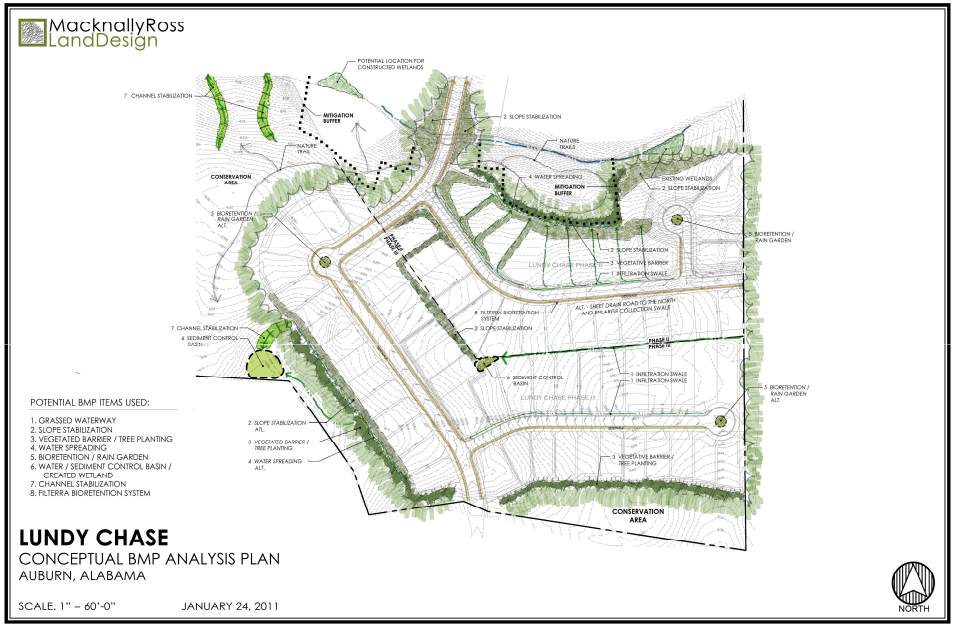
Lessons from a Conservation Subdivision: Low Impact Development



Blake Rice, PE

Barrett-Simpson, Inc.

brice@barrett-simpson.com

(334) 745-7026

Acknowledgments

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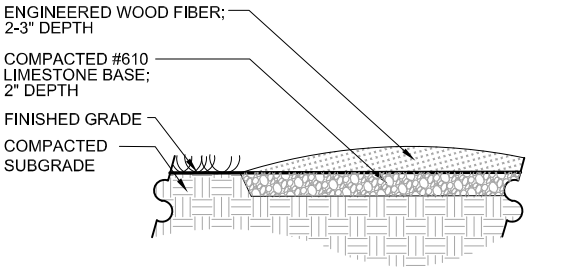
Low Impact Development (LID)

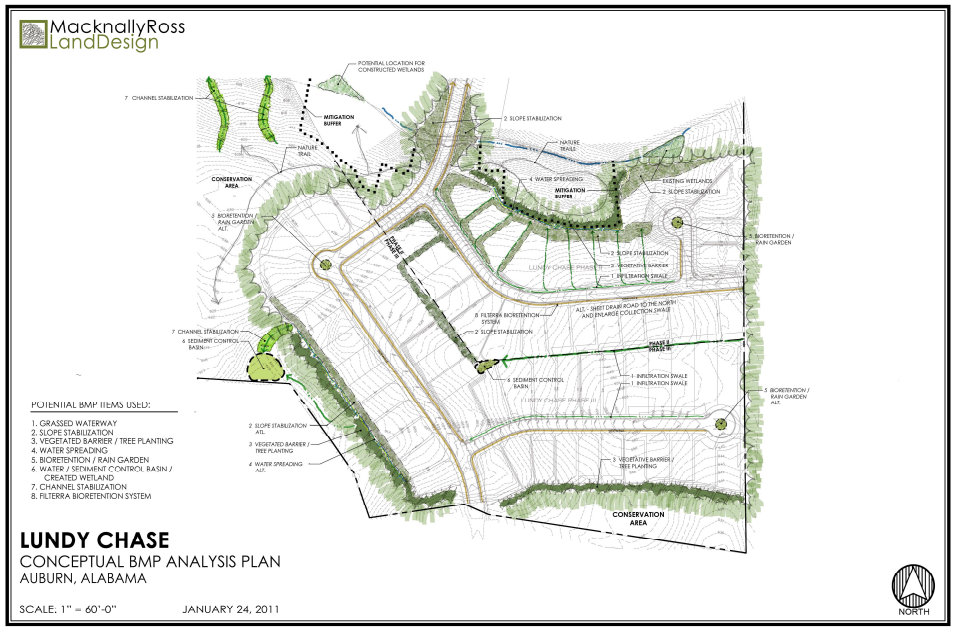
- Maintain pre-development hydrology on sites
- Planning and stormwater control measures
- Work with landscape to minimize footprint
- Use small-scale stormwater controls to promote stormwater infiltration and treatment



