

# Advanced Site Development for Stormwater Using Existing Programs

## Matt Belcher



Technical Partner;

**UNIVERSITY OF MISSOURI-COLUMBIA**

-Center for Sustainable Energy

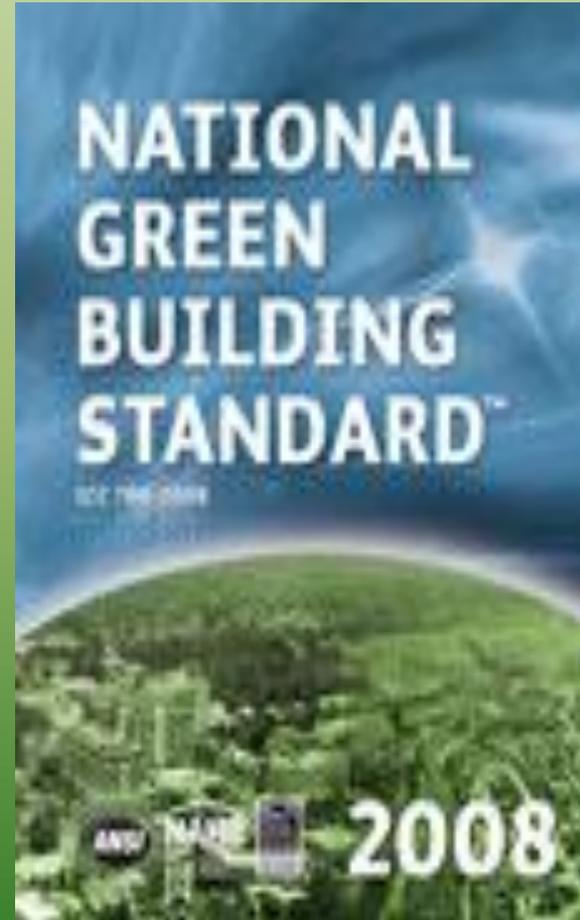
-Stormwater Management and Erosion Control Education Center



**Builders Challenge Partner**

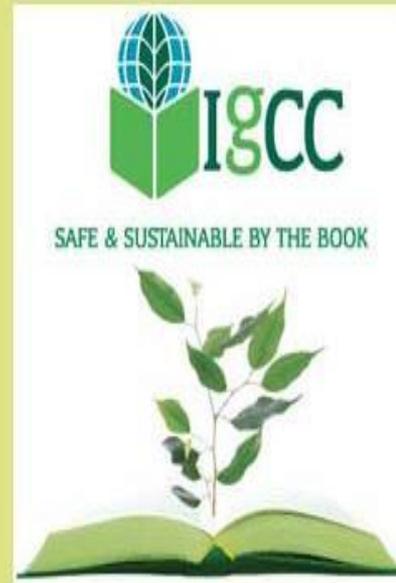
# The National Green Building Standard (ANSI ICC-700)

- Released;  
January, 2009
- Nomenclature same  
as ICC Codes
- Chapter #4 Site  
Design and  
Development
- Revision Late 2012

