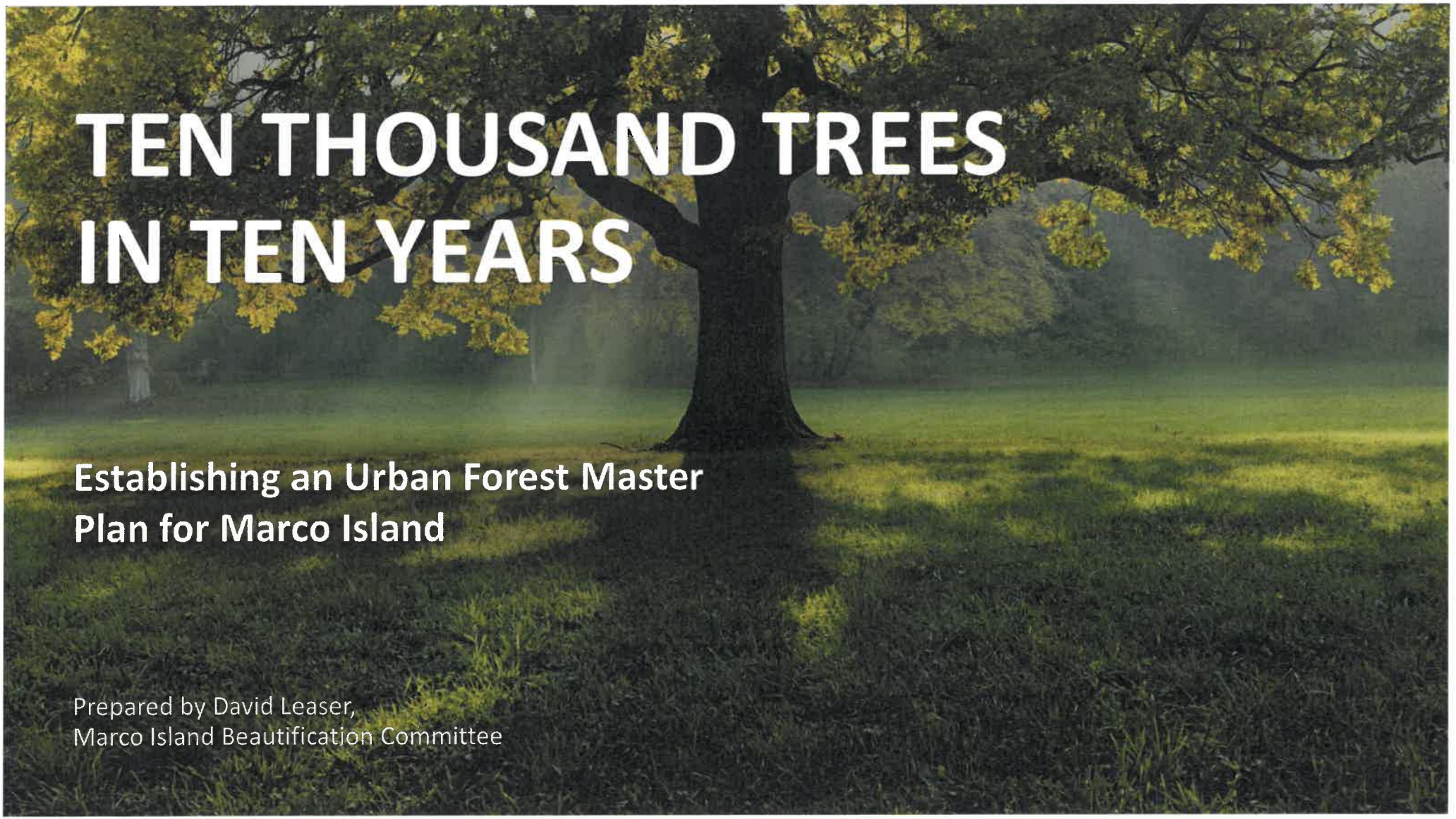


TEN THOUSAND TREES IN TEN YEARS

Establishing an Urban Forest Master Plan for Marco Island

Prepared by David Leaser,
Marco Island Beautification Committee

VISION

Establish an Urban Forest Master Plan for Marco Island

Marco Island's trees are a vital part of our green infrastructure that provides economic and environmental benefits. We must establish best practices in tree planting, preservation, and maintenance and foster a sense of stewardship among our residents.