7 NATURE TRAIL - UNIMPROVED
SCALE: 3/4" = 1'-0"

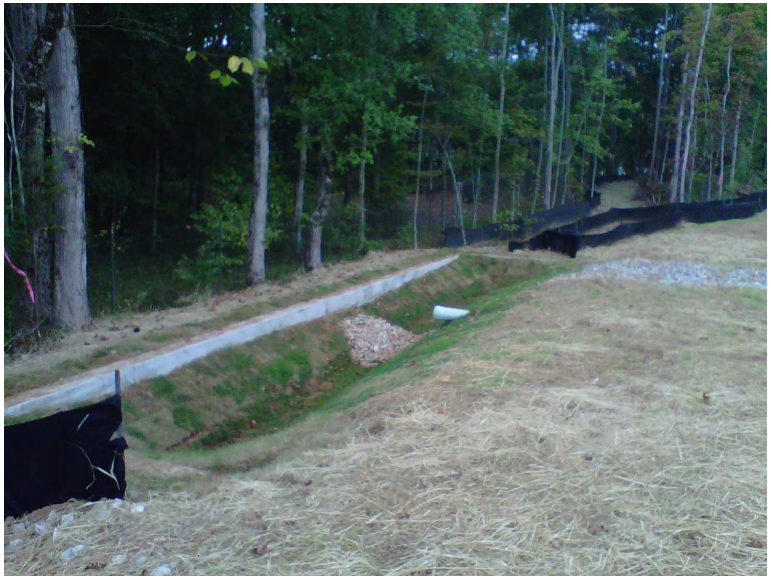
Project Goal

- Desire to generate Alabama based information for cost-benefit of Low Impact Development (LID) in residential application



Project Goal

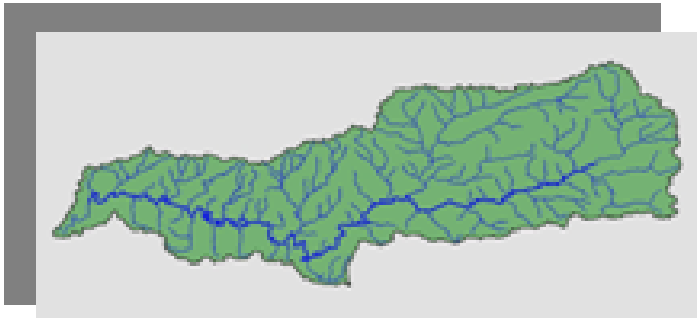
- Strengthen partnerships with local governments and development community to promote effective and economic use of LID



Opportunity

- Saugahatchee Creek – impaired by phosphorus, state 303d list
- Active watershed group (Save our Saugahatchee) and implementation project (Saugahatchee Watershed Management Plant - SWaMP)

SAVE
OUR
SAUGAHATCHEE



Opportunity

- Supportive local government – City of Auburn
- New Conservation Subdivision Regulations

Opportunity

- Interested development community

Slam Dunk!

- Contract signed and project partners ready to go – 2008.