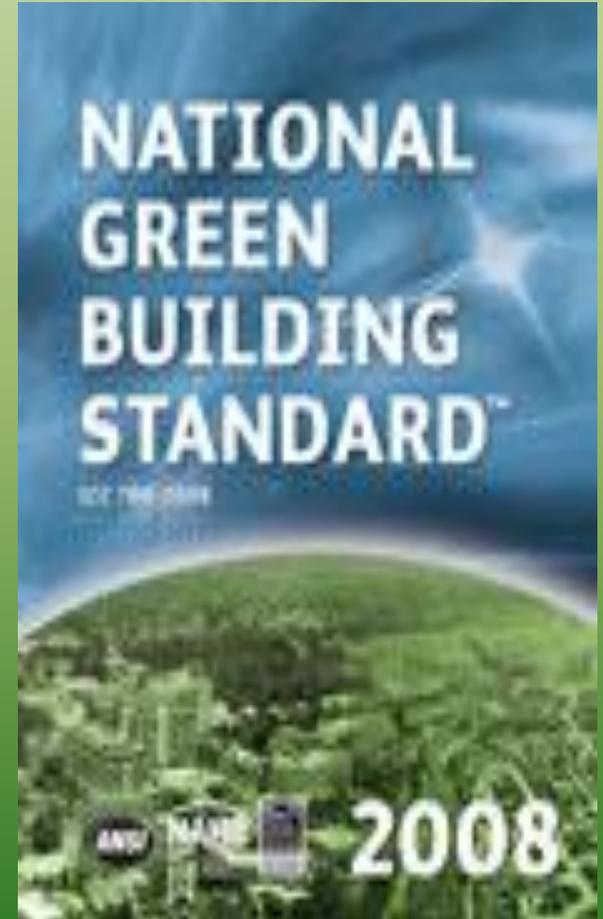


# International Green Construction Code

Early 2012



# The National Green Building Standard (ANSI ICC-700)



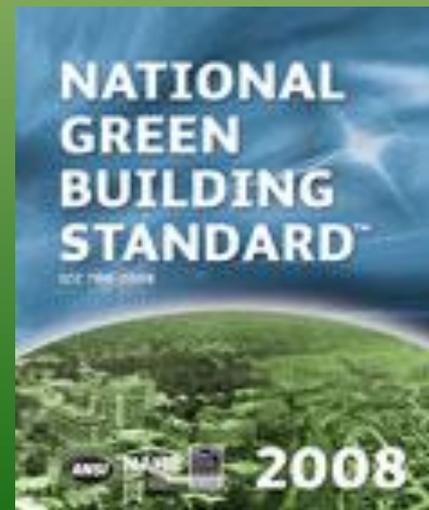
# ANSI ICC-700

Chapter #4 Site Design and Development

Chapter #5 Lot Design, Preparation & Development

Promotes;

- Inventory and Preservation of Natural Resources
- Minimizing Slope Disturbance
- Minimizing Soil Disturbance and Erosion