TREES INCREASE OUR SAFETY

Reduce traffic speeds by up to 15 mph (Ewing)

Create **safer sidewalk walking** environments (Walkable)

Reduce **road rage** (Sung)

Lengthen pavement life by 40% to 60% (Gardner)

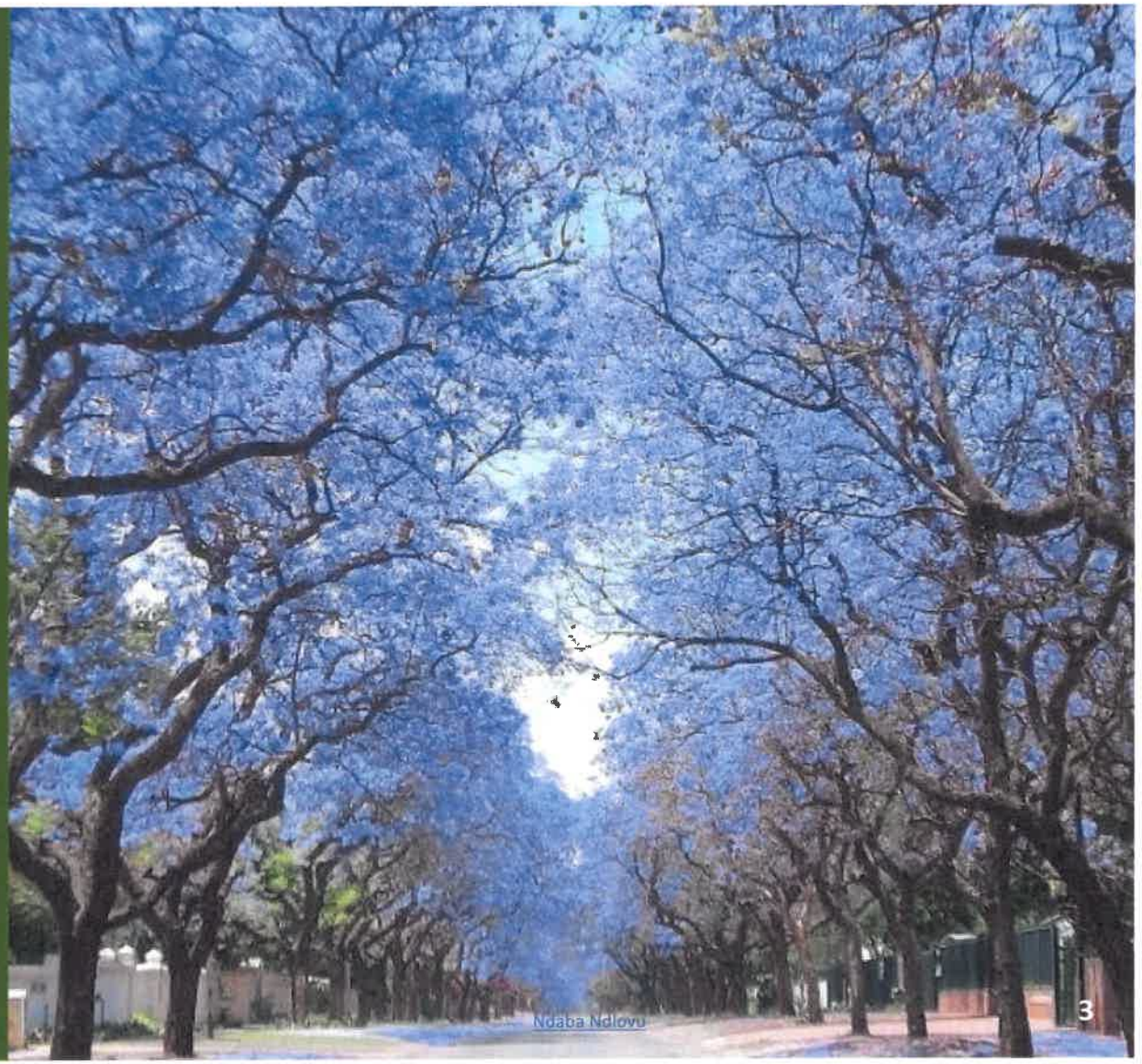
TREES GENERATE VALUE

$90,000 of direct benefits for every tree (Burden)

12% higher income streams for businesses (Wolf)

15% increase in home or business value. (Wolf)

50% reduction in air conditioning costs (Burden)



TREES PROTECT THE ENVIRONMENT

Prevent soil erosion by slowing runoff and hold soil in place (Burden)

Prevent water pollution by 30% allowing water to flow down the trunk into the earth (Burden)

Reduce CO^2 the equivalent of 26,000 car miles, per one acre of trees (Tree People)

