

# Sonoma County Board of Supervisors

Modernizing Tree and Woodland Protections

11/28/2023

Staff:

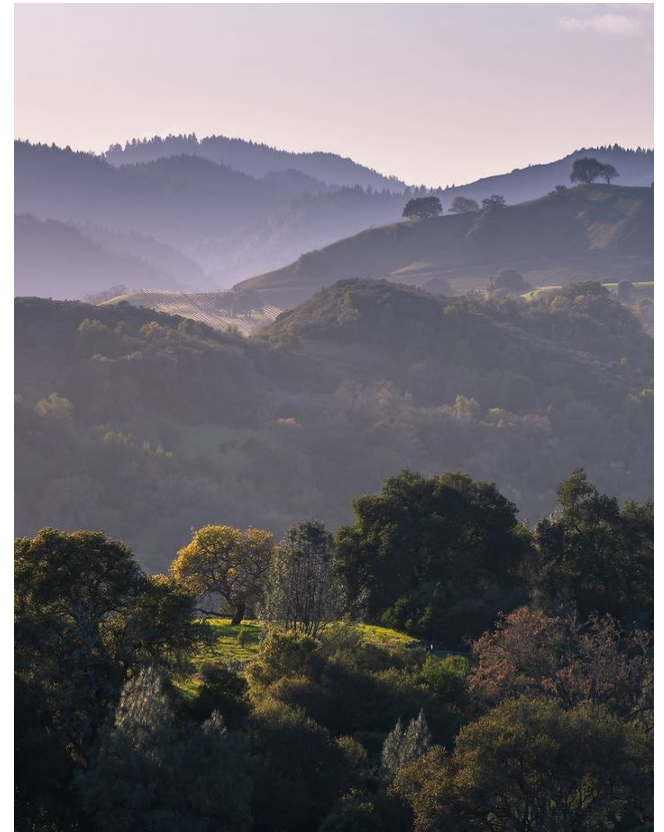
Doug Bush

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# Introduction

- County policies call for protection of trees and increased carbon sequestration
- Current regulations do not protect most trees
- Proposed changes would align regulations with existing policy to protect more trees



# County Policies

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- General Plan 2020
- Five Year Strategic Plan
- Carbon Sequestration Inventory and Potential Sequestration Study
- Climate Emergency Resolution

# Current Tree Regulations

- Tree Protection Ordinance
- Valley Oak Habitat Combining Zone
- Heritage and Landmark Tree Ordinance
- Riparian Corridor Combining Zone
- Also:
  - Timberland Production Zones
  - Timberland Conversion Permits
  - Vineyard and Orchard Development and Agricultural Grading and Drainage



# Outreach Summary

- 50+ stakeholder meetings from 2021–2023:
  - Regulatory Agencies and Municipalities
  - Agricultural stakeholders
  - Development and real estate stakeholders
  - Environmental advocates
- Public survey
  - 500+ responses, majority support increased tree protections
- 8 Public Hearings and Workshops with Board and Planning Commission

# Tree Protection Ordinance

## Proposed Changes

1. Expand applicability
2. Protect more species
3. Protect smaller trees
4. Public health and safety exemptions
5. Proportional mitigation requirements
6. Use permit required for exceptional trees
7. Clarifying updates to Riparian Corridor Combining District, Timberland Conversion and Chapter 25

# Tree Protection Ordinance

## Summary

Tree Protection Ordinance Components	Existing Ordinance	New Ordinance
Minimum Diameter (Single Stem)	9"	6"
Number of Species	11	31
Applicability	Discretionary Permits	All projects removing protected trees
Agriculture	Exempt	Agricultural maintenance exempt
Big Trees	No extra protections	UPE requirement for large trees
Replanting Ratios	1:6 – 1:30, ratio caps over 33" DBH	Maintains existing ratios, no cap
Monitoring Required	None required	Seven-year monitoring period
Fee Option	Minimum \$200 fee	Appraised value of replacement cost

# Mitigation Fee Comparison

Method	Cost – 28” Tree	Cost - 6” Tree (same species)
Existing Ordinance Fees	\$800	\$200
Trunk Formula Technique	\$22,810	\$916
Cost Compounding Technique	\$21,463	\$1,093





# Oak Woodlands

- Oak Woodlands are the County's most biodiverse ecosystems
- No significant regulatory protections for oak woodlands
- Approximately 27,000 acres of oaks were significantly impacted since 2013
- Woodland protections are necessary to achieve natural resource and climate goals
- The proposed District would limit development impacts



# Oak Woodland Combining District

- Apply protections to woodlands in combining zone
- Exemptions for public safety, vegetation management, and ecological restoration
- Allows one-time conversions of up to 0.5 acre on undeveloped parcels
- Large scale conversion subject to use permit
- Prioritize impact avoidance, allow for environmental review, support public transparency, and reserve county discretion on private projects of public consequence



