

Re-Visioning Landscapes with LID: The Houston Experience

Watershed Academy Webcast



Wednesday, August 11, 2010

1:00 - 2:30 Eastern

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- **To Ask a Question** – Type your question in the text box located in the lower left-hand corner of your screen and click on the “Submit Question” button
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Robert Adair

President of Construction EcoServices and
Steering Committee Chair of the Land/Water
Sustainability Forum in Houston

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Houston Land/Water Sustainability Forum



HLWSF Founded 2007

- Programming on sustainable development
 - ‘Levelers’
 - In-depth Workshops
 - Local Case Histories
- Program facilities inevitably filled to capacity
 - 100 to 400 seat rooms
- Education is good, but ‘hands on’ experience is better
 - Taking it to the next level

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A Common Understanding

- ✓ Costs of traditional development are soaring
- ✓ Developing ‘the way we’ve always done it’ is more and more counterproductive
- ✓ Costs of keeping pace with results of traditional development becoming major problem
- ✓ Change is inevitable
- ✓ Leadership role is better than the alternative

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Those with a 'Vested Interest'

American Institute of Architects
Houston Chapter

American Society of Civil Engineers
Houston Chapter

American Society of Landscape Architects
Houston/Gulf Coast Section

Associated General Contractors
Houston Chapter

Bayou Preservation Association

City of Houston
Public Works & Engineering

Energy Corridor District

Greater Houston Builders Association

Harris County
Public Infrastructure Department

Harris County Flood Control District

Houston Council of Engineering
Companies

Houston-Galveston Area Council

International Erosion Control Association
South Central Chapter

Texas Department of Transportation

United States Green Building Council
Houston Chapter

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Needs to be Filled

- ✓ Gaps between disciplines
 - Use of integrated design teams limited
- ✓ Individual constituent groups limited
 - Inherent tendency to narrow focus
- ✓ Gaps in education
 - Focus on our soils, climate, topography
- ✓ Focus on 'nuts & bolts'
 - Practical application rather than 5,000' view
- ✓ Driven by 'enlightened self-interest'
 - Inherent staying power of the business-minded

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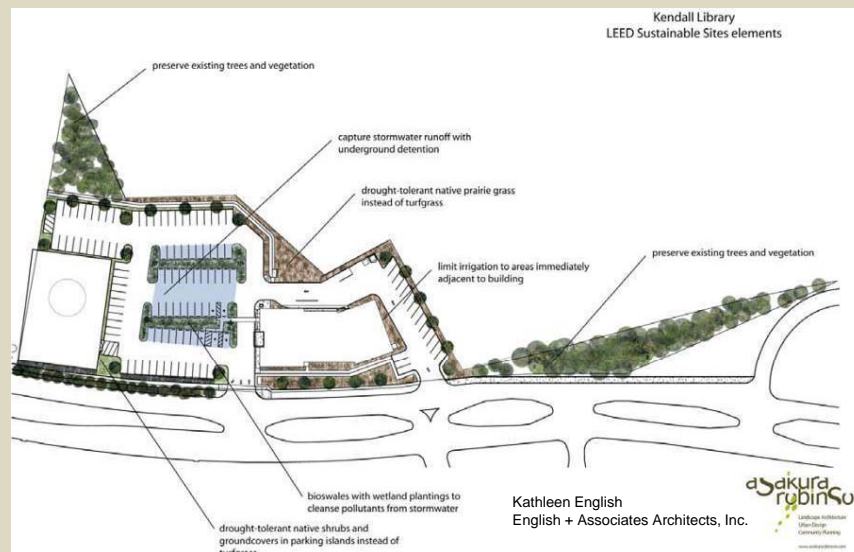
LID in Houston - Then

It'll never work here. We have heavy clay soils, flat land, heavy rain events and too much annual rainfall.

(No one else has to deal with the things we do...)

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LID in Houston - Now



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Why a Design Competition?

- Leverage ongoing educational efforts into real world experience
- Attract the attention of wider audience
- Recognize those who are prepared to deliver new ideas and methods
- Resolve the 'chicken or the egg' syndrome
- Prevent more 'missed opportunities' in LEED® projects

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LOW IMPACT DEVELOPMENT **Design Competition**



What Drove Participation?

