

The background of the slide is a photograph of a tree-lined sidewalk. The sidewalk is made of light-colored concrete slabs and runs from the foreground into the distance. On either side of the sidewalk are mature trees with green foliage. In the background, a street with parked cars and a black trash can is visible. The sky is blue with some light clouds.

Defining Urban Forest Assets: Tree Assessments and Inventories

Dana Karcher

Market Manager – Davey Resource Group

Richard Adkins

Forestry Supervisor - City of Phoenix

Today's Road Trip

- Why?
- Inventory Facts
- Results
- Tools
- Questions

A tree inventory is...

- Data
- Maintenance Tool
- Management Tool
- Research Tool

To Put It Simply...

Why a tree inventory?

- **Location**
- **Operations**
- **Reduce Risk**
- **Plant Trees**
- **Urban Forest Composition**
- **Work Performance**
- **Future Needs**
- **Research**



Timing is Everything

- Deadline
- Planning to be done or revised?
- Resources

Players or Performers

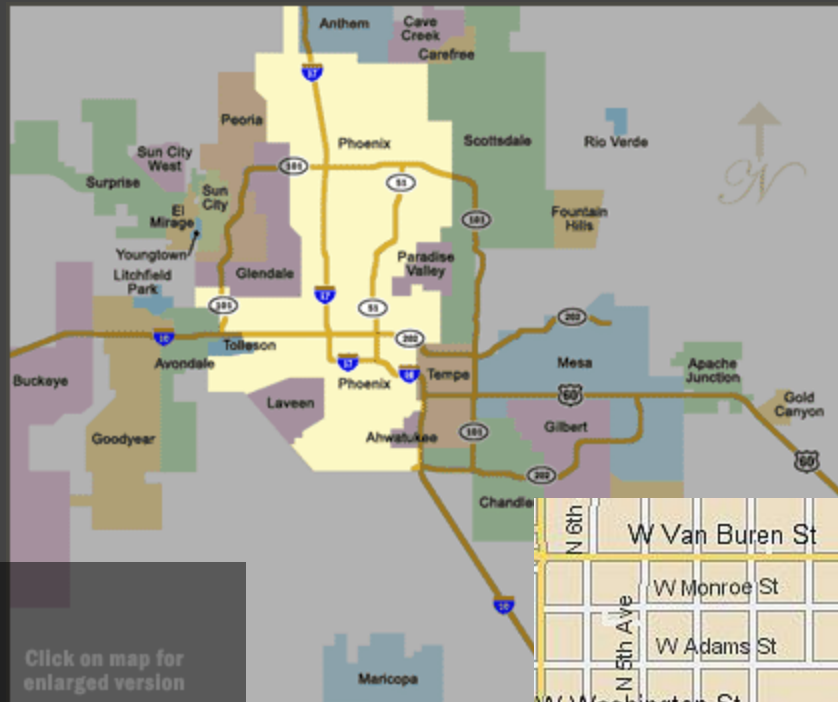
- In-house
- Out-source
- Volunteer
- Drive by
- Techno-arborists



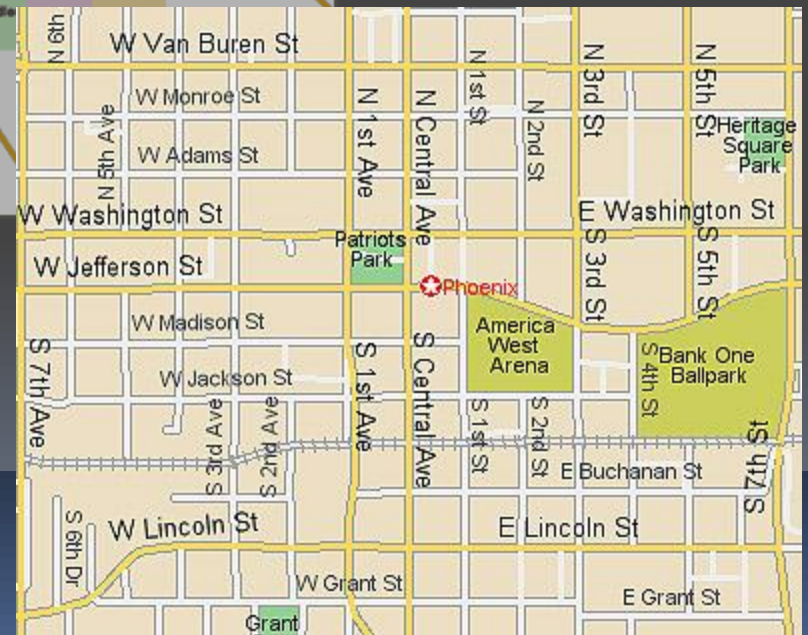
Players or Performers

	Cost	Priority	In-House Resources	Credentials
Volunteers	\$-?	<i>Low</i>	<i>Low to Moderate</i>	<i>Low</i>
In-House Staff	\$\$-?	<i>Low to Moderate</i>	<i>High</i>	<i>Varies</i>
Outsource (Contractor)	\$\$\$	<i>Moderate to High</i>	<i>Low</i>	<i>High</i>

Location, location, location



Click on map for
enlarged version



- Need
- Funding
- Time

What data...



...should be collected?