# Oak Woodland Combining District

## Allowed Uses

- Without zoning permit, provided it does not result in type conversion:
  - ▣ Hazard reduction
  - ▣ Hazardous / dead / dying / diseased
  - ▣ Beneficial woodland conservation activities
  - ▣ Residential or Agricultural Maintenance
- With zoning permit
  - ▣ One time conversion up to 0.5 acre on undeveloped parcels

# Oak Woodland Combining District Use Permits

- Determination of Oak Ecological Categories
- Alternatives Analysis
- Conservation Plan outlining mitigation options:
  - ▣ Conservation Easement
  - ▣ Replanting
  - ▣ In-lieu fees using appraisal value

# Valley Oak Combining District Updates

- Replace in-lieu fees with the same appraisal option recommended for the Tree Protection Ordinance
- Strike option to retain existing trees since doing so leads to resource loss
- Increase mitigation ratios to address limited survivability
- Integrate oak combining districts to simplify implementation

# Example 1 – Residential Use on Undeveloped Parcel



- 13 acre parcel in OAK district
- Parcel is entirely in Oak Woodland
- Proposed residence, including driveway, septic, and well
- Eligible for .5 acre, one time conversion of woodlands
- If impacts exceed .5 acre subject to use permit



## Example 2 – New Workshop in Valley Oak Area



- Developed site with individual valley oaks
- In VOH district
- Proposed 2000 square foot garage
- Yellow location requires use permit, removing 2 valley oaks over 36" dbh
- Green location avoids large valley oak, doesn't require planning permit for tree removal

## Example 3 – New Vineyard in Oak Woodland Combining District



- 50 acre parcel with 20 acres of woodland
- Proposed 25 acre vineyard
- In woodland (green), vineyard requires use permit and VESCO
- Outside woodland, only requires VESCO



# Additional Recommendations

- Update recommended vegetation management exemption to create consistency between ordinances
- In Oak Woodland Combining District, add provision to support repair of failing septic systems
- In Tree Protection Ordinance, The title of Chart 1 should be relabeled, “To Be Used for Measuring Protected Trees Proposed for Removal”
- In Oak Woodland Ordinance summary table (Section 26-67-030) Individual Tree Removal – should say “CUP” and not “E”

# Recommendation

The Planning Commission recommends that the Board of Supervisors adopt the attached ordinances and find the proposed actions exempt from the California Environmental Quality Act.





End

# Enforcement Procedure

- Complaint submitted (e.g. sococonnect)
- Code enforcement works with Planning or Natural Resources staff to verify
- If valid complaint, code enforcement investigates
- Environmental restoration remedies in County Code



## Example – Agricultural Conversion and Expansion



- Parcel contains native trees and orchards, not located in OAK or VOH
- Proposal: remove 10 acres of orchard, replace with 20 acres of vineyard
- Orchards are not protected species, may be removed
- Removal of native trees to expand cultivation area will require replanting or paying fees, subject to TPO
- Vineyard would then be subject to VESCO

# Valley Oak Habitat Combining District - Summary

VOH Ordinance Components	Existing Ordinance	New Ordinance
Minimum Diameter	Single tree 20" Cumulative trees 60"	6"
Applicability	Any Removal of Minimum Diameter	Any Removal of Minimum Diameter
Big Trees	No extra protections, increased mitigation amounts	UPE requirement for large trees
Mitigation Options	Replant, Retain existing Valley Oaks, In-lieu fee	Replant at 1.5x Tree Protection Ordinance, Appraisal method replaces in-lieu payment
Fee Option	Minimum \$50 fee	Appraised value of replacement cost

# Oak Woodlands

- No significant regulatory protections for oak woodlands
- Approximately 27,000 acres of oaks were significantly impacted since 2013
- Approximately 204 acres of trees removed under VESCO permits (2013-2021) outside wildfire areas
  - ▣ Removals under 1/2 acre are not counted because they are not tracked by VESCO process
  - ▣ Approximately 77% (159 acres) of acres of trees removed via VESCO occurred in oak woodlands in areas outside of wildfire (2013-2021)

**Essential to Wildlife.** Oak woodlands support 120 species of mammals, 147 species of birds, over 60 species of amphibians and reptiles, 2000 types of plants and over 5000 native insects.

**Diversity.** There are more than 10 native oak trees. Some lose their leaves once a year: Blue oak, Oregon oak, Black oak and Valley oak. Others keep their leaves year-round: coast, interior and canyon live oaks, shreve's oak.

**Food Source.** A single oak can produce over 2000 acorns in a good year. These acorns are an important food source for wildlife and are an essential part of many indigenous cultures.

**Water Quality.** Oaks support local agriculture, protect endangered fish, and reduce the potential for damaging floods by using their vast canopies to catch and slowly disburse heavy rains.

**Fire Tolerance.** Most local oaks are well adapted to wildfire and have thick bark to protect them. In fact, most oaks actually depend on low-intensity fire to manage encroaching conifers and replenish the soil.



