

LID Permit Requirements

Lisa Austin
Geosyntec Consultants



Presentation Outline

- Types of LID Permit Requirements
 - Specified site design
 - Specified LID BMPs
 - LID performance metrics



Specified Site Design (San Diego)

- Conserve natural areas, including existing trees, other vegetation, and soils.
- Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised
- Minimize the impervious footprint of the project
- Minimize soil compaction
- Minimize disturbances to natural drainages (e.g., natural swales, topographic depressions, etc.)



Specified Site Design (SF Bay Area)

- Minimize stormwater runoff by implementing one or more of the following site design measures:
 - Direct roof runoff into cisterns or rain barrels for reuse
 - Direct roof runoff onto vegetated areas
 - Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas
 - Direct runoff from driveways and/or uncovered parking lots onto vegetated areas
 - Construct sidewalks, walkways, and/or patios with permeable surfaces
 - Construct driveways, bike lanes, and/or uncovered parking lots with permeable surfaces



Specified LID BMPs (Orange County)

- LID BMP Selection Hierarchy:
 - Infiltrate
 - Evapotranspire
 - Harvest and Use
 - If above not feasible, then biotreat
 - If above not feasible, then treat and provide off-site mitigation or fee-in-lieu



LID Feasibility (SF Bay Area)

- Locations where seasonal high groundwater would be within 10 feet of the base of the LID treatment measure
- Locations within 100 feet of a groundwater well used for drinking water
- Development sites where pollutant mobilization in the soil or groundwater is a documented concern
- Locations with potential geotechnical hazards
- Smart growth and infill or redevelopment sites where the density and/or nature of the project would create significant difficulty for compliance with the onsite volume retention requirement
- Locations with tight clay soils that significantly limit the infiltration of stormwater



LID BMP Performance Metrics

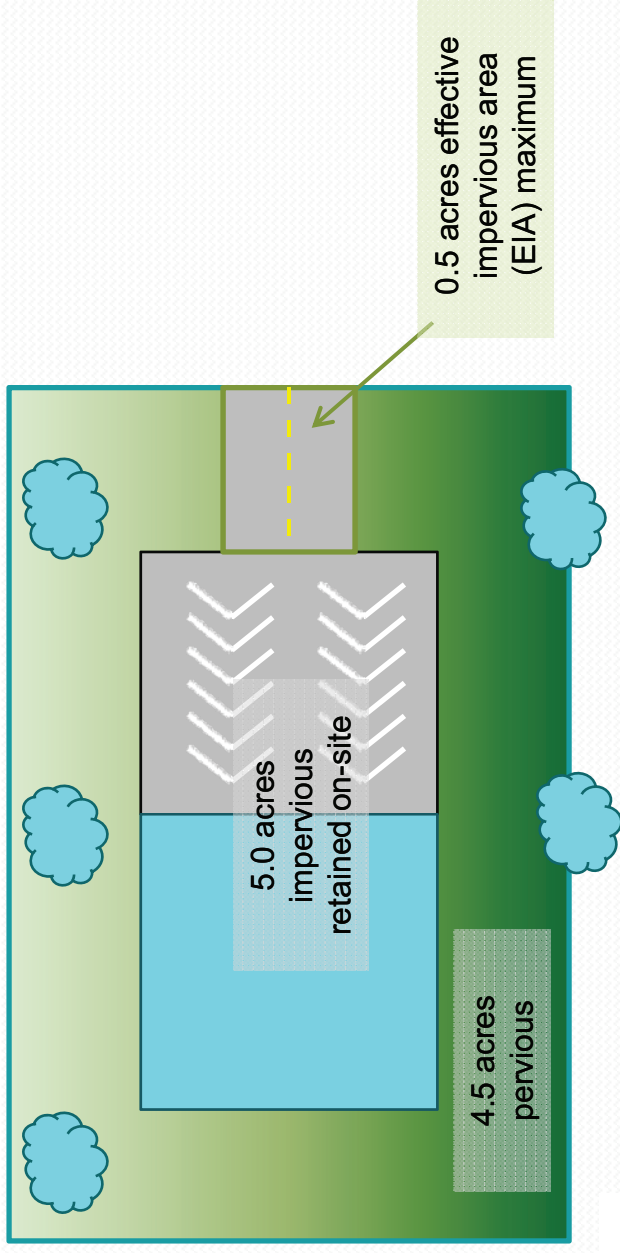
- Retain (infiltrate, harvest and use, or evapotranspire) or biotreat the runoff volume from the 85th percentile, 24-hour storm event (“design capture volume”) on-site to the Maximum Extent Practicable (MEP)



Effective Impervious Area Metric (Ventura)

- Projects must reduce Effective Impervious Area to less than 5% of the total project area
- Impervious surface are rendered “ineffective” if water quality design storm runoff volume is fully retained onsite
 - 85th percentile, 24-hour event
 - 80 percent capture volume
 - 0.75 inch storm event
- Any remaining surface discharges must be treated

Total Project Area: $A_{\text{total}} = 10$ acres
 Maximum allowed EIA = $A_{\text{total}} * 0.05 = 0.5$ acres
 $A_{\text{impervious}} = 5.5$ acres (building, parking lot, driveway)
 $A_{\text{pervious}} = 4.5$ acres (surrounding landscaping)
 $A_{\text{retained}} = 5.5 - 0.5 = 5$ acres retained onsite (minimum)
 $A_{\text{treated}} = 0.5 + 4.5 = 5$ acres treated





Pierce County, WA Stormwater Management & Site Development Manual (2005)

- Retain 65% of the site in open space or natural resource protection areas where feasible
- Within the County's Urban Growth Area, when retention of 65% native vegetation cannot be achieved, residential LID projects shall retain a minimum of 50% native soil/vegetation protection areas and provide specified BMPs
- Commercial and industrial LID projects shall retain a minimum of 25% native soil/vegetation protection areas and provide specified BMPs



City of Santa Barbara (June 2008)

- Small Projects:
 - Voluntary use of basic LID options
- Medium Projects:
 - Mandatory use of basic LID options
- Large Projects:
 - Runoff volume from 25-yr/24-hr event \leq pre-development runoff volume for 25-yr/24-hr event, or
 - Retain runoff volume from one-inch/24-hr storm event, whichever is larger



County of Los Angeles Department of Public Works Draft Low Impact Development Standards Manual (December 2008)

- Single Family Residential <5 Units:
 - Install a minimum of 2 LID BMPs from a list provided in the manual
- Non-Residential or Residential ≥ 5 units:
 - Retain (first preference) or biotreat (second preference) the difference in the post-project design storm runoff volume and the undeveloped design storm runoff (ΔV)

Section 438 of the Energy Independence and Security Act of 2007 (EISA)

- Federal facility projects with a footprint that exceeds 5,000 sf shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the MEP, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow
 - Option 1: prevent the off-site discharge of stormwater from all rainfall events less than or equal to the 95th percentile rainfall event.
 - Option 2: use a site-specific hydrologic analysis to determine pre-development runoff conditions