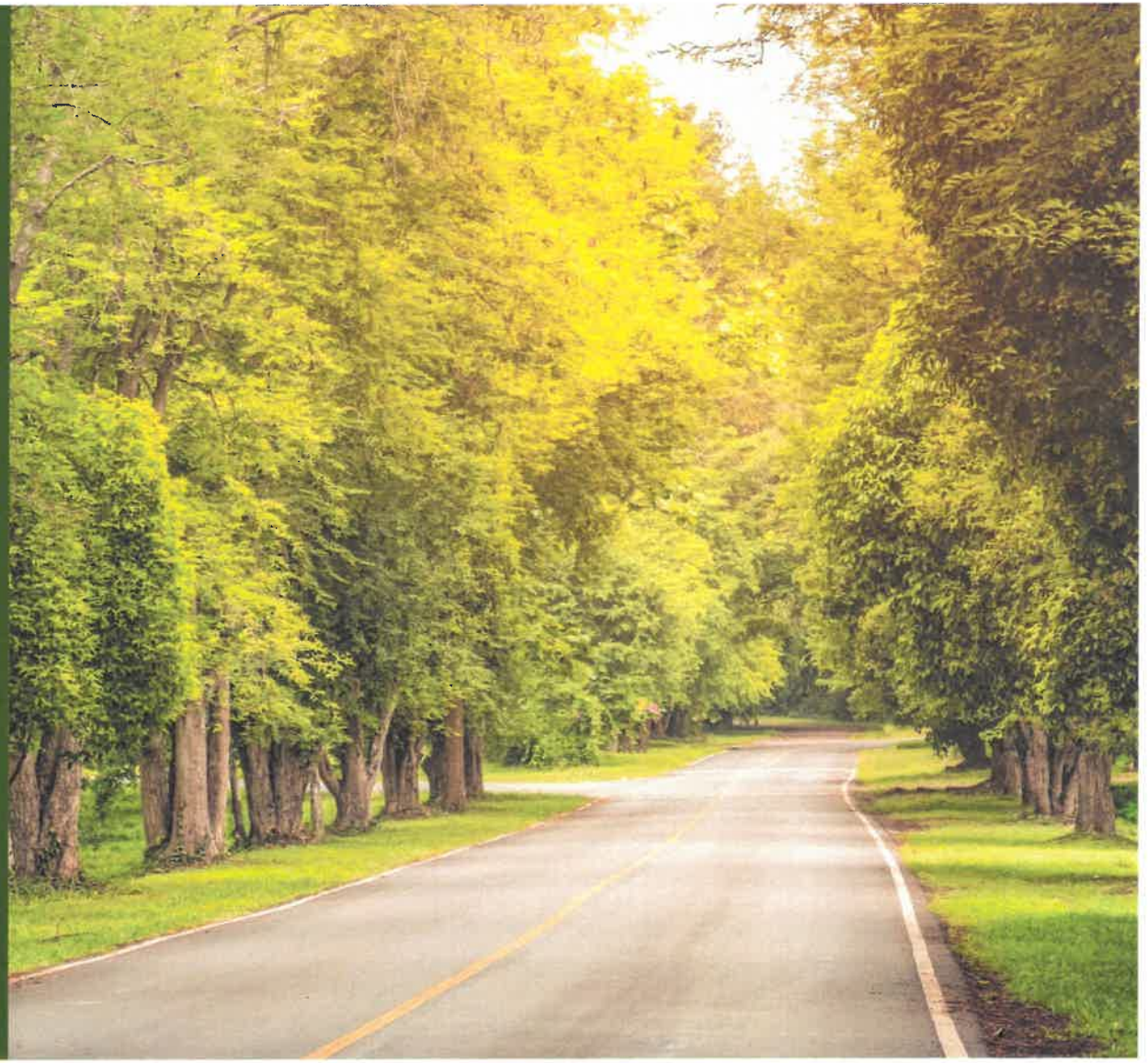
TREES IMPROVE OUR HEALTH

5 to 15-degree temperature reduction (EPA)

Increase wildlife and **natural pest control** (Tree People)

50% reduction in UV-B radiation (Tree People)

Oxygen for 18 people, per one acre of trees (Tree People)