Features

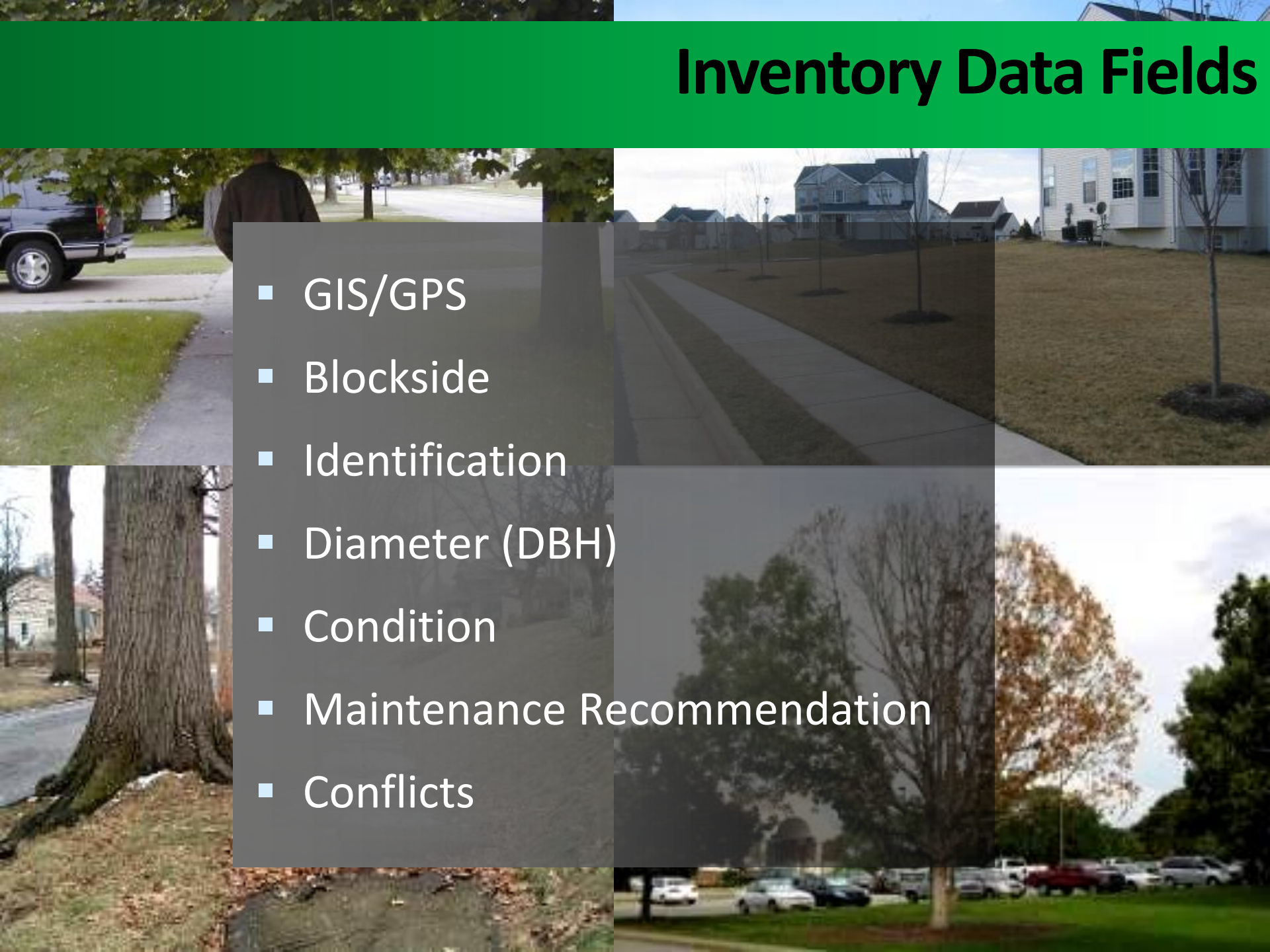


Attributes

Values



Inventory Data Fields

- 
- GIS/GPS
 - Blockside
 - Identification
 - Diameter (DBH)
 - Condition
 - Maintenance Recommendation
 - Conflicts

Individual Tree Attributes

- **Species Botanical:**
Washingtonia filifera
- **Species Common:**
California Fan Palm
- **DBH:** 29 inches
- **Height:** 35 Feet
- **Wood Condition:** Fair
- **Foliage Condition:** Good
- **Maintenance Required:**
Mature Tree - Routine



Individual Tree Attributes

- Grow Space:
Other Maintained
- Removal Recommended: No
- Site Rating: Average
- Placement Rating: Average
- Contribution Ratings: Low
- Comments :
Trunk decay; decay patched
with concrete



Individual Tree Attributes




- Species Botanical: *Pinus halepensis*
- Species Common: Aleppo Pine DBH: 26 inches
- Height: 50
- Wood Condition: Good
- Foliage Condition: Good
- Maintenance Required: Mature Tree - Routine
- Ground: Medium Decomposed Granite

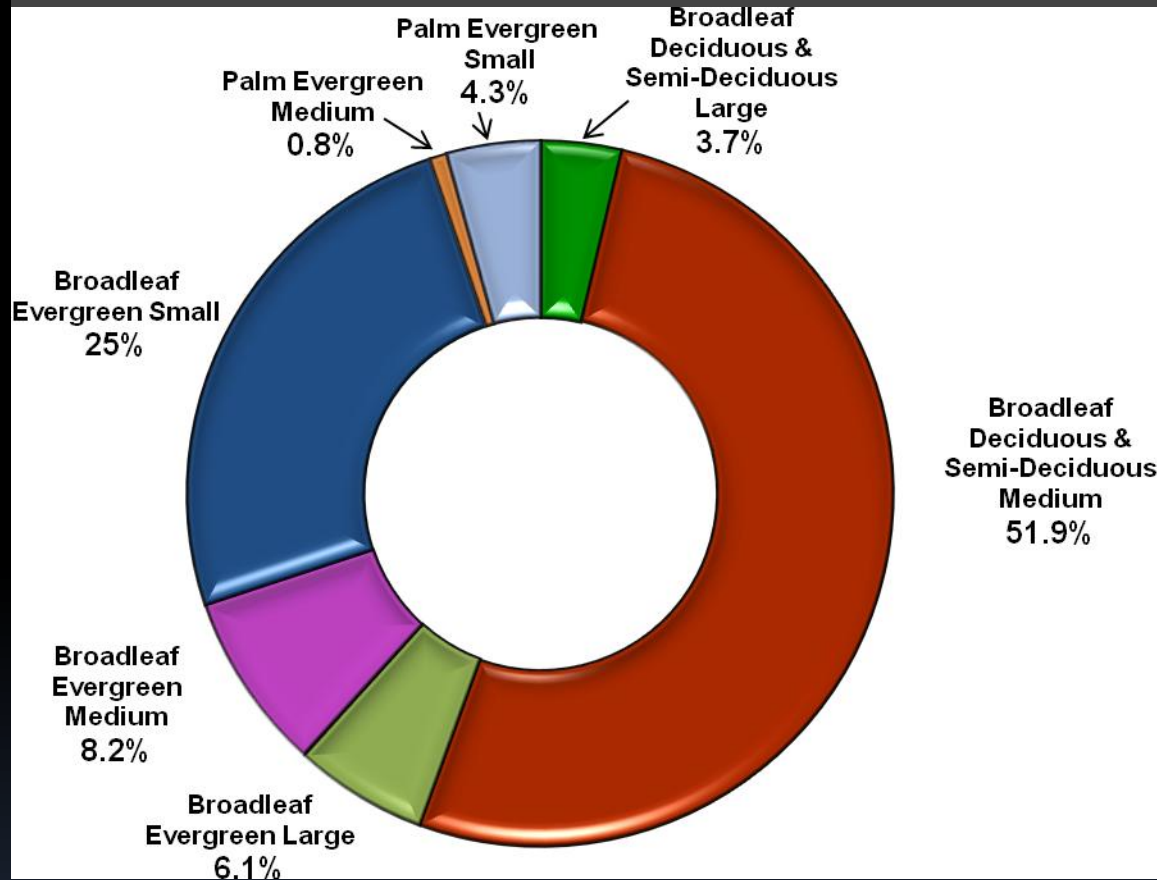
Individual Tree Attributes

- 
- Grow Space: Frontage Road Median
 - Removal Recommended No Removal
 - Site Rating: Average
 - Placement Rating Average
 - Contribution Ratings: Average
 - Comments: Minor deadwood; Minor root