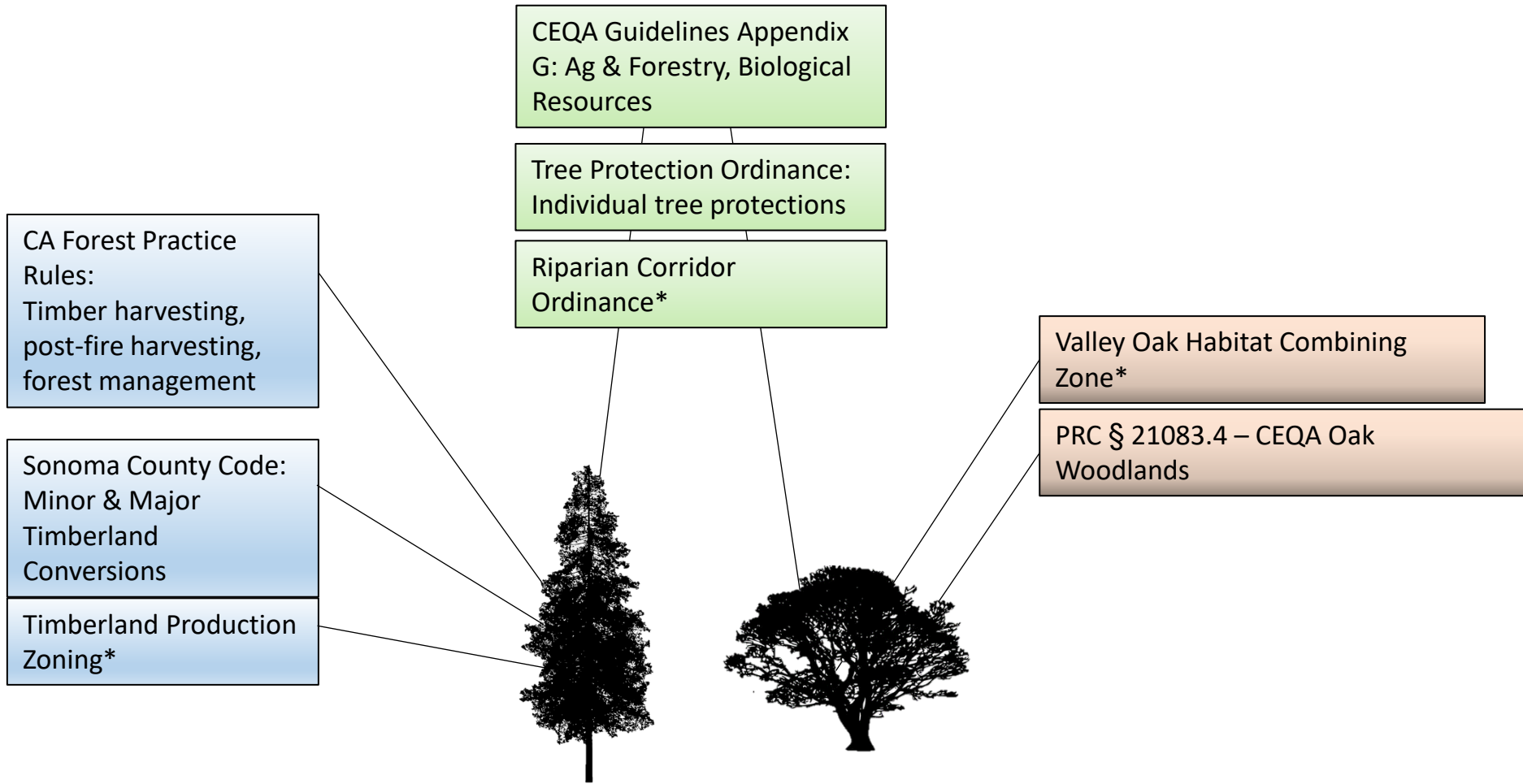
### Essential Oak Woodlands

**Local Heritage.** Oaks can live a very long time. Local researcher Wendy Herniman, estimated that one local coast live oak is approximately 540 years old and began growing around 1480!