- Storm Water Management using techniques that mimic natural process

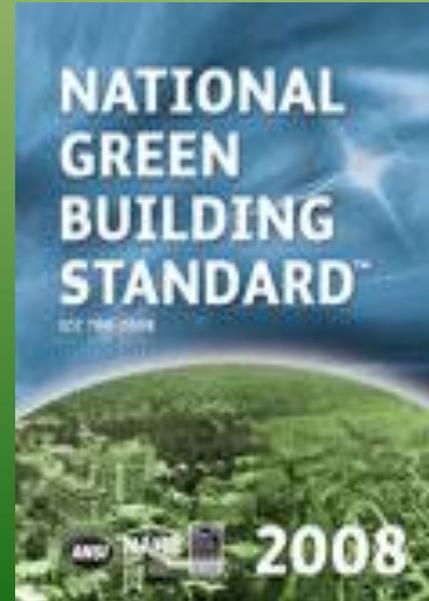


# ANSI ICC-700

## Chapter #4 Site Design and Development

Promotes;

- Inventory and Preservation of Natural Resources
- Minimizing Slope Disturbance
- Minimizing Soil Disturbance and Erosion
- Efficient Storm Water Management
- Preserving natural drainage features

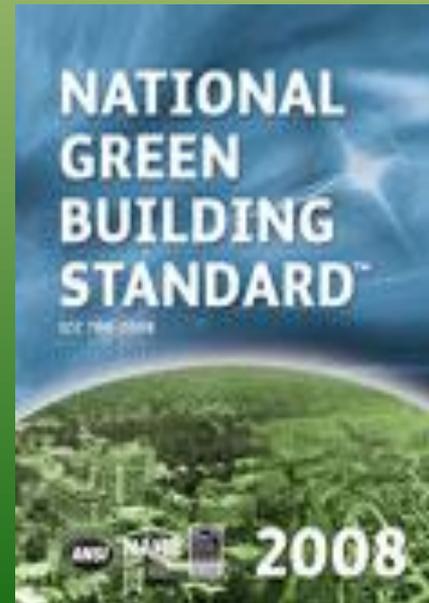


# ANSI ICC-700

## Chapter #4 Site Design and Development

Promotes;

