

**MOORPARK CITY COUNCIL  
AGENDA REPORT**

**TO:** The Honorable City Council

**FROM:** Allen M. Walter, Parks and Landscape Superintendent *AW*

**DATE:** May 9, 2012 (CC Meeting of June 6, 2012)

**SUBJECT:** Consider Approval of the High Street Pepper Tree Recommendation Plan for the Removal of Fourteen (14) California Pepper Trees with a High Risk of Structural Failure

**SUMMARY**

In December 2011, licensed arborist Kerry Norman provided the 2011 High Street Annual Pepper Tree Evaluation report to the City (see attachment 2). The Annual Report recommended the removal of twelve (12) high risk Pepper trees that contain advanced decay or large cavities and are at risk of structural failure, and one (1) dead from Armillaria root disease. Since the December report, two (2) additional younger Pepper trees succumbed to Armillaria root disease and died bringing the total to fourteen (14) Pepper trees.

The High Street Pepper tree population, protected under the 2007 California Pepper Tree Maintenance Plan and the 2006 Environmental Impact Report, and the Ventura County Historical Landmark Number 72, provides procedures for the management of the Pepper trees. Therefore, the arborist recommendation was forwarded to the City Attorney to determine consistency with the Annual Arborist Report, the 2007 California Pepper Tree Maintenance Plan, the 2006 Environmental Impact Report (EIR), and related October 2004 Settlement Agreement.

Council is being asked to consider and approve recommendations in the High Street 2011 Arborist Annual Report for the removal of eleven senescent Pepper trees and three dead Pepper trees over a period of three years beginning in July 2012.

**BACKGROUND**

In 2004 the City removed 5 diseased pepper trees. The City was subsequently challenged on this action as being inconsistent with the Historical designation of the

High Street Pepper Trees and an October 2004 Settlement Agreement resulted in the preparation of an EIR and the Pepper Tree Management Plan

In 2007, licensed arborist Michael Mahoney prepared the High Street California Pepper Tree Management Plan. The Tree Management Plan approved by City Council as Resolution No. 2007-2584, currently provides procedures for the management of the High Street Pepper trees.

The California Pepper Tree Maintenance Plan and Environmental Impact Report (EIR) guidelines (Resolution No. 2007-2584) were developed to maintain the Pepper tree population on High Street. The guidelines provided for an annual arborist Pepper tree evaluation report, Pepper tree maintenance (trimming, thinning, and replacement) and wildlife inspection to protect any wildlife or migratory bird nesting in the Pepper trees.

Arborist Mahoney was contacted to perform the annual High Street Pepper tree evaluation in 2009. However, Mr. Mahoney relocated to Northern California and was unable to perform the evaluation. Mahoney recommended licensed arborist Kerry Norman, an arborist with specialized knowledge of California Pepper tree traits and the inherent risk involved in the aging (senescent) of Pepper trees, as his replacement. In 2009, Arborist Kerry Norman replaced Mahoney and in 2009, 2010, and 2011 reviewed and prepared the High Street Pepper Tree Annual Report.

In the 2007 California Pepper Tree Maintenance Plan, Mr. Mahoney identified five (5) senescent Pepper trees with conditions of instability that cannot be mitigated and that these five trees should be removed at the earliest opportunity. However, before a removal plan could be developed, the trees were lost to decay compounded by environmental conditions (wind, rain, etc.) and replaced.

In the 2009, 2010, and 2011 Annual High Street Pepper Tree Evaluation, additional senescent Pepper trees were identified with the same or similar instabilities that were identified in the five senescent Pepper trees listed in the 2007 California Pepper Tree Maintenance Plan for removal. In all reports the Pepper tree conditions could not be mitigated and removal was the only option. The arborist (Norman) strongly recommended that the senescent Pepper trees should be removed because they pose an imminent risk for structural failure that cannot be reasonably mitigated, therefore, the trees should be removed.

In the 2011 Annual Arborist report, there were eleven (11) senescent high risk Pepper trees evaluated as having conditions of instability, which place the Pepper trees at risk for structural failure and should be removed immediately based on the size of the trees' cavities, advanced level of decay, condition of the wood in the decayed areas, and the presence of wood decay pathogens, all indicating a high probability of tree structural failure.

Staff reviewed the 2007 California Pepper Tree Maintenance Plan for High Street, the 2006 Environmental Impact Report, and the Ventura County Historical Landmark guidelines and procedures and found the eleven trees recommended for removal had the same conditions seen in the five trees listed in the 2007 High Street California Pepper Tree Management Plan for immediate removal.

The 2011 High Street Annual Pepper Tree Evaluation report was sent to the City Attorney to determine if the 2007 California Pepper Tree Maintenance Plan and the 2006 Environmental Impact Report supported mitigation of future tree removals listed under 2007 High Street California Pepper Tree Management Plan for senescent trees allowed for immediate removal. The City Attorney's review found the mitigation measure and language in the plans supported the environmental impacts of future Pepper tree removals.

After considering all the factors noted in the 2011 High Street Annual Pepper Tree Report, aggressive and timely pruning being implemented over the past three years is only temporary relief of the serious Pepper tree problems on High Street, and Pepper tree removal is now needed to mitigate high probability of structural failure.

## **DISCUSSION**

Staff maintains the Pepper tree grove along High Street in a safe and aesthetically pleasing manner, consistent with standard tree care practices. High Street currently has 52 California Pepper trees of various ages and health conditions that are continually monitored for changes in structure and health.

The High Street Pepper Tree Management from 2007 to 2011 is as follows:

<b>Tree Maintenance (Grid Trimming)</b>
All High Street California Pepper Trees Trimmed: March 12, 2007
All High Street California Pepper Trees Trimmed: October 1, 2007
All High Street California Pepper Trees Trimmed: June 20, 2008
All High Street California Pepper Trees Trimmed: November 14, 2008
All High Street California Pepper Trees Trimmed: August 20, 2009
All High Street California Pepper Trees Trimmed: August 27, 2010
All High Street California Pepper Trees Trimmed: January 31, 2011

<b>Removals and Replacements</b>
105 High Street-Removed / replaced October 2007
192 High Street-Removed / replaced October 2007
260 High Street-Removed / replaced October 2007
310 High Street-Removed / replaced November 2007

310 High Street-Removed / replaced October 2007
349 High Street-Removed / replaced January 2008
No Removals or Replacements in 2009
No Removals or Replacements in 2010
193 High Street – Removed / Replaced September 2011
220 High Street – Removed / Replaced February 2011

The eleven high risk trees detailed in the 2011 Annual Pepper Tree Evaluation Report are in decline and ongoing aggressive pruning and canopy reduction may reduce tree or limb failure, but it does not reduce or slow disease and pathogen activity inside the tree. In fact it reduces the tree's ability to defend against it.

Therefore, the only solution is to remove the failing tree under regulations set forth in the 2007 California Pepper Tree Maintenance Plan, the 2006 Environmental Impact Report, and the Ventura County Historical Landmark Number 72 conditions.