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The 2008 Recession Never Ended

+ Comment now

For the recession of 2008 to have ended would have required the GDP to grow back to its former 2007 peak, which it has not been able to do.

For the recession of 2008 to have ended would have required the main stock market indexes to have advanced past their old peak levels. The Dow Jones Industrial Average is still 3000 points or more than 20% below its peak of 14,100.

For the recession of 2008 to have ended, the number of unemployed workers should be far reduced from today's 9.1% or 15 million.

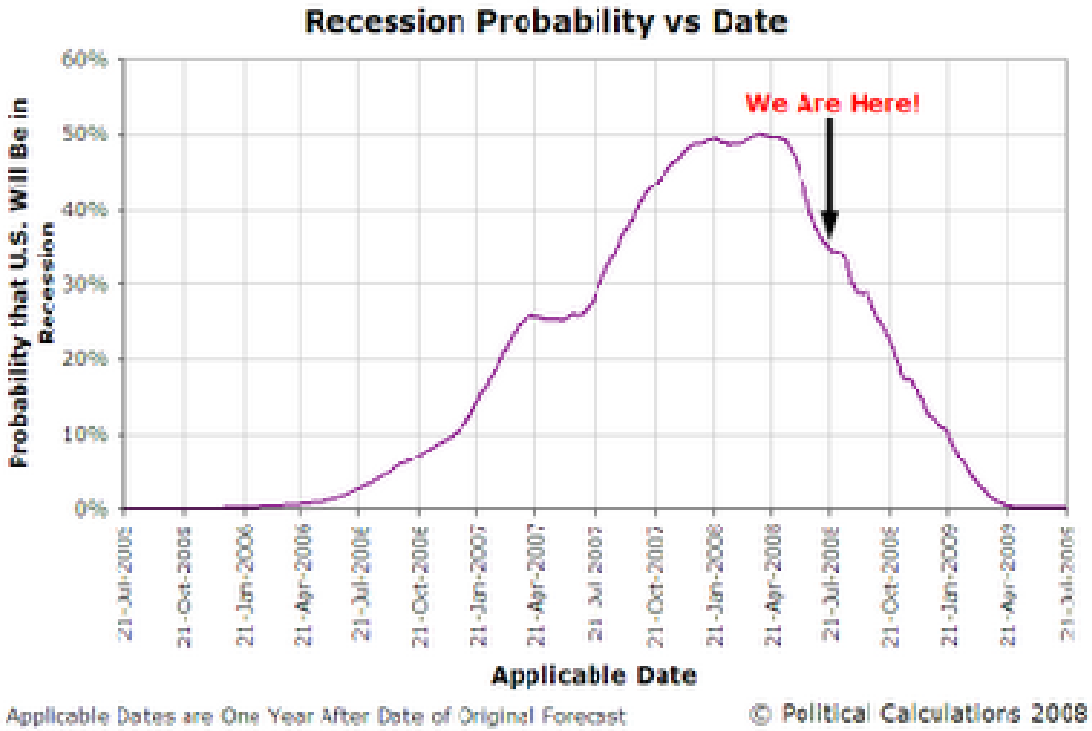
ssion of 2008 to be over, the level of public and private debt should educed. And it hasn't except for individuals paying off their credit n an attempt to prepare for the possibility of another downturn.

ssion of 2008 to be over, the key interest rates should be higher than eflect the recovery. Instead, they are lower, with the prospect of the h banks borrow remaining near zero until the end of 2012 at least.

ssion of 2008 to be over, there wouldn't be 45 million Americans on s and 45 million earning less than $22,000, the cutoff for poverty.

