

Session 59

Jeff Caster

FL. Dept. of Transportation

Reforestation of DOT Right-of-Way

Topic Description

FDOT is allocating more than \$30 million each year for beautification programs. A new direction for the program increases emphasis on conservation rather than decoration. Even a child knows that trees are important to clean water and clean air.

Speaker Biography

Born in the Garden State

Celebrating 29 years of good fortune... to live in La Florida, land of flowers

Life long conservationist

Florida Registered Landscape Architect

Florida Department of Transportation, Since 1993

Present position: State Transportation Landscape Architect

Adjunct Assistant Professor of Landscape Architecture

Florida A&M University, School of Architecture
Since 1997

Immediate Past President, Florida Chapter, American Society of Landscape Architects

BS, Community Development, Purdue University

BS, Landscape Design, Florida A&M University

Master of Landscape Architecture, Cornell University

Two roads diverged in a wood, and I-
I took the one less traveled by,
And that has made all the difference.

Robert Frost

Constitution of the State of Florida, Article II, Section 7

- Natural resources and scenic beauty...
 - (a) It shall be the policy of the state to conserve and protect its natural resources and scenic beauty.



Section 334.044 (26) Florida Statutes

- The department shall have the powers and duties to provide for the conservation of natural roadside growth and scenery and for the implementation and maintenance of roadside beautification programs. To accomplish this, ... **no less than 1.5% of the amount contracted for construction projects shall be allocated by the department to beautification programs.**



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FDOT Highway Beautification Program

- Since 1998 passage of the Section 334.044 (26) Florida Statutes, FDOT has spent **\$150 million**.
 - FDOT and local governments are struggling with the weight of landscape maintenance.
- Over the next 20 years, FDOT will spend more than **\$500,000,000.00** (five hundred million)

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1.5% for *conservation* of natural roadside growth and scenery

- Many **think** highway beautification is *not* an important program.
- Many **believe** that every dollar spent on highway beautification, is one less dollar that is available for *more* important programs.
- Conservation of natural resources and scenic beauty is important to *everyone*, whether they acknowledge it or not.

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Florida's Rain Forest



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I have a dream

The Nobel Peace Prize 1964



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12,000 miles... 186,121 acres...
20 years... \$500,000,000.00

- The 1.5% is **not** a problem.
- It is an opportunity for the people of the agency to do something great for the citizens and visitors of the Florida.
- Florida has **the most beautiful highways in the nation**; highways that are carefully woven into Florida's landscape; highways that *are in harmony with the community, that preserve environmental, scenic, aesthetic, historic, and natural resource values of the area.*

• Taking the High Road, AASHTO

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**What can be accomplished with
12,000 miles, 186,000 acres,
20 years, and \$500,000,000?**

Prepared by FDOT Roadside Beautification
Task Team Summer 2004

- Florida can have the most beautiful highways in the nation.
- Florida highways can be safe and durable, while being ecologically and economically sustainable.
- Florida can increase the return on its investment in roadside beautification.

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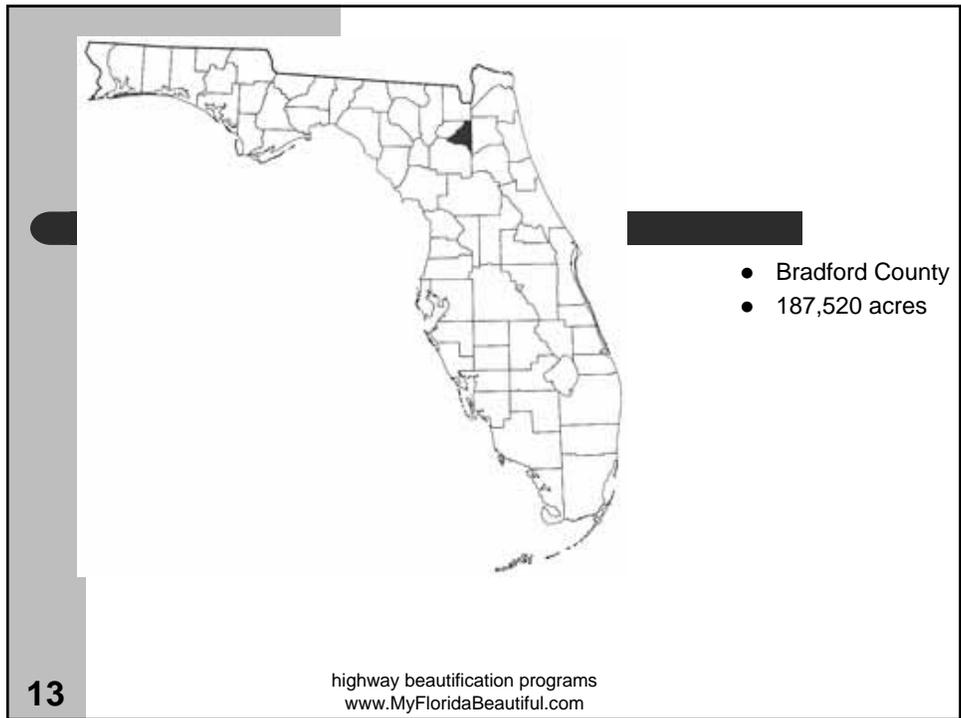
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FDOT Highway Beautification Program

