How to Conduct a Public Tree Inventory

What is an Assessment / Inventory?

Urban Forestry Assessment

Gathering information on a broad scale to help in planning and management.

Tree Inventory

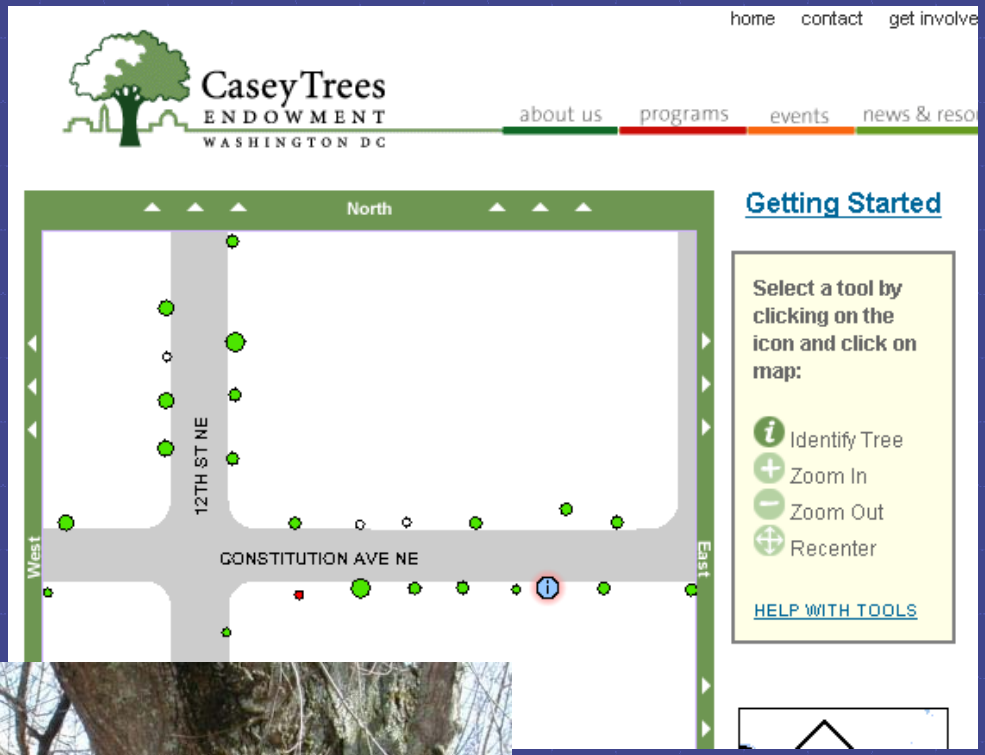
Record of the location, characteristics, and assessment of individual trees within a well-defined group.

WHY INVENTORY ?

- Determine Tree Planting Needs
- Identify Hazard Trees
- Plan Tree Maintenance
- Place a Value on Trees
- Locate Special Trees
- Profile of Species Composition
- Develop a Forestry Budget
- Plan Staff and Volunteer Work
- Coordinate with Other Depts.
- Provide Education & Awareness

Plan for Maintenance Needs

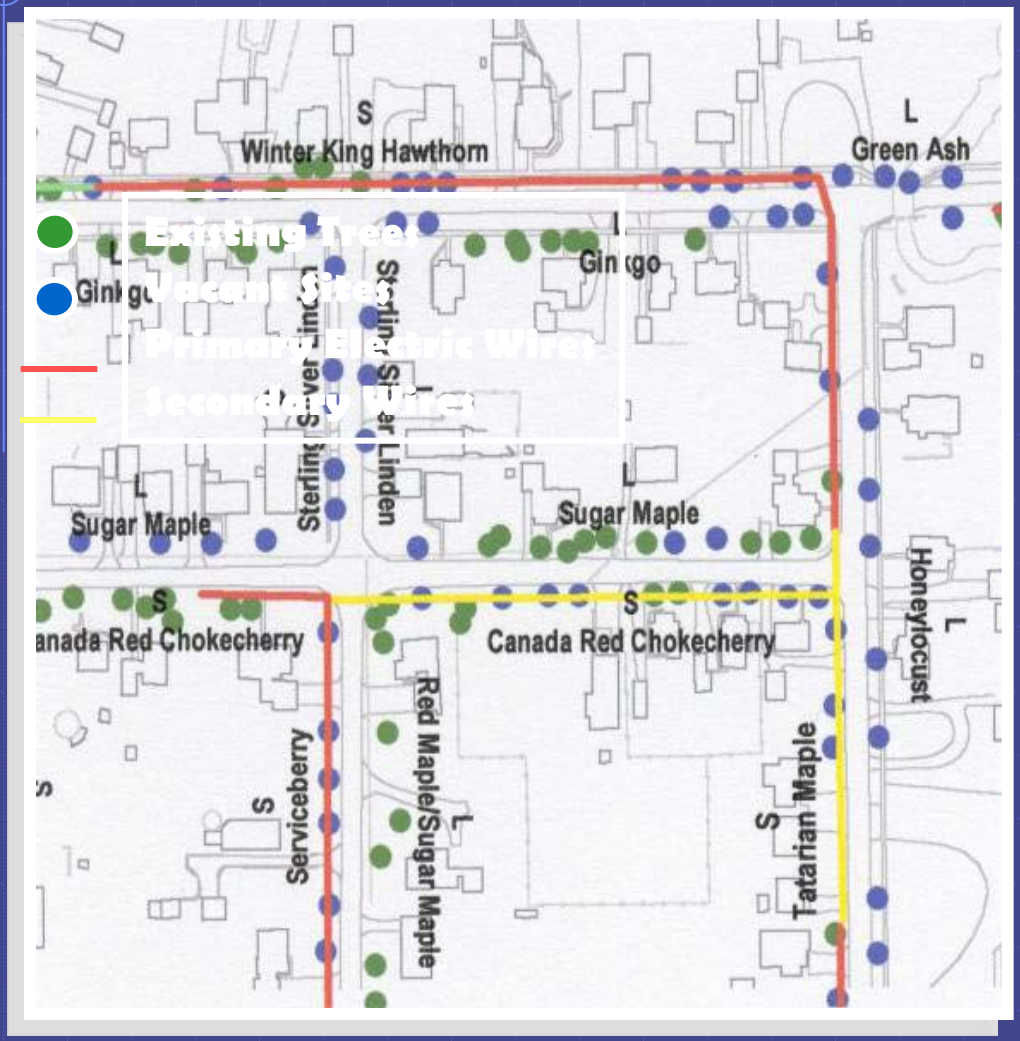
- 1 – None
- 2 – Minor Pruning
- 3 – Major Pruning
- 4 – Mulching
- 5 – Cable and Brace
- 6 – Fertilizing
- 7 – Insect Control
- 8 – Disease Control
- 9 - Removal

