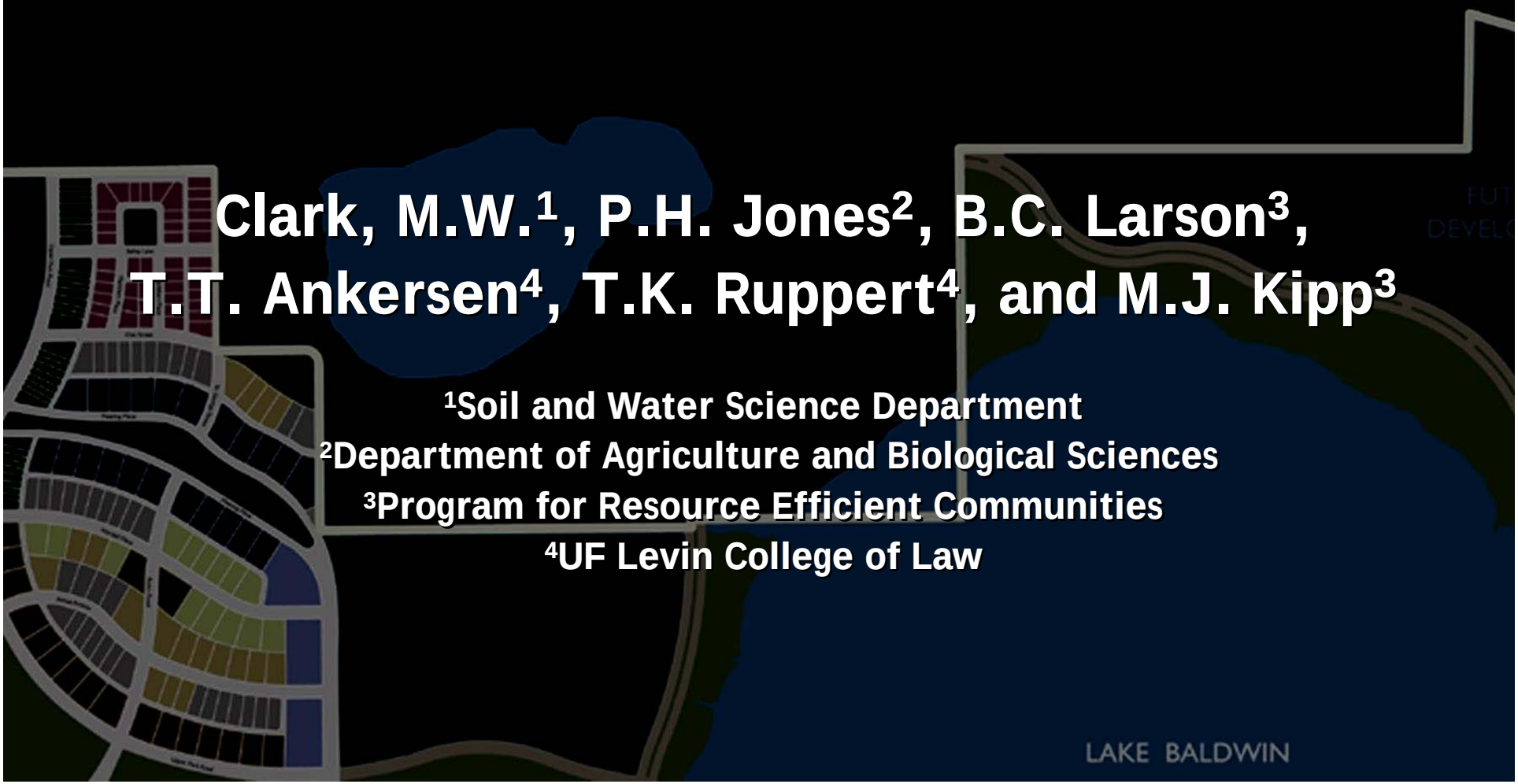
Identifying and Overcoming Barriers to Implementation of Low Impact Development Practices in Florida