After determining the 2007 California Pepper Tree Maintenance Plan and the 2006 Environmental Impact Report supported the environmental impacts of future pepper tree removals, staff's proposed plan is to remove all eleven high risk and three dead Pepper trees (fourteen trees) on High Street, over three (3) one (1) year phases. The tree removals will be spaced out throughout High Street to avoid three (3) large open spaces with three (3) small replacement Pepper trees. Instead the replacement trees will blend in with the existing older Pepper trees. This will provide one (1) to three (3) years of growth before removal of an additional high risk tree within that same area.

The proposed three (3) one (1) year tree removal plan is as follows:

**Phase I: FY 2012/13 Six (6) Pepper Trees**

- 137 High Street, Tree Tag Number: 06 – Dead - Non-Historic (8"DBH)
- 137 High Street, Tree Tag Number: 07 – Dead - Non-Historic (11"DBH)
- 220 High Street, Tree Tag Number: 49 – Dead - Historic (51" DBH)
- 233 High Street, Tree Tag Number: 14 – Mature - Non Historic (25" DBH)
- 310 High Street, Tree Tag Number: 30 – Historic - (43"DBH)
- 293 High Street, Tree Tag Number: 33 – Mature - (35"DBH)

**Phase II: FY 2013/14 Three (3) Trees**

- 165 High Street, Tree Tag Number: 09 – Historic - (40"DBH)
- 294 High Street, Tree Tag Number: 32 – Mature - (26"DBH)
- 270 High Street, Tree Tag Number: 35 – Historic - (34"DBH)

**Phase III: FY 2014/15 Five (5) Trees**

- 192 High Street, Tree Tag Number: 46 – Historic - (41"DBH)
- 213 High Street, Tree Tag Number: 13 – Historic - (43"DBH)
- 230 High Street, Tree Tag Number: 36 – Historic - (59"DBH)
- 294 High Street, Tree Tag Number: 31 – Historic - (42"DBH)

165 High Street, Tree Tag Number: 08 – Historic – (38" DBH)

See Attachment 1, street plan for Pepper tree removal locations on High Street.

Once the Pepper tree has been removed and stump grinding is complete, a 24" box (*Schinus molle*) Pepper tree replacement will be planted per the High Street California Pepper Tree Maintenance Plan requirements.

Acknowledging the community's regard for preserving the Historic High Street Pepper trees though not required by the October 2004 Settlement Agreement, staff contacted the involved party and they concurred with the City's planned action to remove the 11 diseased and 3 dead pepper trees.

A second issue to be addressed is the diagnosed Armillaria Root Disease present throughout the Pepper trees population on High Street that has recently killed three (3) Pepper trees. The disease has no cure and is caused by fungi, which lives as parasites on living host tissue or as saprophytes on dead woody material. As parasites, the fungi cause mortality, wood decay, and growth reduction. It spreads primarily by new host root contact with infected roots or by airborne fungi spores, and may live in the soil from one (1) to two (2) years. The only effective removal of the fungi is the removal of all trees, fumigate soil, and expose the soil to sunlight for one (1) to two (2) years. That option is not available to the City to eradicate the fungi. Therefore, the only option is to manage and limit the disease buildup and reduce its impact.

The recommended treatment where individual trees are of high value is to limit the disease buildup and reduce its impact through the use of chemical fumigants, such as chloropicrin, methyl bromide, and carbon disulfide to reduce the infection level. These fumigants are applied in and around the base of infected stems or in holes left after trees have been uprooted. However, the use of these "highly" toxic fumigates will not work in a residential and commercial area such as High Street.

The only option available to manage and limit the disease buildup and reduce its impact on the protected High Street Pepper trees is by removing the three the (3) dead Pepper trees, remove as much of the contaminated soil and roots as possible (sidewalk constraints) apply systemic fungicide to open hole soil surface, leave the exposed holes to atmospheric conditions for fourteen (14) days, replant trees, and backfill with new fungi free soil with additional systemic fungicide added.

Unfortunately the widespread fatal Armillaria Root Disease infecting most of the historic Pepper trees on High Street is not treatable; however, staff will continue to prolong life as long as possible to preserve these trees through constant monitoring and maintenance practices.

**FISCAL IMPACT**

The removal and replanting of fourteen (14) High Street Pepper trees estimated cost is \$9,524.00 paid over a three fiscal year period.

High Street Pepper Tree removal and replanting cost estimates are as follows:

<b>Fiscal Year</b>	<b>Removal Cost</b>	<b>Replanting Cost</b>	<b>Total</b>
FY 2011-2012	\$2,376.00	\$1,212.00	\$3,588.00
FY 2012-2013	\$1,350.00	\$ 606.00	\$1,956.00
FY 2013-2014	\$2,970.00	\$1,010.00	\$3,980.00
Totals	\$6,696.00	\$2,828.00	\$9,524.00

The Citywide tree services maintenance budget fund 2300.7900.7900.9330 will be impacted \$6,696 over three fiscal year periods to fund the Pepper tree removal as shown above. Boething Tree Lease will provide the fourteen, 24 inch box replacement Pepper trees under their lease agreement. West Coast Arborist will replant the 24 inch box replacement trees, per the 2007 High Street Pepper Tree Maintenance Plan, impacting the fiscal year budget over three years by \$2,828.

**RECOMMENDATION:     ROLL CALL VOTE**

Approve High Street Pepper tree removal plan of fourteen high risk senescent Pepper trees identified in the report over the next three years.

Attachments:

1. High Street Pepper tree three year removal plan
2. 2011 High Street Annual Pepper Tree Evaluation Report

# ATTACHMENT 1

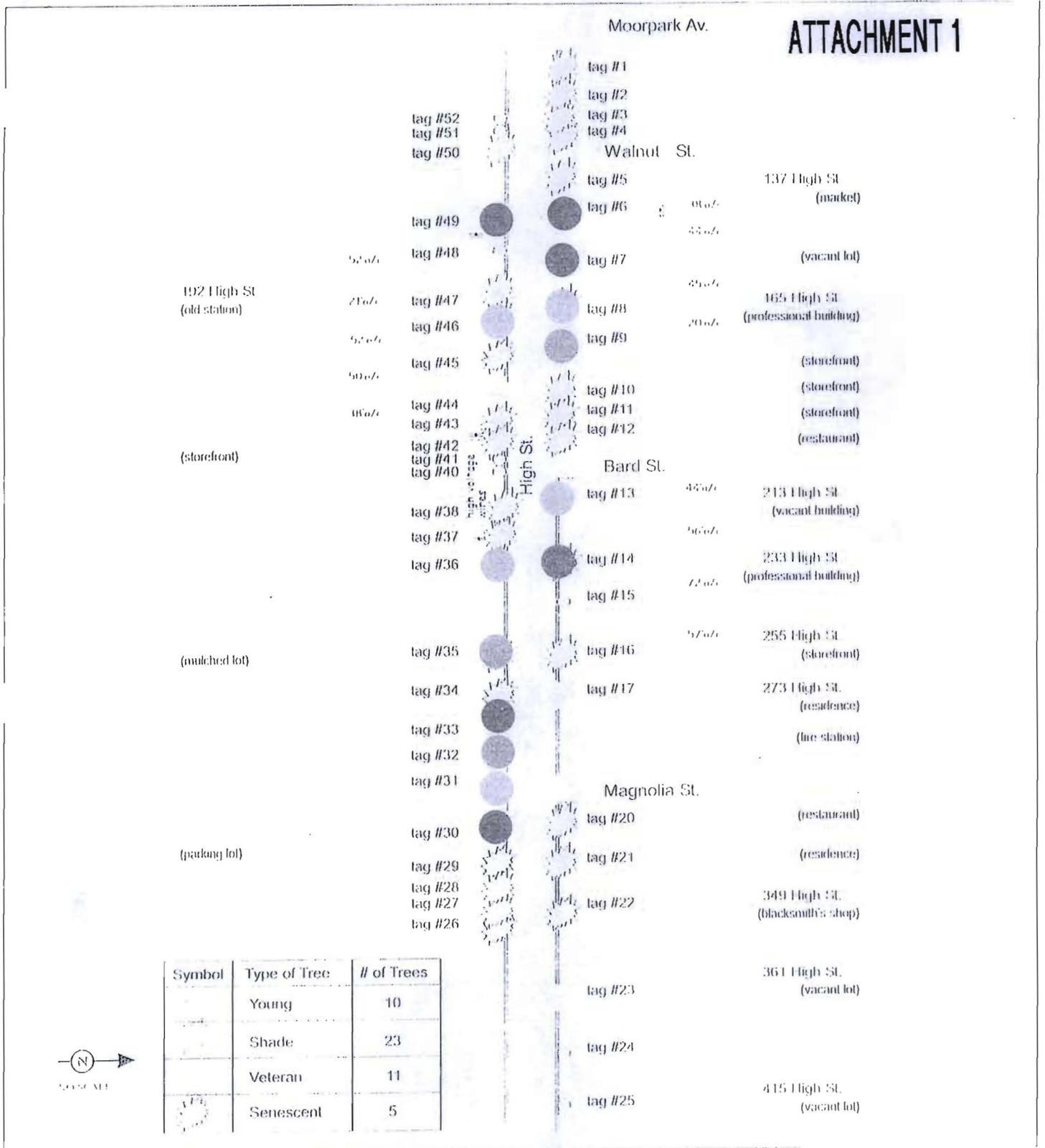


FIGURE 3.2

LSA

YOUNG TREE  
(SMALLER SIZE)  
SHADE TREE  
(LARGER SIZE)  
VETERAN TREE  
(LARGER SIZE)  
SENESCENT TREE  
(LARGER SIZE)

PHASE I  
 PHASE II  
 PHASE III

California Pepper Trees Maintenance Plan  
Environmental Impact Report

California Pepper Tree Illustrative Plan

December 29, 2011

Mr. Allen Walter  
City of Moorpark  
799 Moorpark Avenue  
Moorpark, CA 93021

Regarding: High Street Pepper Trees  
Moorpark, CA

Dear Mr. Walter,

At your request I visited the above referenced site December 15, 2010. The purpose of this visit was to perform a visual inspection of the California pepper trees (*Schinus molle*) along High Street. I was asked to assess their general health and structural condition, and identify trees that are considered to be at high risk of structural failure. Included are my report, tree photos and matrix spreadsheets summarizing tree conditions and recommendations.

### **Summary and background**

A total of (50) pepper trees were inspected as part of this study. Overall the trees appear to be in healthy condition and most display good color and signs of average seasonal shoot growth. Keep in mind that tree health and structure are two completely different characteristics and that a tree displaying signs of good health and vigor may contain severe structural defects and also be at high risk for structural failure.

With the exception of recent pruning, it appears that few if any recommendations from my previous report have been implemented; this mostly pertains to correction of soil grade and replacement of some of some of the younger more recently planted trees.

Based on my visual inspection I have identified (12) trees that contain multiple defects such as advanced decay and or large cavities, and are considered to be at risk of structural failure; these include trees #8, 9, 13, 14, 30, 31, 32, 33, 35, 36, 46 & 49.

The twelve trees identified above are recommended for removal due to serious problems relating to trunk and limb stability and their high risk for structural failure.

Trees #9, 13, 30, 31, 32, 33 & 36 identified for removal are also cited in the 2006 report prepared by Michael Mahony, as having major to extreme defects and problems with trunk, root and or scaffold limb stability. Defects in trees #8, 14, 35, 46 & 49 have progressively worsened over time and all 12 trees have reached the point where conditions of instability cannot be reasonably mitigated, much like those trees lost in the original Mahoney report section 12.1 "Senescent Trees Removals and Replacements".

Overall very little change in condition was observed in the trees, structural defects do not appear to have significantly worsened and the trees are basically in the same condition as in my 2009 inspection. I have included a few photos to update the condition or additional findings in some trees. Tree #49 has considerably declined since my inspection in 2010, visually diagnostic signs of oak root fungus (*Armillaria mellea*) was observed in the cambium layer at the base of the trunk; the tree is all but dead and it is recommended that it be removed as soon as possible.

Decay and cavities were identified in several other trees, however I believe these trees can remain in place with relatively low to moderate risks that can be mitigated by regular inspections, pruning and ongoing maintenance.

Several of the small more recently planted pepper trees display signs of defective/girdled root systems. Signs include excess movement at the root crown when pushing on the trunk or trunk lean. These trees should be checked and replaced as needed, as they will certainly be problematic in the future if the roots are in fact girdled as I suspect. Many of these trees also appear to have excess soil atop their rootballs with the root collar buried. Soil grade must be checked and corrected as needed to the proper grade. Since my last inspection some of these trees anchorage seems to have improved but I remain skeptical about of their stability for the future.

#### Limitations

Visual tree inspection was performed from ground level. No extensive or invasion diagnostic procedures were implemented as part of this study. Lower portions of the trunks were sounded using a rubber mallet to help identify cavities and areas of decay, and a metal probe was used to measure depth and level of cavities and or decayed wood.

There are no formulas or tests that determine with certainty whether or when a tree might fail. The practitioner must primarily rely on his or her education and experience when performing tree risk assessments. It has been found that visual assessments based on professional experience (application of procedures to assess hazard, application of procedures to assess health and stability) and measurement of individual trees using scientific instruments such as a Resistograph measurements is subjective based on individual interpretation and can produce highly variable information.

### **Structural Condition Rating System**

**A** – A healthy, sound and vigorous tree characteristic of its species with no apparent structural defects

**B** – A healthy, sound and vigorous tree with visual signs of only minor structural problems such as codominant stems and dead twigs

**C** – Although healthy in overall appearance there exists an abnormal amount structural problems such as small cavities and or pockets of decay in main stem and or scaffold branches

**D** – This tree is characterized by a high degree of structural problems such as large cavities, areas of decay, visual signs of wood decay fungi, dead or damaged roots, codominant stems with included bark, excessive trunk lean and or areas that display cracks in wood. Trees in this category also have defects that exceed the threshold of what is considered for a tree that can be expected to reasonably support itself.

### **Observations and Details on trees of highest concern**

Photos depicting individual trees and specific defects are provided following the report.

**Tree #2** is a mature tree that displays a history of limb failure on west side of tree. There is a 12" + horizontal cavity and area of decayed wood at site of limb failure with a column of decay that runs down into the main stem. Wood strength in the wound area is significantly compromised and the remaining limb is at risk of failure. In order to reduce risk keep excess weight trimmed off lateral limbs.