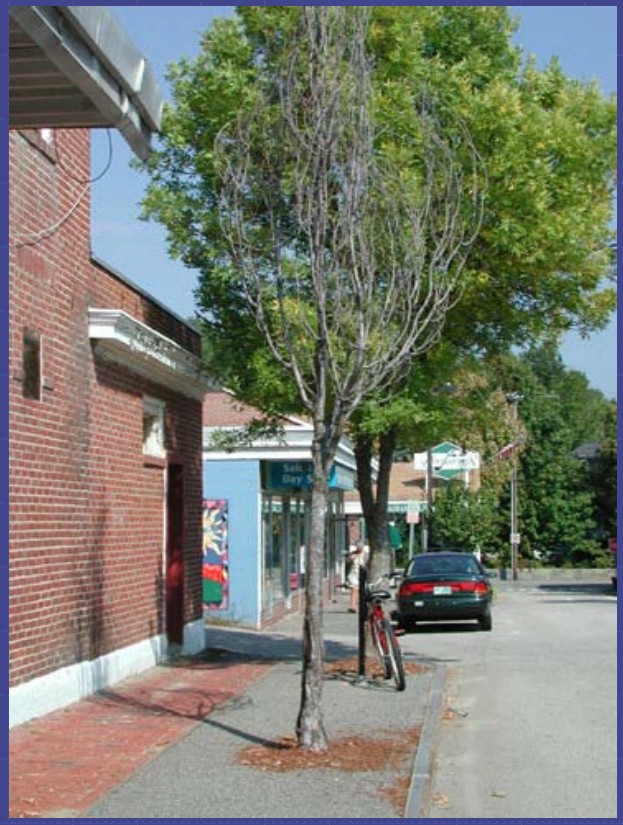


Identify & Remove High Risk Trees

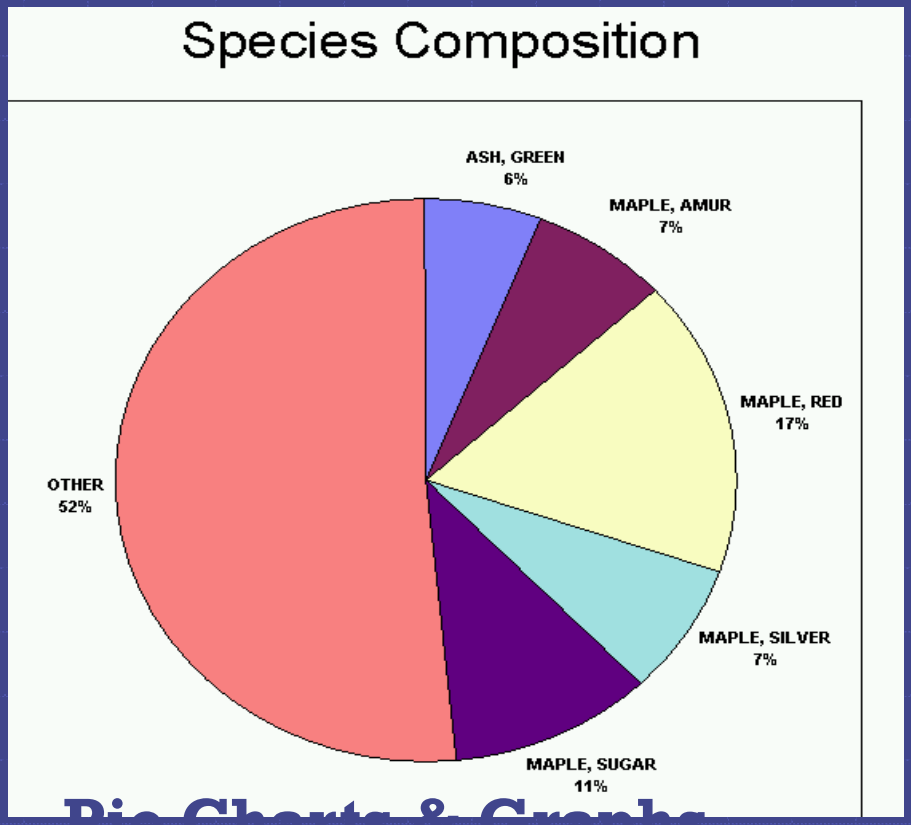
- Public Safety
- Reduced, Damage, expense and liability to the community
- Improved Efficiency of Tree Care Program

Identify Potential Planting Sites





Diversify Species Composition



Species Composition

Species	# of Trees	Percent of Population
MAPLE, RED	48	16.90%
MAPLE, SUGAR	30	10.56%
OTHER	28	9.86%
MAPLE, AMUR	21	7.39%
MAPLE, SILVER	21	7.39%
ASH, GREEN	17	5.99%
ASH, WHITE	14	4.93%
CRABAPPLE	14	4.93%
ASH	11	3.87%
OAK, RED	11	3.87%
LILAC, SHRUB	9	3.17%
LINDEN, AMERICAN	8	2.82%
MAPLE, NORWAY	8	2.82%
BOXELDER	7	2.46%
POPLAR	6	2.11%
BIRCH, PAPER	4	1.41%
ASPEN, BIGTOOTH	3	1.06%
OAK, WHITE	3	1.06%

Storm Planning and Response

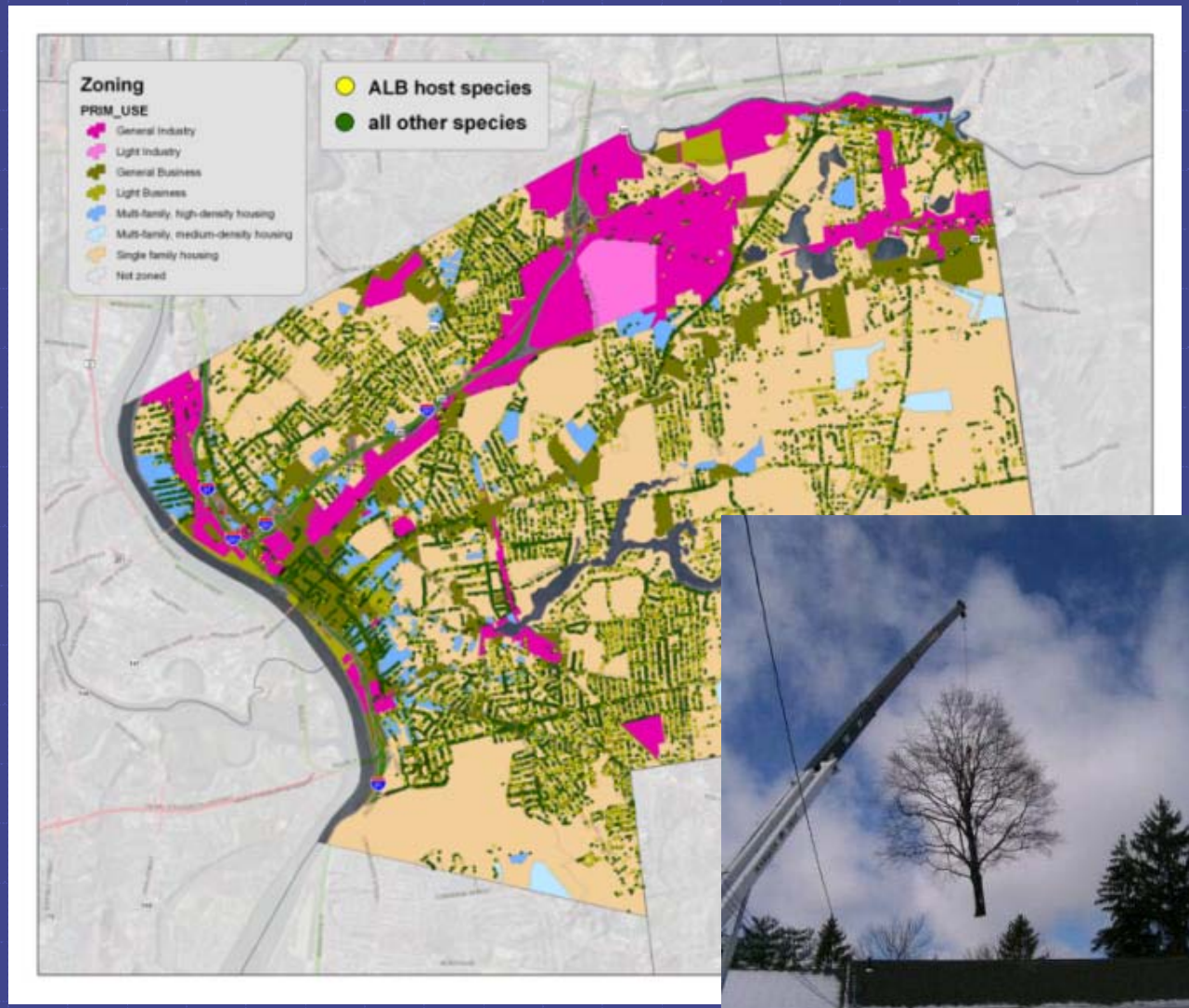
- Prioritize Response Areas
- Estimate Cost
- Mitigate Storm Damage

Budget Development

Financial Plan for Lewiston, ME

Treatment	#Trees/ Cost	#Trees/ Cost	#Trees / Cost	#Trees/ Cost	#Trees/ Cost	#Trees/ Cost
Plant	50 7,500	100 15,000	125 18,750	124 18,600	124 18,600	673 78,450
Routine Prune	50 10,000	50 10,000	574 80,817	574 80,817	574 80,817	1822 262,451
Urgent Prune	15 3,000	14 3000				29 6000
Hazard Removal	2 300					2 300
Total	20,800	28,000	99,587	99,417	99,417	347,201
UNIT	1	2	3	4	5	Total

Survey for Invasives



Early detection

Response plans

Species diversity

Advocacy and Public Awareness

- **Build Community Support**
- **Improve Management Of Private Trees**

TREES PAY US BACK –
100 Trees Over 40 Years

Costs = $84,000

Planting, Pruning, Removal/Disposal, Irrigation, Sidewalk Repair, Legal - Admin

Benefits = $202,000

Energy, Air Quality, Runoff,

Real Estate

?