- Inventory and Preservation of Natural Resources
- Minimizing Slope Disturbance
- Minimizing Soil Disturbance and Erosion
- Better Storm Water Management
- Preserving natural drainage features
- Developing Stormwater management Plans to minimize concentrated flows and mimic natural hydrology using BMPs

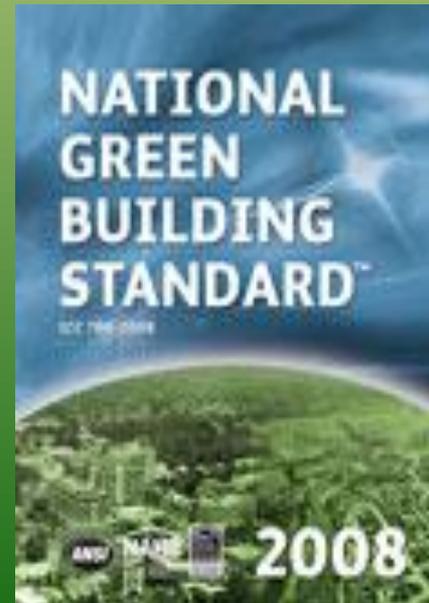


# ANSI ICC-700

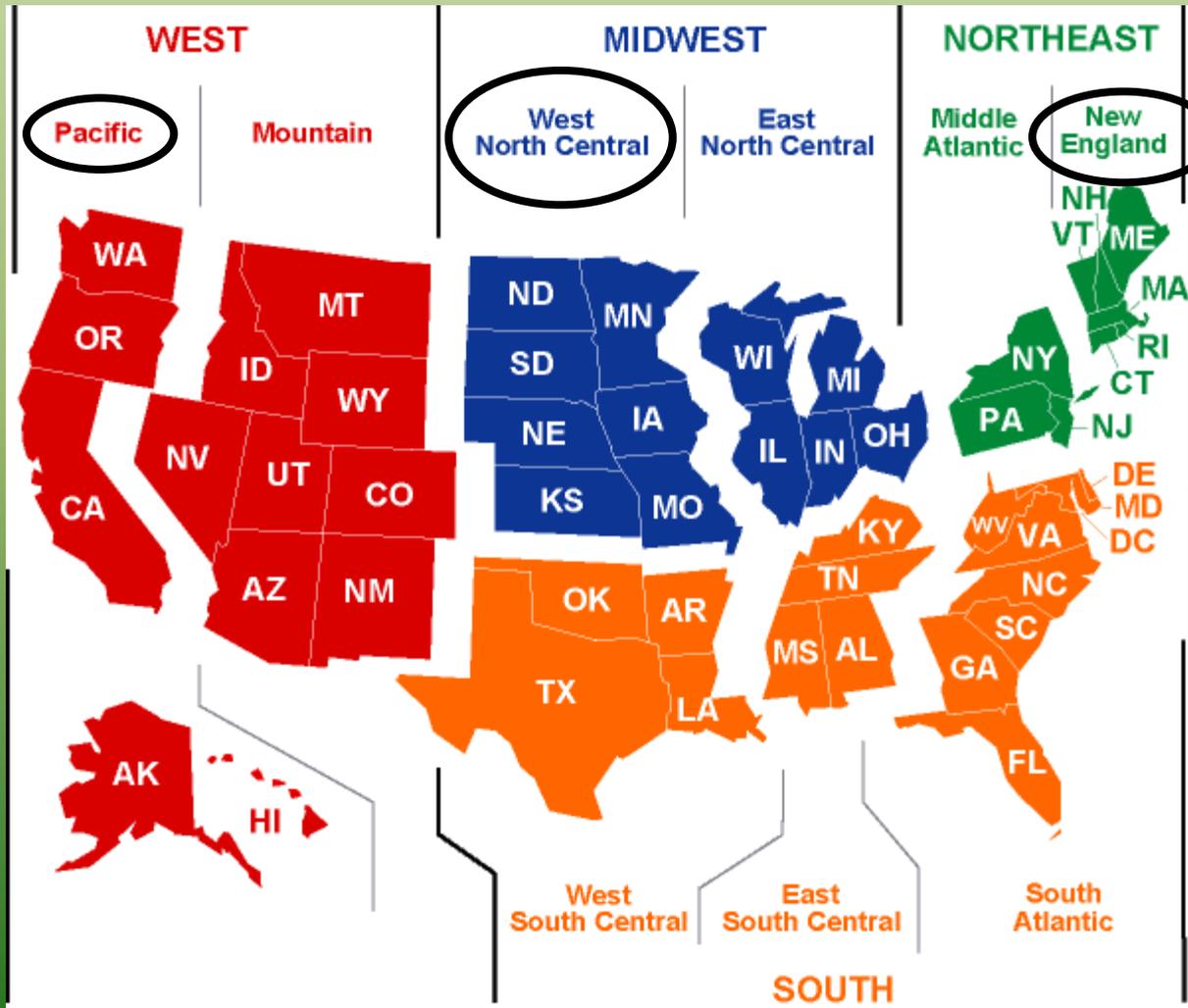
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- ✓ Operation and Maintenance plan



