

Resourceful Tips for Effective Tree Preservation

Trees, Pests, & Professional Practice
a California Pitch Canker Task Force Seminar
Monterey, CA – March 12, 2003



Presented by the

City of Palo Alto

Dave Dockter, Managing Arborist, Planning Division

Welcome to the City of Palo Alto



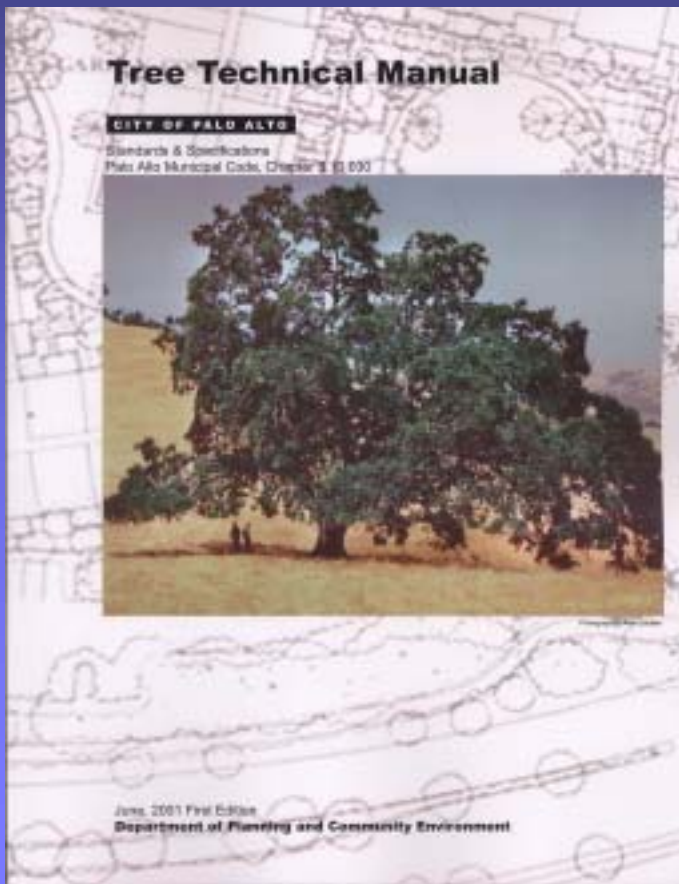
A California, USA Charter City, incorporated 1884



Primary Source Document

A Tree Technical Model

From Planning to Preservation



- *Dave Dockter, Managing Arborist,*
- **Planning Division, City of Palo Alto**

- **Access the Palo Alto Tree Programs and**

- **Tree Technical Manual at:**
www.cityofpaloalto/trees/manual

Palo Alto Taking on a challenge

*“In Palo Alto,
it’s the trees!”*



Fulton Street, Palo Alto



A Tree Technical Manual

*A new benchmark for
natural resource planning and preservation*

The Manual is a valuable model relevant to planners, urban forest professionals & responsible agencies for the following reasons:

- **Originality**: The Manual represents a concept meeting needs not addressed by standard planning processes
- **Transferability**: The Manual can be cited verbatim by planners and arborists for reports, projects & code enforcement
- **Quality**: The Manual employs excellence of convention, thought, analysis and writing
- **Comprehensive**: The Manual pulls together Best Management Practices & Standards of Care for the planning & arboriculture industries. Bridges the gap between city staff and the onsite practitioner for projects protecting significant trees

The Manual is . . .