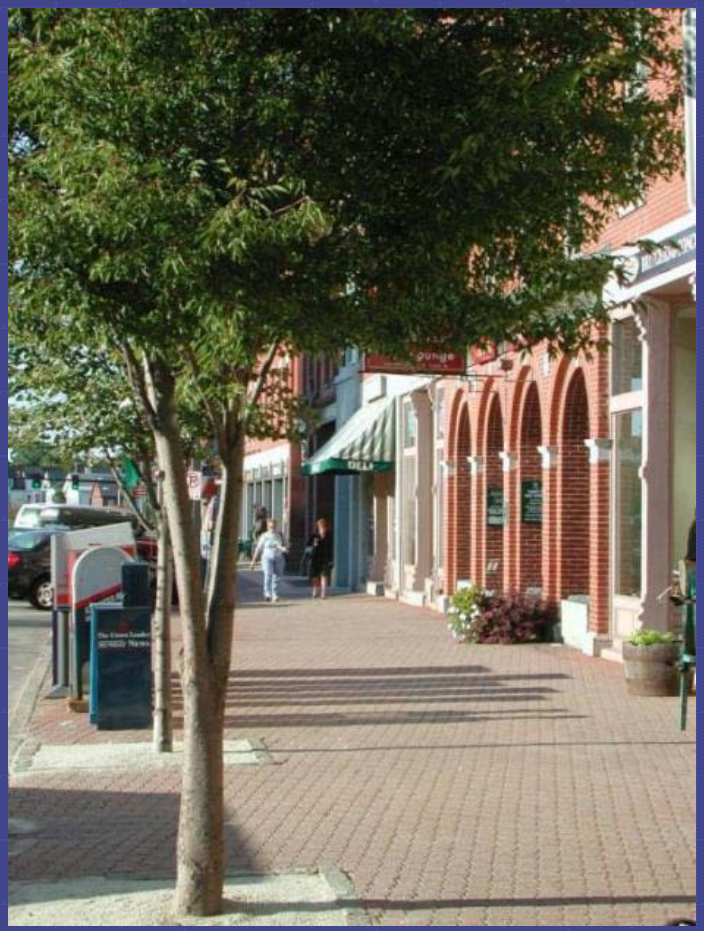

Larson
"And see this right here, Jimmy? . . .
That's another time when the old fellow
miraculously survived some big forest fire."

Steps in Planning The Inventory

- Consider Town Objectives
- Type of Inventory Needed
- Budget
- ID Contractor, Staff, Volunteers
- Computer-Software Needs
- Develop Method–Info Needed
- Train and Supervise Crews
- Do Quality Checks
- Manage and Update Data
- Develop Management Plan

Determine The Towns Objective's

- Is an inventory needed? Will it be used?
- What are the objectives?
  - Public Safety
  - Increased Efficiency
  - Improved Public Relations
  - Justify Budget Requests



What to Inventory

- Special Problems
- Park Inventories
- Town Forests, woodlots
- Public Street Trees
- Private Trees?
- Just Trees or Ecosystem
- Whole Community or Just Part

Type of Inventory

- Aerial - Cover Type
- Sample Method
- Windshield Survey
- Complete

Tree Inventory Software

Commercial, Freeware, Self Developed?

Tree Manager for Windows

i-Tree

CANOPY
Tree Management Software

ArborSoftWorx
Computing Solutions that Work

- Number of Trees
- Cost
- Technical Support
- Ability to Customize
- Updates

- Options
  - Tree Valuation
  - Mapping
  - Incorporated into GIS
  - Service Requests
  - Work Orders
  - Online Data Access
  - Photo capability

Field Methodology
How and What Information To Collect

- Location
- Species
- Diameter
- Condition
- Maintenance Needs
- Vacant Planting Space
- Is it a Risk Tree?
- Site Information

Surveyor ______________________ Date ______________ Area ____________________

Street Address	Tree # (GPS)	Note This Tree	Species	DBH	Condition	Percent Deadwood	Consultant Needed	Planting Location	Weak Fork (Y/N)	Overhead Wire (Y/N)	Cavity (Y/N)	Clean (Y/N)	Raise (Y/N)	Reduce (Y/N)	Remove (Y/N)	Comments

Information/Tools Needed

- Safety Vest
- Inventory Forms & Clipboard
- Site Maps or Aerial Photos
- ROW Distances
- Diameter Tape or stick
- Distance Measuring Tape
- Compass
- Digging Tool
- Camera
- Binoculars
- Mallet, Drill, Increment Borer
- PDA

Planning The Inventory

- Consider Town Objectives
- Type of Inventory Needed
- Develop Methodology
  - What Info Needed
- Computer-Software Needs
- Tools
- Budget
- Who? Contractor, Staff, Volunteers
- Train and Supervise Crews
- Do Quality Checks
- Manage and Update Data
- Develop Management Plan

?


HOW DO I KNOW WHAT THEIR NAMES ARE?


HI, TREE.. MY NAME'S SALLY! WHAT'S YOUR NAME?

HOW TO INVENTORY ON THE STREET

Surveyor _____ Date _____ Area _____

Street Address	Tree # (GPS)	Note This Tree	Species	DBH	Condition	Percent Deadwood	Consultant Needed	Planting Location	Weak Fork (Y/N)	Overhead Wire(Y/N)	Cavity (Y/N)	Clean (Y/N)	Raise (Y/N)	Reduce (Y/N)	Remove (Y/N)	Comments