TREES ENHANCE WELL BEING

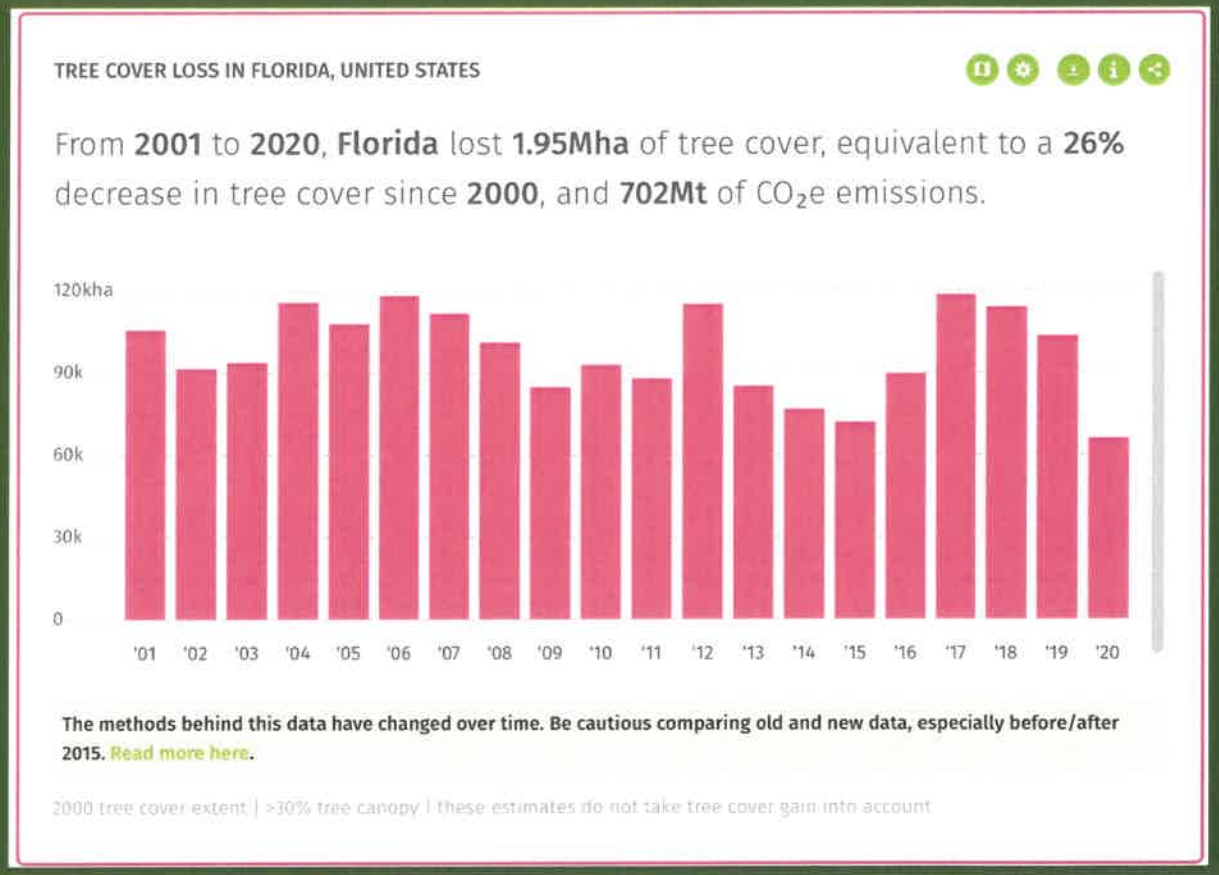
ADHD and stress reduction in adults and children (abstract)

31% lower odds of developing **psychological distress** (PubMed)

33% lower odds of rating general health as "fair" or "poor" (PubMed)