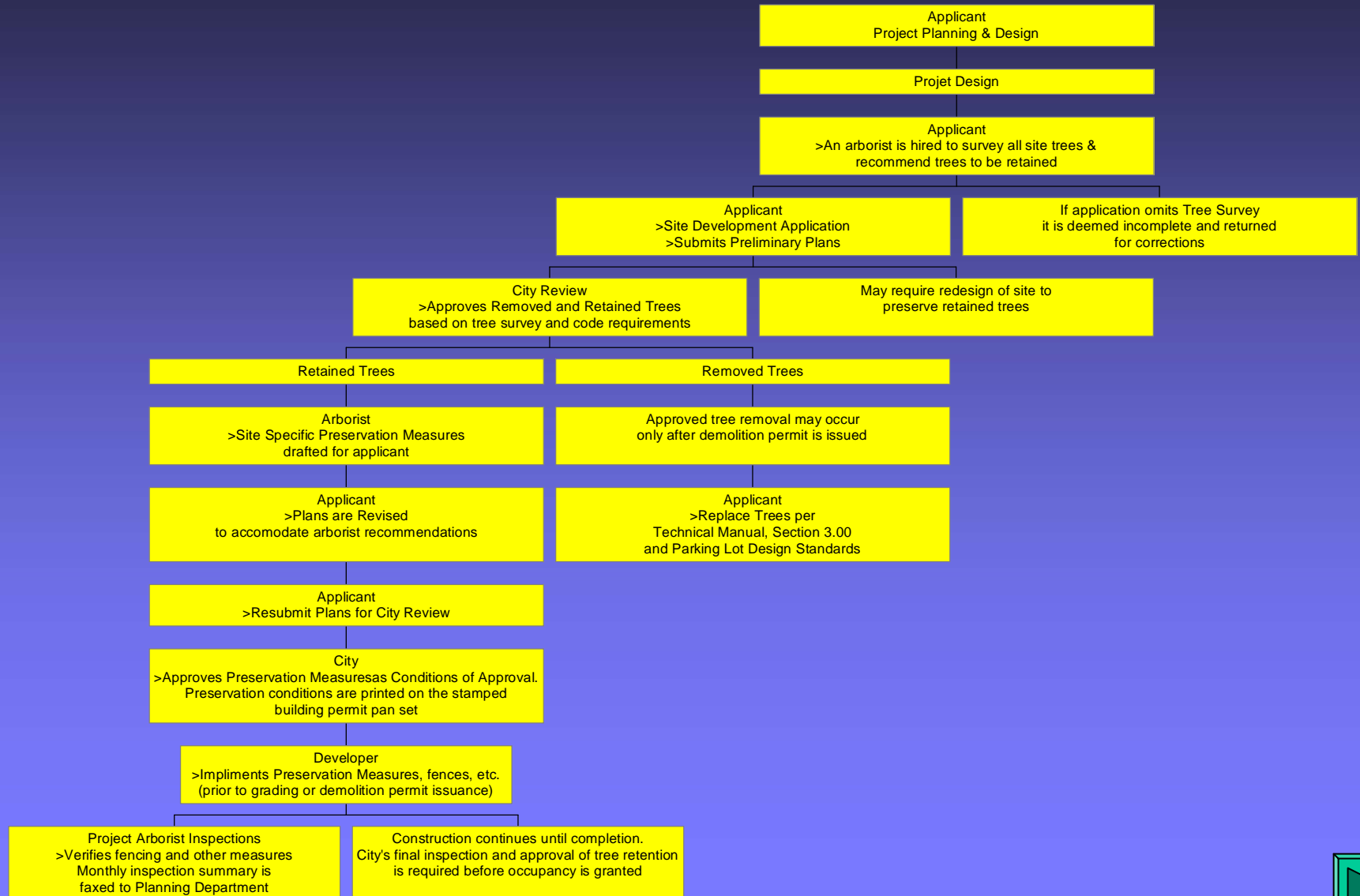
- a companion document **with the tree ordinance**
- a reasonable approach **to meet the goals of the ordinance**
- a tool **for professionals-- planning and land use entitlements**
- **For the development of property, requires:**
tree information and a protection plan as part of a submittal package to the city, implementation, monitoring and accountability of the approved preservation/mitigation, and for replacement of trees approved for removal
- **For the resident, it outlines procedure for removal or care of a regulated tree**

The Manual is . . .