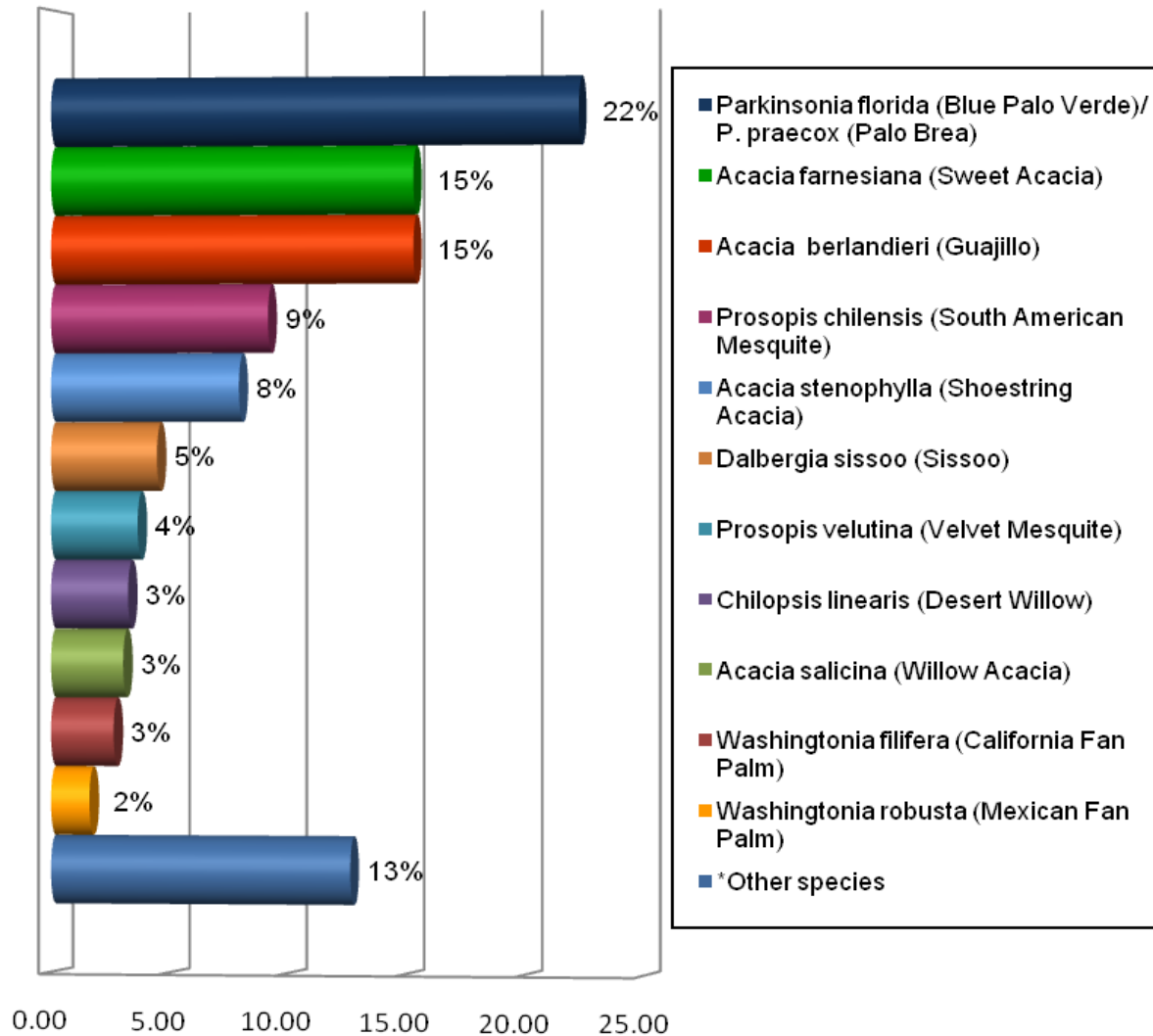
Data Results:

- 
- A photograph of a paved path in a park. The path is made of light-colored concrete or stone tiles and leads into the distance. On the left side of the path, there are several trees with green foliage. A large, dark, rounded rock sits on the right side of the path. The background shows more trees and a clear sky.
- Individual tree locations
 - Tree characteristics
 - Tree condition
 - Recommendations
 - What else?