**Tree #8** is an historic senescent tree. Although the tree appears to be healthy and displays average vigor with new shoot growth, it also contains severe structural defects that compromise its structural stability. Signs indicate a history of limb failure on the south side of the tree. The NW lower lateral limb contains a large wound site with cavities and pockets of decay that affect limb stability. A large cavity and area of decay was observed at the base of the trunk on the south side; the trunk of the tree measures 47 inches in diameter just above the soil and the cavity measures 41 inches in depth; in this case I would consider trunk stability severely compromised. The crown of the tree is unbalanced with the majority of its canopy to the north side the trunk. This tree contains severe structural defects with an estimated 6 inches of sound wood in the outer shell of the trunk in the area of the cavity. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. If the tree is to remain in place I recommend a root crown excavation and inspection, and possibly dill testing to measure decay/cavities.

**Tree #9** is an historic veteran tree that is senescent. Although the tree appears to be healthy and displays good vigor with average new shoot growth, it also contains severe structural defects. The trunk contains a large cavity and area of decay on the SW side approx. 9' up from the ground, this is the site of a past limb failure or removal. Sounding of the trunk revealed a distinct hollow sound that indicates advanced internal decay/cavity. By use of a metal probe, multiple deep cavities were confirmed on the south side of the tree just above soil level.

A cavity in the upper portion of the trunk on the SW side likely has column of decay/cavity running all the way to ground level. Clusters of winged insects on the base of the trunk have been visually identified, as subterranean termites and are an indication of dead decayed wood above and or below ground.

Tree #9 contains severe structural defects such as cavities and decay in its main stem, which severely compromise its structural stability and its ability to reasonably support itself. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place it is recommended that a root crown excavation and inspection be performed to help identify and measure defects and better assess risk.

**Tree #13** is an historic veteran tree that is senescent. Although the tree appears to be healthy and displays good vigor with abundant new shoot growth, it also contains severe structural defects that deem it unstable. There is a large area of deadwood on the lower south side of the trunk. Soft decayed wood and cavities were observed and detected in various areas around the lower trunk. Probing revealed a 31" deep cavity on the south side of the tree at the base of the trunk, a 26" deep cavity on the north side 3 feet above the ground, and a 19" deep cavity on the SE side at 6.5 feet above the ground. Due to the number and severity of defects I consider the stability of this tree to be extremely compromised.

Tree #13 contains severe structural defects such as cavities and decay that seriously compromise its trunk and scaffold limb stability. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place it is recommended that a root crown excavation and inspection be performed to help identify and measure defects and better assess risk. Keep leaf debris cleared from base of trunk to expose root collar.

**Tree #14** is a large mature senescent tree. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise its structural stability. There is a 13" deep cavity on the SE side of the trunk approx. 6 feet above the ground, an 18" deep cavity on the west side at approx. 6 feet above the ground, a 27" deep cavity on the west side at 12 inches above the ground, a 25" deep cavity on the north side and the base of the trunk, and several other areas of potential decay and internal cavities were detected higher up in the trunk through sounding. The sum of defects describes a tree with serious stability problems in the trunk, scaffold and smaller branches in the crown.

Tree #14 contains severe structural defects such as cavities and decay that affect tree stability. I believe this tree poses a high risk for structural failure, and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place I recommend root crown inspection and major heading of the canopy to reduce excess weight.

**Tree #30** is a 43" diameter historic veteran tree that is senescent. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise its structural stability. This tree has significant trunk lean to the east with the majority of its canopy on the east side of the trunk. The tree also displays a history of limb failure. There is a large cavity on the west side of the trunk at 7 feet above the ground, with additional signs of cavities and decay higher up on the trunk. A distinct hollow sound was detected on the west side of the trunk with a column of decay and a 26"-35" deep cavity running from the upper cavity to the ground. A cavity was also observed on the west of the tree at 12 inches above the ground.

Tree #30 contains severe structural defects such as cavities and decay that create severe problems relating to trunk stability. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep this tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #31** is a 42" diameter historic veteran tree that is senescent. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise its structural stability. The tree has codominant stems. There are two beehives in the tree on the east side of the trunk at 8' and 14' above the ground. The presence of bees prevented a thorough inspection of the tree. The tree contains a 23" deep cavity in the trunk just below the lower beehive. It is very likely that the site of the two hives and opening below all converge into one large cavity.

Tree #31 contains severe structural defects such as cavities and decay creating serious problems and lack of stability in the main stem and large limbs. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #32** is a 26" diameter historic tree that is senescent. The tree appears to be in good health but contains severe structural defects, and is one-sided with its entire canopy on the north side of the trunk. Tree #32 displays a history of limb failure on the south side. An 18" deep cavity was observed at the base of the trunk on the south side and another cavity was observed in the trunk at approx. 14-feet above the ground. This tree has serious problems relating to trunk stability.

Due to an extremely unbalanced crown, history of limb failure and deep cavities in the trunk I believe this tree poses a high risk for structural failure, and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #33** is a 35" diameter historic tree that is senescent. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise its trunk stability. The tree has codominant stems with a deep sunken area at approx. 9 feet on the south side of the trunk, which is an indication of defects or internal decay. A distinct hollow sound was detected on the SW side of the trunk at 7 feet above the ground. The tree also contains a 20" deep cavity at the base of the trunk on the SW side, a 25" deep cavity on the north side at the base of the trunk, a 17" deep cavity on the SW side at 6 feet above the ground, and a large area of decay on the south side of the trunk at 9 feet above the ground. Compounding factor result in a tree that is considered seriously unstable.

Tree #33 contains severe structural defects such as cavities and decay. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #35** is a 34" diameter historic veteran tree that is senescent. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise its structural stability in the main trunk. Several hollow decayed areas were detected in the lower trunk area through sounding. Cavities and decay were also observed in the lower south side of the trunk. There is a 37" deep cavity on the SW side of the tree at the base of the trunk, a 33" deep cavity on the east side at 1.5 feet above the ground, a 23" deep cavity 4 feet above the ground on the SE side of the trunk, and a large wound and cavity at 7 feet above the ground on the south side of the trunk.

Tree #35 contains severe structural defects such as cavities and decay that affect stability of the main trunk. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #36** is an historic senescent veteran tree and is probably the largest of the population. Based on foliage growth the tree appears to be fairly healthy but contains a huge cavity and area of decay on the south side of the trunk. There is a general hollow sound in the SW ½ of the trunk when sounded and general area of sound wood is very thin. Wood inside the large cavity is soft, punky and rotted, indicating the presence of wood decay fungi. Compounding data is indicative of a tree with severe problems relating to trunk stability.

Unfortunately the cavity and decay at the base of the trunk of tree #36 has advanced to the point that I believe the tree cannot reasonably support itself and poses a high risk for structural failure. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly to reduce excess weight in the canopy and help reduce risk.