# 3 Regions with Greatest “Green” Opportunity by Builders and Remodelers

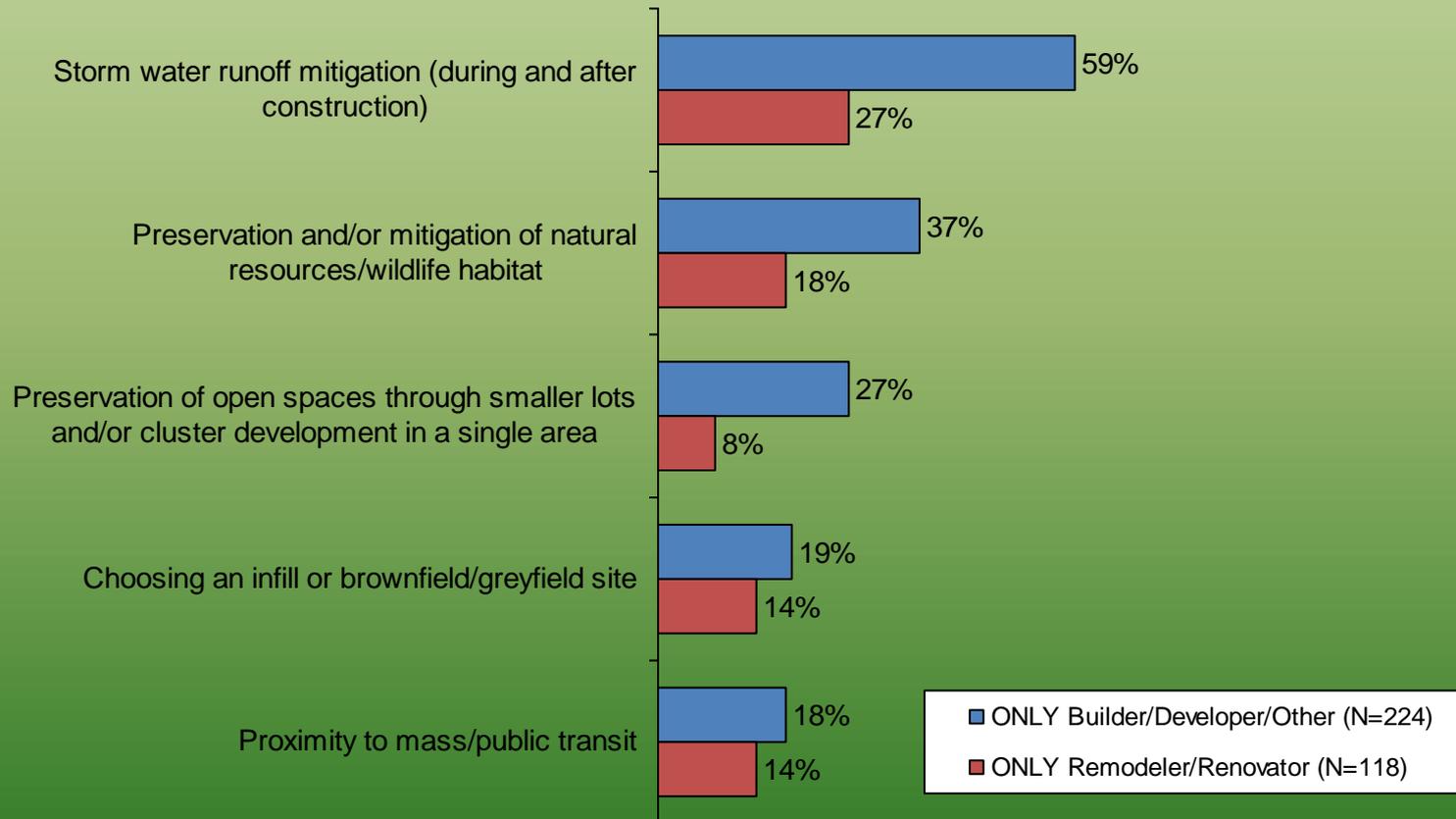


- **Pacific: #1**
  - 81% builders
  - 85% remodelers
- **West North Central: #2**
  - 76% builders
  - 79% remodelers
- **New England: #3**
  - 75% builders
  - 64% remodelers