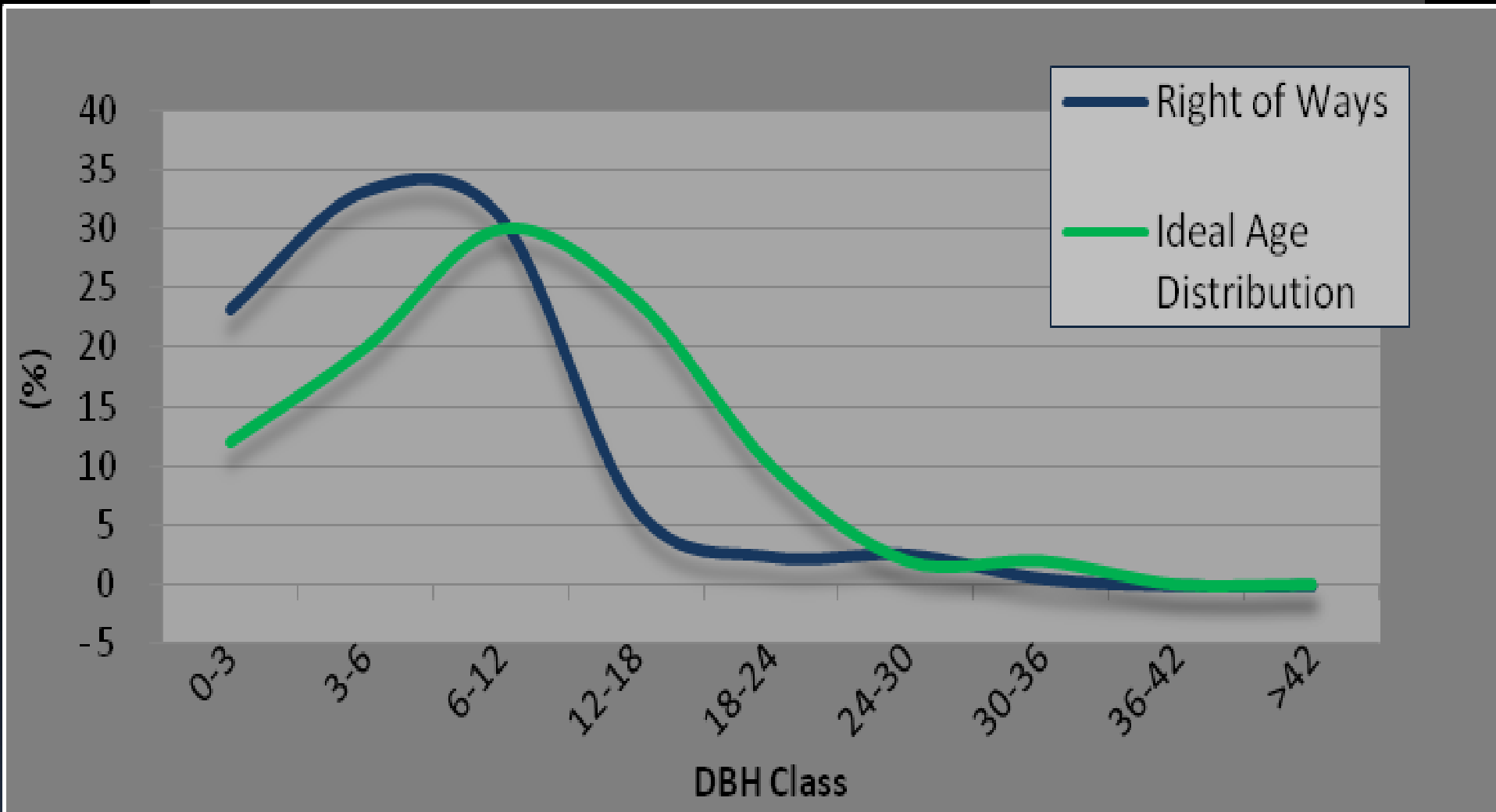
Population Composition



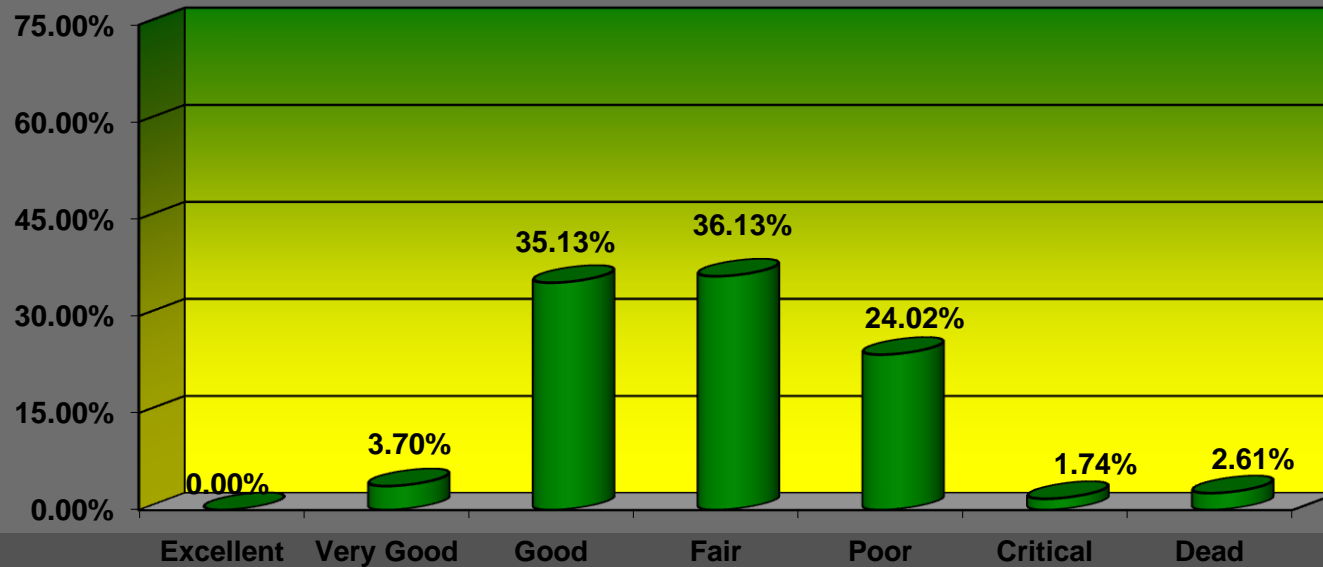
Species Richness



Tree Population

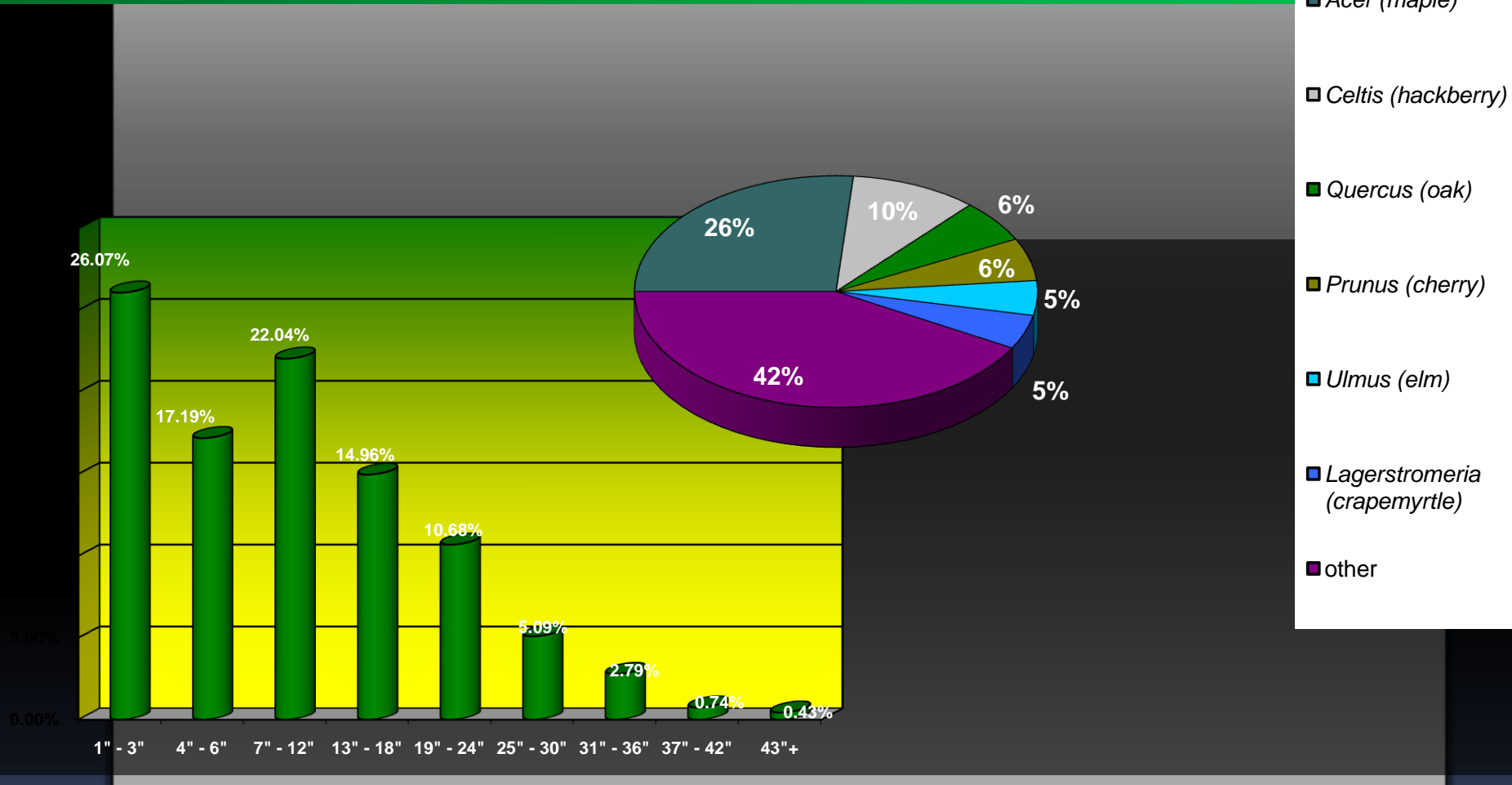


Tree Population



Maintenance	Number of Trees	Percentage
Priority 1 Removal	46	2.86
Priority 2 Removal	67	4.16
Priority 3 Removal	57	3.54
Priority 1 Prune	214	13.28
Priority 2 Prune	212	13.16
Large Tree Routine Prune	409	25.39
Small Tree Routine Prune	263	16.33
Training Prune	343	21.29
Totals	1,611	100

Distribution of Trees by Genus



Percent of Trees by DBH Class



Money does grow on trees.