Tree Number - Location

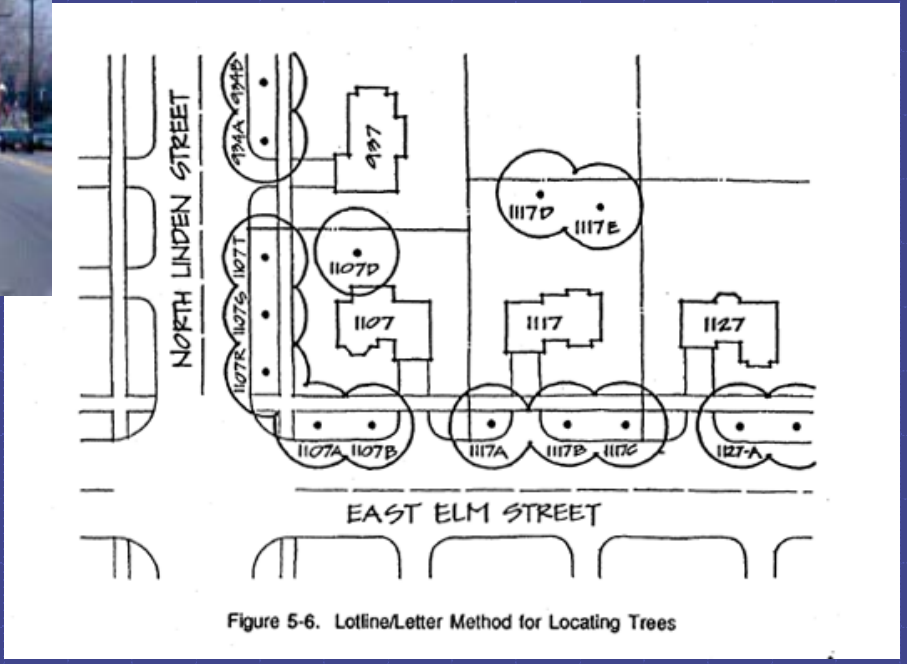
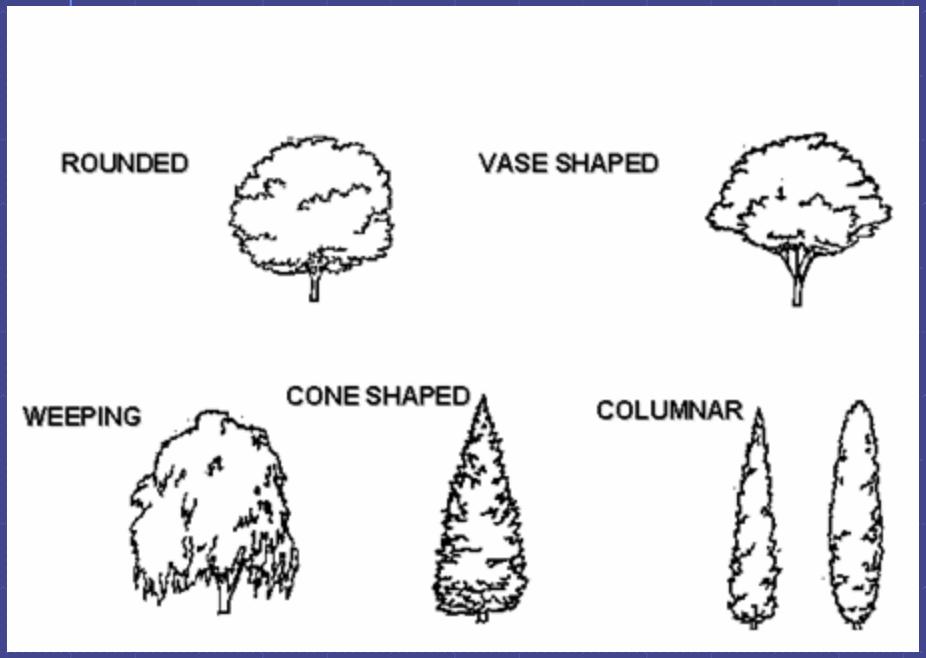
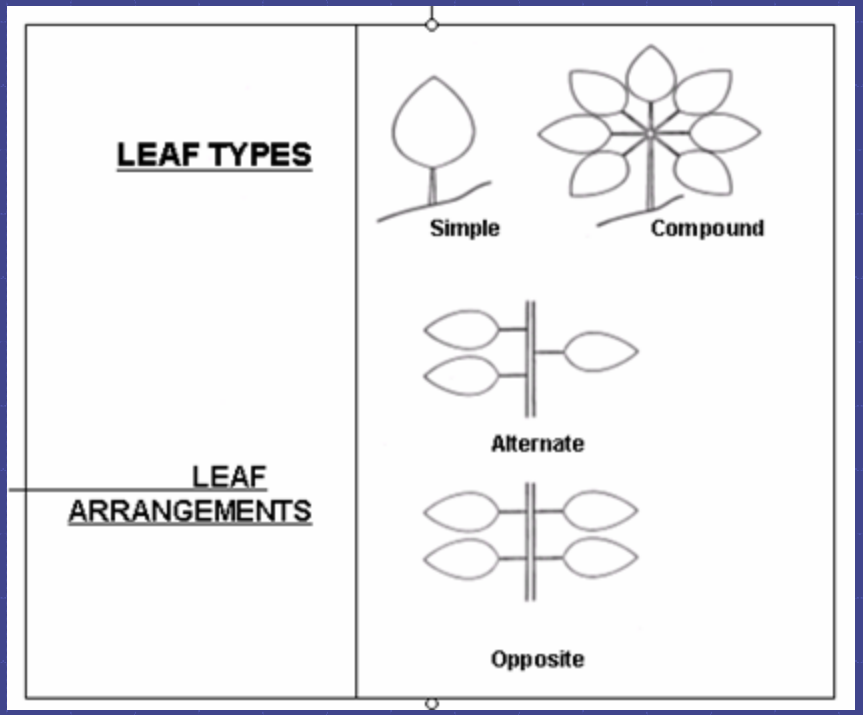


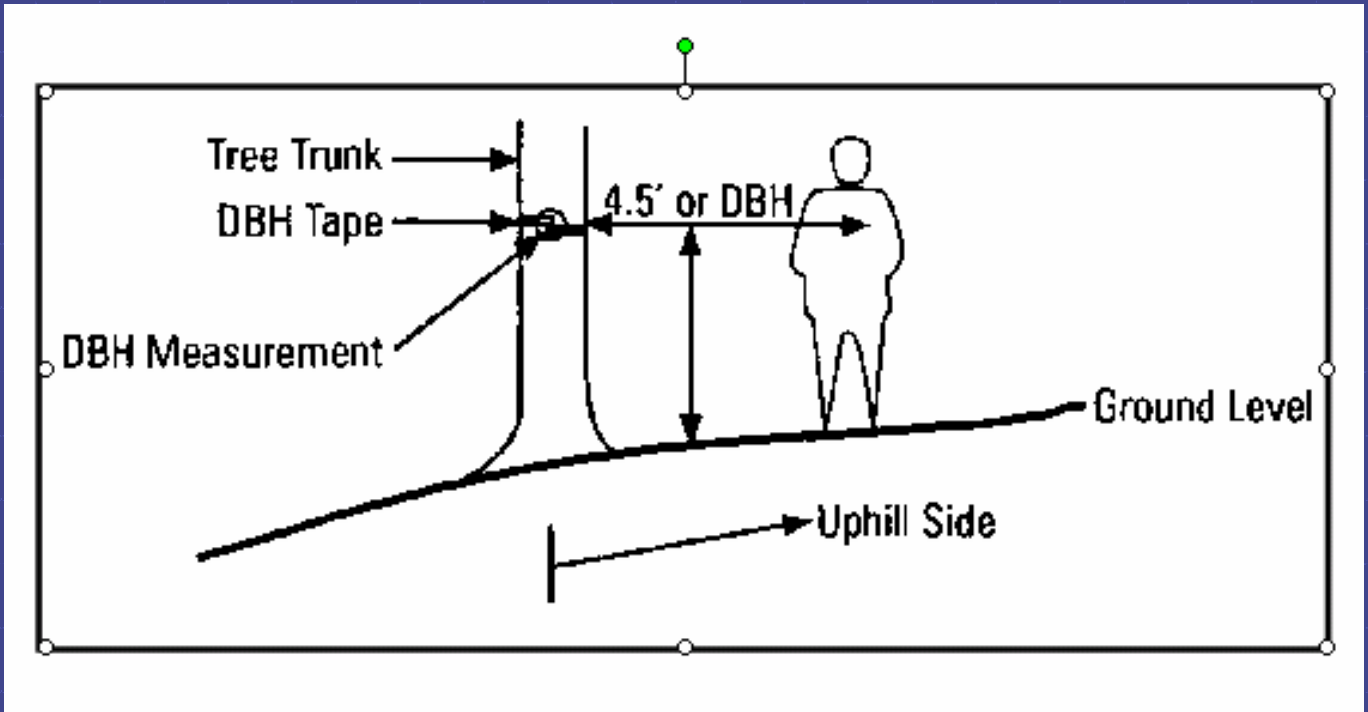
Figure 5-6. Lotline/Letter Method for Locating Trees