Source: Green Home Building survey, McGraw-Hill Construction, December, 2011

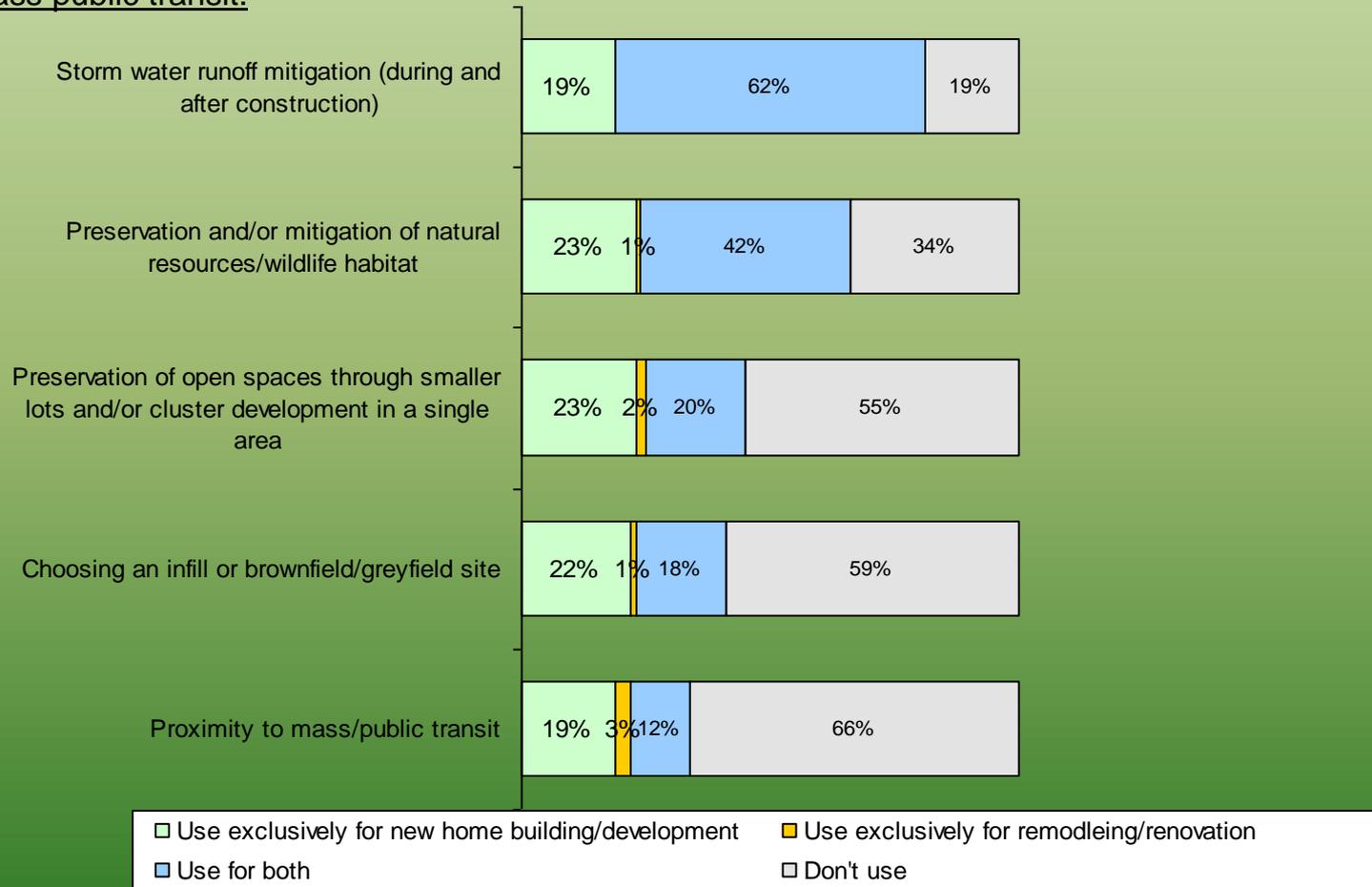
# Materials & Methods Used: Lot Design, Preparation & Development

- Expectedly use of lot design /preparation/development practices is much higher among builders. Storm water runoff mitigation is used the most by builders.



