The BENEFITS of TREES

2nd L.I.D. Development Conference
Wilmington, March 13th, 2007

PURPOSE of PRESENTATION

Discuss benefits of trees to the community

Understand the importance of trees on people’s health

Debunk the myth that tree preservation is unaffordably costly in the development process

TREES, Benefits

- Improve People’s Health
  - Decrease Surface Runoff
  - Filter and Clean the Air
  - Increase Property Values
  - Provide Shade
  - Serve as Wind Breakers
  - Improve Aesthetics

Trees Decrease Storm-Water Runoff

- Runoff contaminates creeks and rivers with pollutants and sediment.
- Algae-blooms and fish-kills occur
- Fish become contaminated and unsafe to eat
- Polluted rivers are unsightly and unhealthy for humans

Bottom line: A sufficient amount of trees decreases the demand for river clean-ups and thus saves tax $$$

SMOG

Ground - Level Ozone
CHILDREN are exposed to 15 times the average level of airborne particles.

NC six graders have a 30% incidence of asthma related to inhaled pollutants.

ASTHMA vs EDUCATION

in North Carolina

Children with ASTHMA
miss 3.7 more schooldays every year
than Children without asthma

SMOG

- ASTHMA: highest single disease cost in the health-care industry
  1990: $6.2 Billion
  2002: $12.7 Billion

- ASTHMA: #1 disabler in USA
  1992 indirect cost: 20.9 million

PM 2.5 in the NEWS

• In individuals 65 and over ... “short term exposure to PM 2.5 increases the risk for (immediate) hospital admissions from cardiovascular and respiratory diseases”

  • ... “the leading hypotheses emphasize inflammatory responses in the lung”... and cardiovascular system.

PM 2.5 Kills ELDERLY

PM 2.5

- Easily creeps indoors (80%)
- Reaches business portion of the lung
- Causing premature DEATH

Kills YOUNG

PM 2.5 and Ozone

capture but
**CARS vs TREES**

Annually an adult absorbs 26,000 miles of produced carbon.

**TREES vs ASTHMA**

Decrease Asthma Incidence in Children

Let Older Folks Live Longer

Save Health-Care Dollars

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**BLACK INK**

Mecklenburg County calculated that based on the 53% tree coverage of its territory (2001 data):

- **$1.8 BILLION** were not needed in infrastructure investments to manage runoff.
- **$43.8 MILLION** value in terms of air pollution removal.

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**Tall TREES provide Shade**

- In parking lots with trees - shaded place are preferred in the summer to park cars.
- Tall trees can shade a house sufficiently to save **15 - 35%** on AC costs during the summer.

Bottom line: Cost savings for the home owner.

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**TREES as Wind-Breakers**

- Strategically placed trees can reduce the exposure to cold winter winds and thus decrease heating costs in the winter **10 - 20%**.

Bottom line: Cost savings to the home owner.
**Construction Cost Comparison**

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<thead>
<tr>
<th></th>
<th>Conventional</th>
<th>Low Impact</th>
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</thead>
<tbody>
<tr>
<td>Total Development</td>
<td>$1,086,277</td>
<td>$744,663</td>
</tr>
<tr>
<td>(–31%)</td>
<td></td>
<td></td>
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<tr>
<td>Unit Cost</td>
<td>$14,679</td>
<td>$9,193</td>
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<tr>
<td>(–37%)</td>
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<td></td>
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<tr>
<td>Lot Yield</td>
<td>74</td>
<td>81</td>
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<td>(+ 9%)</td>
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</table>

**TREE - Aesthetics**

- Trees increase the beauty of the landscape and thus increase property value ~20%
- Bottom line: A nicer looking property increases in value - a benefit to the homeowner

**The absence of trees is no longer just an aesthetic problem or a problem of habitat loss for some critter.**

**The absence of trees is a problem of our Health and our Economics.**

*Thank you.*

*James M. Kenney, M.D.*

*Ulrich Aigner, M.D.*

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Trees reduce energy cost
Trees clean air and water
Trees improve human health

during 50 years, the
creates
$30,000 worth of oxygen
$35,000 worth of clean water
$60,000 worth of air-pollution removal

References and Resources
- Center for Disease Control (CDC data)
- Hubbell, BJ et al., Jan. 2005 "Health-Related Benefits of Obtaining the 8-hr Ozone Standard." Environmental Health Perspectives, 113(1), 73-81
- Phytoremediation sites
  www.flasq.state.fl.us/HSRC/phytorem
- Technology resources
  www.fleetlink.org
- Center for Urban Research
  www.conservatonland.org
- Wetland not Wasteland
  www.senic.org
- The American Greenways Program
  www.conservationfund.org
- JAMA, 2005;294:3003-3010 (pm2.5 and CHD)

& MORE INFORMATION
- NC Urban Forest Council
  P.O.Box 25852 Winston Salem, NC 27114-5852
  www.NCUFG.org
- NC Forest Stewardship Program
  Division of Forest Resources
  1616 MSC, Raleigh, NC 27699-1616
- NC Dep. of Environment and Natural Resources
- NC Forest Service
- US Forest Service, Dep. of Agriculture

& MORE INFORMATION
- Placing a Value on Trees, Tree City USA Bulletin, No. 28, Nat. Arbor Day Found.
- EPA, Cost Benefit Analysis of the clean Air Act for the period of 1970 - 1990

GREENVILLE
Citizens can determine themselves how to best employ trees in the effort to protect their young and elderly from air - and water pollution

Enabling Legislation obtained June 06
Tree Ordinance passed 03.08.2007