**Tree #46** is a 41" diameter historic veteran tree that is also senescent. Although the tree appears to be healthy and displays good vigor with new shoot growth, it also contains severe structural defects that seriously compromise stability in the trunk and large scaffold limbs. There is a beehive in the south lateral limb at approx. 15 feet up in the tree. Multiple small cavities and pockets of decay observed in both the large N & S lateral limbs directly over High street. The tree also contains a large cavity on the east side of the trunk at 5.5 feet above the ground near the point of connection of the two large codominant scaffold limbs. There is also a cavity on the south side of the trunk with a column of decay that likely runs all the way to ground level also running upward into the north lateral limb.

Tree #46 contains severe structural defects such as cavities and decay. I believe this tree poses a high risk for structural failure and due to conditions of instability that cannot be reasonably mitigated the tree should be removed immediately. Should you decide to keep the tree in place, I strongly recommend that it be headed back significantly (not less than 50%) to reduce excess weight in the canopy and help reduce risk. This tree has serious stability problems in the main trunk and large limbs and is at high risk for failure.

**Tree #49** has all but failed due to oak root rot disease and should be removed as soon as possible to eliminate the risk of unexpected structural failure. Root rot seriously affects the integrity of root and tree stability.

### **Discussion**

It is unfortunate that these highly valued and revered trees cannot live forever. I stand very firm in my opinion that the specified trees pose a high and probable risk for structural failure and should be removed immediately. Should you choose to keep the trees in place, I highly recommend that they be headed back significantly to reduce crown size and weight in the canopy, this may reduce risk should a failure occur.

Major cavities and areas of decay clearly identified in several of the trees are an indication that the trees stability and ability to reasonably support their selves is highly questionable. Based on the size of cavities, advanced level of decay and condition of the wood in the decayed areas, and the presence of wood decay pathogens structural failure is highly probable. The history of tree failures and removals in the area is also a telling story as to the future of these magnificent trees.

Guidelines and recognized standards from the text "The Body Language of Trees" by Claus Mattheck 1994, use a formula referred to as  $t/r$ ; the thickness of remaining wall  $t$  is divided by the external radius  $R$  as the ratio  $t/R$ . Studies showed that trees with a shell wall thickness to trunk radius ratio of less than .03 had a high incident of failure. Generally speaking this would mean that a tree that has a sound shell wall thickness measuring less than  $1/3^{\text{rd}}$  the trunk radius is at high risk for failure, especially during high winds or storms.

Another industry guideline is related to the size of open cavities. In the text "Tree Risk Assessment in Urban Areas" by Julian Dunster, it is written that a cavity opening measuring more than 30% of stem circumference is structurally unstable and at high risk for failure.

The problem with the trees that are recommended for removal is that they all have multiple compounding defects, and although a tree may have only one defect that falls into the high -risk category, it is the combination of multiple defects that is very concerning to me.

The location of the trees being near a highly traveled road where vehicles are frequently parked, sidewalks for retail storefronts frequented by pedestrians are all high valued targets. A tree failure in this type of setting could result in catastrophic property damage, personal injury or death.

It is possible but not recommended, that should the city or community decide to preserve some of the trees awhile longer I recommend that previous recommendations from Michael Mahoney's report regarding pruning be implemented. I do believe however that pruning recommendations should be implemented in an even more aggressive and timely manor to remove excess weight, and remove potentially hazardous limbs in the crown of the trees to reduce the risk and or damages should a failure occur.

My inspection of the younger more recently planted peppers revealed clear signs and indications that the trees were planted improperly and may have root defects such as girdling roots. The root collars of the trees was not clearly visible in most cases and when the trunks were pushed slightly, excess movement was observed at the soil line indicating the trees have not sufficiently rooted/anchored into the ground. It is recommended that root crown excavation be performed on these trees to check for proper planting depth and root defects, and defective trees be replaced with good quality nursery stock.

If left in place, trees with girdling roots will never properly anchor into the ground, will have future health problems, and be at risk of failure during high winds or storms.

It was also noted that vehicles are parking within the dripline and near the trunks of pepper trees in the dirt lot west of the paved lot used for the Metrolink, and those at the west end of High street adjacent to the Mexican restaurant. Parking of vehicles within the critical root zone can have significant impacts on tree health due to soil compaction. It is recommended that protective fencing or some type of barrier be installed to prevent vehicles from parking in this area. A minimum protection zone of 15-20 feet from the trunk of these trees should be established.

A thick layer of organic plant debris and applied mulch has built up around the base of the trunks on several of the large peppers. It is recommended that debris and excess mulch be removed to fully expose the root collars of the trees.

### **Recommendations**

Due to a serious problem and lack in structural stability in the trunk and or limbs, it is my recommendation that pepper trees #8, 9, 13, 14, 30, 31, 32, 35, 36, 46 & 49 be removed due to their high probability for structural failure, and the potential for such failure to result in major property damage, personal injury or death.

Tree #49 immediately as it is failing due to incurable root rot disease.

Remove plant debris and excess mulch from around the base of trunks of pepper trees as needed to fully expose the root collar. Excess build up of leaf debris at the base of the trunk can hold excess moisture, which can favor disease.

Perform root collar excavation on the small most recently planted pepper trees to check for girdling or other root defects, and to check planting depth. Replace those trees found to be defective and correct soil grade around those to remain to fully expose the root collar.

Install protective fencing on the south side of pepper trees adjacent to unpaved parking lot west of paved Metro link lot and those adjacent to the Mexican restaurant to prevent vehicles from parking on top of the root zone of the trees and compacting soil. A minimum 15-20 foot protection zone is recommended.

To help mitigate risk, prune trees as required reducing excess weight and tension stress on large limbs and to reduce height as recommended in report from Michael Mahoney dated December 2003.

It is recommended that all trees be inspected and evaluated not less than once a year to identify and monitor defects, assess risk, and to provide maintenance recommendations.

### **Conclusion**

Most of the historic veteran trees contain severe and sometimes multiple structural defects that have compromised their structural integrity and stability leaving them at risk of failure. Remove the (12) specified tree immediately to eliminate the risk of structural failure that could result in property damage, personal injury or death.

It is recommended that trees to remain be inspected not less than once a year to assess risk associated with the defects, and to make recommendations to help mitigate risk and help maintain their condition.

It should be noted that the study of trees is not an exact science and arboriculture does not detect or predict with any certainty. The arborist therefore is not responsible for tree defects or soil conditions that cannot be identified by a prudent and reasonable inspection.

If you have any questions or require other services please contact me at the number listed below.