Clark, M.W.[1], P.H. Jones[2], B.C. Larson[3], T.T. Ankersen[4], T.K. Ruppert[4], and M.J. Kipp[3]

[1]Soil and Water Science Department
[2]Department of Agriculture and Biological Sciences
[3]Program for Resource Efficient Communities
[4]UF Levin College of Law



Outline

- Impacts of development on Water quantity/quality
- Regulatory requirements
- Environmental reality
- Low Impact Development (LID)
- Identifying constraints to LID
  - Survey results of professionals and local government officials

Development effects on Stormwater Quantity and Quality

- Shortened time to concentration
- Greater peak flow and total volume of runoff
- Reduced baseflow in urban creeks
- Relocation of stormwater from direct/diffuse infiltration to centralized location and concentrated infiltration
- Increased pollutant loads

Regulatory Requirements

"The applicant must provide reasonable assurance that the stormwater management system:

- Will not result in discharges from the system to surface and ground water of the state that cause or contribute to violations of state water quality standards…;
- Will not adversely affect drainage and flood protection on adjacent or nearby properties not owned or controlled by the applicant;
- Will be capable of being effectively operated and maintained…"

(40C-42.023 F.A.C)

Impaired Water Bodies

"If the receiving water body has been determined to be impaired, the applicant must demonstrate that the project will result in a net improvement for the parameter for which the water body is impaired pursuant to [12.2 A.H.]"

Environmental Reality

- State faces an increasing number of listed water bodies, TMDLs and BMAPs
- Presumptions of compliance for conventional basin design and practice for treatment of nutrients is coming under question especially for nutrients.
- Total volume, not just peak discharge, mitigation is desired to address water quality and groundwater quantity concerns.

Low Impact Development?

- *Stormwater and land development strategies at the parcel or subdivision scale that emphasis conservation and use of on-site natural features integrated with engineered, small scale hydrologic controls to more closely mimic pre-development hydrologic conditions.*