- Constituent groups' drawing power
 - Use the promotional capacity of all HLWSF organizations
- Design Challenge alternatives
 - Potential for winning real work from LID-friendly owners
- High-dollar cash prizes draw attention
 - \$15,000 per Design Challenge category (3)
- Get in front of local trade organizations
 - Make case for 'lead or be left behind'
- Foster peer pressure
 - Mobilize property and prize donors

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Competition Demographics

- 22 submitting teams
 - 9 Green Roadway
 - 4 Urban Redevelopment
 - 9 Suburban Residential
- 42 firms (TX, IL, NC, GA, CO, CA, KS)
 - National, regional, local scale
- 230 design professionals
 - Architects, Civil Engineers, Landscape Architects, Hydrologists, Urban Planners, Construction Consultants, Homebuilders, Environmentalists, Transportation Engineers, Irrigation Consultants

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Ensuring Relevance

- Required integrated design teams
 - Improve future LEED® project collaborations
- Used real properties with challenging conditions
 - Allows reusable design and viable LID adaptations
- Required dramatic post-development runoff reduction
 - Below pre-development curve (5 yr, 10 yr, 100 yr event)
- Required cost comparison of LID to Traditional
 - Provides viable numbers for value comparison
- Minimal focus on water quality
 - An inherent by-product

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Christopher D. Browne



Justin R. Ring

Edminster, Hinshaw, Russ and Associates

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Low Impact Development Designs Challenges

Suburban Development

Urban Redevelopment

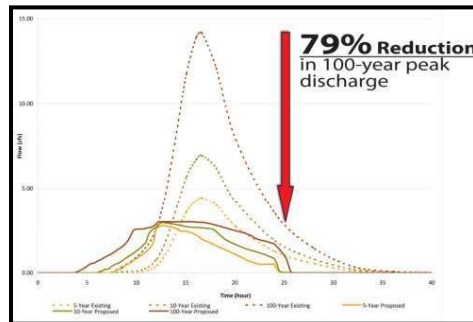
Green Roadway

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Suburban Development

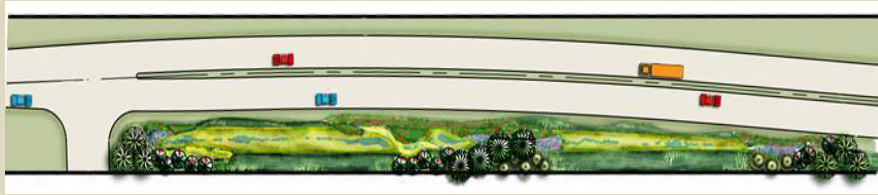
- Development Conforms to Current City of Houston and Harris County Standards
- Large Percentage of Lots with Amenity View
- Standard Lot Sizes and Buildable Pads



Suburban Development

- Cost Savings Due to Absence of Underground Storm Sewers
- Drainage Sheet Flows Over Streets Into Rain Gardens
- Lots Drain Back to Front