# Usage Pattern among Both (Builders & Remodelers/ Renovators): Lot Design, Preparation & Development

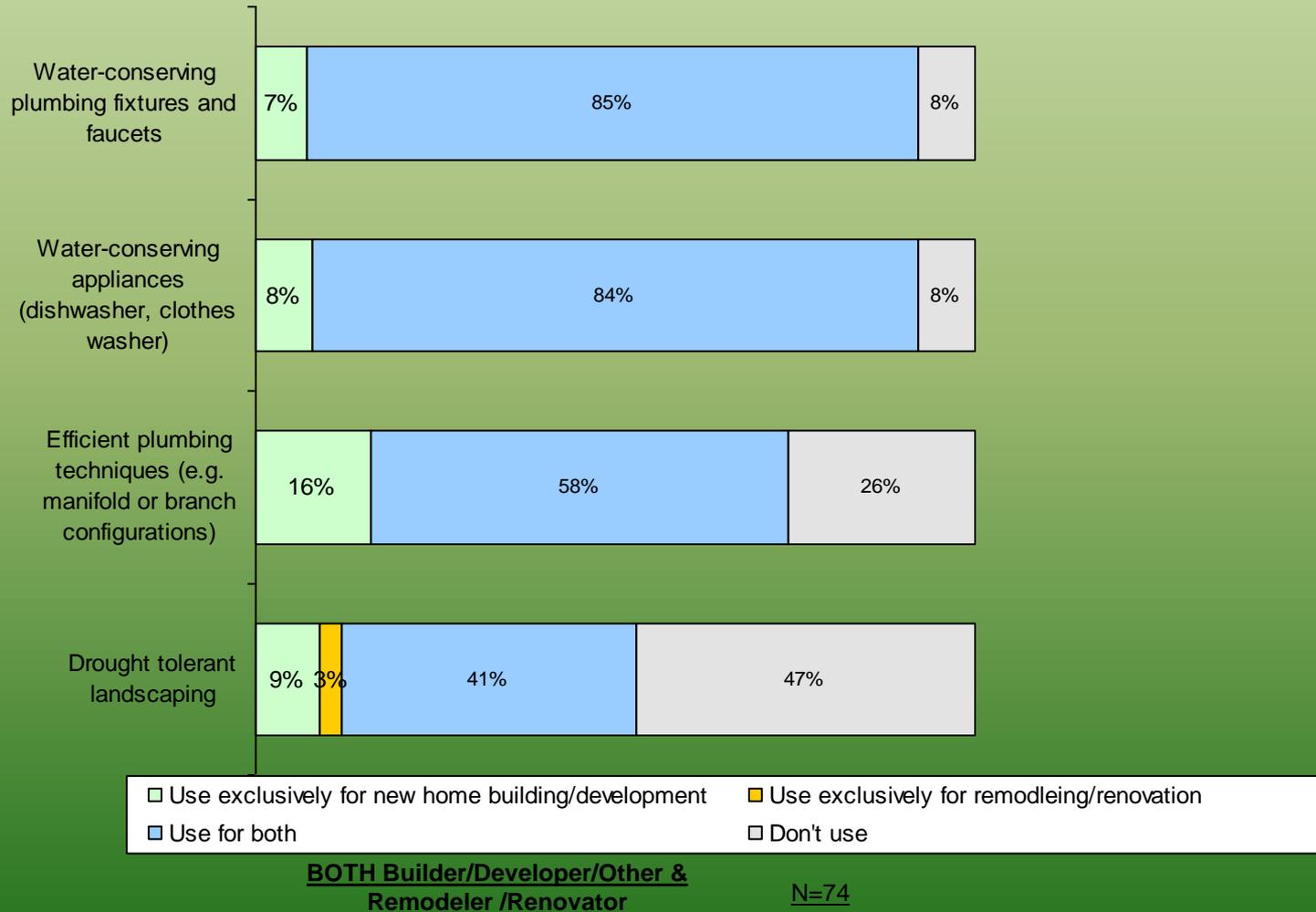
- Certain lot design/development/preparation techniques are applied more when building as opposed to remodeling – preservation of open spaces, choosing an infill/brownfield/grayfield site and proximity to mass public transit.



**BOTH Builder/Developer/Other & Remodeler /Renovator**

# Usage Pattern among Both (Builders & Remodelers/ Renovators): Water Conservation

- The pattern is no different in case of water conservation methods/materials – When used, they are applied for mostly both building and remodeling. Some exclusive use in building is seen for efficient plumbing techniques and drought tolerant landscaping.