A model of a clear standard for code enforcement & condition monitoring compliance

- The Municipal Code provides for enforcement of the regulations listed in the Manual. Violations of 'required practices' may be remedied by several options:
 - administrative penalty (\$500)
 - stop work order
 - civil criminal complaint as a misdemeanor violation to the Municipal Code
 - damage to trees (\$100) per inch
- Typically, only designated staff can issue citations for prohibited activity or broken regulations, however, any City employee or individual can file a complaint, initiating code enforcement personnel action or correction
 - PAMC 8.10.100 designates responsibility for enforcement to the chief & assistant building official, code enforcement officer, and planning department arborist

Palo Alto Tree Preservation and the Development Process





Resourceful Tips

from planning to preservation

- Get close with a planner (they're people just like you)
 - Do what it takes, make the call
- Understand the city processes
 - A residential building permit (ministerial review) is different than a commercial (discretionary review) projects
- Write your specifications to the contractor
 - Always refer to the 'plans dated x/y/z'



Resourceful Tips

Definitions -- Section 1.00

- Identifies & defines terms unique to the arboricultural or construction industry
- Specific terms will have specific legal meaning and implications
 - Dripline Area vs. Tree Protection Zone (TPZ)
 - Injury, Damage
 - Tree Report vs. Tree Preservation Plan



Resourceful Tips

Pitfalls in Preservation

- Lack of definition
 - Vague language, apologetic, uncertain writing style
- Including only general guidelines (generic)
 - Forget to be site specific, tree specific
- You forget to plug yourself in
 - Inspections should be a standard part of the tree protection plan

Use of the Manual

Introduction, Instructions and Important Information

Convention you use is important. Use language to distinguish between the 'required' and 'recommended' care of regulated trees. Be consistent with use of other common terms

- Required Practices

- *Mandatory minimum standards for the care of regulated trees to be implemented by the property owner (shall, must, etc.)*

- Recommended Practices

- *Not mandatory, unless specifically conditioned by a project. Additional proactive measures for specific situations (should, etc)*

- Impact

- *The effect of one thing on another, usually referred to in context the measure of negative effect to trees and the physical environment*

- Mitigate

- *A proposed measure to eliminate, avoid, rectify, compensate for or reduce the environmental effect*



Resourceful Tips

Protection of Trees During Construction

2.10 Tree Protection & Preservation Plan--Key Elements

- A project Arborist is usually retained by the property owner prepares a written site & tree specific plan with instructions to mitigate negative impacts and protect trees



Resourceful Tips

Protection of Trees During Construction

Gear your instructions to fit into these distinct phases

- Prior to Demolition Permit
 - Fencing
 - Demolition
 - Site sits vacant?
 - Specify monthly irrigation, etc.
 - Re-do fencing correctly
- During Construction
 - Grading, trenching, utility installation, foundation forming, where is the clean-up area (cement, paint, etc.)
 - Inspections: how many?
 - Minimum monthly or weekly?
 - Any time inside the TPZ?
 - Type a brief summary of your notes-send to stakeholders (it shows that you are a professional)



Resourceful Tips

Protection of Trees During Construction

Gear your instructions to fit into these distinct phases

- During Construction (continued)
 - Tree health, winter/erosion control?, summer dust/wash leaves, water trees, etc.
 - Pruning and trimming
 - prune before construction and again during framing if needed
 - Say what should happen when tree/root damage occurs
 - who should they call,
 - when should they call (48hrs?)
- After Construction
 - State your intent to inspect tree health during walkthrough with the landscape architect (if there is one).
 - Provide a brief summary statement for your client