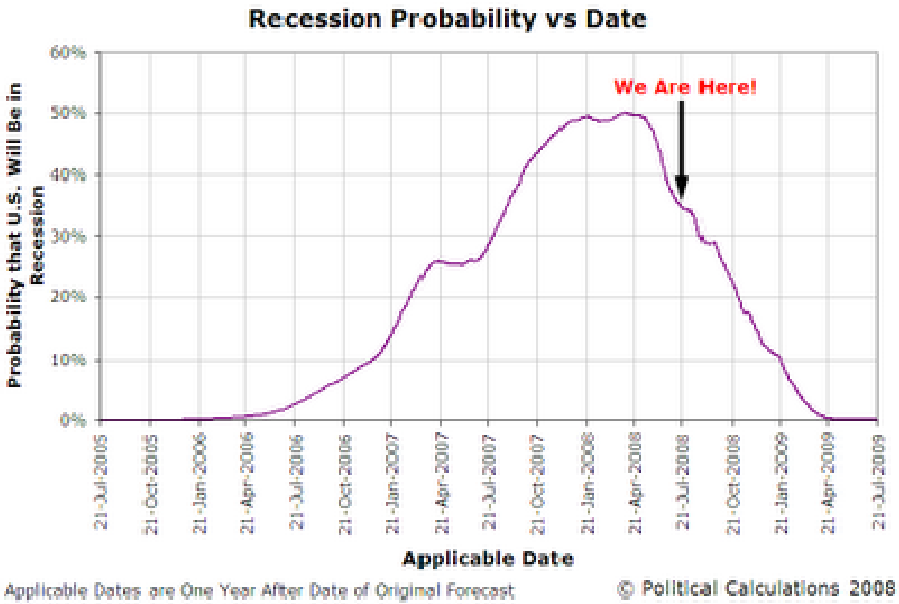
ssion of 2008 to be over, there would still not be 11 million homes losure, and housing prices would not be continuing to decline.

ssion of 2008 to be over, there wouldn't be such a sharp decline in ring activity and a drop off in exports.



Stumbling Blocks

- Understandable hesitation by developer
- Holding pattern while economy had slight ups and big downs.



Serendipity – New Interest

- Barrett-Simpson, Inc. working with Stone Martin Builders to develop single family residences in Auburn (still a pretty good growth market)

STONE MARTIN BUILDERS

New Opportunity

- Stone-Martin Builders agreed to sign on as new partner and incorporate LID measures in the first conservation subdivision approved in Auburn, AL – Lundy Chase Phase II and III.

Decisions

LID Design Options:

- Grassed swales between homes
- Roadside swales
- Bioretention in cul-de-sacs
- Bioswale
- Filterra or tree/shrub filters
- Slope stabilization
- Sediment Basin
- Riparian buffers
- Level spreaders and filter strips

Demonstration

Following a City of Auburn meeting, practices were narrowed down to:

- Bioretention
- Grassed swales
- Filter strip
- Level spreader
- Permeable walking trails


01/06/2012


01/06/2012

Lessons

Successful implementation

- Enabling ordinance
- Willing developer
- Technical engineering expertise
- Leveraged grant dollars
- Supportive local government

Lessons

Challenges

- Better to start in the conceptual planning phase
- Retrofits are do-able, but more difficult

Communication

Critical

- Engineer
- Developer
- Local Government
- Contractor
- Community
- Project partners

Economics

- Conventional vs. LID

Costs

Practice	Estimated Materials and Construction Cost
Bioretention	$6,235
Grass Swale	$5,100
Filter Strip (north)	$2,100
Filter Strip (south)	$2,100
Level Spreader	$2,000
Permeable Walking Trails	$11,600
Native Vegetation (filter strips + bioretention	$5,710

Pollutant Removal*

Practice	N (lbs/yr)	P (lns/yr)	TSS (tons/yr)
Bioretention	1.1	0.4	0.1
Grass Swale	8.8	3.8	1.2
Filter Strip (north)	3.5	0.6	0.3
Filter Strip (south)	6.1	1.1	0.4
Total	19.5	5.9	2.0

*Estimates from the STEP-L model

Outcomes

- Improved understanding of technical and construction details for LID implementation for a subdivision
- Economic information as a local case study
- Increased awareness of LID and its application

Future is Here

- LID practices will be incorporated into Phase III of Lundy Chase
- Bioretention cell has been approved for a new apartment complex in Auburn