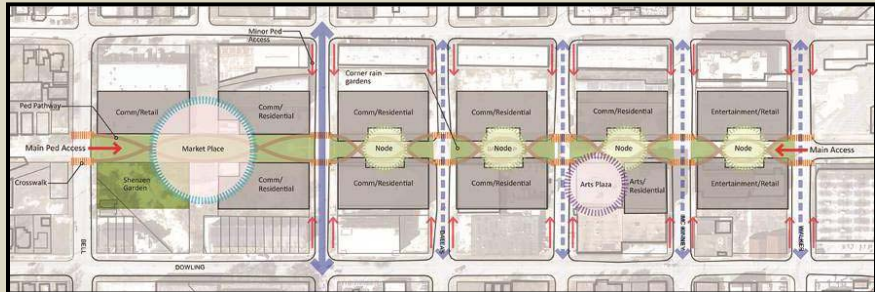
Green Roadway

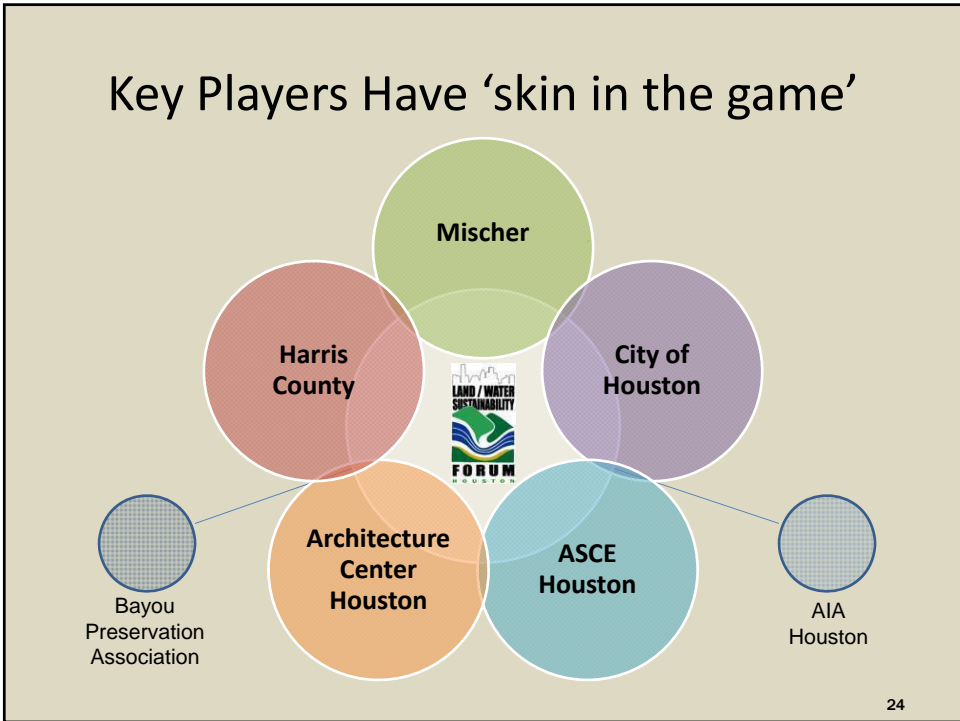
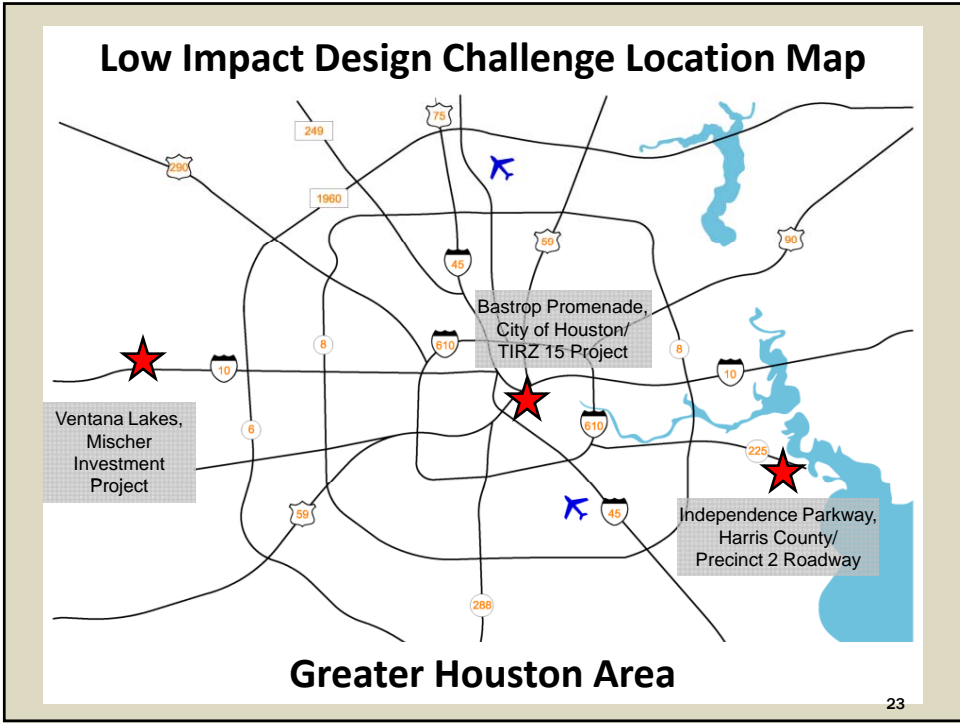
- 10% Cost Savings vs. Standard Road
- Applicable to any Harris County Road
- 60% Reduction of Peak Storm Discharge
- Scenic Driving Experience