Species ID


ROUNDED
VASE SHAPED
WEEPING
CONE SHAPED
COLUMNAR


LEAF TYPES
Simple
Compound
Alternate
LEAF ARRANGEMENTS
Opposite

Diameter


Tree Trunk
DBH Tape
4.5' or DBH
DBH Measurement
Ground Level
Uphill Side

Tree Condition
Evaluating Individual Trees

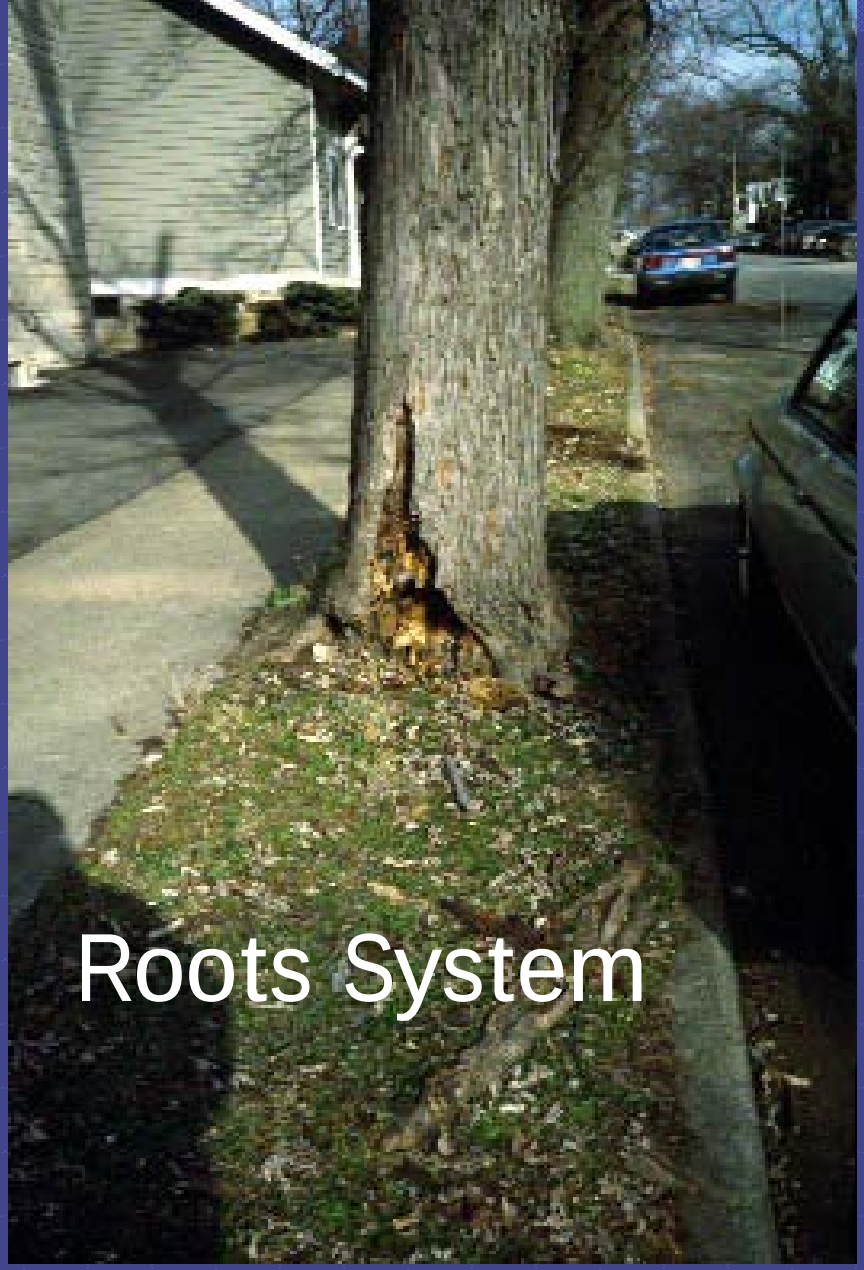
- Good
- Fair
- Poor
- Dead or Dying

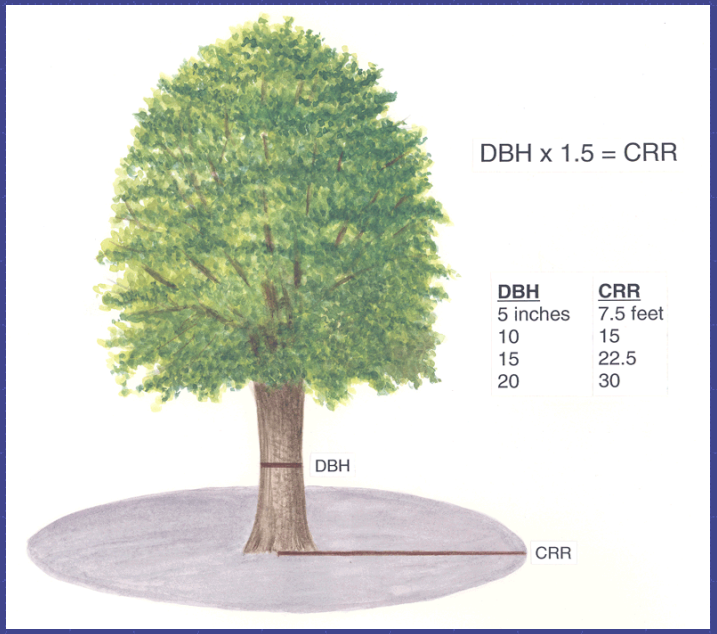
- Risk Tree?

Look at Overall Tree From a Distance

Site Conditions

- Conflicts
- Soils/Drainage
- Aspect
- Land History
- Past Tree Care
- Competition Other Trees


Roots System


DBH x 1.5 = CRR
DBH
5 inches
10
15
20
CRR
7.5 feet
15
22.5
30
DBH
CRR

Trunks

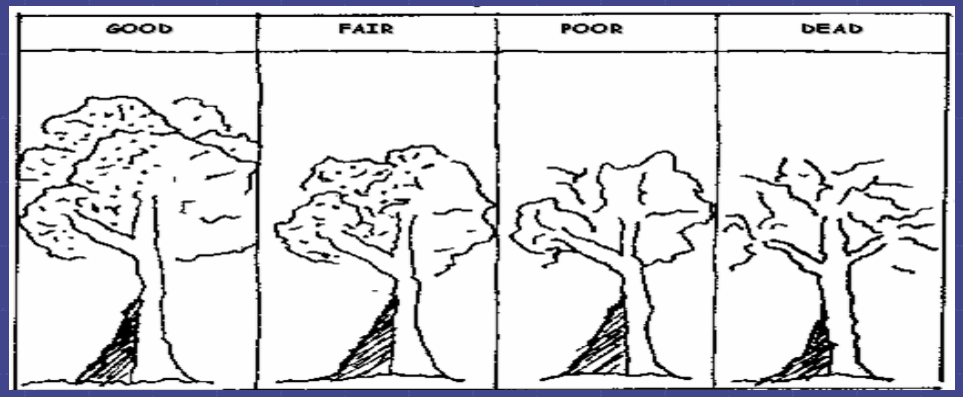
Branch Structure

Attachment

Crown

Foliage

Tree Condition



- **Good – Healthy and vigorous. No apparent signs of insect, disease or mechanical injuries.**
- **Fair – Average condition and vigor. May need corrective pruning or repair, lacks desirable form, minor insect/disease.**
- **Poor – General state of decline. May show mechanical, insect or disease injury, but death is not imminent. Require major repair or renovation.**
- **Dead or dying – Dead or death imminent within 5 years.**

Defects Present

- Defects
  - Weak Fork
  - Overhead Wires
  - Cavity
  - Root Problems
  - Dead Wood
  - Cracks
  - Poor Architecture

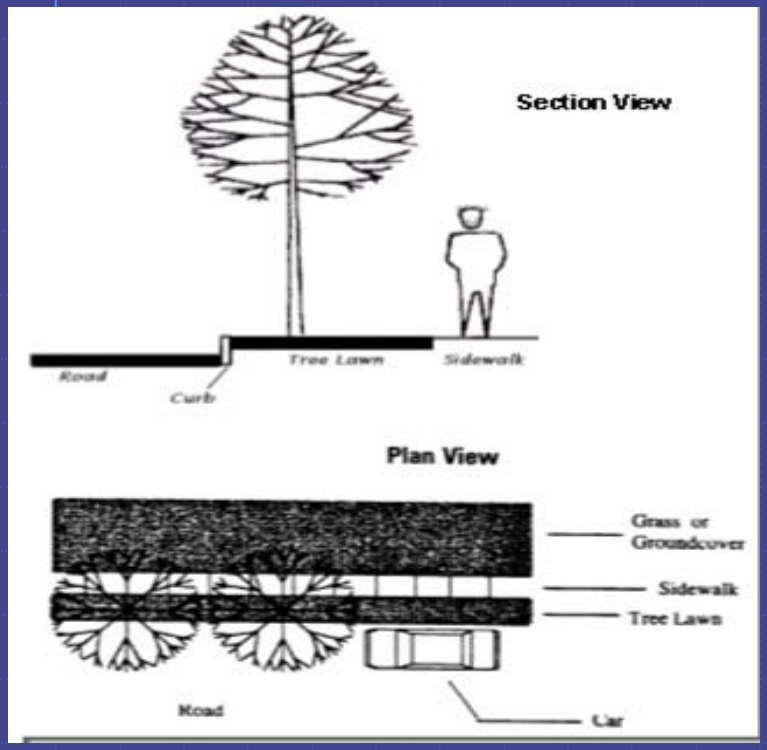
Maintenance Needs

- 1 – None
- 2 – Minor Pruning
- 3 – Major Pruning
- 4 – Mulching
- 5 – Cable and Brace
- 6 – Fertilizing
- 7 – Insect Control
- 8 – Disease Control
- 9 - Removal