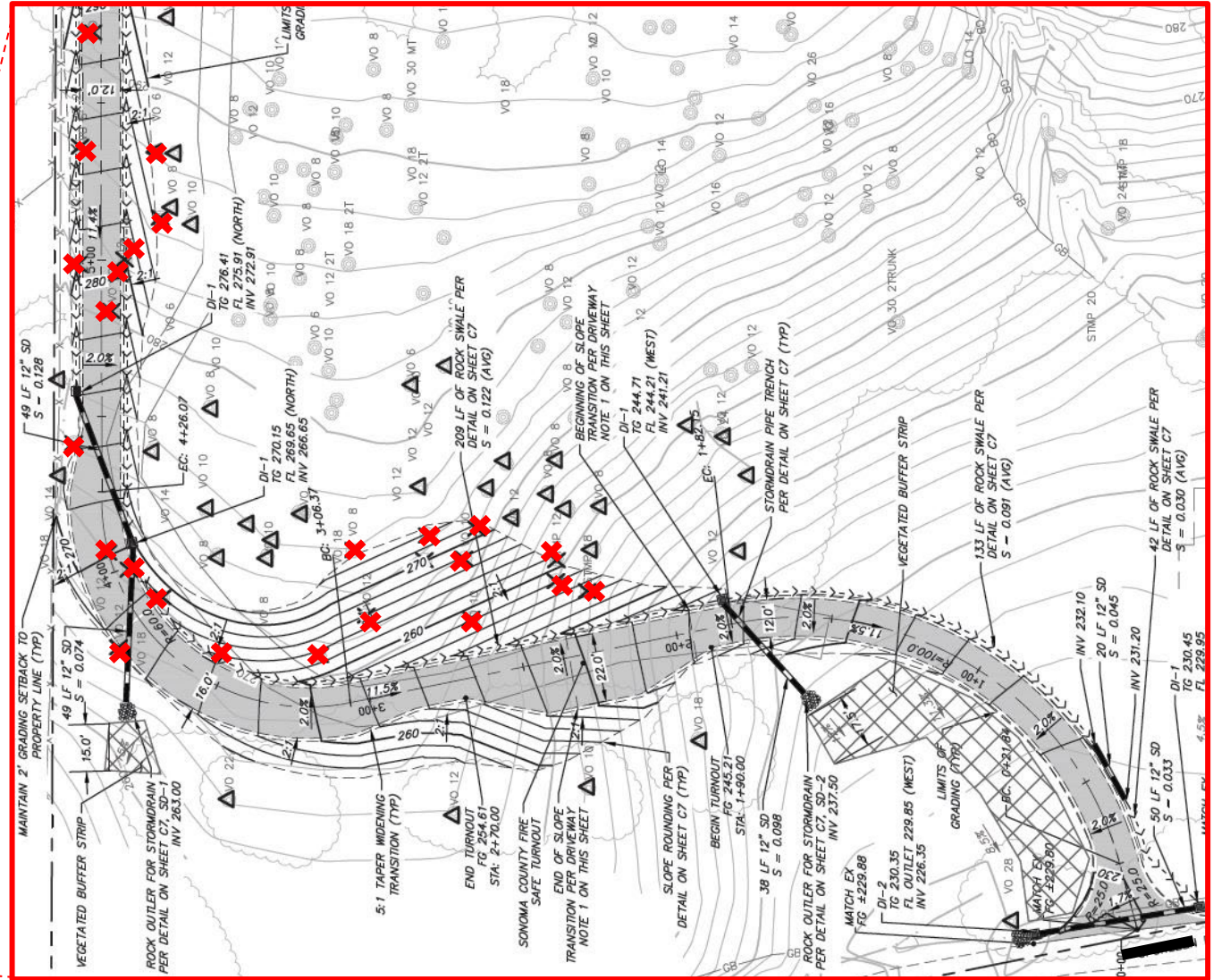
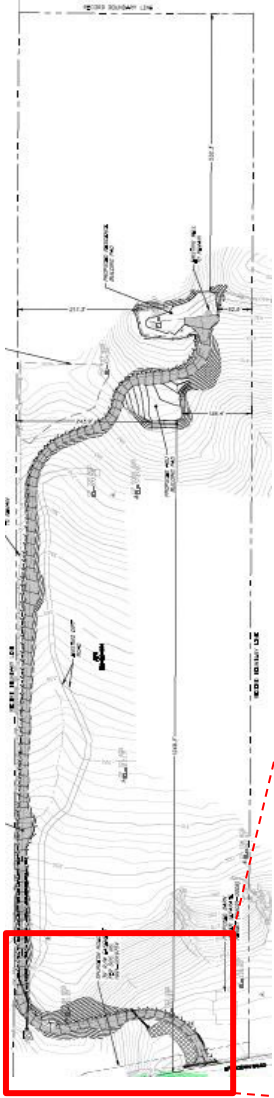
**Capturing Carbon.** Trees take in carbon dioxide and use it to grow. Oaks can capture significant volumes of carbon from the atmosphere and help reduce the county's contribution to climate change.

**Reducing Extreme Heat.** With their large canopies, oaks provide shade that helps keep people, buildings and cities cooler during hot weather, while reducing heating and cooling costs and their energy consumption.



