LID IN REGION 6

Introduction
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The Harris County Story
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Houston Area Focus
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Introduction
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Mikel Wilkins, PE, ISI ENV-SP, Verdunity
Oklahoma
Zach Roach, Ideal Homes
LID O&M Considerations: Policy and Practicality
David Batts, Construction EcoServices

Introduction
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Becky Roark, Illinois River Watershed Partnership
Louisiana
Dana Brown, PLA, ASLA, LEED AP, CSI, AICP, Dana Brown Associates
New Mexico
George Radnovich, ASLA, Sites Southwest
Urban vs Suburban
Houston Area Focus
Are all LID Systems Created Equal?

What are we trying to prove?

What to we want to gain?
Overview

• Review LID Purpose

• Explore the issues

• Suburban Case Study – Springwoods Village

• Urban Case Study – Bagby Street
Purpose

WATER TREATMENT

ATTENUATION

EVAPOTRANSPIRATION

INfiltration

COST
ISSUES

Maintenance
ISSUES

Who handles contaminated mulch / overburden?

Is it removed on a scheduled basis?

Where does it go?

What is in it?
ISSUES

How long to establish native plants?

How do you control erosion of the topsoil?

What water quality issues arise until the vegetation is established?

When does the contractor’s responsibility end?
ISSUES

Water Rights Questions

Reimbursement for LID Drainage Systems

Storm Water Quality Requirements

Storm water detention offsets
Springwoods Village
A Suburban Solution
A Balanced Community that Provides a Walkable Scale for Residents
West Pedestrian Underpass Vignette

The vignette illustrates the concept of using precast and form liner panels and treatments for the west pedestrian underpass in a similar manner as to how architects designed art-deco buildings. The patterns create interesting plays of light and shadow and make a simple concrete plane look more elegant and expensive.

The system also serves as a drainage path that polishes water in vegetated drainage ways that serve to mitigate runoff and provide improved water quality.
LID Vision

- **Lessen the need for infrastructure** and thereby reducing infrastructure costs.

- Incorporates both **ecology and design** into a new urbanism.

- Provide for a **sustainable drainage solution** that improves water quality and lessens runoff impacts.
LID Features

- Road Drainage
  - Bioswales
    - Engineered Soil Systems
    - Focal Point Systems
- Private Development
  - Runoff reduction
    - Cisterns
    - Rain Gardens
  - Water Quality Systems
Stormwater Management
Combined LID Strategies
Water Strategies

PROPOSED WETLAND TREES

PROPOSED WETLAND UNDERSTORY

Wetland Planting Strategy

This plan diagrammatically illustrates the wetland planting concept for the west detention pond nature preserve area. The consultant team concluded that the wetlands should be diverse in function, value and character. The design provides a range of wetland plant communities around the edges and in the middle of the ponds. The plant palette uses a range of wetland species: some plants (like the Bald Cypress) are being used because they’re not commonly found in this area but are highly appreciated by people because of their unique scenic and environmental qualities.

One important goal for this area is to use the topsoil/wetland bank that exists elsewhere on the property for the planting of the west detention ponds. This will preserve some of the “genetic stock” on the land to be used in the first phase of improvements such as the west detention ponds.
Stormwater Monitoring Plan

- Quantify tangibly benefits of LID
- Learning Process
- Use results in future design
- Research
- Permit requirement for reuse (TCEQ)
Bagby Street
An Urban LID Solution
Bagby Street
midtown – a model of urban development
**SUSTAINABILITY AND METRICS**

**ENVIRONMENT:**
- minimize excessive use and non beneficial planting
- reduce of heat island effect
- reduce of noise pollution
- **increase green stormwater use**
- **reduce potable water use**
- increase green stormwater use
- reduce potable water use
- improve localized air quality
- implement Green Streets Standards

**COMMUNITY:**
- provide community programming / interaction / function
- collaborate with community members
- foster unique neighborhood identity and character
- improve wayfinding and visitor experience
- Implement interpretive plan centered on green infrastructure
- engage community at key benchmarks

**ART/AESTHETIC:**
- provide a distinct and unique 'place'
- create a timeless experience
- focus on detailing
- implement public art as a long term benefit to the new cultural art district
- create an authentic interpretive program
- provide composition of form, texture, color, pattern in all materials

**ECONOMICS:**
- design and construct within budget
- tie improvements to potential return on investment (public and private)
- limit impact on business during construction
- Implement plan that is financially attractive for redevelopment
Residents are interested in the function of LID features but more interested in positive impacts on downstream recreational amenities.
MASTER PLAN : NOT A ONE SIZE FITS ALL
LID – rain gardens
46,300 gallons of water treated
Non-vegetated Options