow roots;
- Selecting the right soil mix is critical to the roof's success and depends on local climate, plant selection, allowable depth and weight, and other factors;
- Select plants, including native species, to mimic the natural landscape;
- Avoid dry grasses and other plant material that may pose a fire hazard; and
- Costs should continue to decrease as green roofs become more common within the United States.

Dialogue 4: Parking and Sidewalks

Panelists included representatives from the City of Palo Alto, the City of San Jose, First Horizon Home Loans, International Center for Disability Resources on the Internet, and the Homebuilders Association of Northern California. Topics included reduced parking ratios and minimum parking requirements, structural soils and sidewalk accessibility requirements. Highlights of the discussion of **innovative parking solutions** included:

- Fiscal lenders are often reluctant to approve innovative designs, but may be more flexible on projects with affordable housing subsidies.
- Possible venues for outreach to lenders include Urban Land Institute seminars and the Pacific Coast Builders Conference.
- The City of San Jose has reduced its minimum parking requirements, allows flexible options (e.g., alternating use parking), and reduces minimum parking by ten percent for developments located near light rail stations.

The discussion of **sidewalk accessibility** addressed sidewalk width. Reducing sidewalk width can benefit water quality, but projects must also meet the Americans with Disabilities Act (ADA) and California Title 24 accessibility requirements, including:

- A 48-inch minimum width for sidewalks, which may be reduced to 36 inches if there are natural barriers in the right of way.
- The sidewalk is required to be 60 inches wide at points where the disabled must make a turn, or where the occupancy load exceeds 300 people.
- Sidewalks less than 60 inches wide must have 60-by-60-inch passing areas at 200-foot intervals.

A presentation on **structural soils** described how these soils can increase stormwater storage and facilitate the planting of large street trees. Structural soils are an engineered stone lattice-based material with void spaces for tree root systems and stormwater storage. Using these soils beneath sidewalks can prevent concrete cracking due to tree roots, even when large shade trees are planted.



Photo credit: J. Nusbaum

Overcoming Hurdles Workshop

On January 29, 2004, the Program conducted a one day workshop focusing on a wide range of projects that successfully overcame hurdles and incorporated better site designs for water quality. Presentations and information addressing projects at residential, commercial space, infill and redevelopment sites were provided. Projects included:



- Swales at various development projects in Livermore, CA;
- Pervious pavement, "stormwater gardens," creek restoration and landscape infiltration areas at University Village, Albany, CA;
- Structural soils in the public right-of-way, Palo Alto, CA;
- Narrow streets and a network of creek beds, swales, and pond areas replacing traditional storm drains, Village Homes, Davis, CA;
- Public safety solutions for narrow streets, Tualatin Valley, OR; and
- Green roof on the 454,000-square-foot Ford Rouge Motor Plant, Dearborn, MI.

Creek and Water Resources Workshops

The Program, in collaboration with LUS, planned and held two workshops during FY 05-06. The focus of the workshops was to increase attendees' understanding of **how development affects water resources**. Each workshop included a presentation of scientific information about development and water resources; a presentation on site designs to reduce impacts to water resources; and a walking tour of a nearby creek or river.

Workshop 1: Development and Creeks/Coyote Creek Tour

On December 7, 2005, Christopher Richard, Curator of Aquatic Biology for the Oakland Museum, gave a presentation on **stream geomorphology and aquatic ecology**. This presentation described the dynamics and characteristics of a healthy creek or river system and showed the following development effects:

- Impervious surfaces increase the rate and volume of runoff, leading to increased erosion of creek channels;
- Various human activities can increase sedimentation on the creek bottom, reducing habitat for benthic macroinvertebrates, which can reduce fish populations;
- Loss of trees and other riparian cover raises the water temperature, reducing habitat for cold-water species; and
- Impervious surfaces decrease groundwater recharge, lowering the water table, which can reduce flows in creeks.

Clark Wilson, an urban designer with Community, Design + Architecture gave a presentation on **"green community design"**, which integrates smart growth principles of increased density and transit/pedestrian-oriented design with low-impact designs to protect water quality. Examples of these designs include:

- Bioretention areas in street planters within the business district of Portland, OR;
- Vegetated filter strips along a residential street in Portland;
- Permeable paving in parking lanes on a residential street in Portland; and
- Green roofs in San Bruno, Oakland, and Irvine, CA.

Following the presentations, Program and Co-permittee staff led a walking tour of Coyote Creek within Kelley Park. Attendees were shown examples of:

- Moderate-to-good quality riparian habitat in Kelley Park;
- Invasive plant species that reduce natural biodiversity;
- Channel erosion at a storm drain outfall;
- A "raft" of accumulated trash within the creek; .
- Evidence of sedimentation on the creek bottom, which can reduce food sources for steelhead and other fish; and
- Example of a natural high flow channel where there was adequate creek width and set-backs.



Photo Credit: C. Richard