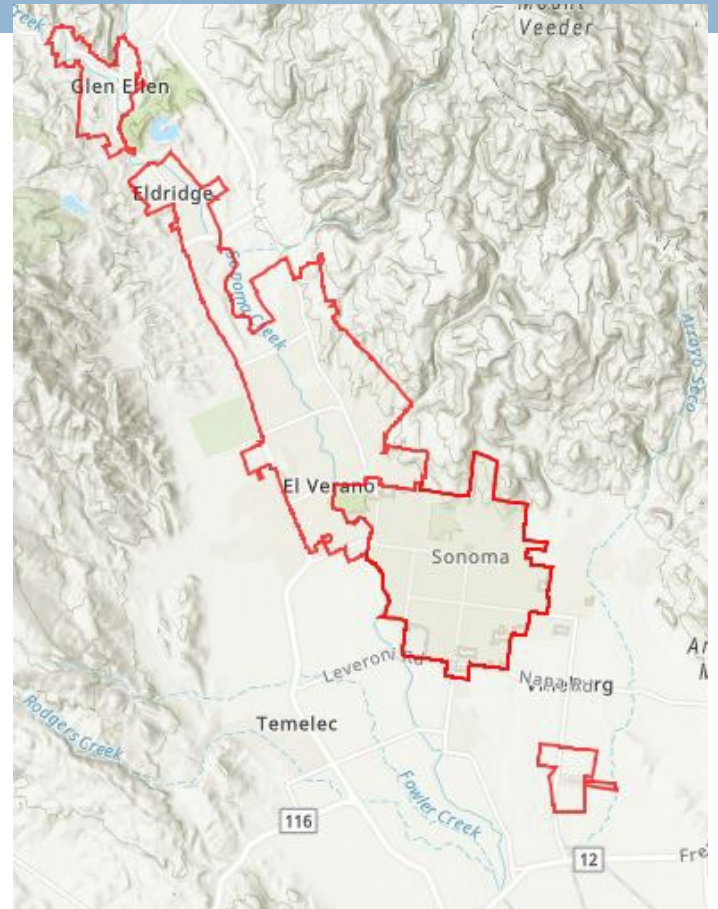
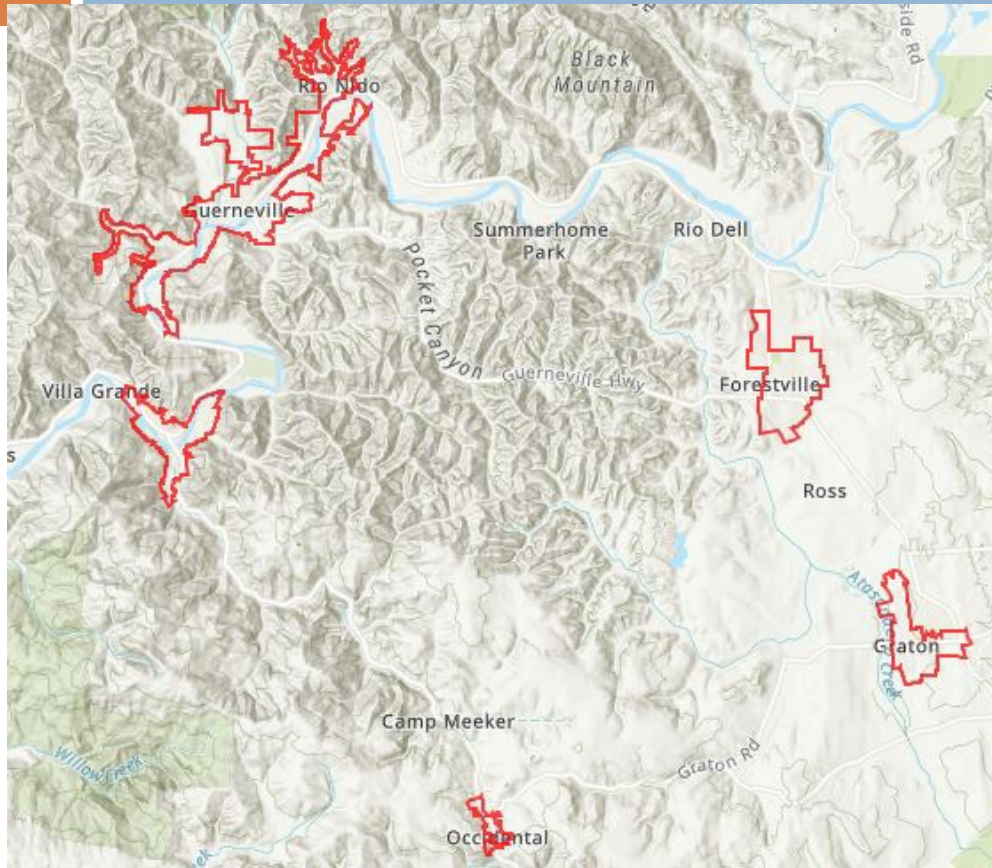