- 12,000 miles of state highway
- 186,121 acres of right of way
 - 34,721,280 acres land area in Florida (nearly 35 million acres)
 - .536% (one half of one percent) of Florida land area
 - 1415 acres at UCF Main Campus, Orlando
 - 2000 acres at UF Main Campus, Gainesville
 - 463 acres at FSU Main Campus, Tallahassee
 - 153,600 acres in Union County
 - 168,960 acres in Pinellas County
 - 187,520 acres in Bradford County
 - 429,440 acres in Leon County
 - 564,000 acres in Apalachicola National Forest
 - 389,000 acres in Ocala National Forest

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What can be accomplished?

- 12,000 miles
- 186,000 acres
- 20 years
- \$500 million (\$2688/acre)

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The slide features a title 'What can be accomplished?' in a bold, black font, centered at the top. Below the title is a thick black horizontal bar. Underneath the bar is a bulleted list with four items: '12,000 miles', '186,000 acres', '20 years', and '\$500 million (\$2688/acre)'. The number '14' is in the bottom-left corner, and the text 'highway beautification programs www.MyFloridaBeautiful.com' is at the bottom center.

With \$25+ million/year

- Florida can have the most beautiful highways in the nation
- FDOT can
 - make roads safer
 - make roads more pedestrian and bicycle friendly
 - reduce maintenance costs
 - reduce landscape construction costs
 - reduce storm-water runoff
 - increase habitat and habitat connectivity
 - increase sense of place
 - Increase quality and value
 - increase return on investment
 - improve the experience of travel
 - improve relationship with neighbors... *world peace*

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Wangari Maathai

born 1940, Kenya



The Nobel Peace Prize 2004

"for her contribution to sustainable development, democracy and peace. ... she has mobilized poor women to plant 30 million trees "



"The environment is very important in the aspects of peace because when we destroy our resources, and our resources become scarce, we fight over that," she said, starting to cry.

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In a nutshell

- Increase emphasis on conservation. *Naturally beautiful highways*
- Integrate beautification (beauty) into department processes and programs. *Make beauty everyone's business.*
- *More than just plants*



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Stormwater ponds are beautiful!
Stormwater ponds are beautiful!
Stormwater ponds are beautiful!

- quality open space can be a real, functioning value in a community.
- ponds can perform their design function, and be beautiful, with public fountains, reflecting pools, and re-circulating cascades.... or mimic natural function and character
- fences and plants that screen ponds, convey that the ponds are dangerous and

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Trees and Stormwater

- Plants (plant communities); more than decoration
- Put plants to work the way mother nature does
- Reduce runoff coefficient for state highway system
- Reduce peak flows
- Decrease the amount of storage that is needed
- Conserve water, put water back to work sustaining the forest that reclaims and recycles the water
- Reduce erosion
- Improve water quality
- Design systems inclusive of forested right of way
- Conserve land: less water to treat, smaller ponds to build and maintain
- Beauty becomes a byproduct of conservation