i-Tree 3.0



Resource Analysis
Determines Direction
Results based
Uses with Stakeholders

i-Tree Streets

Carbon dioxide sequestered

Carbon dioxide stored

Air quality improved

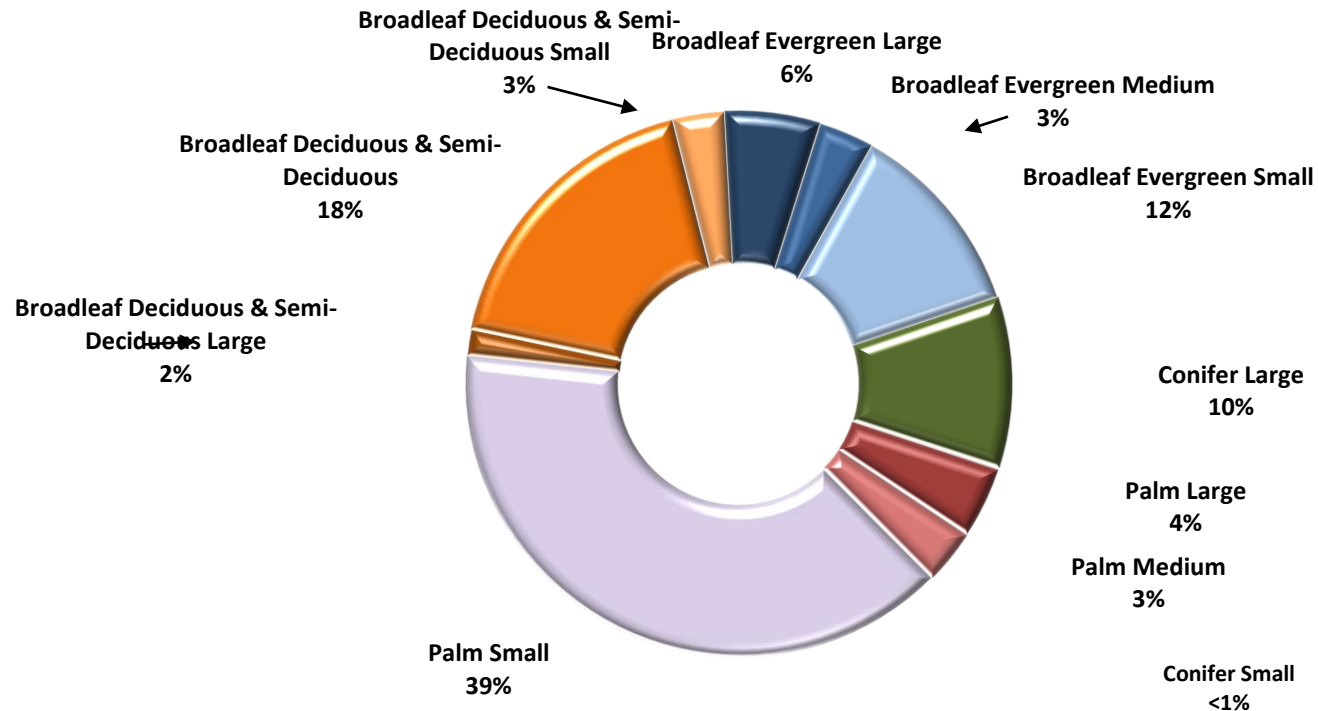
Energy saved

Property value increased