Resourceful Tips

Protection of Trees During Construction

2.15 Pre-Construction Requirements - Six critical steps

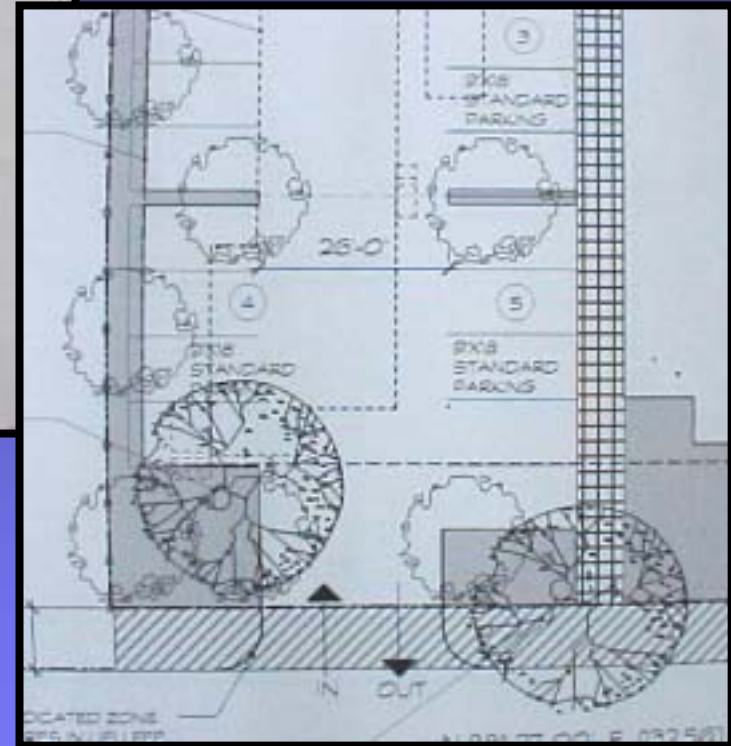
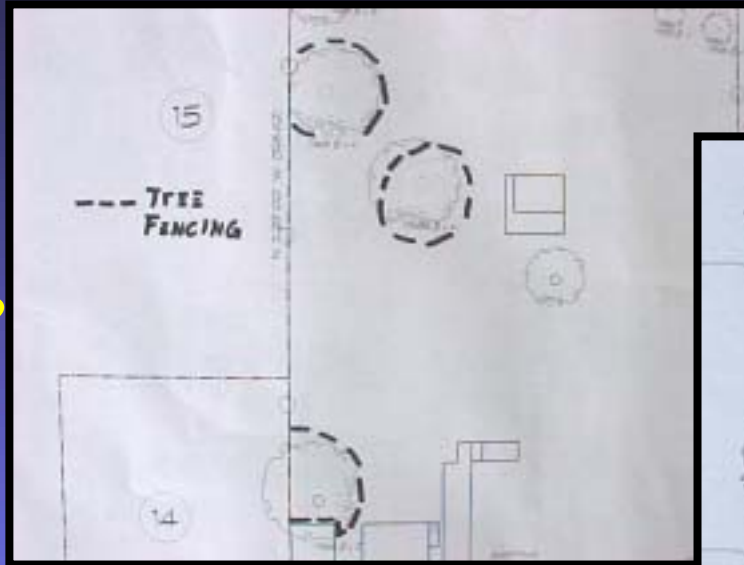
- Site plan, disclosure of all trees and driplines are required
 - Tree Technical Manual, Appendix I, Tree Disclosure Statement (PAMC 8.10.040)
- Verification of tree protection
- Pre-construction meeting with project Arborist
- Tree fencing--Type I, II or III ? Which is it?
- TPZ, activities permitted or prohibited
- Pruning, surgery & removal standards



Resourceful Tips

Site Plans

Key Elements



Requires site and grading plans to show:

- Accurate canopy dripline
- Tree protection zone (TPZ)
- Type I tree fencing as a bold dashed line



Resourceful Tips

Tree Fencing

Type I

Key Elements

Type II



Type III

Warning Sign



Tree Fencing -- Case Capsule



CONSTRUCTING A HOUSE TO FIT THE TREE REQUIRES PLANNING BEFORE A BUILDING PERMIT IS APPROVED

PHOTO SHOWS A NEW HOME BEING CONSTRUCTED WITHIN THE DRIPLINE OF A 200 YEAR VALLEY OAK.



- TTM, Section 6.30-B, Tree Protection Zone. Although the tree dripline covers over half of the lot, the project Arborist determined a TPZ of 25-feet from the trunk would enable the tree to survive. The previous house foundation was at this approximate location.