Respectfully,  
Arbor Essence

Kerry Norman  
ASCA, Registered Consulting Arborist #471  
ISA Board-Certified Master Arborist #WE-3643B

Date: December 15, 2011

# Arbor Essence Tree Survey

Job name: High Street Peppers  
Moorpark, CA

Tree #	Description	Structural Condition	Observations	Risk level	Recommendations
1	California pepper ( <i>Schinus molle</i> )	B	Mature tree. No visual decay or cavities.	Low	Prune to reduce end weight. Drill test defect on lower east side of trunk
2	California pepper	C	Mature tree. History of limb failure, decay/cavity at wound site.	Moderate-High	Keep excess weight trimmed off lg. lateral limbs
3	California pepper	B	Mature tree. No apparent or obvious defects	Low	None at this time
4	California pepper	B	Mature tree. Notable trunk lean to west. No apparent or obvious defects	Low	None at this time
5	California pepper, 9" diameter	C	Young tree. Minor trunk lean to north. Defective root system, girdled	High for future if girdled	Replace tree with good quality nursery stock. Remove stakes
6	California pepper, 8" diameter	C	Younger tree. Excessive trunk movement at soil, defective root system probable, root collar not visible	High for future if girdled	Check root structure and replace with good quality nursery stock if needed, correct soil grade
7	California pepper, 11" diameter	C	Younger recently planted. Planted too deep. Lack of buttress formation	Low at present	Correct soil grade to expose root collar
8	California pepper, 38" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay	High	Recommend removal due to conditions of instability that cannot be reasonably mitigated
9	California pepper, 40" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay	High to extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
10	California pepper, 16" diameter	B	Young mature tree. Minor lean to NW. One-sided with 90% of crown on N side of trunk.	Low-Moderate	None at this time
11	California pepper	B	Young but mature tree. Circling girdling roots north side of trunk	Low	None at this time
12	California pepper	B	Young but mature tree. No apparent problems. Vehicle damage to limbs on street side of tree	Low	None at this time
13	California pepper, 43" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay	High to extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
14	California pepper, 25" diameter	D	Senescent large mature tree. Multiple severe defects, deep cavities and areas of decay	High to extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated

Date: December 15, 2011

# Arbor Essence Tree Survey

Job name: High Street Peppers  
Moorpark, CA

Tree #	Description	Structural Condition	Observations	Risk level	Recommendations
15	California pepper	A	Young but mature tree	Low	None at this time
16	California pepper	C	Senescent Historic Veteran tree. History of lg. limb failure E side of tree. Codominant stems. Several small cavities and areas of decay in crown of tree. 12" cavity at root collar	Moderate	Maintenance prune to keep excess weight off large limbs on west side
17	California pepper	C	Young tree. Excessive trunk movement at soil, poss. defective/girdled root system, planted too deep, root collar not visible	High for future if girdled	Check root structure and replace with good quality nursery stock if needed, correct soil grade
20	California pepper, 23" diameter	B	Young but mature tree. No apparent problems	Low	None at this time
21	California pepper, 21" diameter	B	Young but mature tree. No apparent problems	Low	None at this time
22	California pepper, 8" diameter	C	Young tree. Excessive trunk movement at soil, poss. defective/girdled root system	High for future if girdled	Check root structure and replace with good quality nursery stock if needed. Correct soil grade and <del>properly dug if to remain</del>
23	California pepper, 5" diameter	B	Young tree. <u>Excessive trunk movement at soil</u> , defective/girdled root system probable	High for future if girdled	Check root structure and replace with good quality nursery stock if needed
24	California pepper, 4.5" diameter	B	Young tree. <u>Excessive trunk movement at soil</u> , defective/girdled root system probable, 4"-5" too deep	High for future if girdled	Check root structure and replace with good quality nursery stock if needed
25	California pepper, 7" diameter	A	Young tree. Planted too deep, may have girdled roots. Excessive movement at soil, girdled roots probable	Low at present	Check root system and replace tree if needed. Correct soil grade to expose root collar
26	California pepper, 7" diameter	B	Young tree. Excessive trunk movement at soil, defective/girdled root system probable	High for future if girdled	Check root structure and replace with good quality nursery stock if needed
27	California pepper	B	Young but mature tree. No apparent problems	Low	<u>Keep ground cover trimmed back from trunk 2' min.</u>
28	California pepper	B	Young but mature tree. No apparent problems	Low	<u>Keep ground cover trimmed back from trunk 2' min.</u>
29	California pepper, 8" diameter	B	Young tree. Excessive trunk movement at soil, poss. defective/girdled root system, root collar buried	High for future if girdled	Check root system and replace tree if needed. Correct soil grade to expose root collar

Date: December 15, 2011

# Arbor Essence Tree Survey

Job name: High Street Peppers  
Moorpark, CA

Tree #	Description	Structural Condition	Observations	Risk level	Recommendations
30	California pepper, 43" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay. Trunk lean to E with majority of crown of east side of trunk	High-extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
31	California pepper, 42" diameter	D	Senescent Historic Veteran tree. Two cavities with beehives. Codominant stems. Large cavity in main stem just below beehive	High-extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
32	California pepper, 26" diameter	D	Old mature senescent tree. Multiple defects, cavities and decay. One-sided with entire crown on N side of trunk	High-extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
33	California pepper, 35" diameter	D	Old mature senescent tree. Codominant stems. Multiple defects and deep cavities in main trunk	High	Recommend removal due to conditions of instability that cannot be reasonably mitigated
34	California pepper, 8" diameter	B	Young tree. <u>Excessive trunk movement at soil, defective/girdled root system probable. Planted too deep</u>	High for future if girdled	Check root system and replace tree if needed. <u>Correct soil grade to expose root collar</u>
35	California pepper, 34" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay	High to extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
36	California pepper, 59" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay. Huge cavity and area of decay lower trunk, 1/2 trunk hollow	High to extreme	Recommend removal due to conditions of instability that cannot be reasonably mitigated
37	California pepper, 2" diameter	B	Newly planted tree	Low	None at this time
38	California pepper	B	Young but mature tree. Beginning to crack concrete at base of trunk	Low	Remove concrete from around base of trunk to provide 2' clearance
39	California pepper, 5" diameter	B	Young tree. Excessive trunk movement at soil, defective root system probable, root collar not visible	High for future if girdled	Check root structure and replace with good quality nursery stock if needed, correct soil grade
40	California pepper	B	Young but mature tree. Root collar not clearly visible	Low	Check soil grade and correct as needed to expose root collar
41	California pepper	B	Young but mature tree. Root collar not clearly visible	Low	Check soil grade and correct as needed to expose root collar
42	California pepper		No tree in this location/space		