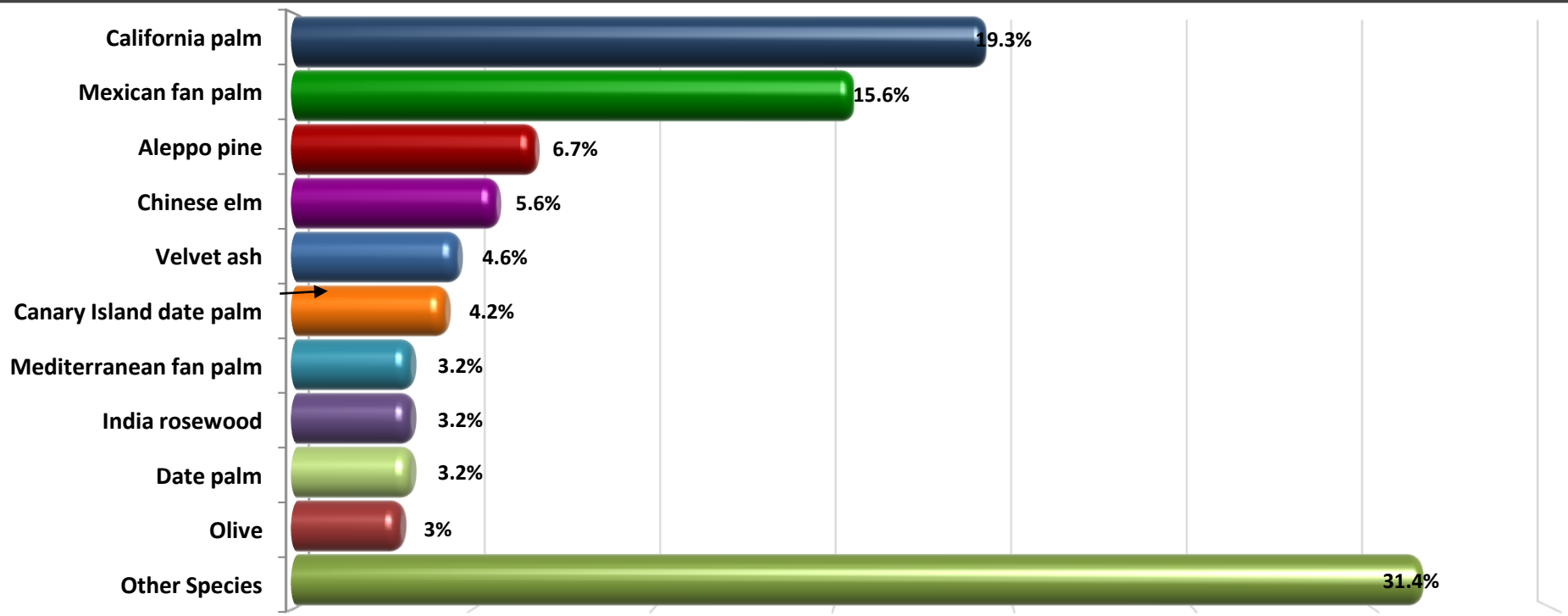
Stormwater



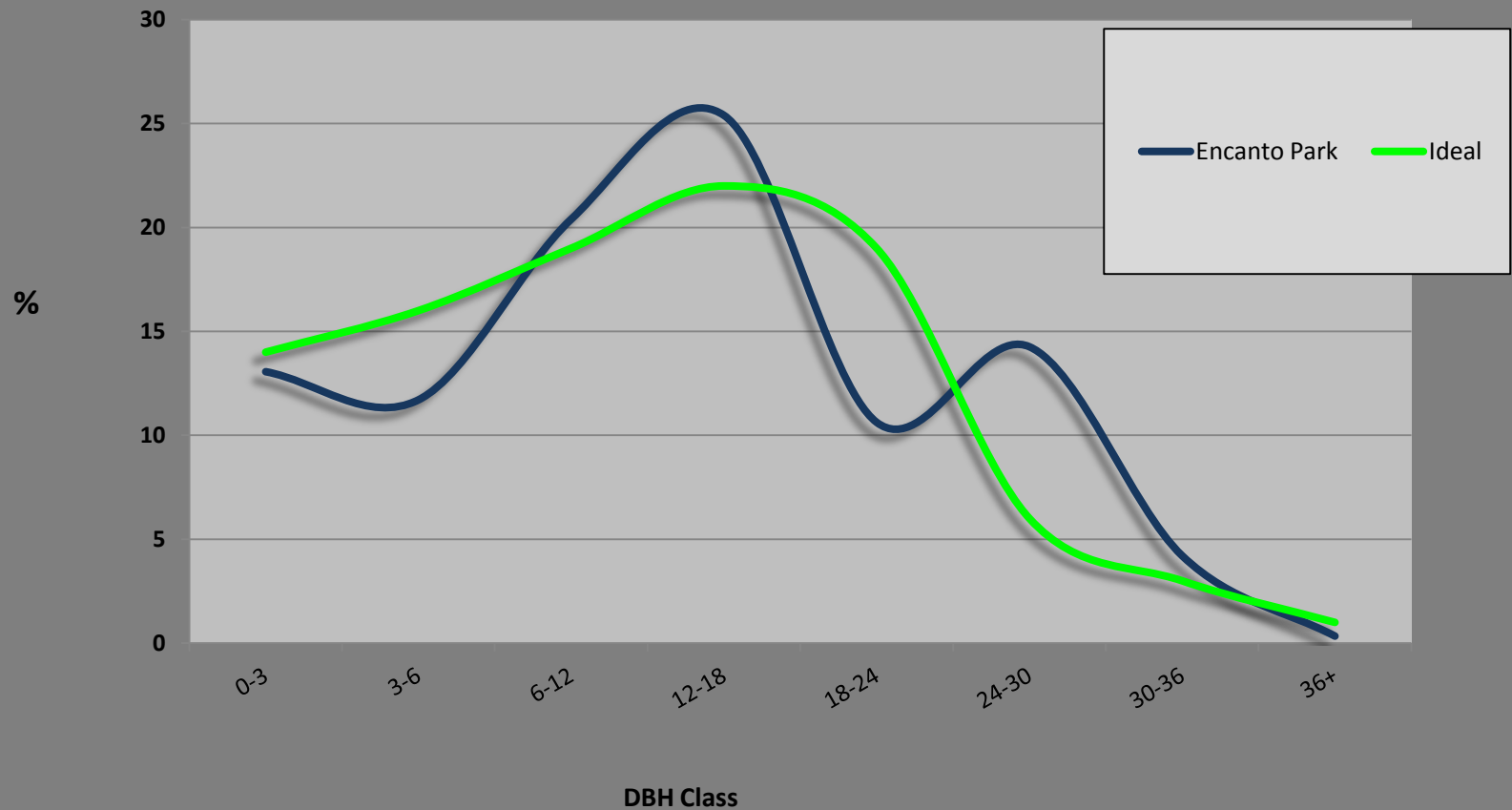
i-Tree Streets - Distribution



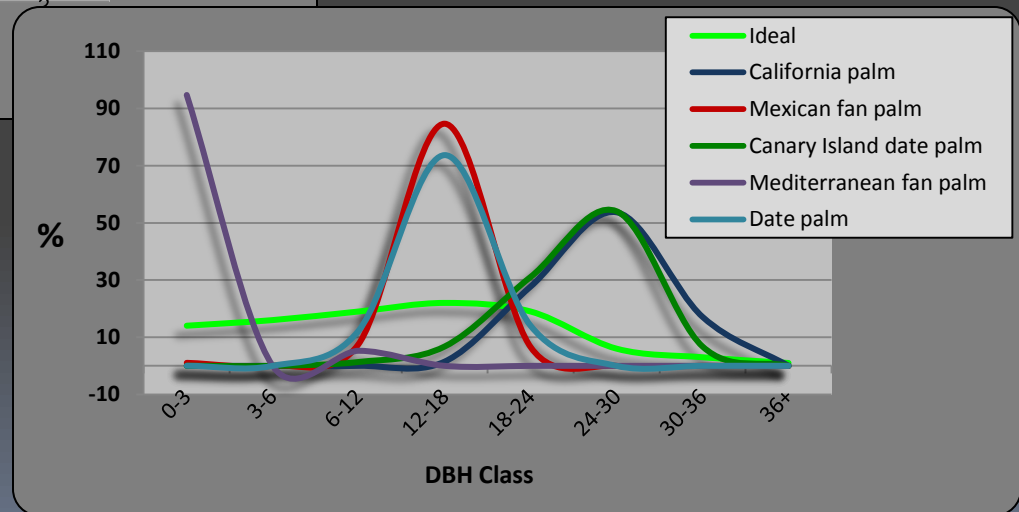
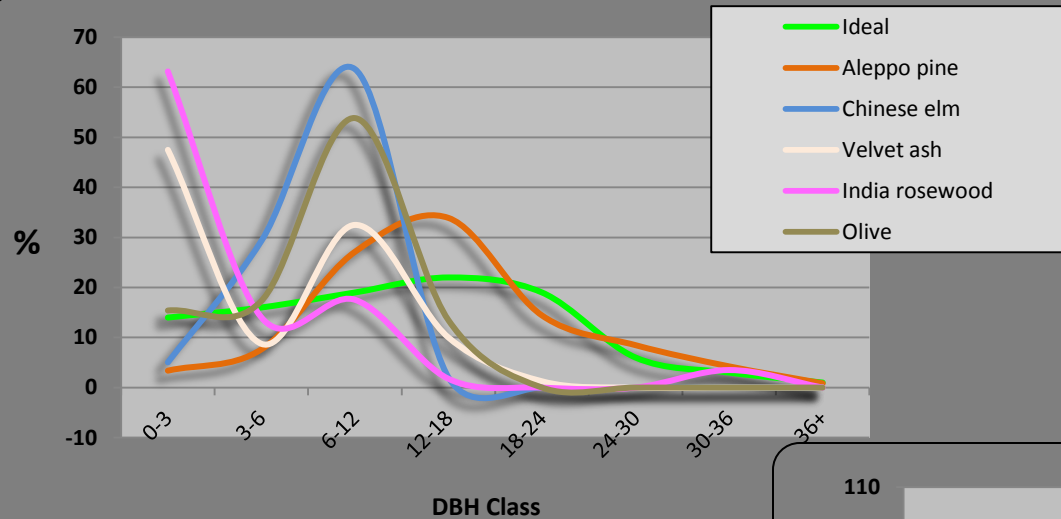
i-Tree Streets - Distribution