Resourceful Tips

Protection of Trees During Construction

2.20 Describes activities during demolition and construction near trees

Key Elements

- Specifications covered are: soil compaction, grading, utilities, excavation, equipment, root pruning, injury mitigation
- A unique approach was developed establishing Restriction Zones for Trenching for three different street-scape scenarios

2.25 Damage to Trees

Key Elements

- Reporting procedures and penalties are established

2.30 Arborist Inspections -- no longer a missing element

- Fencing, rough grading and monthly reporting to the City are required in the 'inspection schedule' table

Case Capsule--Arborist Site Inspections

- TTM, SECTION 2.30, ARBORIST INSPECTIONS.
- PHOTO SHOWS CONSTRUCTION MATERIALS LEANING AGAINST A DESIGNATED PROTECTED TREE. STORAGE OF LIQUID MATERIALS COULD ALSO LEAK OUT ONTO THE TREE ROOT ZONE.



A MONTHLY PROJECT ARBORIST INSPECTION AND CORRECTION OF THIS INCIDENT WILL BE REPORTED TO THE CITY IN THE MONTHLY INSPECTION REPORT. IN THE EVENT THE TREE DIES, IT WOULD BE REPLACED PER TTM, SECTION 3.10, 'WHEN TREE REPLACEMENT IS REQUIRED'

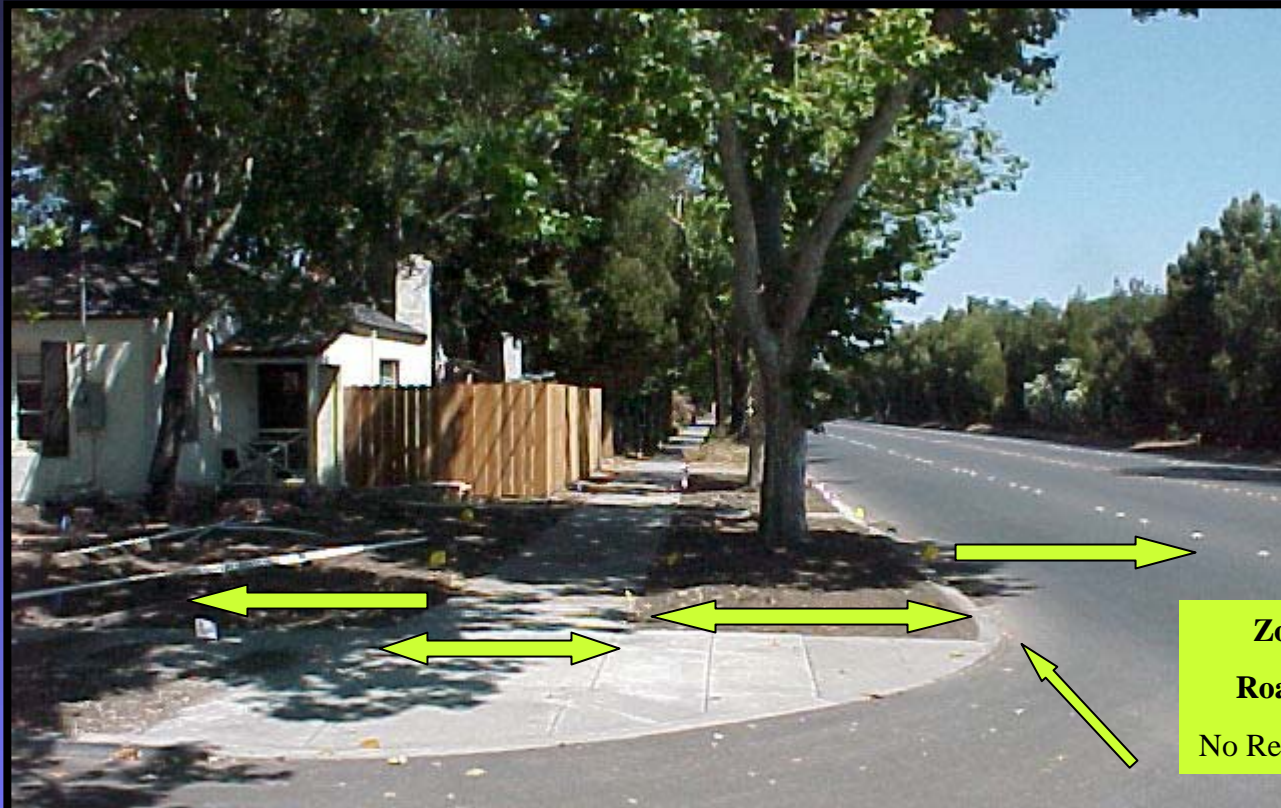
Case Capsule-- Prohibited Activity in the TPZ