PROBLEM

Florida has lost 26% of its tree coverage since 2000



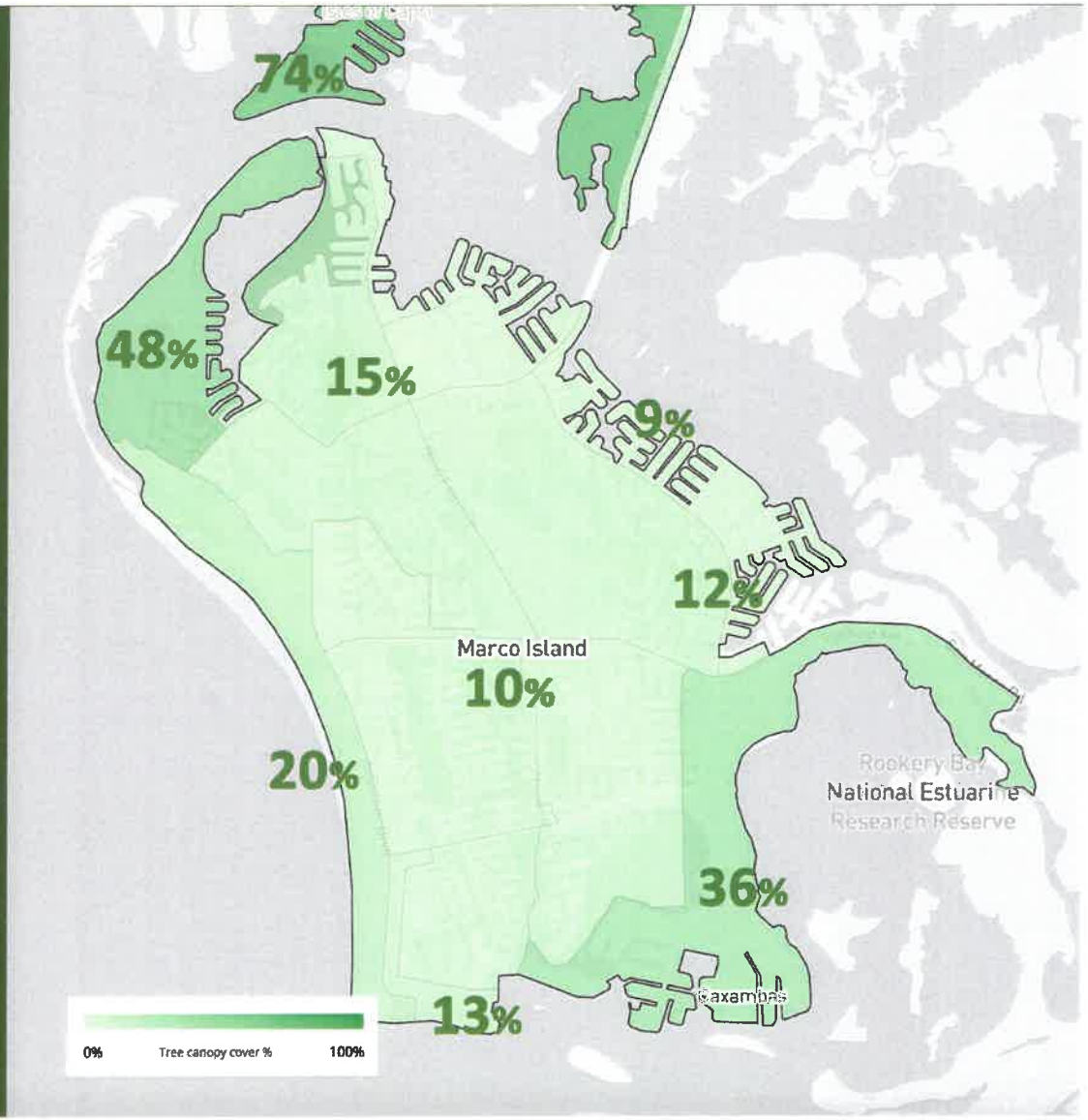
Global Forest Watch

Collier had the most tree cover at 309kha compared to an average of 107kha

PROBLEM

Marco Island's tree density is extremely low

The national average is 27%.



PROBLEM

Many of Marco Island's arterials and surface streets have not been planted

Concept: Flowering Trees on Sunbird Ave.

Before

After

Concept: Royal palms on Tahiti Ct.

Before

After

Concept: Coconut palms on Tahiti Ct.

Before

After

Concept: Royal palms on Partridge Ct.

Before

After

Concept: Tamarinds on Bayport

Before

After

VALUE

Ten thousand trees will dramatically reduce CO2, runoff and electricity demand on Marco Island

Palm (Royal Palm)

SAVINGS PER 10K TREES

12,210,000	**CO2 Avoided** (pounds)	90,000,000
90,000,000	**CO2 Sequestered** (pounds)	340,000,000
23,000,000	**Electric Energy Saved** (kWh)	70,000,000
2,150,000,000	**Rainfall Interception** (gallons)	1,190,000,000
190,000,000	**Avoided Runoff** (gallons)	110,000,000

Broadleaf Tree (Magnolia)

Estimates are from i-Tree planting data, showing value over the 40-year life of a tree with a 10% mortality rate

VALUE

It doesn't take many trees to make a difference

TWO ROYAL PALMS INTERCEPT THE RUNOFF OF AN ENTIRE POOL IN A SINGLE YEAR

FOUR MAGNOLIAS OFFSET THE CO2 OF AN AVERAGE CAR IN A SINGLE YEAR

Estimates are from i-Tree planting data, showing value over the 40-year life of a tree with a 10% mortality rate. One palm reduces 5,850 gallons per year in rainfall interception and runoff avoidance. Average car CO2 per year is 4,830 pounds per year in Florida, so 4 magnolias (at 1,075 pounds each) can sequester the CO2 of a car every year

ACTION PLAN

Ten thousand trees in ten years!

