

# Harris County LID Status & Trends



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# Agenda

Today's presentation will cover:

- The Role of LID in Public Infrastructure
- Designing LID Projects
- Recognized Project Benefits
- Looking Ahead



Evelyn Meador Library

# LID – Local Definition

Low Impact Development (LID) is a comprehensive land planning and engineering design approach with the goal of maintaining, as the minimum, the pre-development hydrologic regime in a watershed without solely using conventional development and detention basin techniques to satisfy drainage and flood mitigation requirements...

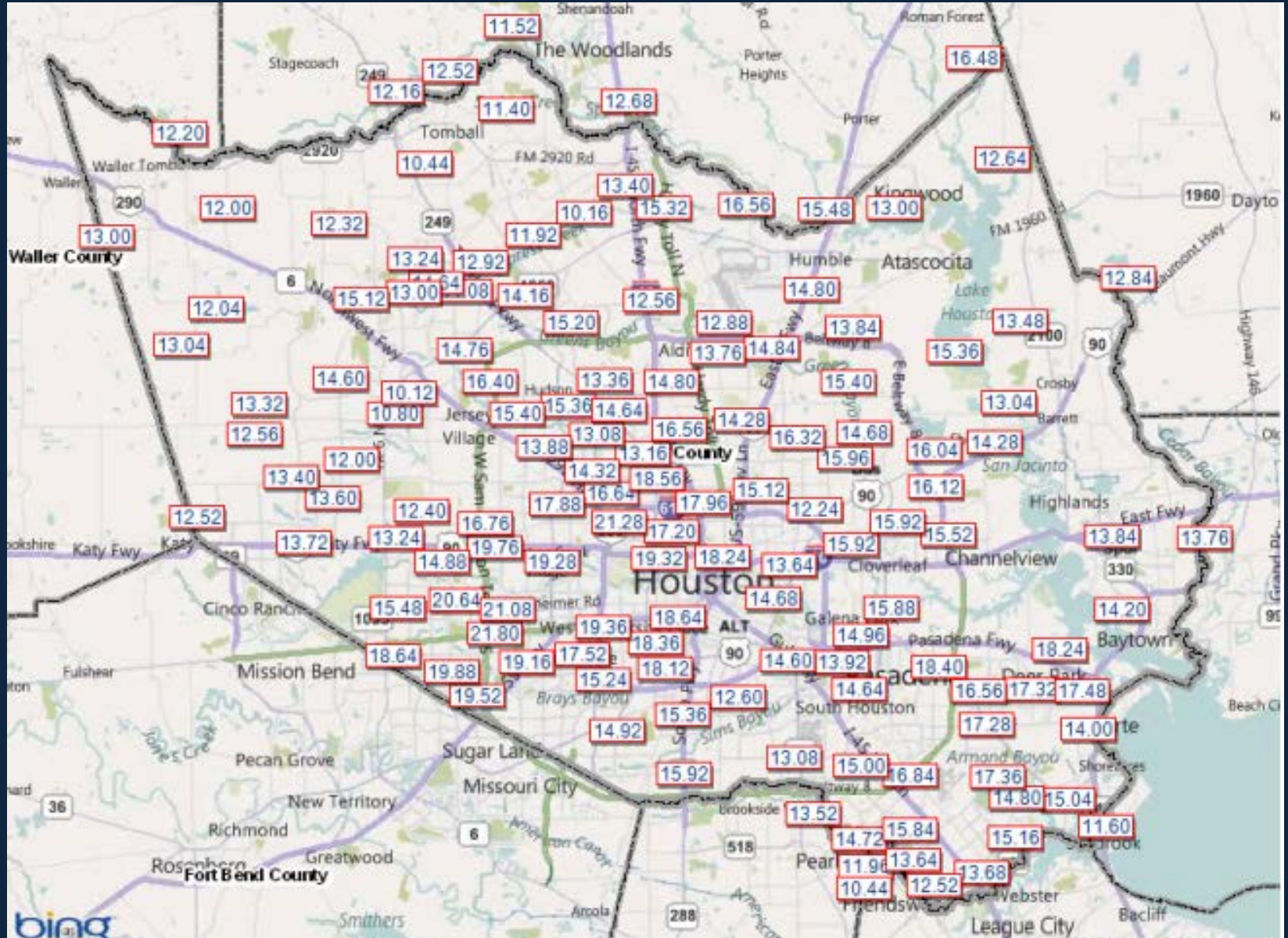


*Typical Detention Systems*



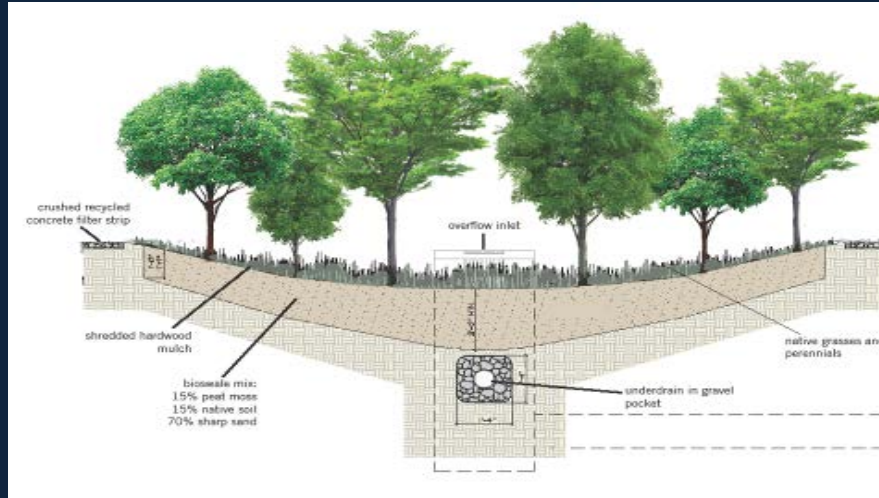
*Birnamwood Dr. - Bioswale*

# Rainfall Last 30 days



# LID Practices

- Practices that use natural processes to infiltrate, evapotranspirate, or reuse storm water runoff on the developed site.



- Bioretention : bioswales, raingardens
- Greenroofs
- Rainwater Harvesting
- Permeable Pavements



In simple terms, find ways to distribute runoff storage.

# County LID Interest

- Right of way for detention & storm water quality \$\$\$\$.
- Cost effectiveness.
- Reduced maintenance/mowing.
- Improved water quality.
- Future EPA Requirements



# LID Can Cost Less

- LID Can Cost less than traditional by reducing pipe and detention ponds
- Birnamwood Dr.
- Sjolander Rd.



Birnamwood Dr.



Sjolander Rd.

# Sjolander Rd.



Sjolander-Existing Condition

- 26 pipelines, 1 major water canal
- The LID design allowed for roadway expansion to occur with minimal impacts to the pipeline corridor.

## Estimated Traditional Cost :

○ Road, Detention and Storm Sewer	\$4.7 M
○ Pipeline adjustment (500Keach)	\$13M
○ Water Supply Canal Extension	\$0.85M
<b>Total</b>	<b>\$18.55 M</b>

## LID Design Cost:

- No water supply canal extension required
- No pipeline adjustments required
- No offsite detention