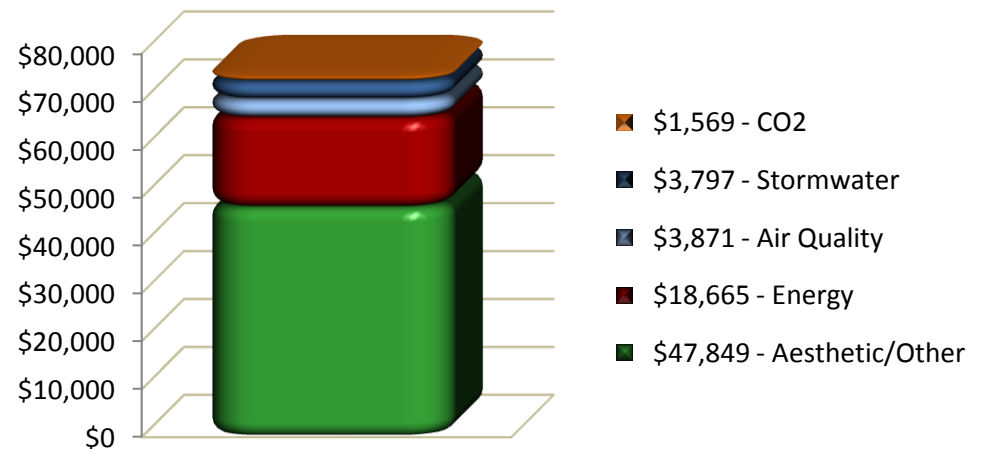
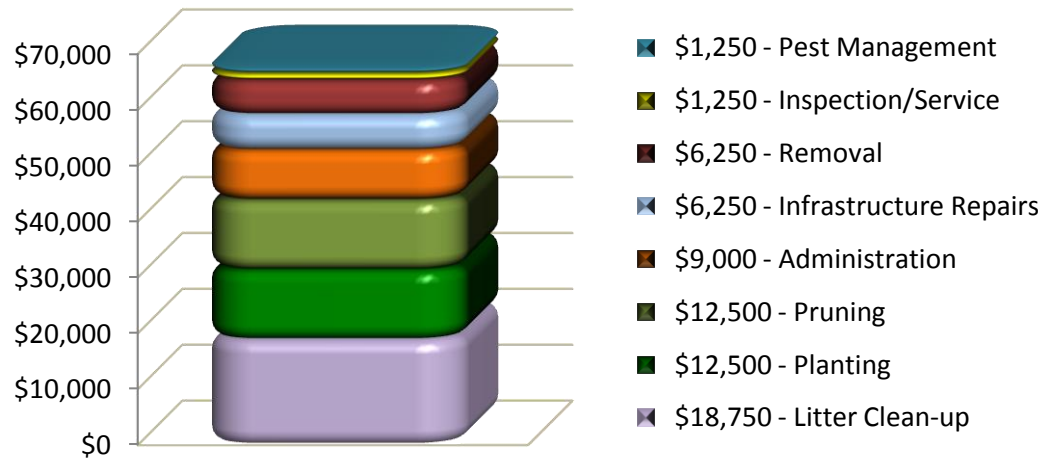
i-Tree Streets - Distribution



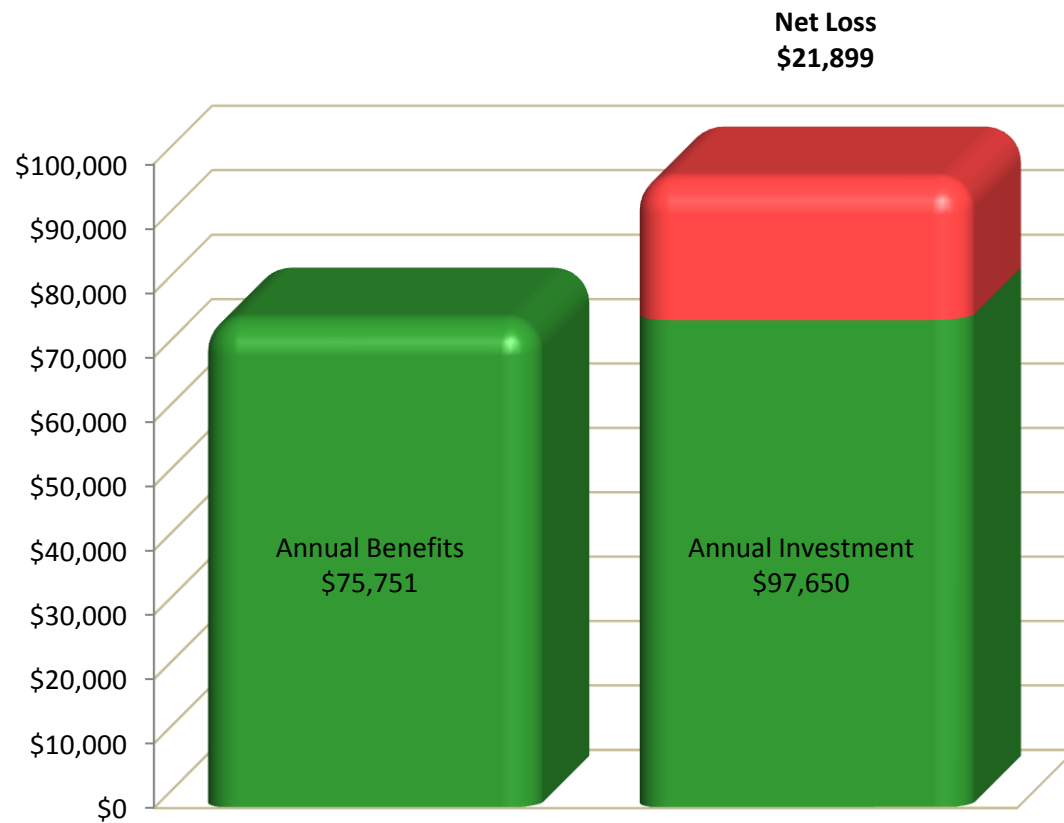
i-Tree Streets - Distribution



i-Tree Streets - Distribution



i-Tree Streets - Distribution

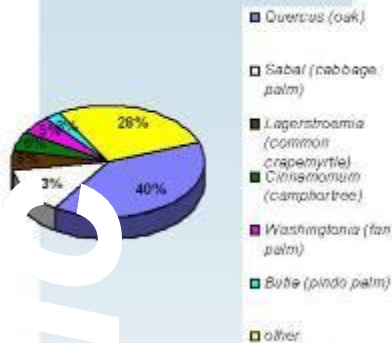


i-Tree Streets-Benefit Analysis

Common Name % Total	Number of Trees	Leaf Area (ft ²) % Total	Canopy Cover (ft ²) % Total	Energy \$/Tree	Stormwater \$/Tree
Crape Myrtle (17.9%)	3,508	150,227 (.6%)	321,634 (2.7%)	1.79	1.23
Southern Magnolia (2.1%)	406	645,678 (2.6%)	324,275 (2.8%)	14.01	21.13
American Sycamore (1.1%)	222	1,145,671 (4.6%)	321,312 (2.7%)	25.05	40.12

Public Education

Our City's Current Distribution of Trees by Genus



...ease the species diversity of Crescent City's urban plant trees that have not been heavily planted in the past. Plant:

- ☐ Bald Cypress
- ☐ Box Elder
- ☐ Bur Pine
- ☐ Carolina Magnolia
- ☐ Southern Redcedar
- ☐ Sweetbay Magnolia
- ☐ Sweetgum
- ☐ Sycamore
- ☐ Water Elm
- ☐ Wax Holly



"The best time to plant a tree is twenty years ago, the second best time is today."
Chinese Proverb

WHY PLANT A TREE

- Towns and cities that are alive with healthy, cared-for trees are better places to live.
- Tree-lined streets and wooded parks add beauty.
- Trees shelter and shade homes.
- Trees moderate temperature, quiet noise, and clean the air.
- Trees increase property values.
- Trees conserve energy.
- Trees provide habitat for wildlife.
- Trees are good for you!

"Trees make a world of difference."

John Rosenow, CEO Arbor Day Foundation

City of Crescent City, Florida

3 North Summit Street
Crescent City, Florida 32112
Phone: 386-698-2525

www.crescentcity-fl.com



WHAT TREES DO FOR YOU

City of Crescent City, Florida



*This project was made possible through funding
from the US Department of Agriculture,
US Forest Service
Urban and Community Forestry Grant Program*

i-Tree is Simple!