Urban Redevelopment

- Lifelong Saving of Land in Metropolitan Area
- Create Space / Destination
- Promote Walkable Urban Areas
- Sensible Storm Water Strategies
- Lower Maintenance & Lifecycle Cost
- Provide Atmosphere for Future Development
- Foster Responsible & Economic Viable Land Use





Competition Judging

- Two-stage format
- Key local 'drivers' on judge and jury panels
 - Educate key market players as part of the process
- Stage One - Expert Judging
 - Leaders in each primary area of expertise
- Stage Two - Finals Jury
 - Developers and key County/City leadership
- Present fast-paced, high-profile finals event
 - 'See and be seen' value

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Expert Judges

Stage One

CIVIL ENGINEERING Arthur L. Storey, PE Executive Director, Harris County Public Infrastructure Division	LANDSCAPE ARCHITECTURE Dana Nunez Brown, ASLA Principal, Brown + Danos Landdesign Inc. Baton Rouge, LA
LOW IMPACT DEVELOPMENT Larry Coffman President, Stormwater Services Group Chesapeake Beach, MD	ARCHITECTURE Greg Papay, FAIA Principal, Lake Flato Architects San Antonio, TX
HYDROLOGY Stephen Costello, PE Principal, Costello Inc. and City Councilman, Houston, TX	RESIDENTIAL DEVELOPMENT Ted Nelson Regional President, Newland Communities, Houston, TX

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Stage One

- Technical merit and compliance with competition criteria
- All submittals reached similar conclusions
 - Runoff reduction
 - Water quality
 - LID economics compared to traditional design
- Ultimately, selection of finalists based on ‘what could be permitted and built today’

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Finals Jury Panel

Amer Al-Nahas President SpawGlass Civil Construction	Bill Huntsinger Vice President-Planning Metro National Corporation
Frank Liu Principal Lovett Homes	Ian Powell President-Elect, AIA Houston PBK Architects
Jimmy Pappas Principal Corinthian Development	Ralph DeLeon TIRZ 15 Program Manager City of Houston TIRZ 15
Richard Johnson Director of Sustainability Rice University	Christopher Gilbert Project/Construction Manager General Growth Properties, Inc.
Dan Gilbane Development Manager Gilbane Building Company	Andrew Steffen Project Manager Hines Interests

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Finals Jury Panel

Commissioner Sylvia R. Garcia Harris County Precinct 2 Commissioner	Dov Weitman Chief, Nonpoint Source Control Branch U.S. Environmental Protection Agency
David Nussbaum Vice President-Development Mischer Investments, LP	Terry Hershey Philanthropist and Board Member Bayou Preservation Association
Mike Talbott Director Harris County Flood Control District	John Blount Director of Architecture & Engineering Harris County Public Infrastructure Dept.
Perry Senn Principal Peron Development	Ed Wulfe President Wulfe & Company
David Hightower Exec. VP & Chief Development Officer The Wolff Companies	Carol Ellinger Haddock Sr. Asst. Director PW&E, City of Houston American Society of Civil Engineers – Houston