Deodar Cedar--Trenching and root damage inside the fenced enclosure



- TTM, Section 2.2.0 Restriction Zones for Trenching were not followed, which require calling for approval by the project Arborist approval prior fence moving or trenching
- This tree was damaged beyond repair and was subject to a \$13,000 mitigation fee per TTM, Section 3.25, Tree Value Replacement Standard

Case Capsule: Excavation, Trenching or Boring Restriction Zone--Section 2.20-1



Zone 1
Private Property.
Severing roots greater than 1" needs approval by property owner arborist.

Zone 2
Sidewalk.
Severing roots greater than 2" needs approval by Public Works Arborist.

Zone 3
Planter Strip.No mechanical digging. Severing roots greater than 2" needs approval by Public Works Arborist.

Zone 4
Curb & Gutter.
Severing roots greater than 2" needs approval by Public Works Arborist.

Zone 5
Roadway
No Restrictions



Public Works project --curb replacement with no specifications for tree protection or root severing guidance as required. Mature London plane.



Public Works project – conflict/solution. Two separate Divisions must function together. The sidewalks group is required to call Public Works Arborist before cutting the basal flare or damaging roots when replacing curb and gutter (Zone 5-TTM , Sec. 2.20)

Case Capsule-- Damaged Beyond Repair

- **Coast Live Oak-- Indiscriminate trenching inside the tree protection zone (TPZ). Fence was taken down without project Arborist approval**

This tree was replaced with one 60-inch box size coast live oak according to TTM, Section 3.20, Tree Canopy Replacement Standard





Resourceful Tips

Removal, Replacement & Planting of Trees -- Section 3.00

Key Elements

- Identifies allowable removal
- Identifies when replacement is required
- Identifies a Replacement Formula for mitigation
 - Canopy formula *Unique Aspect*
 - Value formula \$
 - Security deposits to the city
- Establishes Tree and shrub planting specifications
 - Quality control & materials
 - Drainage, aeration, procedures, turf or unusual areas
 - Engineered Structural Soil



Resourceful Tips

Hazardous Trees Section 4.00

4.00 Hazard Trees

Key Elements

- Property owner responsibility
- Recognizing a potential hazard
- Emergency removal conditions

4.20 Identifies criteria used by the City to determine if a tree is hazardous

- ISA Hazard Evaluation Form and rating, Appendix C

4.30 Provides a Hazard Evaluation Questionnaire & a 'safe-tree checklist'



Resourceful Tips

Tree Maintenance Guidelines

Section 5.00

5.05 Care of regulated trees

Key Elements

- Identifies Prohibited Acts
 - Excessive pruning, topping, other actions
- Requires Pruning & Industry Standards
 - Mature trees, distressed trees, young trees
 - Require ISA Best Management Practices be used
- Lists Other Care
 - Fertilizing
 - Watering schedule
 - Soil improvement
 - Insect & disease control (above & below ground)
 - Fruit control
 - Fire protection
 - Tips for selecting and contracting with an Arborist



Tree Reports

Section 6.00

6.00 Tree Reports

Key Elements

- When is a tree report required
 - Who may write the report?
 - Tree removal permits--what info should be included?
- Types of Report Format
 - Letter report (tree removal, minor development)
 - Tree Survey (major projects, many trees)
 - Tree protection and preservation report
(are street trees exempt ?)
 - Tree Appraisal



Case Capsule--Tree Reports

Report Examples--citing the Manual

Manual in this protection plan will use the abbreviation TTM, the Section

Protection Plan Requirements

1. Tree Protection Zones

All construction operations must comply with the strict adherence to critical to each tree's survival, which is titled the Tree Protection Zone planned to be retained (TTM, 1.36 and 2.15E). In this area, construction is prohibited, unless approved and supervised by the project arborist. In thresholds must be met, the proposed work must also be approved by attention must be given to assure that no soil disturbance is allowed in Protection Zones (TPZ) for the retained trees in linear feet (diameter).