Assess our current state

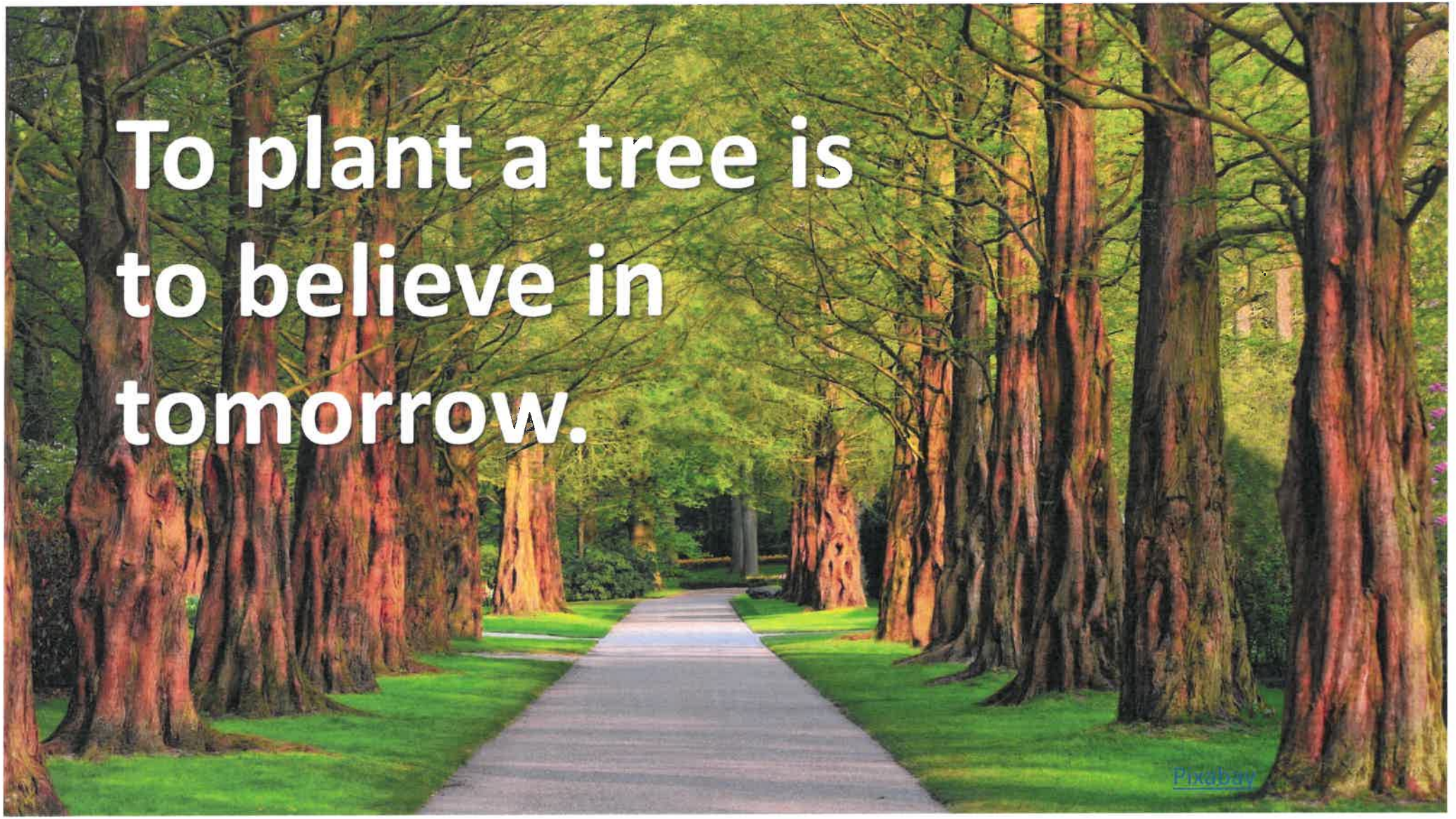
Establish an inventory of street trees and identified gaps in arterials and surface streets

Develop a master plan

Establish a master plan for the island's streets and green spaces, including programs and policies to encourage planting