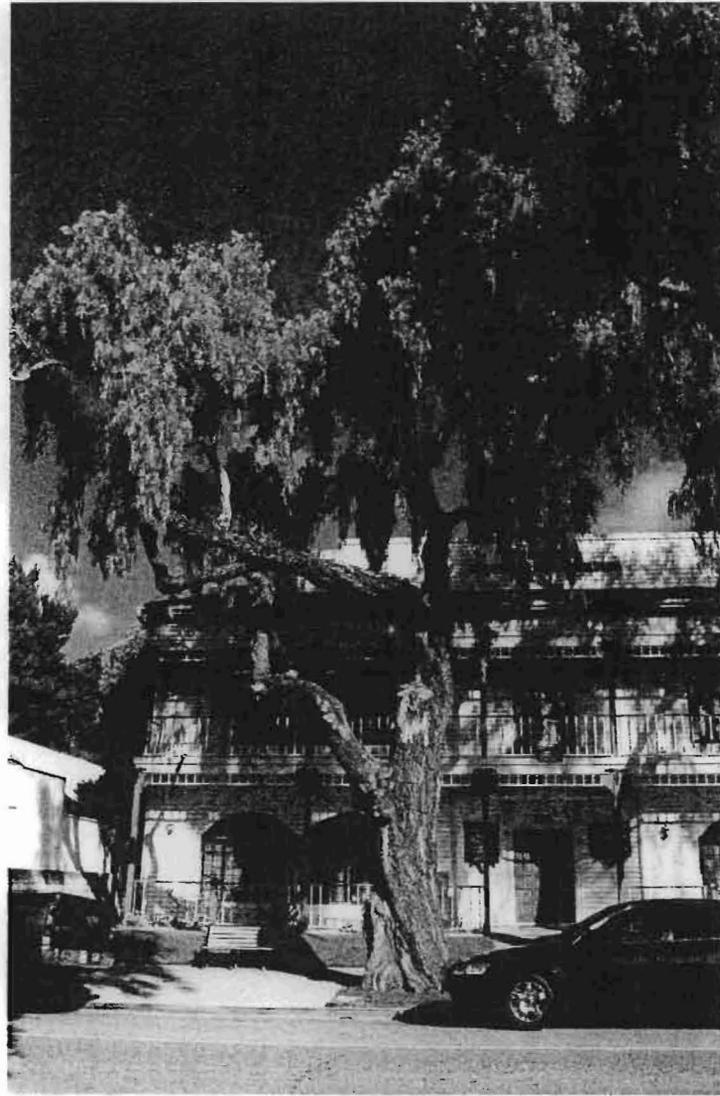
Date: December 15, 2011

# Arbor Essence Tree Survey

Job name: High Street Peppers  
Moorpark, CA

Tree #	Description	Structural Condition	Observations	Risk level	Recommendations
43	California pepper	C	Historic Veteran tree. Few small cavities S/E side of tree. Minor dieback. No major defects observed	Low-moderate	None at this time
44	California pepper	C	Senescent Historic Veteran tree. No major defects observed. Small cavities in large limbs. Possible internal decay detected through sounding	Moderate	Recommend drill test in main trunk, and inspection of cavities higher up in tree
45	California pepper, 8" diameter	B	Young tree. Excessive trunk movement at soil, poss. defective/girdled root system, root collar buried	High for future if girdled	Check root system and replace tree if needed. <u>Correct soil grade to expose root collar</u>
46	California pepper, 41" diameter	D	Senescent Historic Veteran tree. Multiple severe structural defects, cavities and decay. Growing over street, very thin shell wall	High to extreme for limb failure	Recommend removal due to conditions of instability that cannot be reasonably mitigated
47	California pepper	C	Senescent Historic Veteran tree. Large cavity lower N/W side of trunk, deep cavity S/E side at base of trunk.	Moderate-high	Maintenance prune to keep excess weight off large limbs.
48	California pepper	B	Young tree. Root collar not clearly visible, may be planted too deep	Low	Check soil grade and correct as needed to expose root collar
49	California pepper, 51" diameter	D	Senescent Historic Veteran tree. Cavities in large lateral limbs above street. Potential internal decay detected through sounding. Tree failing due to armillaria root rot disease	Moderate-high	Recommend removal due to conditions of instability that cannot be reasonably mitigated
50	California pepper	B	Young mature tree. Trunk lean to S/W	Low	None at this time
51	California pepper	B	Young mature tree. No apparent problems	Low	None at this time
52	California pepper	B	Young mature tree. No apparent problems	Low	None at this time
	Recommended tree removals				