Tree #	Feet	Tree #	Feet	Tree #	Feet
Tree #13-	26'	Tree #30-	30'	Tree #1-	26'
Tree #14-	22'	Tree #31-	20'	Tree #2-	22'
Tree #15-	26'	Tree #32-	16'	Tree #3-	26'

...pavement at all times. The loader or backhoe t... pieces and be loaded by hand (TTM, 2.4 A). The project... least at the initiation of this demolition.

...ation system(s), which provide regular irrigation to the...-operational, temporary irrigation (TTM, 2.20 E, 1) m... e: trees #1-12, 100, 101, 200-211, 213, 214, 219-238, and all of... on this protection plan. Trees must receive 10 gallons of water... monthly during the dry month... il must be irrigated to moisture... ion point. A dry month is def...

The exceptions to the TPZ are as follows:

- Trees #17, 212, 217, 218 239: to conform to access to exist enclosure or th
- Trees #44, 45, 50, 51, 52, 53: to conform to demolition of
- Tree #96: to provide acc
- Tree #103: to provide acc Drive. Protecti

BARRIE D. COATE AND ASSOCIATES
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Tree-specific recommendations



Appendices

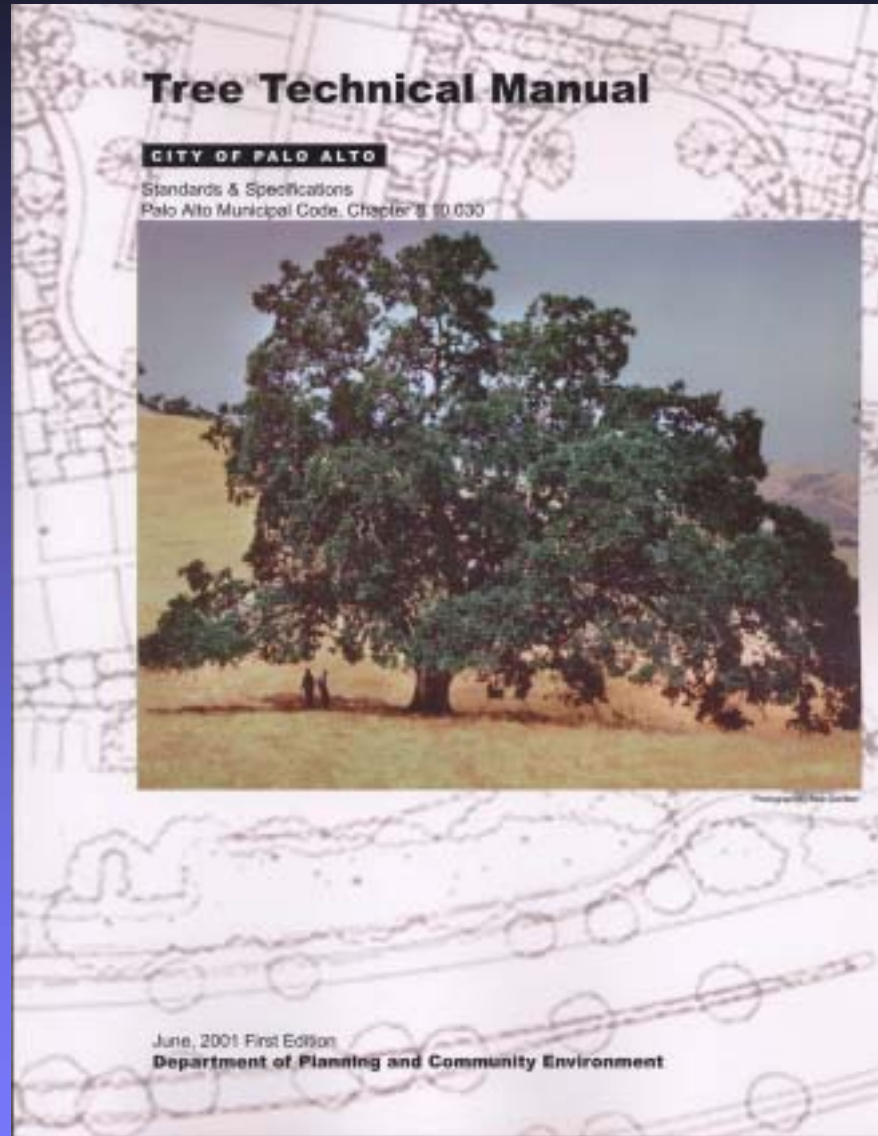
Appendices in the back of the Manual provide additional information referenced and for other sources of info for specific or unusual situations