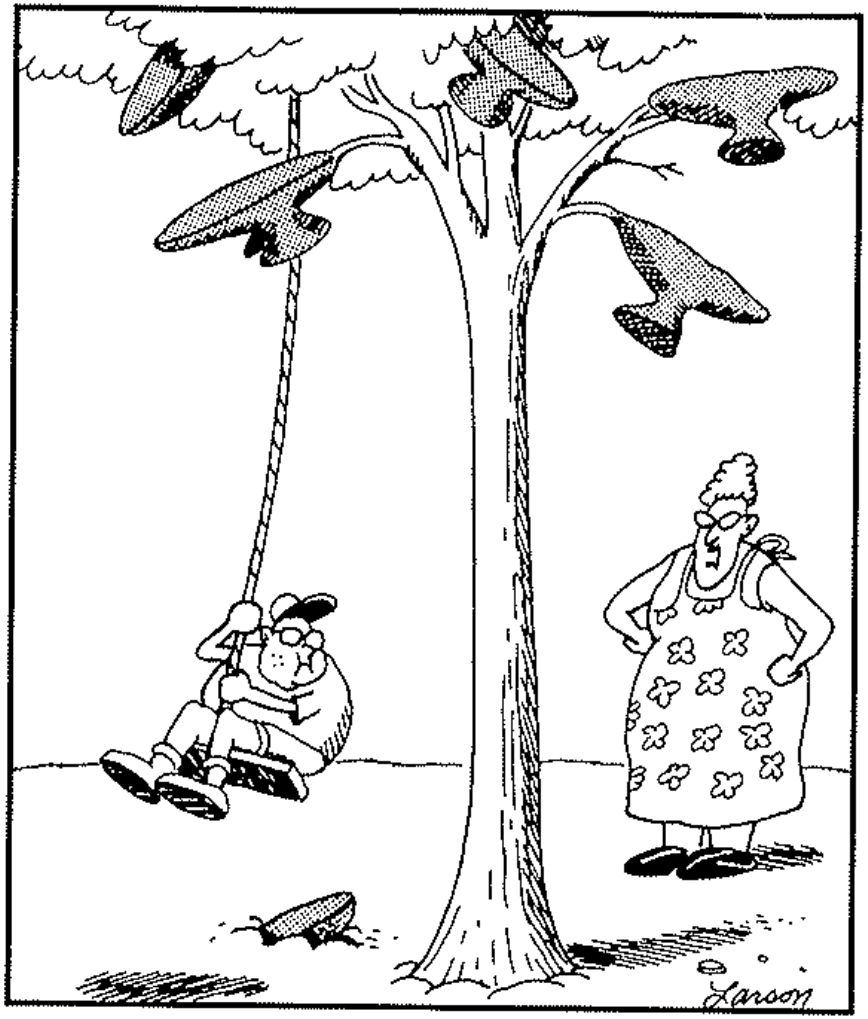
Evaluation of Risk Trees

- Is There a Target?
- Defect that Could Cause Failure?

Planting Sites



Insect and Disease

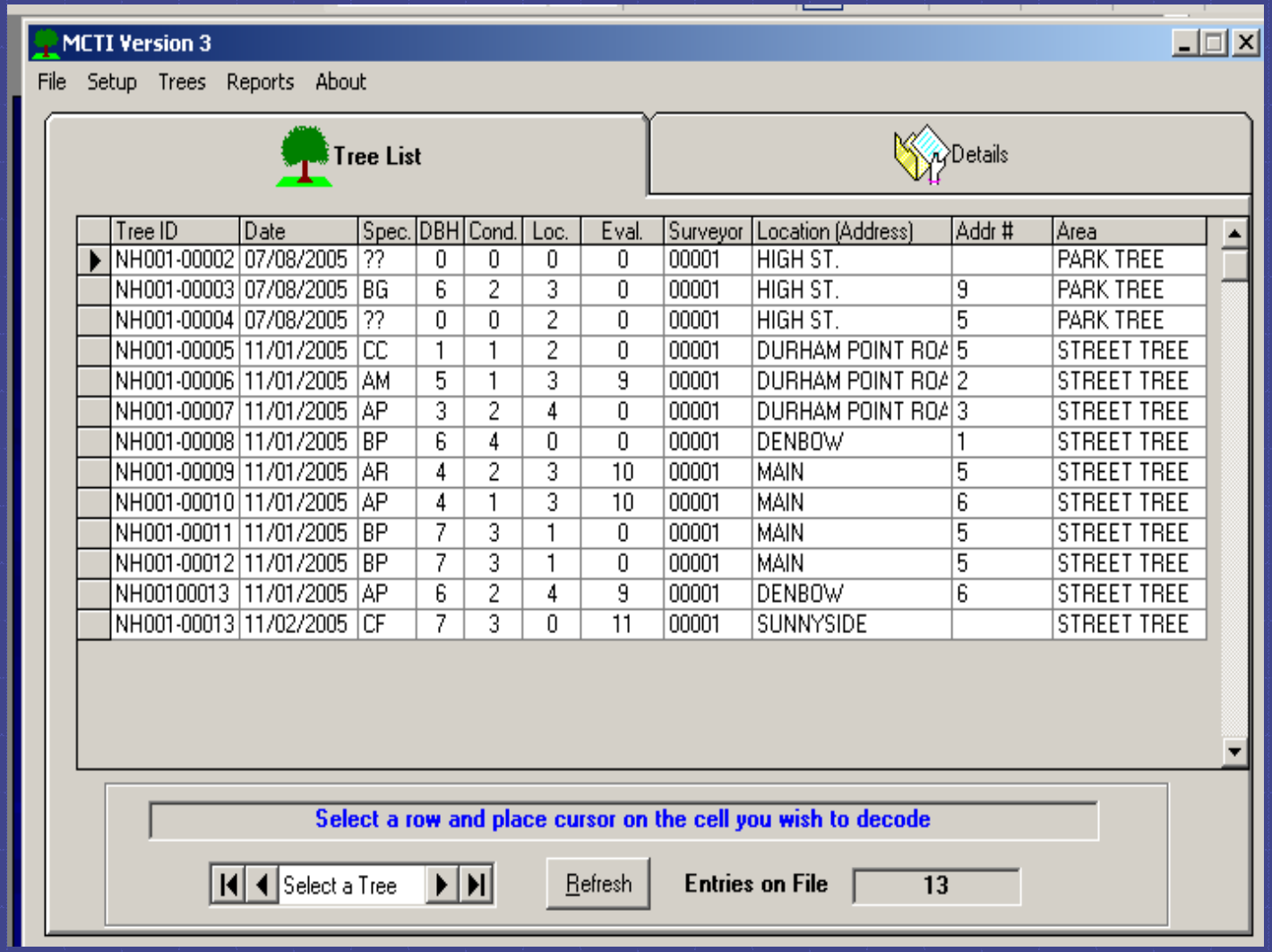


"All right, Billy, you just go right ahead! ...
I've warned you enough times about
playing under the anvil tree!"

?