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Stage Two

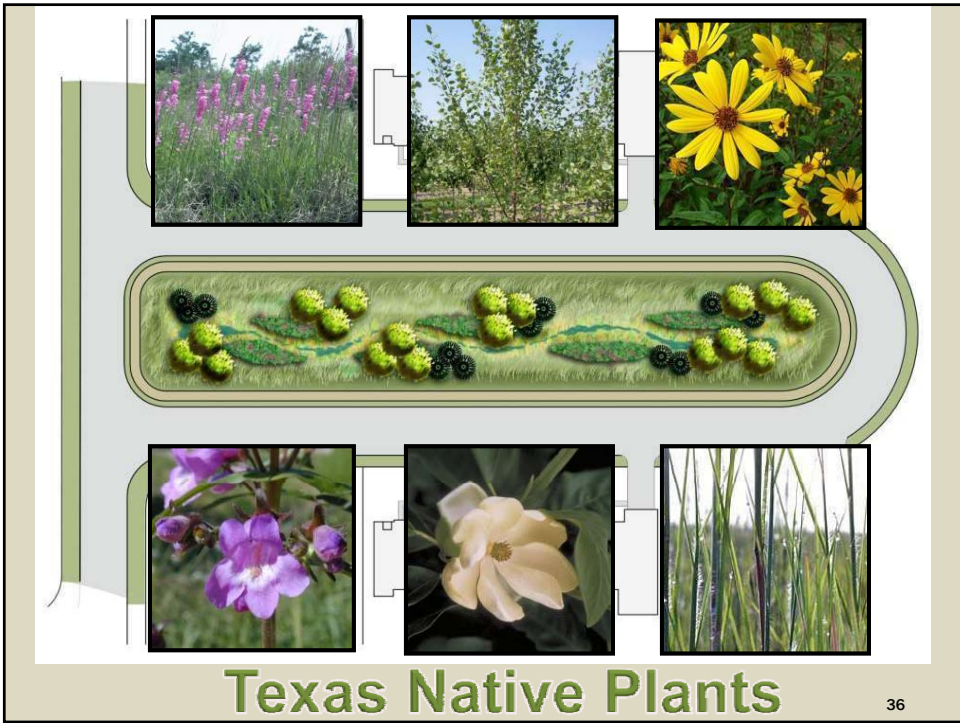
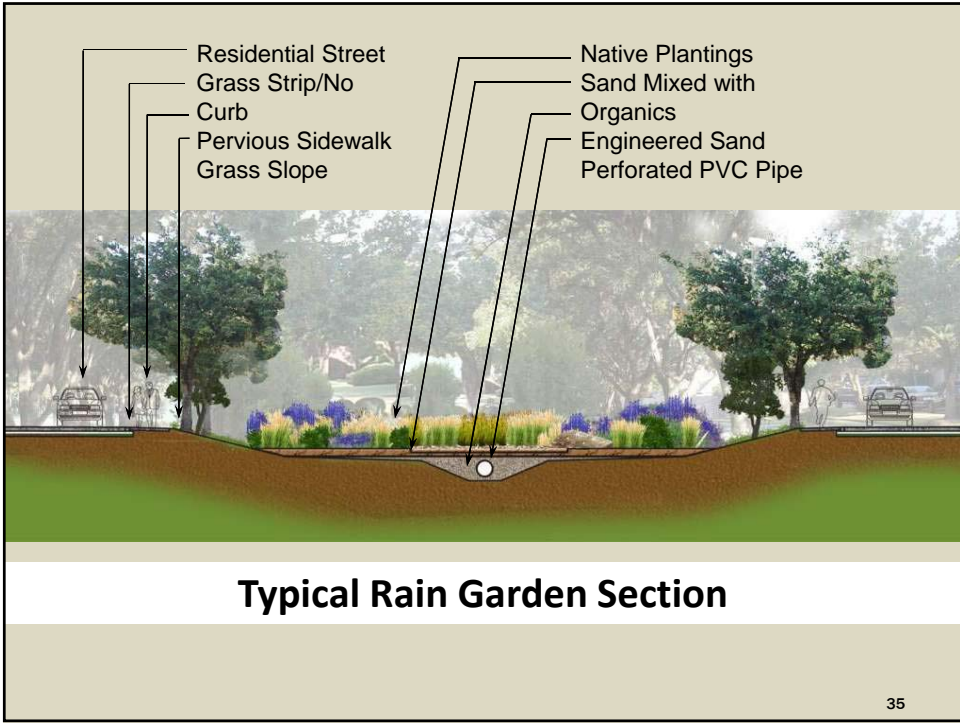
- Seven minute 'lightning presentations'
 - Twenty slide maximum, auto-running
- Time limit equals focus on what's important
 - Tech industry VC 'elevator pitch'
- Speed equals excitement
 - Anticipating the 'train wreck'?
- Simplified judging process
 - 'Who would I call back for an in-depth presentation?'

