Policies/Requirements related to LID/ BMPs for County of Santa Cruz and large projects in City of Capitola.

Presentation by Rachel Fatoohi, Senior Civil Engineer Phone: 454-2160

E-mail rachel.fatoohi@co.santa-cruz.ca.us

How we were

- As recent as the nineties, permit conditions and site planning review was based on trying to get the water as efficiently as possible to drain toward drainage systems and water bodies. With the exception of structural detention for flood control purposes, very little effort was made to controlling water impacts at the source.

What we're learning

Efficient carrying of flow through solid/closed conduits, does not allow filtering of the water by vegetation or infiltration into the soil. Flow increases in speed and volume and causes higher peak flows downstream increasing flood and erosion potential. This translates into impacted water bodies, non point source pollution and loss of ground water resources.

What we're learning-continued

- When managed correctly and considered in the early stages of site design, storm water can be an asset rather than a liability. To successfully integrate storm water in site design it is critical that early communication is made between all the players, civil engineers, architects, landscape designers, geotechnical engineers, etc

Where we are now

Numerous changes were made to our policies and requirements as described in the applicable sections of the 1994 General Plan/Local Coastal Plan, County Ordinances and the County Design Criteria such as:

General Plan (GP) Policies

- 5.4.14 Water Pollution from Urban Runoff

  Review proposed development projects for their potential to contribute to water pollution via increased storm water runoff. Utilize erosion control measures, on-site detention and other appropriate storm water best management practices to reduce pollution from urban runoff.

GP-continued

- 6.3.8 On-Site Sediment Containment

  Runoff control systems or BMPs shall be adequate to prevent any significant increase in site runoff over pre-existing volumes and velocities and to maximize on-site collection of non point source pollutants

GP-continued

- 7.23.1 New Development

  Require runoff levels to be maintained as predevelopment rates for a minimum design storm as determined by Public Works Design Criteria to reduce downstream flood hazards. Require on site retention and percolation of increased runoff from new development as feasible.

Ordinances

13.11.072 Site Design

- Natural site amenities such as vegetation, trees, and riparian corridors shall be retained and incorporated into the site design.
- Cluster site design is encouraged in certain areas when zoning permits.

Ordinances-Continued

13.11.75 Landscaping in Site Design

Establishes landscaping requirements including: limits on turf areas, drought tolerant and low water use plantings, soil conditioning to promote water retention and infiltration, mulching and irrigation design.

Ordinances-Continued

16.24 Water Quality Control

- Restricts permitted activities that would increase turbidity or settleable solids in local waterbodies.

Ordinances-Continued

16.30 Riparian Corridor and Wetlands Protection

- Limits development activities in riparian corridors.
- Establishes development buffers from arroyos, wetlands, and other water bodies.

County Design Criteria (CDC)

- 3.B Design References

  Includes reference to BASMAA's Start at the Source and CASQA's BMP Handbook for New Development and Redevelopment.

CDC-Continued

- 3.I.1 Stormwater Runoff from Individual Parcels

  Site planning for new development on individual parcels shall incorporate appropriate best management practices to provide reasonable mitigation of likely drainage problems, stormwater runoff pollution, and stream erosion and sedimentation impacts resulting from new impervious surfaces. In addition, site plans shall specify required maintenance procedures to assure the proper functioning of the proposed drainage systems.

CDC-Continued

- 3.G On-Site Detention of Stormwater Runoff

  Includes design criteria for detaining stormwater runoff to mitigate potential flood impacts.

- 3.H On-Site Retention of Stormwater Runoff

  Includes design criteria for retaining stormwater runoff to mitigate potential water quality impacts and release predevelopment runoff rates from developments.