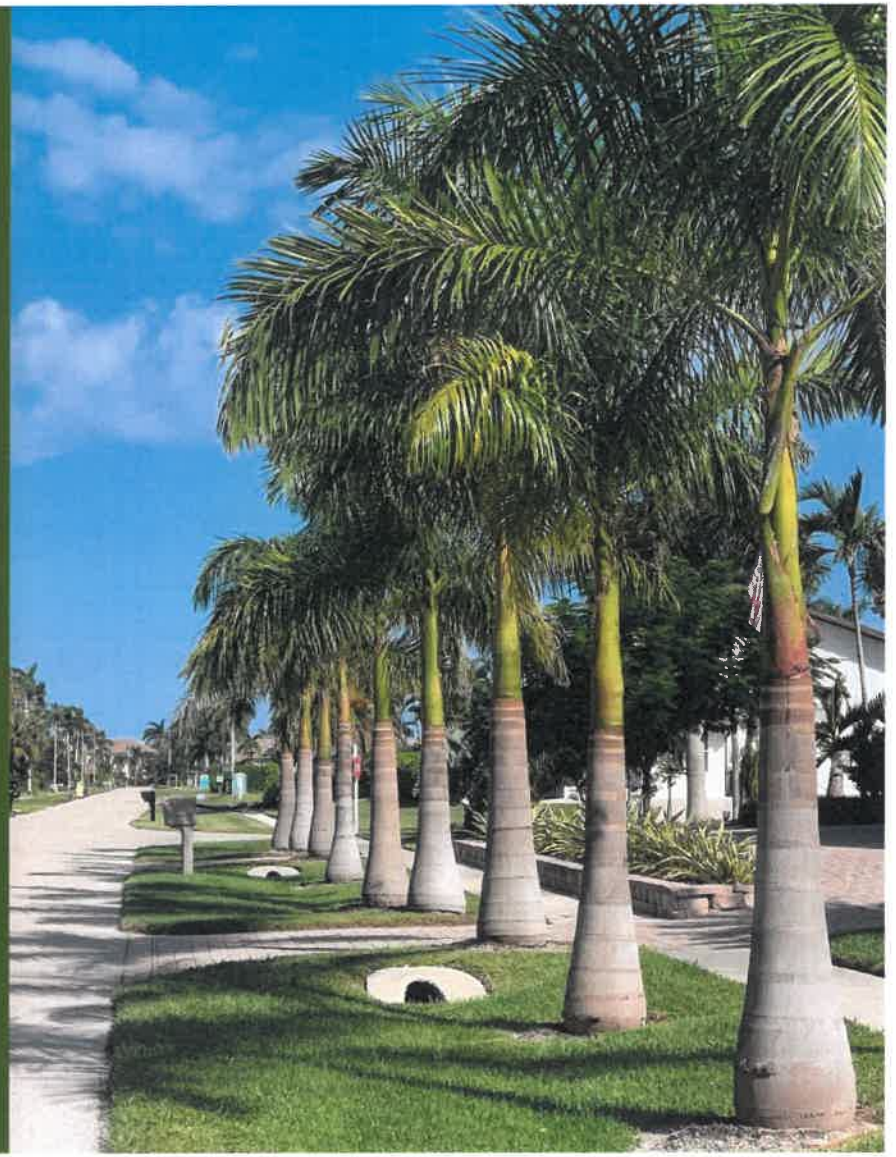
Execute the plan

Complete arterial tree planting, plant side streets, educate builders & community on tree planting, seek funding


To plant a tree is
to believe in
tomorrow.
Pixabay

Thank You

For more information: David Leaser
david.leaser@gmail.com



REFERENCE

Recommended trees for Marco Island

Highest Wind Resistance
Dicots
Bursera simaruba, gumbo limbo
Carya Floridana, Florida scrub hickory
Conocarpus erectus, buttonwood
Chrysobalanus icaco, cocoplum
Cordia sebestena, geiger tree
Eugenia axillaris, white stopper
Eugenia confusa, redberry
Eugenia foetida, boxleaf stopper
Guaiacum sanctum, lignum vitae
Ilex cassine, dahoon holly
Krugiodendrum ferreum, ironwood
Lagerstroemia indica, crape myrtle
Magnolia grandiflora, southern magnolia
Podocarpus spp, *podocarpus Quercus virginiana*, live oak
Quercus geminata, sand live oak
Conifers
Taxodium ascendens, pondcypress
Taxodium distichum, baldcypress