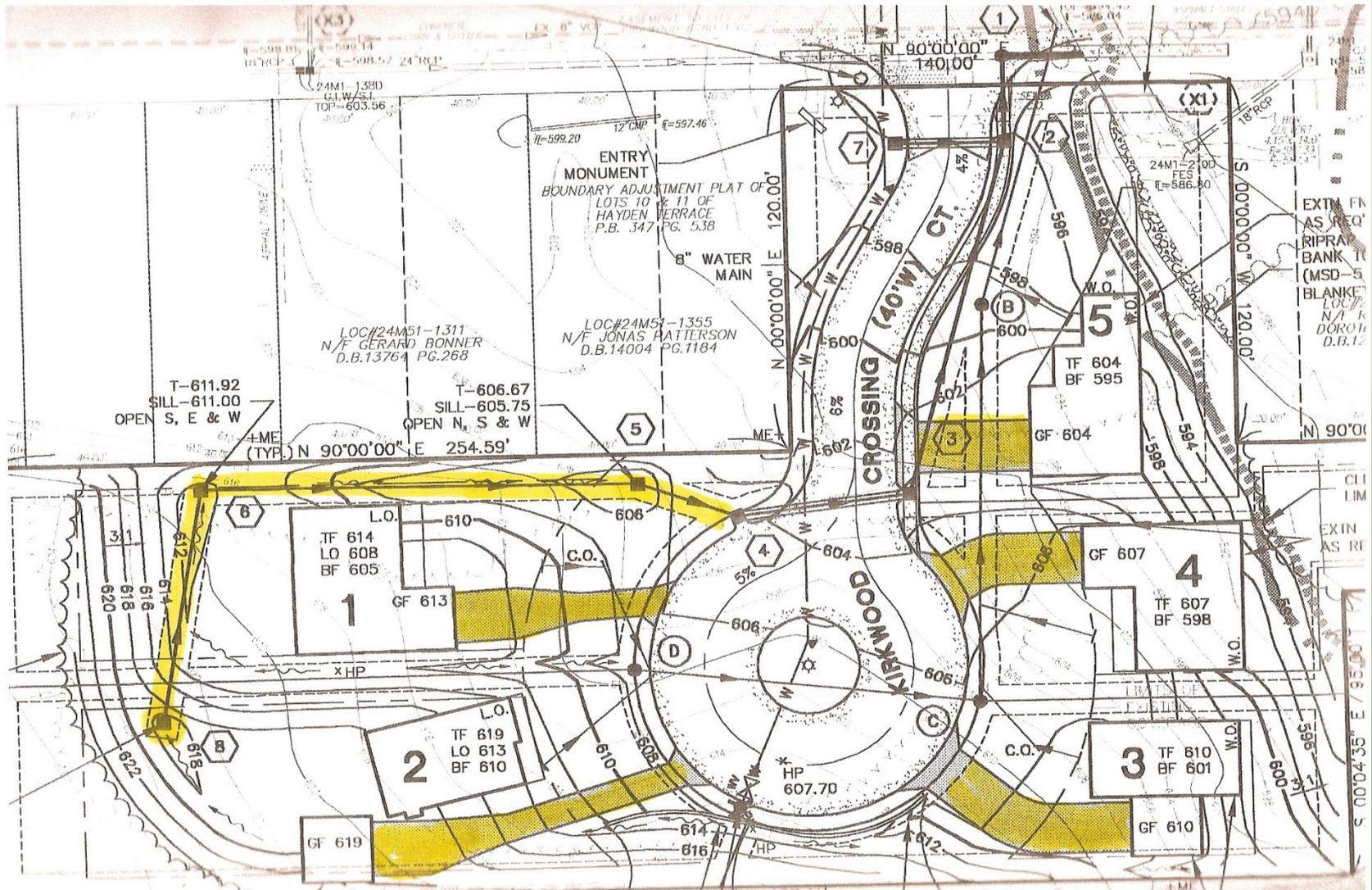


# Moving Forward

(Costs per developed lot have increased Approximately 200% per front foot)

- S/W Issues: EPA Rule Changes
- Entitling land/Time=\$\$
  - Green Taping
  - NIMBYs
- Gain more lots
- Phase II Compliant
- Decreased sewer, street, grading, clearing costs
- Increased lot premiums
- More perceived landscaping
- Saves trees → reduce utility loads on homes → higher sales price
- Embraced by municipalities
  - must collaborate with engineers/developers

# Longer setbacks = increased impervious surfaces



# First to Last

- Used to be the primary point for stormwater to get to.
- Now it merely collects what our site BMPs cannot handle.
- S/W vs. Flood Control



# Pervious Strip in Driveway



## Conclusion:

***Not a linear process,  
integrated systems***

**(Affordability = Sustainability!)**



Thank You!  
Matt Belcher

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