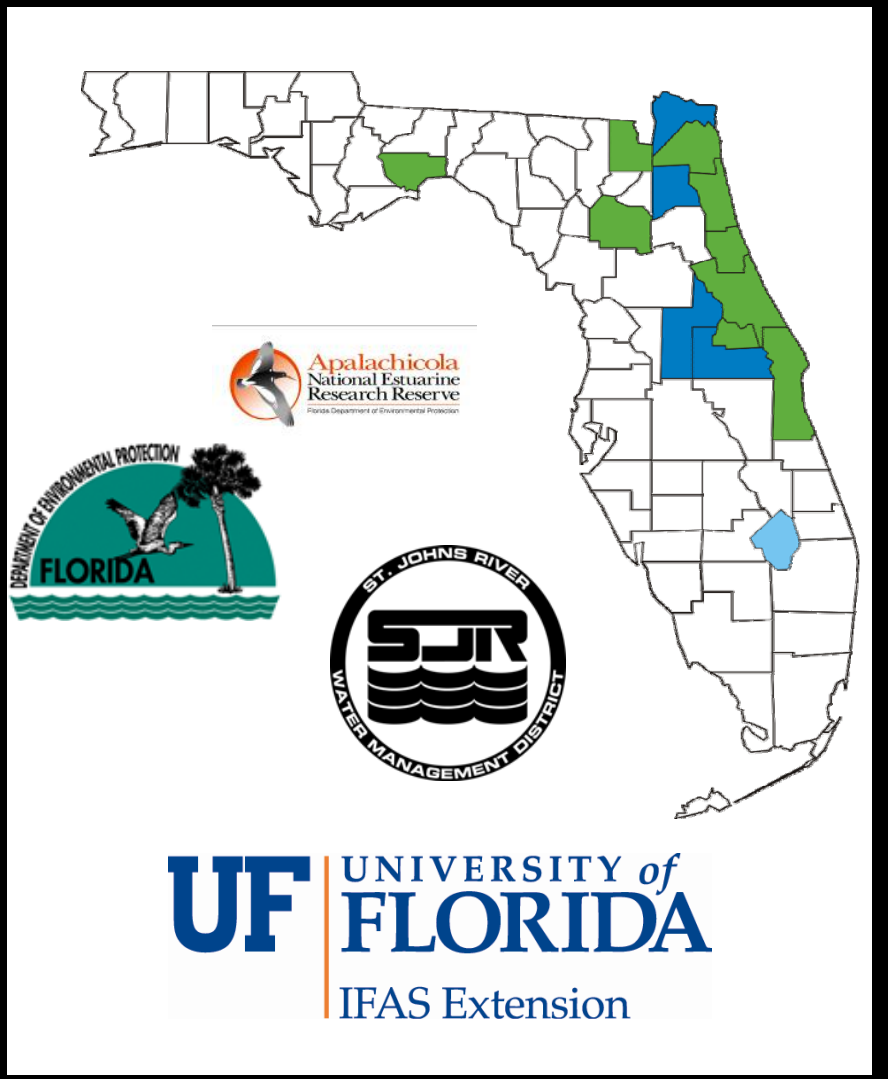
- Retain, Detain, Recharge, Filter, Use

Low Impact Development Practices

- Cluster design
- Source load reduction through minimal disturbance and landscape choices
- Minimize Impervious Area
- Green Roofs
- Rainwater Harvesting
- Permeable Surfaces
- Protect depression storage
- Bioretention/Rain gardens
- Vegetated buffers and conveyance systems
- Enhance Stormwater Ponds
- Stormwater Reuse

Local Government Workshops

- Purpose
  - Raise awareness of environmental issues and regulatory implications of “conventional” development practices.
  - Provide information and resources for alternative development practices.
  - Stimulate discussion within local county governments to review land development regulations and evaluate limitations/incentives for Low Impact Development alternatives.



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What are the Barriers to LID Implementation?

- Developers, professionals and local government officials
  - Survey of workshop and CEU training program participants.
- Regulatory
  - Interview state and water management district staff to determine limitations from a regulatory perspective.

"What is your Profession?" **(who took the survey)**

Engineer	24%
Planner	19%
Other	16%
Educator/Consultant	13%
Regulatory/Local Government Official	10%
Builder/Developer	10%
Elected Official	4%
Landscape Architect	3%
Architect	2%

"Based on your experiences and perspective, what do you feel are the main challenges to successful implementation of LID practices in your County?"

Acceptance/Changing Status Quo/Overcoming Apathy to Promote Behavior Change	25%
Regulatory/Permitting Barriers	23%
Education & Awareness	21%
Cost and/or Lack of and Misguided Incentives	18%
Technical Training & Implementation	5%
Other	3%
Compliance and Enforcement	2%
Maintenance	2%

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"What do you feel are the most important strategies and/or next steps for overcoming these challenges?"

Education, Outreach, and Marketing to Promote Awareness	**35%**
Regulatory/Permitting/Code Changes that Allow for LID	**18%**
Offer Incentives, Monetary and Otherwise	**14%**
Participation, Communication, and Cooperation among Stakeholders	**11%**
Fundamental Shift in Thinking/Change the Status Quo/Leadership	**9%**
Research/Data Collection/Demonstration Projects	**8%**
Technical Training/Design Requirements	**3%**
Other	**3%**

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"What do you need in your role to complete or approve an LID project?"

Real Examples that Work / Case Studies	26%
Example Code Language	21%
Training in LID Design	16%
Additional Training in LID Principles	13%
Available Material (hardware)	12%
Training in Material Installation	8%
Other	3%

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Summary

- Education/awareness appear to be the #1 constraint to implementation/acceptance of alternative LID practices.
- Permitting environment, although providing option for “alternative” practices, is not presently inviting to LID, or is in conflict with local code.
- Tools needed for LID implementation
  - Demonstration sites
  - LID compatible development code language
  - Incentives
  - Training in design and practices