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Frank Liu
Lovett Homes





Low Impact Is . . .



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Lessons Learned

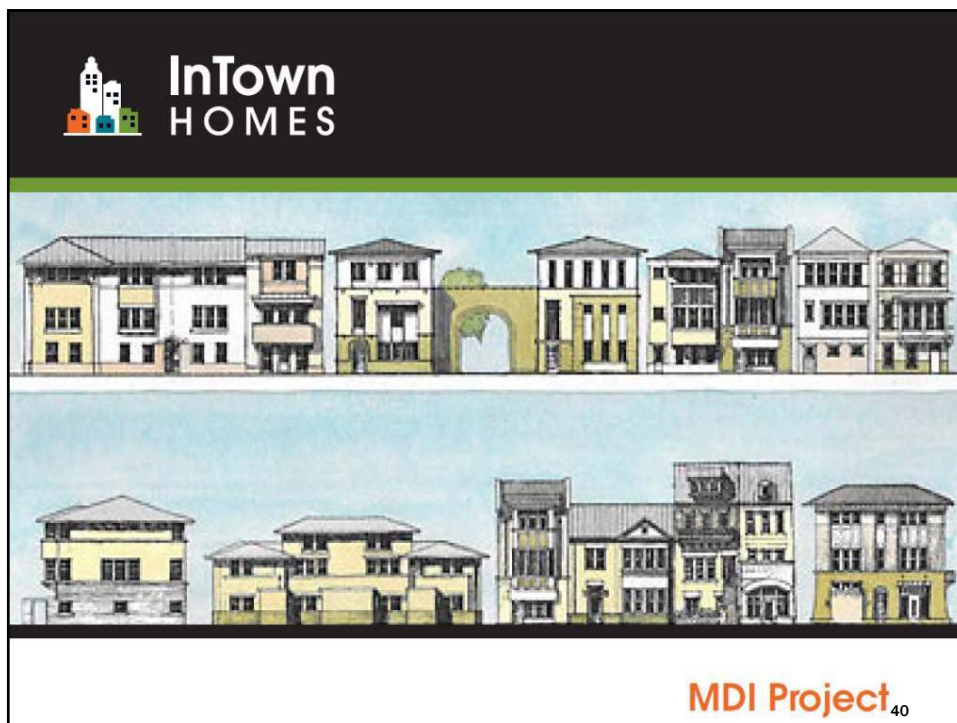
- Consistent Results
 - Impressive reductions in runoff
 - Significant cost savings when compared to traditional development methods
 - Water quality improvements exceed typical methods
- LID provides improvements over traditional design in virtually every aspect of development

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Lessons Learned

- Designing a LID project and comparing the results is the key to driving change
- Sustainable design requires collaborative approach
- LID is viable even when Water Quality is secondary goal
- Developing good code for LID-based projects presents another 'chicken or the egg' quandary

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Project Highlights

Highlights of the MDI Site

- This MDI site is a history making site. This is the first time in U.S. history that a non-labile party spending private money to clean up a federal superfund site.
- We are hoping that we can develop this into a exceptionally low impact, very walkable green community by using:
 - LID Techniques
 - Geothermal AC
 - SIP Construction
- Designed by Andres Duany

Site Plan



Ripple Effects

- Collaborative LID Permitting Design Criteria Workshops in June, July, August
 - Involving
 - City and County staff, design community and developers
 - Objective
 - Get LID projects on the ground today without new code
 - Rationale
 - Experience is best preparation for writing good code

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Resources

www.houstonLWSforum.org

Complete Competition Program

Sponsor, Judge/Jury, Organizer, Team Information

All Competition Submittals

All Finals Event Presentations

Competition White Paper to be posted soon.

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Speaker Contact Information



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Next Watershed Academy Webcast:

**A Watershed Dialogue - How Can
Watershed Groups Grow More Effective?**



**Wednesday, September 15, 2010
1:00–3:00 Eastern**

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www.epa.gov/owow/watershed/wacademy/webcasts/pdf/2010_08_11_certificate.pdf

You can type in the names of each attendee and print the certificates.