Medium–High Wind Resistance
Dicots
Annona glabra, pond apple
Calophyllum calaba, Brazilian beautyleaf[c]
Chrysophyllum oliviforme, satinleaf
Coccoloba uvifera, sea grape
Coccoloba diversifolia, pigeon plum
Liquidambar styraciflua, sweetgum
Lysiloma latsiliqua, wild tamarind
Magnolia virginiana, sweetbay magnolia
Nyssa sylvatica, black tupelo
Sideroxylon foetidissimum, mastic
Simarouba glauca, paradise tree
Swietenia mahagoni, mahogany
Conifers
N/A

[a] Prohibited from use in Florida
[b] Invasive and not recommended for use in Florida
[c] Caution: may be used but must be managed to prevent escape in Florida (Fox et al. 2005)
*Wind resistance of tropical and subtropical tree species as estimated utilizing the hurricane measurements and the survey results in this study, and the scientific literature cited throughout this publication.

REFERENCE

Recommended trees for Marco Island

Highest Wind Resistance
Palms
Butia capitata, pindo or jelly *Dypsis lutescens*, areca *Coccothrinax argentata*, Florida silver *Hyophorbe lagenicaulis*, bottle *Hyophorbe verschaffeltii*, spindle *Latania loddigesii*, blue latan *Livistona chinensis*, Chinese fan[b] *Phoenix canariensis*, Canary Island date *Phoenix dactylifera*, date *Phoenix reclinata*, Senegal date[b] *Phoenix roebelenii*, pygmy date *Ptychoesperma elegans*, Alexander *Sabal palmetto*, cabbage, *sabal* *Thrinax morrisii*, key thatch *Thrinax radiata*, Florida thatch *Veitchia merrillii*, Manila
Fruit Trees
N/A

Medium–High Wind Resistance
Palms
Caryota mitis, fishtail *Cocos nucifera*, coconut *Dypsis decaryi*, triangle *Roystonea elata*, royal
Fruit Trees
Litchi chinensis, lychee

REFERENCE

Recommended trees for Marco Island

Medium–Low Wind Resistance
Dicots
Acer rubrum, red maple
Bauhinia blakeana, Hong-Kong orchid
Bucidas buceras, black olive
Callistemon spp, bottlebrush
Cinnamomum camphora, camphor[b]
Delonix regia, royal poinciana[c]
Enterolobium cyclocarpum, ear tree
Eriobotrya japonica, loquat[c]
Eucalyptus cinerea, silverdollar eucalyptus
Ficus aurea, strangler fig
Kigelia pinnata, sausage tree
Myrica cerifera, wax myrtle
Persea borbonia, redbay *P*
latanus occidentalis, sycamore
Quercus laurifolia, laurel oak
Tabebuia heterophylla, pink trumpet tree
Terminalia catappa, tropical almond[c]
Conifers
Pinus elliottii, slash pine
Pinus palustris, longleaf pine
Palms
N/A
Fruit Trees
Averrhoa carambola, star-fruit, carambola
Citrus spp, oranges, limes, grapefruits
Mangifera indica, mango

Lowest Wind Resistance
Dicots
Casuarina equisetifolia, Australian pine[a]
Cassia fistula, golden shower
Chorisia speciosa, floss-silk tree
Ficus benjamina, weeping banyan
Grevillea robusta, silk oak
Jacaranda mimosifolia, jacaranda
Melaleuca quinquenervia, melaleuca[a]
Quercus nigra, water oak
Peltophorum pterocarpa, yellow poinciana
Prunus caroliniana, Carolina laurelcherry
Sapium sebiferum, Chinese tallow[a]
Spathodea campanulata, African tuliptree
Tabebuia caraiba, silver trumpet tree
Ulmus parvifolia, Chinese elm
Conifers
Araucaria heterophylla, Norfolk Island pine
xCupressocyparis leylandii, Leyland cypress
Juniperus silicicola, southern red cedar
Pinus clausa, sand pine
Palms
Syagnus romanzoffiana, queen palm[c]
Washingtonia robusta, Washington fan
Fruit Trees
Persea americana, avocado

VALUE

A single tree dramatically reduces CO2, runoff and electricity demand on Marco Island

Palm (Royal Palm)

SAVINGS PER TREE*

Palm (Royal Palm)		Broadleaf Tree (Magnolia)
1,221	**CO2 Avoided** (pounds)	9,000
9,000	**CO2 Sequestered** (pounds)	34,000
2,300	**Electric Energy Saved** (kWh)	7,000
215,000	**Rainfall Interception** (gallons)	119,000
19,000	**Avoided Runoff** (gallons)	11,000

Broadleaf Tree (Magnolia)

* Estimates are from i-Tree planting data, showing value over the 40-year life of a tree with a 10% mortality rate