\*Regulation applies only in certain geographic locations or to certain species

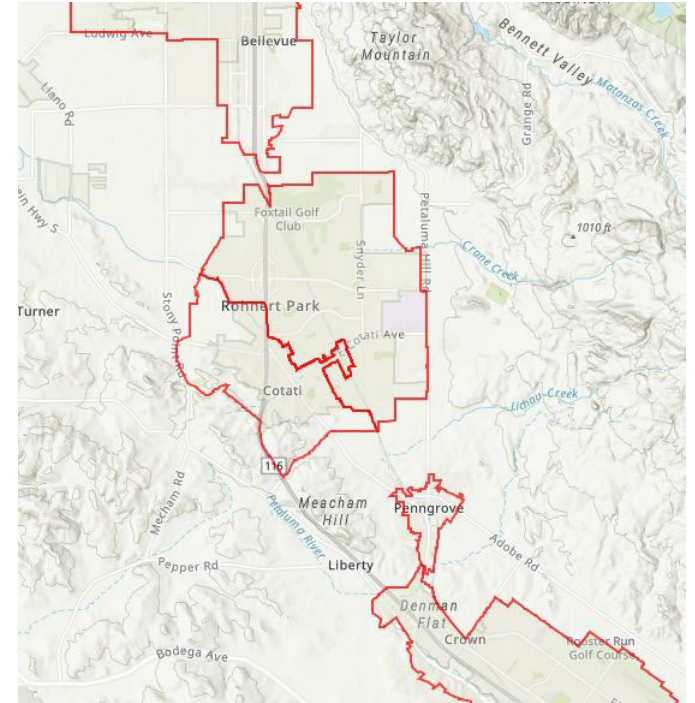
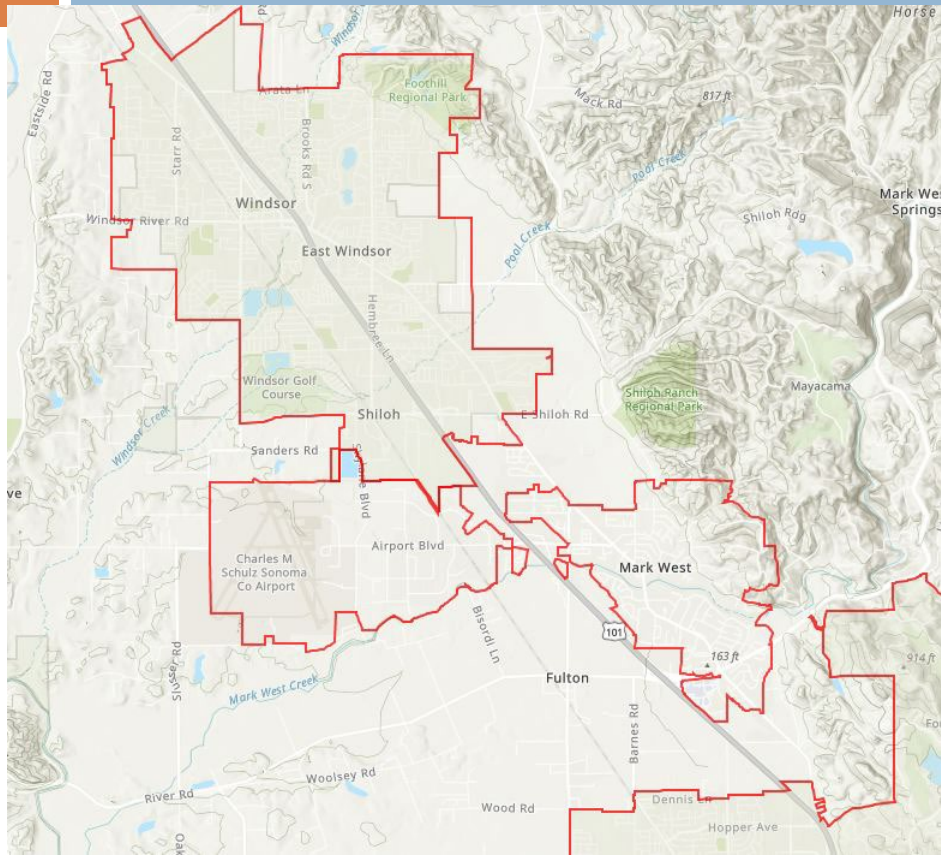


New driveway

✖ = Tree removed

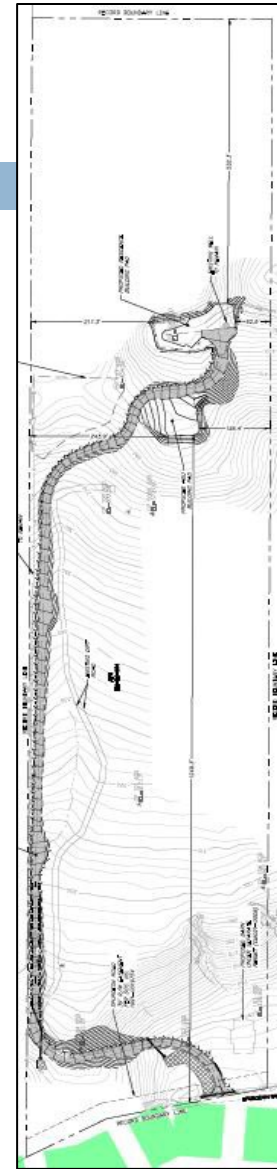








Site with valley oak woodland



Approved driveway





Site with valley oak woodland  
Approved driveway

# Appraisal Methodology



- Methodologies outlined in Guide for Plant Appraisal 10<sup>th</sup> Edition
- Gives different approaches to estimate cost of replacement trees
- Recognized guidance across professional stakeholders