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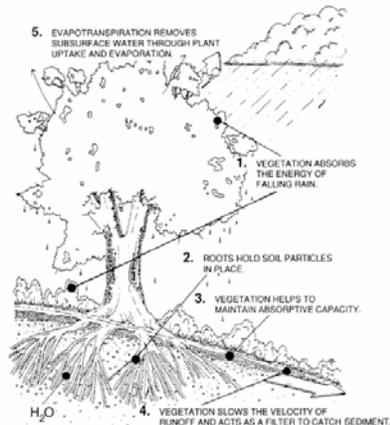
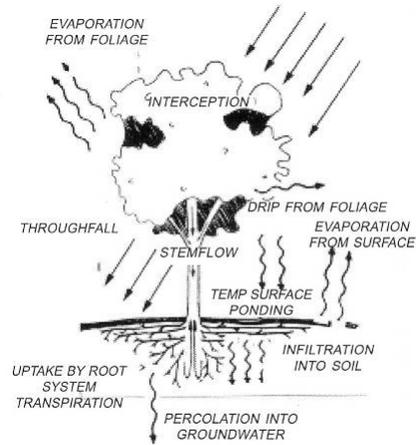
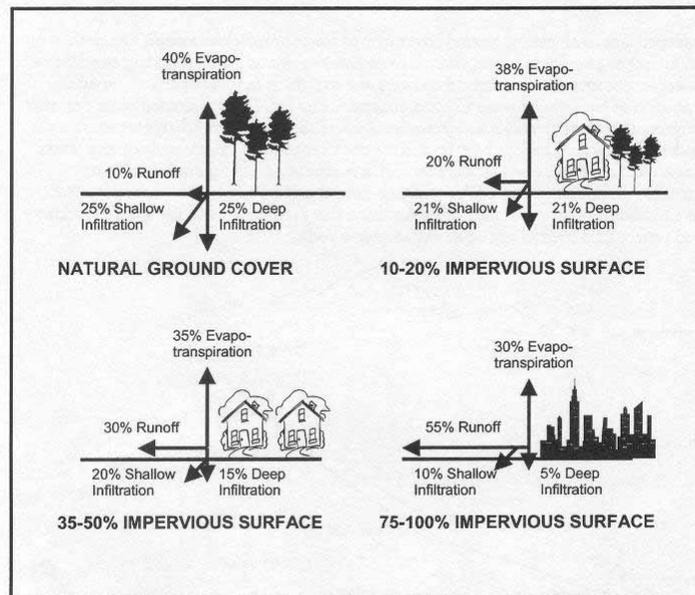


Figure 10: EROSION CONTROL BY VEGETATION COVER



Trees and vegetation can help reduce the runoff problem by decreasing the volume of runoff. Researchers found that evergreens, conifers, and trees in full leaf can intercept up to 36% of the rainfall that hits them. US EPA

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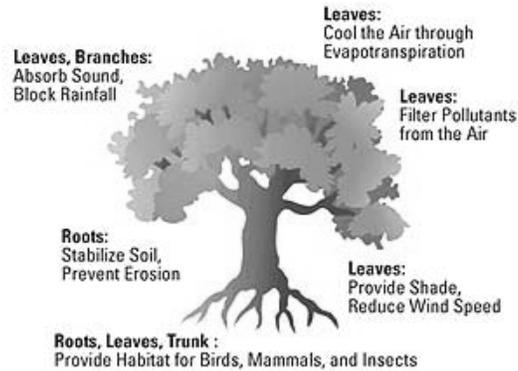
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Nature's Stormwater Managers

Vegetation provides the following benefits:

- Rainfall impact (energy) absorption
- Reduction of runoff volumes and velocities
- Sediment trapping
- Root stabilization of soil

Washington State DOT



US EPA

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Better Roads, June 2006

- *“Landscaping, including soil placement and vegetation, can help reduce the need for expensive engineered runoff removal systems.”* page 18

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Trees and air

- Trees remove nitrogen dioxide (NO2) sulfur dioxide (SO2), carbon monoxide (CO), ozone (O3), and particulate matter 10 microns and less (PM10) in size.
- Evapotranspiration alone can result in peak summer temperature reductions of 2 to 9°F (1° to 5°C).
- A mature tree with a 30-foot crown transpires approximately 40 gallons of water per day.

