Topic 8: Urban Streams

Today
• Introduce our guest
• Reminder about the class project
• Quick intro lecture
• Class discussion
Next week (Mar 23)

- Natural Channel Design
- Reading assignments
  - Simon et al. (2007)
  - Rosgen et al. (2008)
  - Simon et al. (2008)
- Leaders: Joel, Justin, Laura
- Invited Visitors: David Leigh, Jon Calabria
Course Overview

• Unit 1 – Stream restoration overview
• Unit 2 – Discipline-driven perspectives
• Unit 3 – Restoration techniques
  – Urban streams
  – Natural channel design
  – White Dam field trip (March 30 OR April 6)
  – Dam removal and fish passage
  – Field trip TBD (April 13)
  – Environmental flow management
  – Large wood
    • Watershed management practices?
    • Course summary, “big ideas”, writing reviews?
Altered Hydrology

![Diagram showing stream discharge over time with different scenarios: Before urbanization, After urbanization without detention basins, Controlled outflow from detention basin or flood-control reservoir.](http://serc.carleton.edu/sp/library/examples/hydrosphere.html)
Altered Sediment Load
(and associated geomorphic change)

Overland runoff from disturbed areas often contain excessive sediment in addition to water. (USGS)

Stage I. Sinuous, Premodified
$h < h_c$

Stage II. Constructed
$h < h_c$

Stage III. Degradation
$h < h_c$

Stage IV. Degradation and Widening
$h > h_c$

Stage V. Aggradation and Widening
$h > h_c$

Stage VI. Quasi Equilibrium
$h < h_c$

$h_c$ = critical bank height
$h$ = direction of bank or bed movement

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Altered Water Chemistry
Altered Connectivity
Las Vegas Wash
Tanyard Creek