# Methods of Estimating Cost

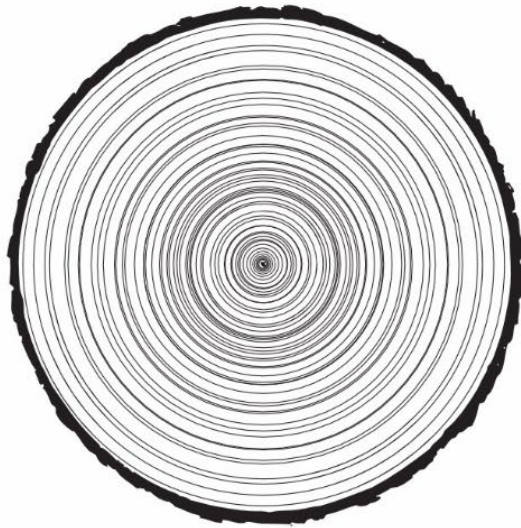
- Direct Cost Technique
  - ▣ When replacement trees are commonly available in same species and size
  - ▣ Estimate of cost of plants, services, other materials needed to reproduce or functionally replace the trees proposed for removal
- Extrapolated Cost Techniques
  - ▣ When replacement trees are not available in same size, but same species are available (ie, larger trees than common in nurseries)
  - ▣ Trunk Formula Technique (TFT) or Cost Compounding Technique (CCT)



# Depreciation Factors

- Condition
  - ▣ Consideration of structural integrity, tree health, and form
- Functional Limitations
  - ▣ Consideration of the interaction between the tree and site conditions that could limit the development of the tree
  - ▣ Includes species specific interaction with the site
- External Limitations
  - ▣ Factors outside of property, outside of owner's control that could impact development, condition or plant utility