**Total**      **\$3.8 M**



# LID Can Reduce Mowing



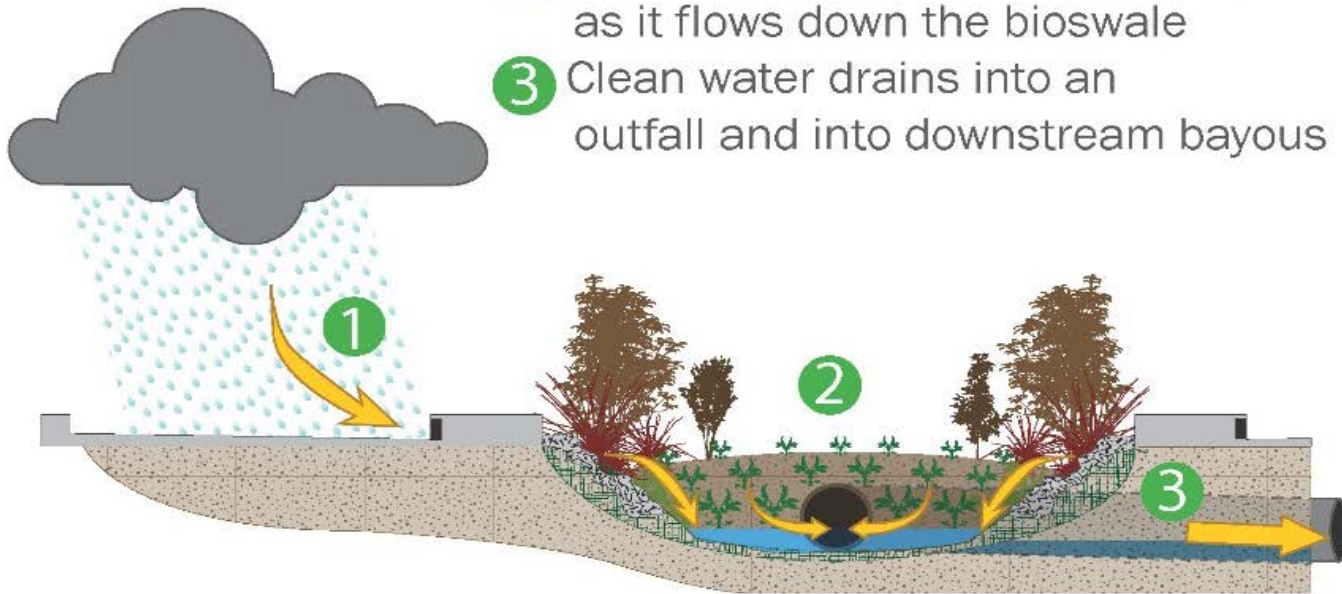
- Birnamwood has been mowed only 2 times since 2012.



# Good for the Environment

## Water released downstream into bayous is cleaner

- 1 Rainwater falls on the roadway and drains into the bioswale
- 2 Water is cleaned naturally by vegetation as it flows down the bioswale
- 3 Clean water drains into an outfall and into downstream bayous



# Designing with LID

- Use local criteria
- Utilize Engineers & Landscape Architects
- Implement Bid items and Specifications
- Incorporate temporary irrigation systems as needed, with warranty and maintenance periods.



Birnamwood Dr.

# Warranty / Maintenance



Sept 2012

Birnamwood Dr.

- 2 yr Warranty & Maintenance (completed)
- Temporary Irrigation system—(now off).
- Included in cost as less expensive than traditional project.

# Harris County LID Criteria

## Harris County Low Impact Development & Green Infrastructure Design Criteria for Storm Water Management



Submitted by: Arthur L. Storey, Jr., P.E.  
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Adopted by Harris County Commissioners Court

Ed Emmett  
County Judge

El Franco Lee  
Commissioner, Precinct 1

Steve Radack  
Commissioner, Precinct 3

Jack Morman  
Commissioner, Precinct 2

Jerry Eversole  
Commissioner, Precinct 4

Adopted April 2011

Criteria Adopted 2011

Voluntary vs. Mandated

Allows for Flexibility & Innovation

Outlines Project Review

Allows for Reduced Detention

Treat the 1" Water Quality Volume

Specifies Minimum 60"/hr Soil Media

# Looking Ahead

- Evaluate lessons learned to improve designs
- Monitor WQ and Runoff benefits
- Modify design criteria as needed
- Evaluate vegetation and landscape options
- Continue to work with stakeholder such as HLWSF, HGAC, and professional organizations



Monitoring at Birnamwood Dr.

# Sustainable Programs



LID /Green Infrastructure may play key role in these programs...

# Local LID Criteria





# Questions

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