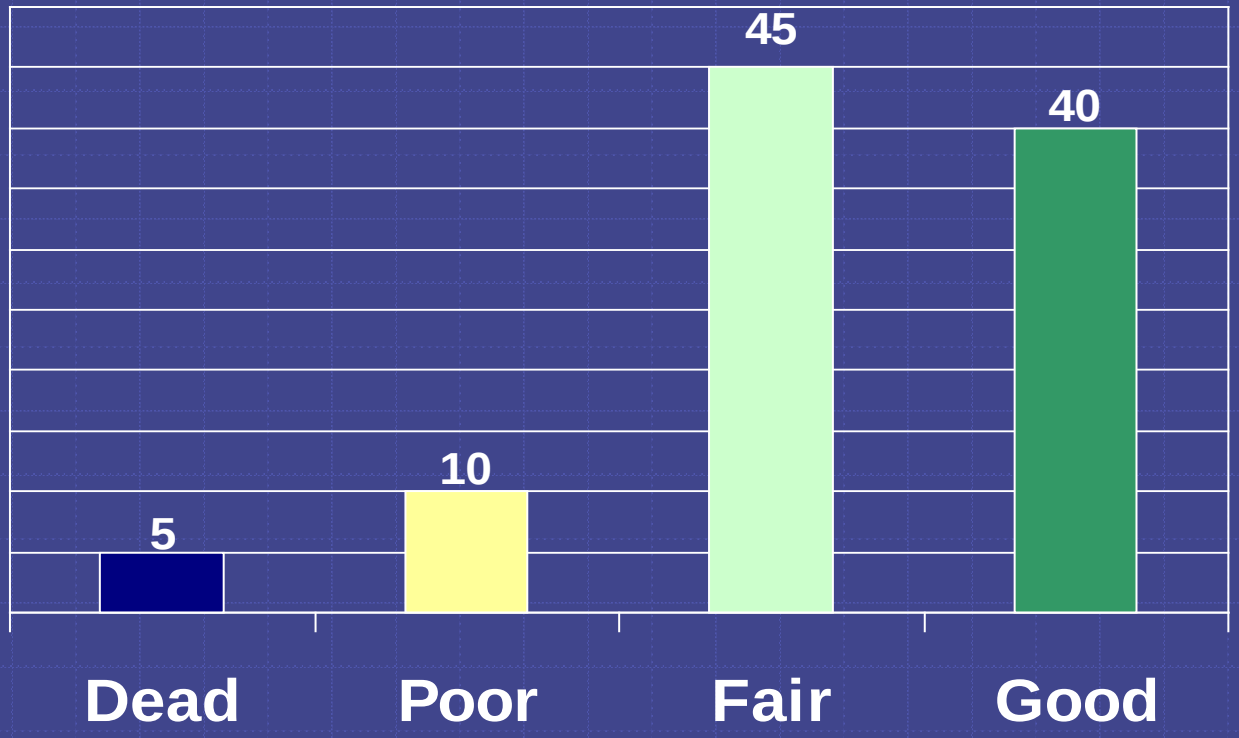
WHAT TO DO WITH INVENTORY INFO

DATA ANALYSIS

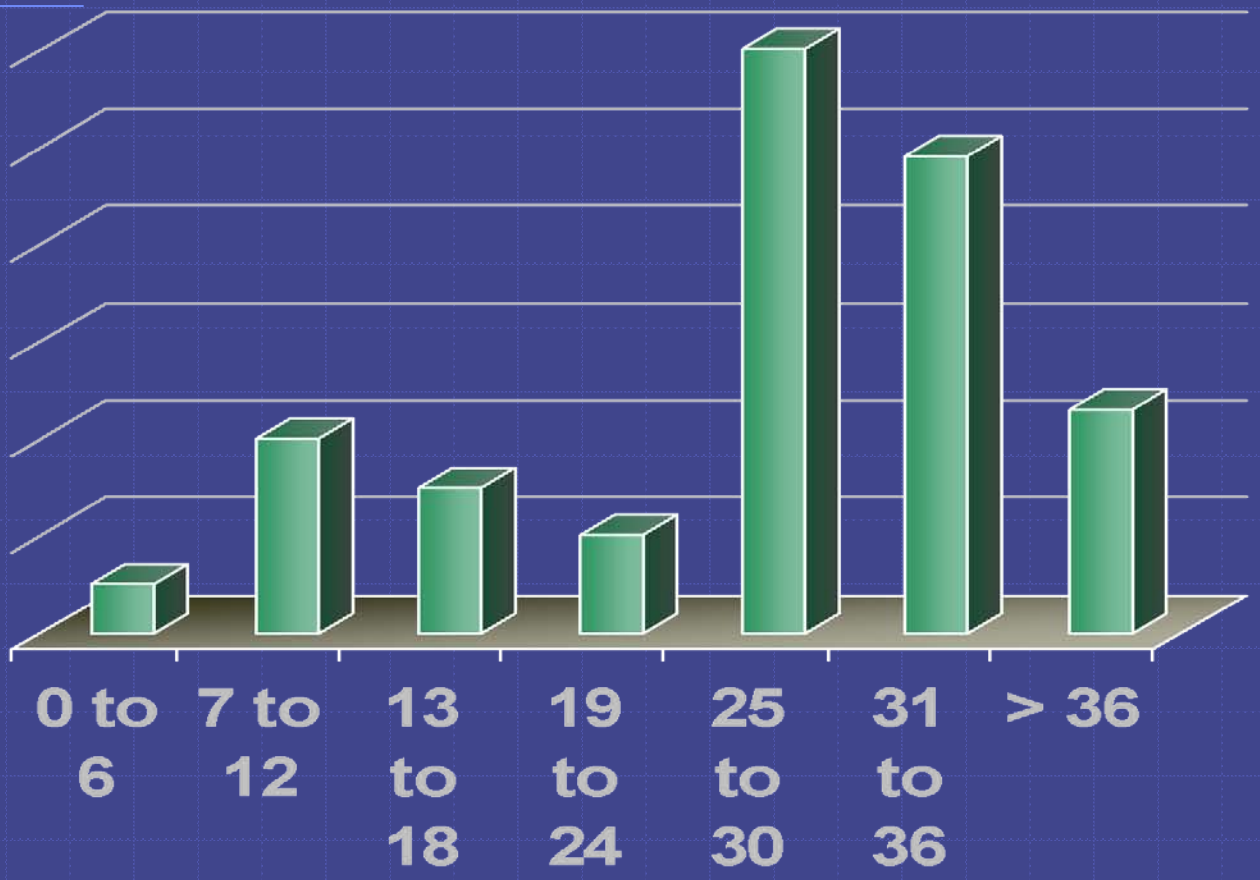


Tree ID	Date	Spec.	DBH	Cond.	Loc.	Eval.	Surveyor	Location (Address)	Addr #	Area
NH001-00002	07/08/2005	??	0	0	0	0	00001	HIGH ST.		PARK TREE
NH001-00003	07/08/2005	BG	6	2	3	0	00001	HIGH ST.	9	PARK TREE
NH001-00004	07/08/2005	??	0	0	2	0	00001	HIGH ST.	5	PARK TREE
NH001-00005	11/01/2005	CC	1	1	2	0	00001	DURHAM POINT ROA	5	STREET TREE
NH001-00006	11/01/2005	AM	5	1	3	9	00001	DURHAM POINT ROA	2	STREET TREE
NH001-00007	11/01/2005	AP	3	2	4	0	00001	DURHAM POINT ROA	3	STREET TREE
NH001-00008	11/01/2005	BP	6	4	0	0	00001	DENBOW	1	STREET TREE
NH001-00009	11/01/2005	AR	4	2	3	10	00001	MAIN	5	STREET TREE
NH001-00010	11/01/2005	AP	4	1	3	10	00001	MAIN	6	STREET TREE
NH001-00011	11/01/2005	BP	7	3	1	0	00001	MAIN	5	STREET TREE
NH001-00012	11/01/2005	BP	7	3	1	0	00001	MAIN	5	STREET TREE
NH00100013	11/01/2005	AP	6	2	4	9	00001	DENBOW	6	STREET TREE
NH001-00013	11/02/2005	CF	7	3	0	11	00001	SUNNYSIDE		STREET TREE

Condition



Size Distribution



Developing a Management Plan

What Do You Have?

What Do You Want?