- Perform a complete area or segment sample inventory

OR

- You have an existing tree inventory that contains at least these three fields:
 - DBH
 - Condition
 - Species

National Tree Benefits Calculator

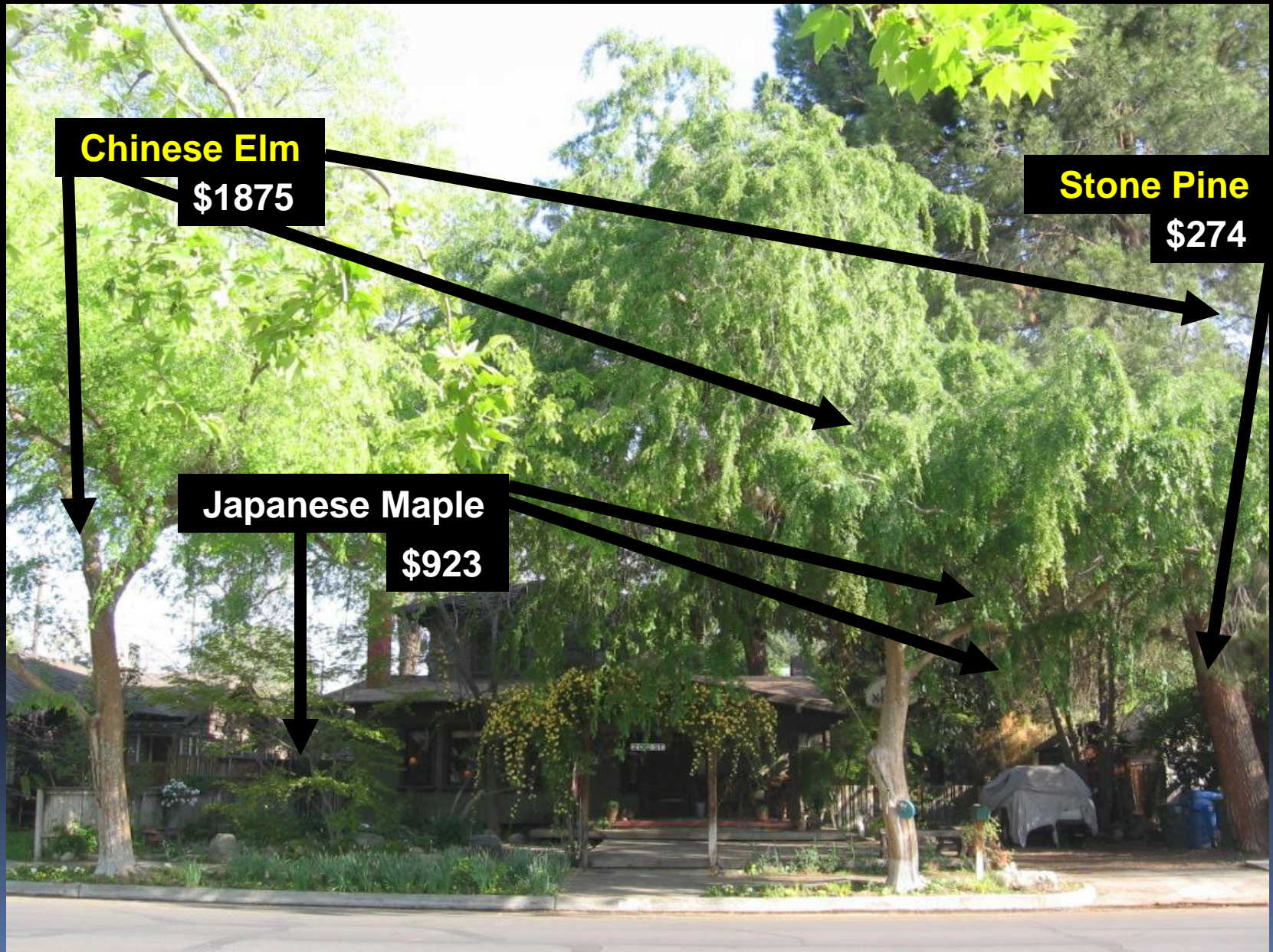
- www.treebenefits.com/calculator/
- Based on i-Tree
- Ease of use
- Clearly stated benefits

National Tree Benefits Calculator

What do the dollar amounts mean?

- **Stormwater – Eliminate water run-off, source point pollution**
- **Property Values – Aesthetics and “LVA”**
- **Energy - Money that is NOT spent on heating and cooling**
- **Air Quality - Absorption and Interception**
- **CO2 – Sequestered and Avoided, Energy Savings**

National Tree Benefits Calculator



National Tree Benefits Calculator

Valley Oak

\$515

Red Bud(s)

\$44



National Tree Benefits Calculator

	DBH	Tree Value	Property Value	Electricity	Stormwater	Air Quality	CO2
Chinese Elm	26	\$ 598.00	\$ 504.52	\$ 43.42	\$ 15.06	\$ 33.48	\$ 3.21
Chinese Elm	28	\$ 679.00	\$ 577.25	\$ 46.09	\$ 16.53	\$ 36.04	\$ 3.28
Chinese Elm	26	\$ 598.00	\$ 504.52	\$ 43.42	\$ 15.06	\$ 33.48	\$ 3.21
Japanese Maple	7	\$ 233.00	\$ 212.71	\$ 10.54	\$ 2.25	\$ 6.05	\$ 1.18
Japanese Maple	8	\$ 245.00	\$ 221.67	\$ 12.45	\$ 2.66	\$ 7.17	\$ 1.41
Japanese Maple	8	\$ 245.00	\$ 221.67	\$ 12.45	\$ 2.66	\$ 7.17	\$ 1.41
Valley Oak	32	\$ 515.00	\$ 543.00	\$ 44.02	\$ 43.87	\$ -	\$ 3.65
Deodar Cedar	40	\$ 299.00	\$ 173.99	\$ 43.02	\$ 31.25	\$ 40.81	\$ 5.68
Stone Pine	32	\$ 274.00	\$ 179.83	\$ 33.17	\$ 24.11	\$ 29.11	\$ 4.53
Camphor	22	\$ 304.00	\$ 249.87	\$ 29.54	\$ 18.78	\$ 2.11	\$ 3.78
Chinese Pistache	22	\$ 215.00	\$ 178.76	\$ 20.27	\$ 5.23	\$ 10.29	\$ 1.51
Red Bud	3	\$ 22.00	\$ 19.45	\$ 1.22	\$ 0.38	\$ 0.97	\$ 0.09
Red Bud	3	\$ 22.00	\$ 19.45	\$ 1.22	\$ 0.38	\$ 0.97	\$ 0.09
Magnolia	14	\$ 81.00	\$ 53.23	\$ 12.66	\$ 6.93	\$ 5.99	\$ 1.00
Crape Myrtle	8	\$ 29.00	\$ 20.03	\$ 4.24	\$ 1.32	\$ 3.12	\$ 0.27
Total		\$4,359.00	\$3,679.95	\$ 357.73	\$ 186.47	\$ 216.76	\$ 34.30

Today's Road Trip

- Inventory Facts – Planning & Purpose
- Results – Based on Spec and/or BMP's
- Tools – Education, Results, i-Tree
- Questions

Thank You!

Dana Karcher

Davey Resource Group

661-964-7158

Dana.Karcher@davey.com

Richard Adkins

City of Phoenix

602-495-3762

Richard.Adkins@Phoenix.gov