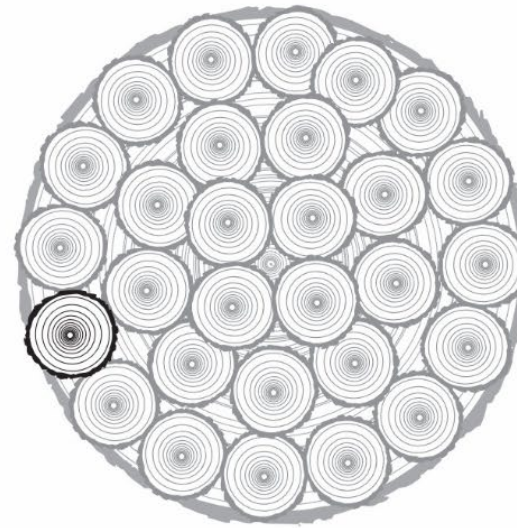
# Trunk Formula Technique



Original tree



Reproduction tree

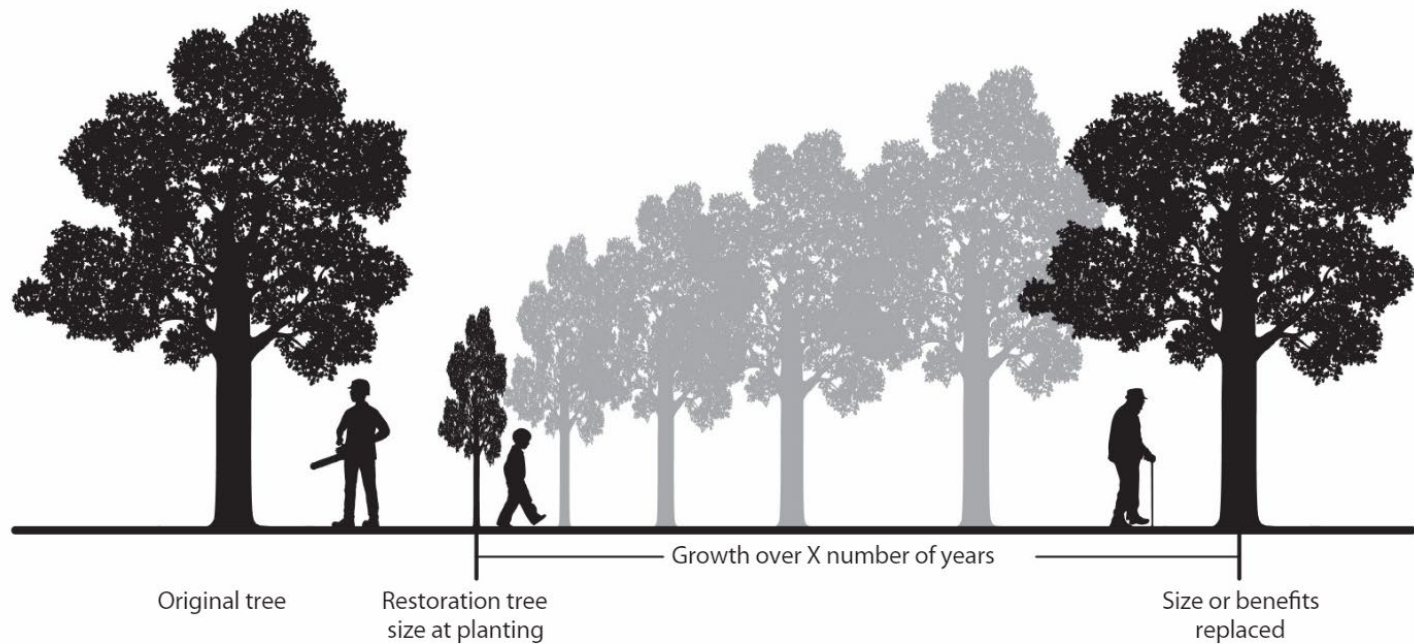


Reproduction tree  
overlain on  
original tree

# Trunk Formula Technique

- Determine x-sectional area and unit cost of replacement tree
  - ▣ Ex. 3" DBH tree at nursery costs \$500 (largest size available at wholesale price to landscape professional).
    - X-sectional area is 7.07 square in –  $(3.14 * 1.5 * 1.5)$
    - Unit Price is \$70.77/square inch –  $(\$500 / 7.07)$
- Multiply the Unit Cost by the x-sectional area of the appraised tree.
  - ▣ Ex. 20" DBH tree has x-sectional area of 314 square inches  $(3.14 * 10 * 10)$
  - ▣ Multiply by the unit cost for the above nursery tree

# Cost Compounding Technique



# Cost Compounding Technique

- Relates the cost of money to the tree growth time period
- Estimates time required for new planting to attain equivalent size as subject tree and then compounds the installed cost for that time period using an appropriate interest rate
- Formula is  $CC = PC \times (1+i)^n$  , where:
  - ▣ CC = Compounded Cost
  - ▣ PC = Present Installed cost of nursery tree
  - ▣ i = applicable interest rate
  - ▣ n = number of years for new tree to reach parity with

# Example – Trunk Formula

- Blue oak, 28” DBH
  - X-sectional area: 615.44 square inches ( $3.14 * 14 * 14$ )
- Largest available nursery size:
  - 36” Box @ \$825 – 3.5” DBH
  - Nursery X-sectional area: 9.62 square inches
  - Unit Cost: \$85.79 ( $\$825 / 9.62$  square inches)
- Base Value for appraised





# Example – Trunk Formula

- Base Value for appraised oak:
  - \$52,800 - (615.44 square inches \*\$85.79)
- Depreciation Factors
  - Condition – good form, healthy trunk, healthy branches, healthy upper branches – 90% rating
  - Functional Limitations – moderate to good site condition, dripline over pavement and may need to be pruned, sidewalk likely impeding roots, between road and building (could need more maintenance) – 70%
  - External Limitations – invasive oak borer beetle in area, but tree regularly inspected and overall healthy - 60%
- Depreciation Factor:  $(90\%*70\%*60\%) = 38\%$ , total depreciation of 62%
- Assigned Value = \$22,810 ( $\$52,800* 90\%*70\%*60\%$ )



# Example – Cost Compounding

- Blue oak, 28" DBH
- Largest available nursery size:
  - 36" Box @ \$825 – 3.5" DBH
- Present Cost to install:  $\$825 \times 2.5 = \$2,062.50$
- Interest Rate: 7.0%
- Assumed Growth Rate: 0.5"/year
- Years to Parity: 49 Years
- Compounded Cost for appraised oak:  
 $\$56,780 (\$2,062.50 \times (1 + 7\%)^{49})$
- Assigned Value (using TFT depreciation):  
\$21,463





# Example – Arboreal Value Chart No. 1

- Blue oak, 28” DBH
- Arboreal Value Points: 4
- Equivalent Plantings: 24 5-gallon trees or ten 15-gallon trees
- Existing in-lieu fees: \$800



# Policy vs. Implementation

- General Plan 2020
  - ▣ “Protect and enhance the County’s natural habitats and diverse plant and animal communities.”
  - ▣ “Establish standards and programs to protect native trees and plant communities.”
- Current Tree Protection Regulations
  - ▣ Do not protect native trees in most cases due to limited applicability and significant exemptions
  - ▣ Do not protect or enhance natural habitats

# Tree Protection Ordinance

## Agricultural Maintenance Exemption

- Current ordinance exempts all removals associated with agricultural operations.
- Proposed ordinance narrows this exemption
- Would exempt maintenance of existing cultivated land
- Tree removal associated with new or expanded agricultural operations would be subject to ordinance

# Minor Code Updates

- Riparian Corridor Combining District
  - Support invasive plant removal
  - Retain stumps in riparian corridor for soil stability
- Timberland Conversions
  - Add language clarifying existing policy
  - Minor Timberland Conversions are subject to a discretionary zoning permit
- Chapter 25
  - Align with Tree Protection Ordinance