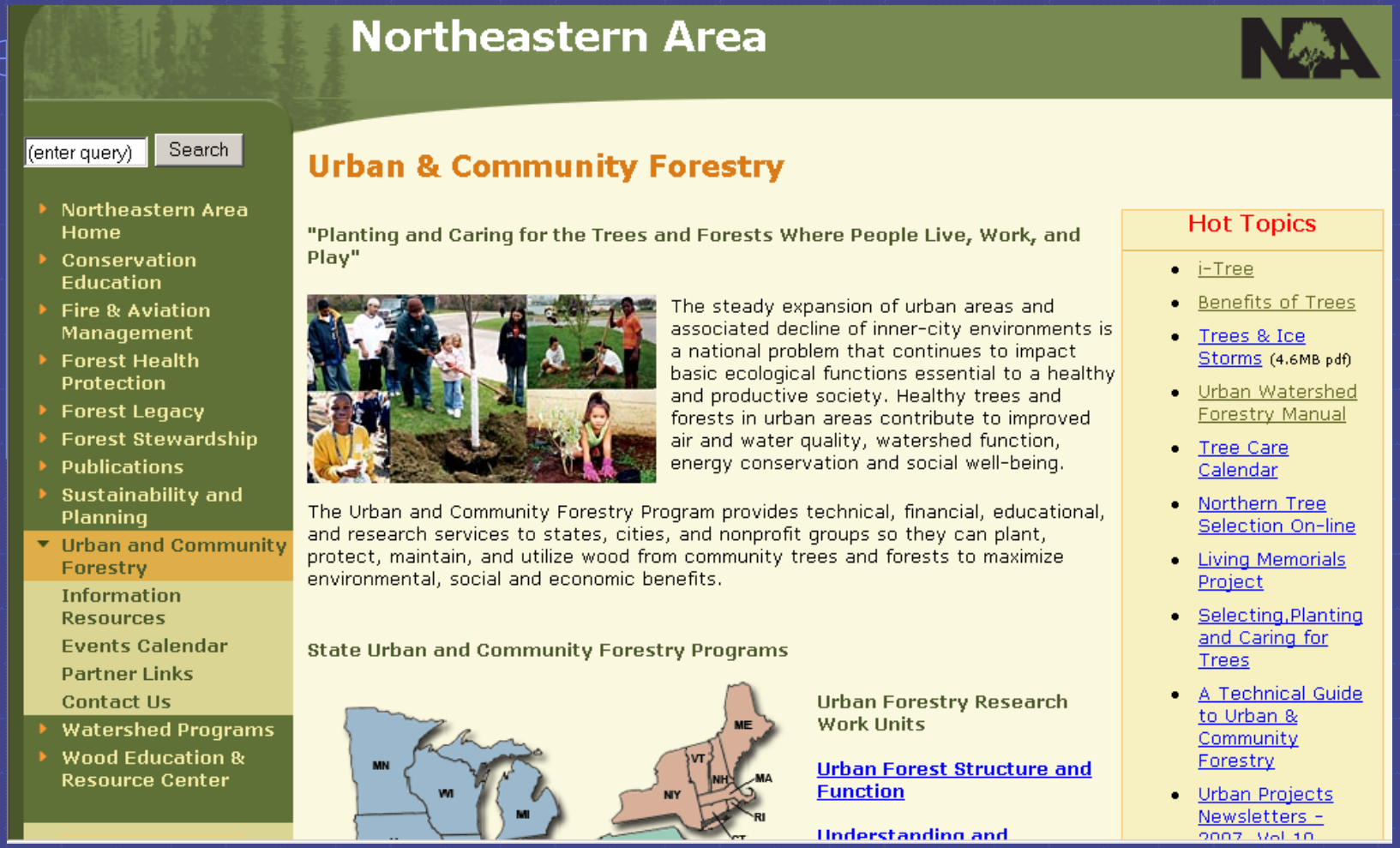
How Do You Get What You Want?

Are You On Track?

?


Larson
Use nice, even strokes, and always remember to make your trees look like happy trees.

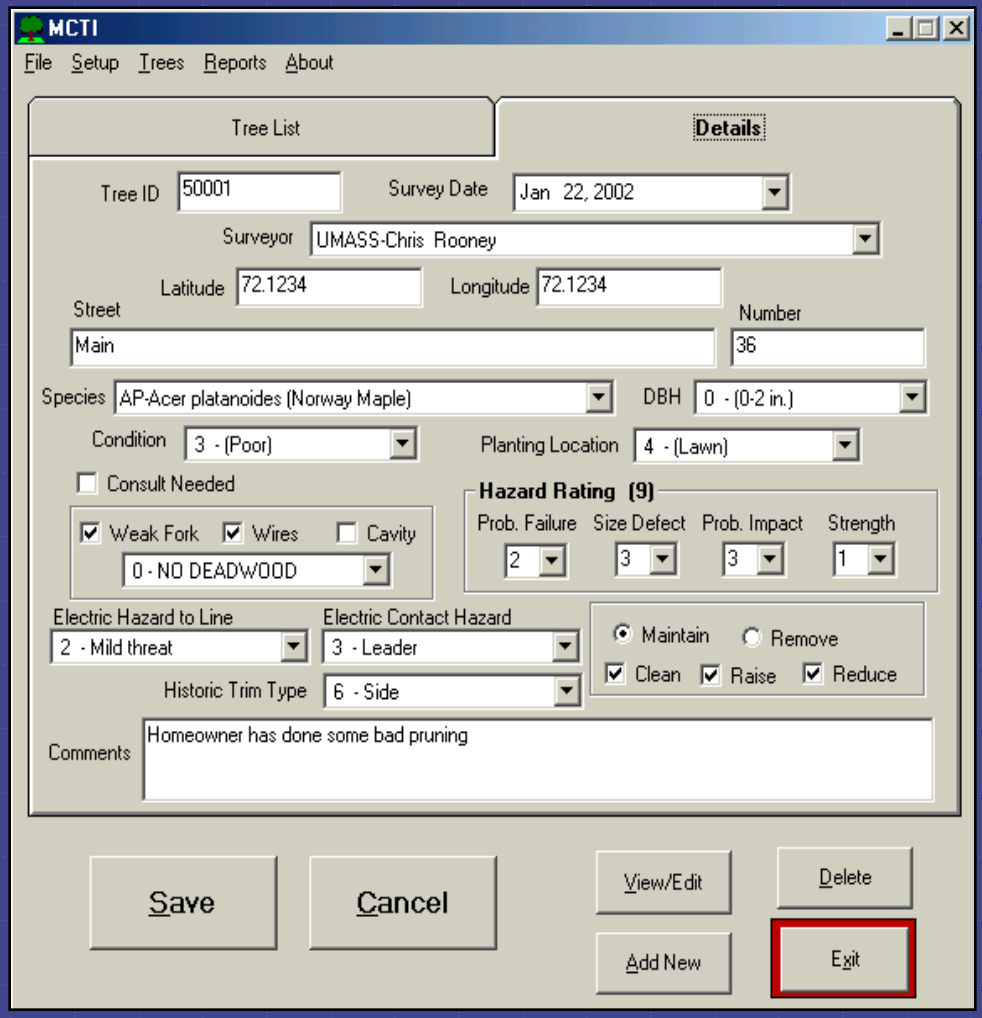
FOR MORE INFORMATION



www.na.fs.fed.us/urban

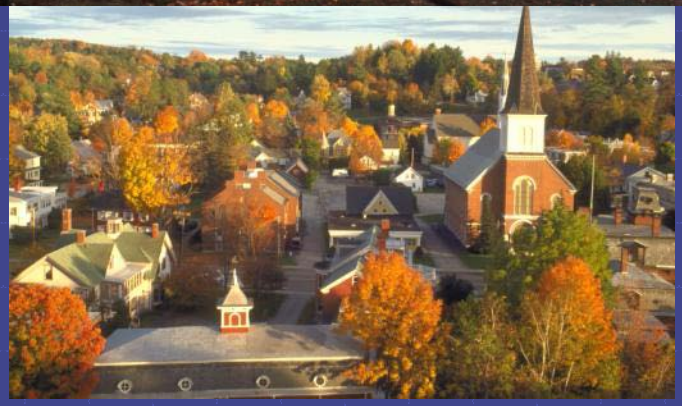

John Parry
USDA Forest Service
State and Private Forestry
Durham, NH
jparry@fs.fed.us
603-868-7688

Protect/Increase Urban Tree Canopy In Urban Areas


MCTI
File Setup Trees Reports About
Tree List
Details
Tree ID 50001
Survey Date Jan 22, 2002
Surveyor UMASS-Chris Rooney
Latitude 72.1234
Longitude 72.1234
Street
Main
Number
36
Species AP-Acer platanoides (Norway Maple)
DBH 0 - (0-2 in.)
Condition 3 - (Poor)
Planting Location 4 - (Lawn)
Consult Needed
Weak Fork
Wires
Cavity
0 - NO DEADWOOD
Hazard Rating (9)
Prob. Failure
Size Defect
Prob. Impact
Strength
2
3
3
1
Electric Hazard to Line
2 - Mild threat
Electric Contact Hazard
3 - Leader
Maintain
Remove
Clean
Raise
Reduce
Historic Trim Type
6 - Side
Comments
Homeowner has done some bad pruning
Save
Cancel
View/Edit
Delete
Add New
Exit

Things to think about before planning.....

- What kind of plan is needed?
- Who will be involved in its development and at what stage?
- How the plan will be used?
- How awareness and support for the plan will be generated?



Priority Planting Opportunities