Imagine Austin
including the urban forest & city trees

• Kathleen Wolf, Ph.D. • College of the Environment •
  • University of Washington • January 2011 •
‘random’
Policy Language

Planning Scale

city-wide
neighborhood/community
site
Parking and Trees in Cities and Towns: Legal & Design Approaches

Kathleen Wolf, Ph.D.
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Parking and Trees in Cities and Towns

1. **Policy** - why are trees important?
2. **Regulations** - how to get more trees planted?
3. **Design and Management** - how to gain more benefits?
1. Policy -
Why are trees important? Reduce local costs!

- Parking Lot Impacts
- Parking lots ~ 10% of urban land cover
- Urban heat island effect
- Air pollutants
- Impervious surface - water concentration and quality
- Paving replacement costs
1. Policy - why are trees important?

- Trees and Parking Area Benefits
  - Trees are one of the most cost-effective means of mitigating urban heat islands (.5-1.5° C)
  - Hot climates - trees reduce surface asphalt temps by 36°F, vehicle interior by 47°F
  - Cooler air temps reduce “bad” ozone concentrations
  - Reduced hydrocarbon emissions from parked cars

Center for Urban Forest Research - USFS Pacific SW Research Station
1. Policy - why are trees important?

- Trees and Parking Area Benefits
  - Pollutant uptake
    - bioremediation
    - particle deposition
  - Stormwater management
    - water retention/detention - less runoff
    - soils filtration - better water quality

Center for Urban Forest Research - USFS Pacific SW Research Station
Elements of Ordinances & Code

- purpose statement
- definitions
- regulations and standards
  (1 tree per 4 vs 20 parking spaces)
- administrative requirements (e.g. plan submittal)
- enforcement
- appeals
1. Policy - Purpose Statements

- broad references to benefits,
- list of community attributes that are served by the code,
- a philosophical perspective,
- and language that sets the tone of the law
1. Policy - Purpose Statements

- **More Traditional**
  - adequate landscaping shall be provided to reduce intrusion into residential areas by glare, dust, noise and vibration caused by railroads, highways and industrial or commercial land use
  - improve the appearance of certain set-back and side yard areas, and including off-street vehicular parking and open lot sales and service areas, and to protect and preserve the appearance, character, and value of the surrounding neighborhoods
  - promote the general welfare by providing for installation and maintenance of landscaping and screening and aesthetic qualities
1. Policy - Purpose Statements

• More Recent
  • Modify the rate of stormwater runoff and increase the capability of groundwater recharge in urbanizing areas
  • Promote soil conservation by maintaining and controlling alterations of the natural terrain, and thereby reduce sedimentation
  • Promote energy conservation by maximizing the cooling and shading effects of trees
  • Filter pollutants from the air and assist in the generation of oxygen
Parking Lots

Planning Scale
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Parking Demand Ratios

- used to size parking lots
- specify # of parking spaces per building floor area
- varies by land use
- often designed to meet peak demand
- high vacancy rates (36% in Sacramento study)
Focused Parking Requirements

- What are the effects on site development?

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Example 1: Urban Building/Compact Units

- 50 sf x 100 sf = 5000 sf footprint
- 5 stories = 25,000 sf
- 1 space per 250 sf = 100 parking spaces
- Stall = 9x20 = 180 sf
- Min area = 18,000 sf
- Aisles and stall reqmt’s – typically require same area as parking
- Parking area = 36,000 sf
- Area = 0.83 acres.
- Equivalency is the area of 8 of the shown buildings
Example 2: What about the Louvre?

- 3 million sf
- 12,000 parking spaces
- 4.3 million sf parking + aisles
- 100 acres of parking
What if the Louvre met conventional parking standards in the US?
Hilton Head, South Carolina
Green Infrastructure

Planning Scale

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Pierce County WA, Chambers Creek Properties - 4 year growth
Central WA University plaza
Sustainability Systems

Planning Scale

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An Integrated Approach
ECOSYSTEM SERVICES

All sites CAN provide ecosystem services
2009 REPORT

Guidelines & Performance Benchmarks

- Site Selection
- Pre-Design Assessment
- Site Design – Water
- Site Design – Soil and Vegetation
- Site Design – Materials
- Site Design – Human Health & Well Being
- Construction
- Operations and Maintenance
- Monitoring and Innovation

released November 2009

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CASE STUDIES

For more information, visit www.sustainablesites.org/cases

nominations until February 15, 2010

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Precedent of LEED voluntary certification to regulation
Planning & Regulation

Planning Scale

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Green Factor
City of Seattle

objectives:
Urban Livability
Ecosystem Services
Climate Change Adaptation
Green Factor
score sheet for green elements
Department of Planning & Development
Green Factor
City of Seattle
UF canopy goals

At the recommendation of the Urban Forestry Commission, the City also revised scoring to increase the credit awarded to trees and decreased the credit awarded to shrubs. Changes are reflected in the 2010 Score Sheet.

yes – development review
no - tree removal permitting
EcoDistrict

Climate Benefit District

Planning Scale ‘templates’
city-wide
neighborhood/community site
Neighborhood Scale: EcoDistricts
EcoDistrict
Land Use + Trees!
Climate Benefit District
Mithun, Seattle
Climate Benefit District
how it is created . . .
Psychology & Planning

Social Marketing

benefits & barriers analysis
Fostering Sustainable Behavior
Doug McKenzie-Mohr

www.cbsm.com
Analysis Process

- Do they know about what you want?

- Do they perceive significant difficulties or barriers?

- No barriers? But current behavior offers the greater benefit!
Understanding Behavior Change

- People will do things providing high benefits, low barriers

- Perception is reality! judgments of barriers and benefits differ among people

- Behavior competes with behavior – choices are about behavior (not knowledge)
Plant more trees in the business district streetscape

More customers
More spending

adequate root and canopy spaces

trees are pretty

we market our district to bring in shoppers

small planters provide nice “color spots”

trees block views of businesses

put up signs to advertise business (at canopy height)

the business next door is my competitor

interviews or survey to fill in the boxes
Using Community Based Social Marketing to Increase Urban Forest Canopy Cover on Residential Property

Jana Dilley
M.S. Spring 2010
University of Washington

survey of Seattle homeowners stratified by community reporting areas
analyzed by existing and potential canopy cover
Action Programs Based on Marketing Study

Figure 11. Applying the CBSM framework to homeowner tree planting behavior.
Targeted Communications

1. **Know your audience** (attitudes, beliefs, values)
2. **Use captivating, vivid information** (metaphor, compare & contrast, graphics & images)
3. **Use a credible source** (champion, professional organization, newsletter)
4. **Frame your message** (positive or negative)
5. **Careful use of threatening messages**
Targeted Communications

6. One-sided vs two-sided message (more for experts)
7. Make the message specific (articulate actions)
8. Make the message easy to remember (what & when)
9. Provide personal or community goals
10. Emphasize personal contact
11. Provide feedback (impact, what’s next?)
Targeted Communications

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Don’t forget the ‘ask’
Imagine Austin – the urban forest at all scales!
Human Dimensions of Urban Forestry and Urban Greening

featuring research on peoples' perceptions and behaviors regarding nature in cities

Nature and Consumer Environments
Research about how the urban forest influences business district visitors.

Trees and Transportation
Studies on the value of having quality landscapes in urban roadsides.

Civic Ecology
Studies of human behaviors and benefits when people are active in the environment.

Policy and Planning
Integrating urban greening science with community change.

Urban Forestry and Human Benefits
More resources, studies and links . . .

Research Director
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