CDC-Continued

- 3.G.2.e and 3.H.2.d
- Stormwater Management Plans shall incorporate methods of design that include both resource and flood control protection, effective for a broad range of storms

- In addition to requirements for flood control, other requirements are for the purpose of duplicating existing conditions, mimicking natural hydrology and can be achieved by use of Best Management Practices (BMPs). BMPs are required for larger projects and “at this stage” recommended for small residential projects. Examples of BMPs are:

BMPs

- Use of porous pavement or alternative semi impervious surfacing
- Downspout disconnection
- Impervious area disconnection
- Stream buffers
- Vegetated swales

BMPs-Continued

- Crushed stone reservoir base rock under pavements or in sumps
- Rain barrels and cisterns
- Shallow percolation trenches
- Sheet-flow over vegetated stable areas
- Detention/retention ponds

Incentives for using BMPs

- Impact fees are charged at half the rate when alternative semi-impervious surfacing is used
- Storage volume for the base of the alternative surfacing can be calculated and applied as reduction for the required storage volume for larger projects when detention is required
- Doing your part in protecting the environment

How this fits with the 1970 Clean Water Act and State regulations

- We are required to obtain a National Pollutant Discharge Elimination System (NPDES) storm water phase II permit.
- We are a Phase II entity because of our population being not so large.
- Phase I municipalities have population over 100,000 and obtained their storm water permits in the early nineties

- We prepared a Storm Water Management Plan (SWMP) in March 2003 with review and input from local stakeholders and submitted to the Regional Water Quality Control Board. The SWMP was based on a statewide NPDES General Permit requirements for agencies, such as ours, designated by the State Water Resources Control Board

More on Phase II permitting process

- Received comments about our SWMP from the Regional Board staff in Jan 2004
- Revised our SWMP, with input from local stakeholders, and resubmitted in May 2004
- We received no communication from the Regional Board until Feb 2008
- SWMP revolves around six Minimum Control Measures (MCMs)

Minimum Control Measures

1. Public Education and Outreach
2. Public Involvement and Participation
3. Illicit Discharge Detection and Elimination
4. Construction Site runoff Control
5. **Post Construction Stormwater Management in New Development and Redevelopment**
6. Pollution Prevention/Good Housekeeping for Municipal Operations

Item 5

- The emphasis of this workshop is on item 5 of the MCMs stated in the previous slide
- Implementing the BMPs mentioned above constitutes LID design
- The acronym “LID” is a new one in our terminology but it is not a new way of design.

What's next

- New numeric criteria for the BMPs/LID is being proposed /required by the Regional Board described in a letter dated Feb 15, 2008. The criteria is to be used by municipalities until municipalities provide acceptable alternative control standards for hydromodifications. The numeric criteria is still being discussed with the Regional Board staff. The numeric Criteria is:

Numeric Criteria

- For new and redevelopment projects, Effective Impervious Area (EIA) shall be maintained at less than 5% of the total project area.

Numeric Criteria-Continued

- For new and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, the post-construction runoff hydrographs shall match within 1% the pre-construction runoff hydrographs, for a range of events with return periods from 1-year to 10 years

Numeric Criteria-Continued

- For projects whose disturbed project area exceeds two acres, preserve the pre-construction drainage density (miles of stream length per square mile of watershed) for all drainage areas serving a first order of stream or larger, and ensure that post-project time of concentration is equal or greater than pre-project time of concentration.

Numeric Criteria-Continued

- Provide long term water shed protection,

  Include in SWMPs a strategy to develop watershed based hydromodification management plans. These plans should incorporate LID strategies with the goal of post construction Storm Water Management to achieve an EIA of no more than 3-10% of watershed area within jurisdiction, depending on local conditions.

What's next-summarized

- We'll continue to require BMPs and LID concepts when reviewing and approving projects that create impervious areas or change drainage patterns. Based on our discussion with regional board, we may require more quantitative assessment of the BMPs' water quantity and quality benefits. New State requirements for the quantitative criteria may be required of projects with construction time as early as summer 2009

- While revising our SWMP to “finally” obtain permit coverage, we would like to receive input from interested stakeholders. Please check our current SWMP on the County’s web site and stay tuned. Within the next few months, we will have a revised SWMP. We want your input.

- If you are interested in being a stakeholder, please talk to me or send me an e-mail. Phone 454-2160. E-mail: rachel.fatoohi@co.santa-cruz.ca.us
- FYI: Related workshops on LEED in June for existing buildings and September for new buildings. To register, go to www.usgbc.org/workshops/register
- Questions