APPENDICES

- A: Palo Alto Municipal Code Chapter 8.10, Tree Preservation & Management Regulations
- B: Tree City - USA
- C: ISA Hazard Evaluation Form
- D: List of Inherent Failure Patterns for Selected Species (Reference source)
- E: ISA Tree Pruning Guidelines
- F: Tree Care Safety Standards, ANSI Z133.1-1994 (Reference source)
- G: Pruning Performance Standards, ANSI A300-1995 (Reference source)
- H: Tree Planting Details, Diagram 503 & 504
- I: Tree Disclosure Statement
- J: Palo Alto Standard Tree Protection Instructions
- K: Tree Protection Detail, Public Works Detail #505
- L: Procedures for Landscaping Under Native Oaks
- M: Tree Removal - Procedure Checklist
- N: Heritage Tree Application Checklist

Special thanks to the ISA for granting permission to reprint the *Tree Pruning Guidelines* & the *Tree Hazard Evaluation Form, 2nd Edition* from the *Photographic Guide to the Evaluation of Hazard Trees in Urban Areas*

Now available for order from the City of Palo Alto



Checks of \$15 payable to:
City of Palo Alto
Attn: Planning
250 Hamilton Avenue
Palo Alto, CA 94301

The Manual is also available free on line or can be ordered @
[www.city.palo-alto.ca.us / featured sites / trees / contact us](http://www.city.palo-alto.ca.us/featured_sites/trees/contact_us)

Date: July 10, 2001

For Immediate Release

Contact: Dave Dockter
Managing Arborist, Planning Division

**City of Palo Alto Announces
Publication of New Tree Technical Manual**

Palo Alto, CA -- The City of Palo Alto has just published a Tree Technical Manual, the companion document to implement its Tree Preservation and Management Regulations published earlier. The Manual is intended to provide orderly protection and consistent standards of care for the City's Regulated Trees.

The Tree Technical Manual addresses a need experienced by many cities nationwide -- the gap between a tree preservation ordinance and the ability to effectively implement its regulations. Specific state-of-the-industry standards of care are provided in the Manual for tree maintenance, protection of trees during construction, standardized tree reports, formula for tree replacement, planting and criteria to determine when a tree is a possible threat to public health, safety and welfare. The standards distinguish between the 'required' and 'recommended' care for Regulated Trees. Regulated trees are categorized as defined in the Manual as protected trees, street trees and designated trees on non-residential and commercial property.

The Manual will assist cities to:

- (1) more successfully implement the heritage tree/sustainable environment aspects found in many General Plans, and
- (2) bridge the gap between city staff and the onsite practitioner for projects requiring the preservation and care of protected and other significant trees.

The City of Palo Alto has received requests to use the document as a template from dozens of cities, several counties, States from California and Hawaii to Washington D.C, the province of British Columbia and Shri Lanka, universities and major utility enterprises. The document is formatted for easy use by city planners and public works engineers and other city professionals to define project Conditions of Approval and code enforcement as well as by private property owners and residents who wish to provide quality care for their trees.

The Manual is online in World Wide Web version at: <http://www.city.palo-alto.ca.us/ featured sites / trees>.

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Tour the City full of Character

www.city.palo-alto.ca.us/featured_sites/trees