40/Tallahassee Democrat • Tuesday, April 11, 2006

Especially for kids and their families

The Mini Page

More About Flowering Trees

Most fruit trees, such as this peach tree in Georgia, have big, beautiful flowers.

Flowers without fruit
Have you noticed that many trees with big, bright flowers don't have fruit? Often, people want it that way. Falling fruit can make a mess, so it can hit people on the head. Fruit trees can attract bees and wasps. People have come up with many ways to stop trees from bearing fruit.

Growers have developed varieties of trees with much smaller fruit. In some Bradford pear trees, for example, the fruit might be the size of a pea.

Sometimes growers have worked for hundreds of years to create tree varieties that no longer produce fruit. Tree growers usually plant only female or male trees in an area, so they cannot be pollinated.

Sometimes people spray chemicals on trees so they don't produce fruit.

Fruits
Trees need a way to spread their seeds. One way they do this is to grow a fruit that encloses their seeds. Animals carry away the fruit. Or animals eat the fruit and the seeds pass through their bodies.

The sugary food in juicy fruits, such as apples and oranges, helps new seeds get a good start.

Not all fruit is sweet and juicy. A nut is actually a dry fruit with a hard, dry fruit hull around the seed.

The cherry blossoms in Washington, D.C., are a big tourist attraction. These trees have been bred so that they rarely produce fruit.

Helping the environment
Flowering trees, like other trees, help the environment and the economy in many ways. Trees:

- create beauty;
- attract tourists who want to see the beauty;
- shade and cool;
- help keep waterways clean;
- make food for people and animals;
- provide shelter for birds and insects;
- produce oxygen;
- provide fuel.

Flowering trees, such as this apple tree, also help the environment by providing food or nectar, which bees use to make honey. Bees help trees by carrying their pollen from tree to tree.

The Mini Page thanks Robert Smith, director, National Arbor Day Foundation, for help with this issue.

Site to see: www.arborday.org/kids

Look through your newspaper for ads and pictures about spring.

Next week The Mini Page is about the Bill of Rights.

The Mini Page is created and edited by Betty DeBorja.

Associate Editors: Tall Denton, Wendy Dabry, Lucy Lee.

**“I am the Lorax. I speak for the trees.
I speak for the trees, for the trees have no
tongues.**

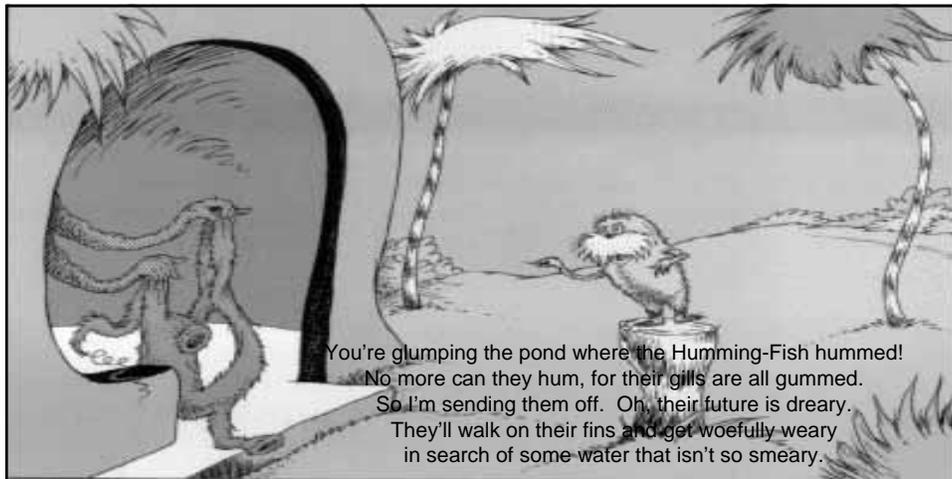
**UNLESS someone like you
cares a whole awful lot,
nothing is going to get better.
It's not.”**

The Lorax by Dr. Suess



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You're glumping the pond where the Humming-Fish hummed!
No more can they hum, for their gills are all gummed.
So I'm sending them off. Oh, their future is dreary.
They'll walk on their fins and get woefully weary
in search of some water that isn't so smeary.

