Green Infrastructure Working Group
Land Cover & Natural Function

February 20, 2015

Objectives

- Discuss best practices & challenges relating to **land cover and natural function** for new development & redevelopment
  - Why perviousness matters
  - Austin's existing requirements
  - Other national systems
- Discuss format and logistics of future meetings

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Agenda

Arrivals & Introductions	11:00
Staff presentation	11:10
Why perviousness matters	
Existing Austin requirements	
Other national models	
Ideas from large group	
Small group discussion	12:00
Large group summary & recap	1:00
Future meeting format & logistics	1:45

Note: There will be short breaks both before and after the small group discussion

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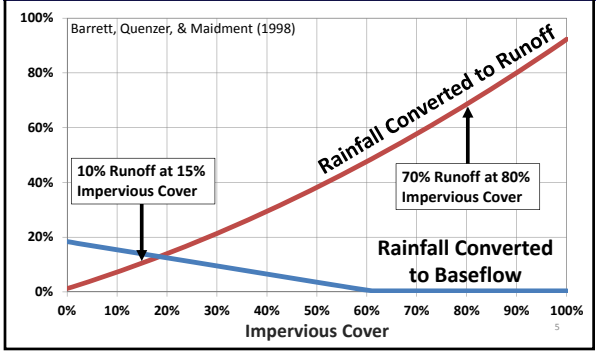
Why Perviousness Matters

- Level of imperviousness is the driver for health and safety issues relating to flood, erosion, & water quality
- Impervious cover limits are a key tool for protecting & replicating the natural hydrologic cycle
- Works in tandem with structural controls & setbacks from creeks and sensitive features
- Setting aside pervious areas on the site allows for:
  - Maintaining baseflow
  - Suppressing excess stormflow
  - Supporting vegetation and soils
  - Removing pollutants

Impervious Cover, Runoff, & Baseflow



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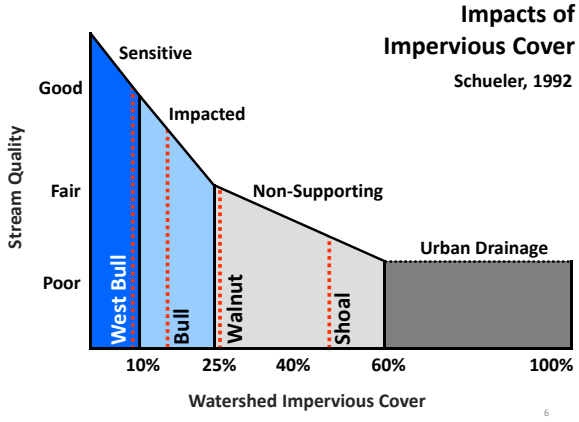
Impacts of Impervious Cover

Schueler, 1992



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Scenario A	Scenario B	Scenario C
		
10,000 houses built on 10,000 acres produce: 10,000 acres x 1 house x 18,700 ft³/yr of runoff = **187 million ft³/yr of stormwater runoff** **Site: 20% impervious cover** **Watershed: 20% impervious cover**	10,000 houses built on 2,500 acres produce: 2,500 acres x 4 houses x 6,200 ft³/yr of runoff = **62 million ft³/yr of stormwater runoff** **Site: 38% impervious cover** **Watershed: 9.5% impervious cover**	10,000 houses built on 1,250 acres produce: 1,250 acres x 8 houses x 4,950 ft³/yr of runoff = **49.5 million ft³/yr of stormwater runoff** **Site: 65% impervious cover** **Watershed: 8.1% impervious cover**

EPA, 2006: Protecting Water Resources with Higher-Density Development

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"Effective" Impervious Cover: Disconnection

- Impervious cover can be "disconnected" from the drainage system
- Direct stormwater to areas on-site where it can infiltrate into the soil and/or be re-used beneficially
- Tapping into the Cityscape as a water supply source

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"Effective" Impervious Cover: Structural Controls

- Structural, engineered controls can make a high amount of impervious cover "act" like a lower amount
- Flexible, multi-functional, & space-saving solutions for intensive sites
- Require active maintenance and subject to failure
- Replication of natural hydrology can only go so far with high levels of impervious cover

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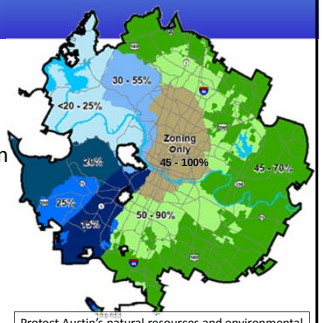
Impervious Cover Limits

- Limits vary by area of town and land use
- Higher impervious cover limits in Urban & Suburban
- More restrictive for Water Supply watersheds & Barton Springs Zone
- Recommend retaining existing limits in the Drinking Water Protection Zone (Imagine Austin)



Protect Austin's natural resources and environmental systems by limiting land use and transportation development in sensitive environmental areas and preserving areas of open space (LUT P22)

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Urban & Suburban Watersheds: Challenges in Protecting Natural Function

- Existing impervious cover limits are very high: 80 percent and more for commercial sites
- Pervious areas can be small, uncoordinated scraps rather than cohesive, functional areas
- Function of pervious areas can be degraded during & post-construction
  - Compaction, elimination, neglect
- How to restore natural function to sites that are already almost entirely impervious?

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Colorado Model: Publicly Accessible Open Space

- Parker, Colorado (among others)
  - Require dedication of common open space based on proposed density, lot sizes, and natural characteristics of the site
  - Goal of achieving a minimum of 20% of the total development parcel as open space
  - Payment-in-lieu option (at City discretion)
  - Separate requirements for parkland dedication
  - Area of dedication guided by Open Space, Trails, and Greenways Master Plan

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New Hampshire Model: Effective Impervious Cover Limit

- New Hampshire (model ordinance for state)
  - Set impervious limits based on amount of effective impervious cover
  - Must demonstrate that impervious cover over the limit does not contribute directly to stormwater runoff leaving the site
  - Disconnect impervious cover by capturing and infiltrating stormwater runoff on-site
  - New Hampshire system was designed for sensitive watersheds (low limits), but concept could also be adapted to more urbanized areas

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Florida Model: Pervious Area Requirement

- Lauderhill, FL
  - Minimum of 30% pervious area with weights given to various pervious surfaces
    - Landscaping = 100%
    - Stormwater Ponds = 50%*
    - Green Roof = 200%
    - Porous Pavement = 50%
  - In addition, minimum tree canopy standard of 18% for the site (based on 2 years after planting)

*Give full credit to green stormwater infrastructure?

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Questions for Group Discussion

- What are the strengths and weaknesses of the system Austin is currently using?
- What are the strengths and weaknesses of the national models discussed?
- Are there additional solutions that should be considered as part of CodeNEXT?

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Meeting Format and Logistics

- Locations
  - Twin Oaks Library (March 13) – GI tour?
  - One Texas Center (April 3, April 24)
  - Town Lake Center (May 15)
- Length
- Format
- Breakout groups

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Green Infrastructure Working Group Schedule

Kickoff	Jan. 30
Land Cover & Natural Function	Feb. 20
Landscaping & Green Transitions	**Mar. 13**
Beneficial Use of Stormwater	**Apr. 03**
Stormwater Options for Redevelopment & Infill	**Apr. 24**
Wrap Up	**May 15**

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