And at that very moment, we heard a loud whack!
From outside in the fields came a sickening smack
of an axe on a tree. Then we heard the tree fall.
The very last Truffula Tree of them all!

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Measuring the value of nature... green data, clean water, clean air

- March 2005, City of Jacksonville completes American Forests Urban Ecosystem Analysis www.americanforests.org
 - City lost 12.4% (29,000 acres) of its tree cover over last decade
 - Development increased 16.4%
 - Fifty six million cubic feet of stormwater storage capacity was lost due to tree canopy decline, valued at \$113 million/year
 - Within beltway, there 32% canopy cover remains
 - Southeast portion, canopy 10% remains
 - Recommended goal is 40%; less in urban core, more adjacent to rivers and streams
 - Population to increase 35% from 1990-2020
 - Urban forest stores 8.8 million tons of carbon
 - Tree canopy removes air pollutants, a value estimated at \$48.5 million/year, a reduction of \$6.8 million/year since 1992
 - Nine out of ten water quality contaminants worsen when trees are removed

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Trees and money

- Increased development in Jax (1992-2002) resulted in
 - need to increase stormwater retention by 41 million cubic feet at an estimated construction cost of \$82 million
 - Lost ability to remove 2.8 million pounds of air pollutants valued at \$6.8 million per year
 - home values are higher on tree-lined streets

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Trees and Tsunamis

- Areas hit by the most damaging waves (of the December 26, 2004 event) were not protected.
- Analytical models suggest that 30 trees per 120 square yards in a 109 yard wide belt would reduce the maximum tsunami impact by *more than 90 percent*.
- Sustainable use and management of coastal wetlands should be a focus in an effort to protect people against not only tsunamis, but also hurricanes and storms.

Finn Danielsen at the Copenhagen based Nordic Agency for Development and Ecology

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2005 Florida Transportation Plan December 16, 2005 Prepublication edition

- New Development is consuming land and resources faster than the rate of population growth.
- Success will be determined by how well Florida ensures that the transportation system ... is implemented in an environmentally responsible manner.
- ... include strategies to decrease greenhouse gases and other pollutants
- ... accommodate the human scale, including pedestrian, bicycle, transit oriented, and other community enhancing features...
- Plan, design, and construct transportation facilities in a manner that preserves and... restores the function and character of the natural environment...

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2006 SAFETEA-LU Modifications to National Highway System, Section 103(b)(6) of title 23, US Code

- ...establishment of plants ...to perform one or more of the following functions: abatement of stormwater runoff, stabilization of soil, and aesthetic enhancement.

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We have work to do

- The future environment will be what **we** make it; by design or by mistake



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How can the dream become reality?



- **Commitment...** Through adoption of new Highway Beautification Policy, clarify program goals and objectives.
- **Program Delivery...** With an interdisciplinary team (a steering committee) from functional areas:
 - Establish a plan with vision, scope, and expectations. Determine what we want the roadsides to look like, and what can be accomplished
 - Establish work program funding targets to meet goals and objectives.
 - Study the safety program as a program delivery model.
 - Identify efficiencies and deficiencies in delivery of beautification programs.
 - Revise department statutes, policies, procedures, practices as needed to implement policy and achieve goals and objectives.
 - Monitor program expenditures. Prepare annual report on what has been accomplished, and what needs to be accomplished.

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Now!

Highway Beautification Task Team

- | | |
|------------------|--|
| • Central Office | Ananth Prasad, Tim Lattner, Brian Blanchard,
Kenneth Towcimak, David O'Hagen,
William Nickas, Kathy Kuester, |
| • District One | Stan Cann |
| • District Two | Bill Henderson |
| • District Three | Jimmy Rodgers |
| • District Four | Paul Lampley |
| • District Five | Noranne Downs |
| • District Six | Gus Pego |
| • District Seven | Dwayne Kile |
| • Turnpike | Nancy Clements |

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The Nobel Peace Prize 1998



“One person can make a difference, everyone should try.”

John Hume,
Peace Maker
Northern Ireland

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