High Street Peppers  
12/15/2011



Tree #8



Tree #8 cavity at base of trunk



Tree#8 site of limb failure



Tree #8, decay at site of past limb failure



Tree #9



Tree #9, decay and cavities in main trunk



Tree #9, area of dead wood with in main trunk



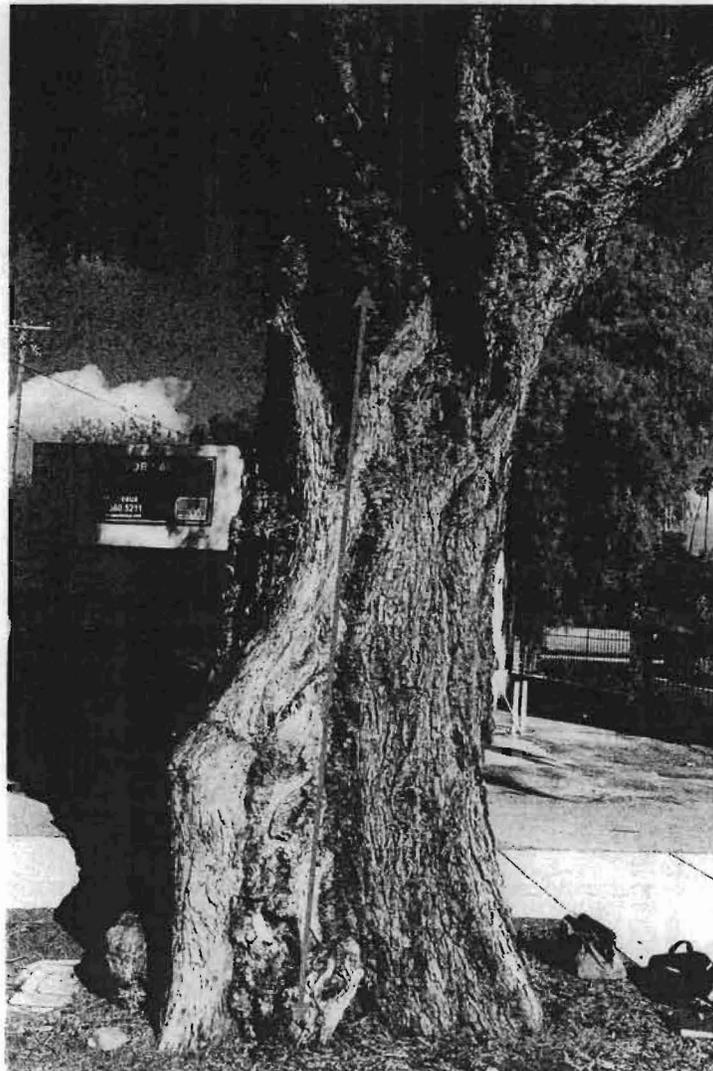
Tree #13



Tree #13, large wound and area of decay base of trunk



Tree #13, cavities and areas of decay in upper trunk



Tree #13, cavity estimated to run from  
ground level up trunk approx 11 feet



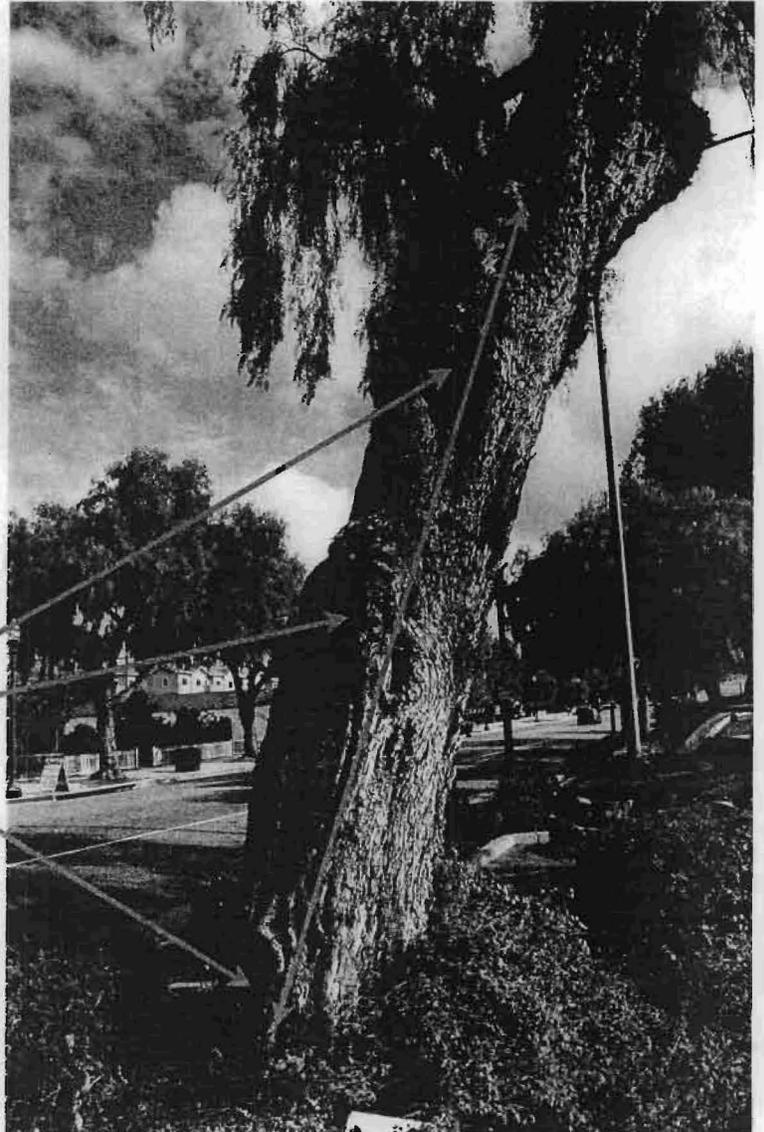
Tree #14



Tree #14, trunk cavity estimated to run from ground level up trunk 9 feet 272



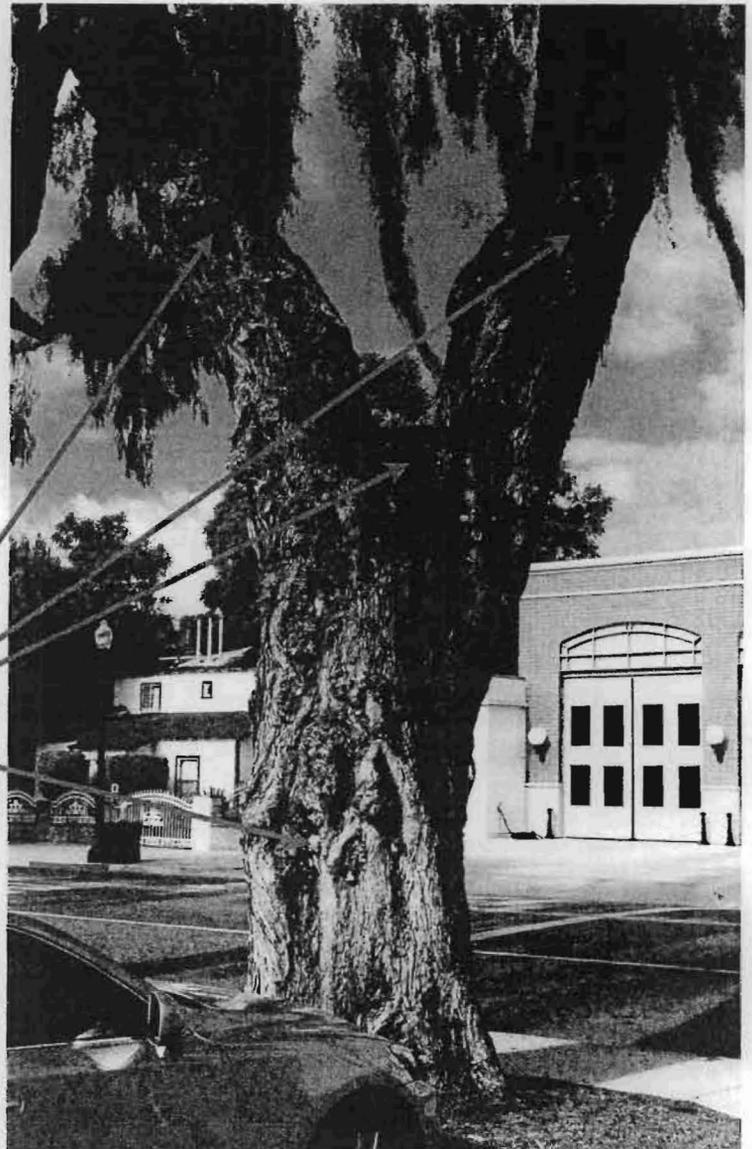
Tree #30



Tree #30, multiple cavities and areas of decay. Estimated 14 foot column of decay running up trunk from ground level



Tree #31



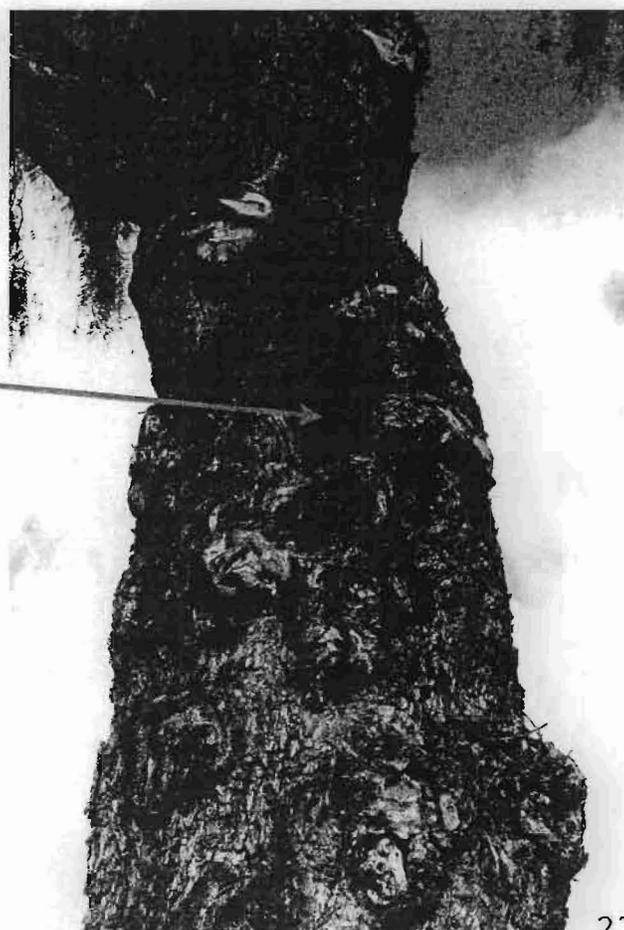
Tree #31, multiple cavities and areas of decay in main trunk and at union where trunk divides; weak crotch and main trunk



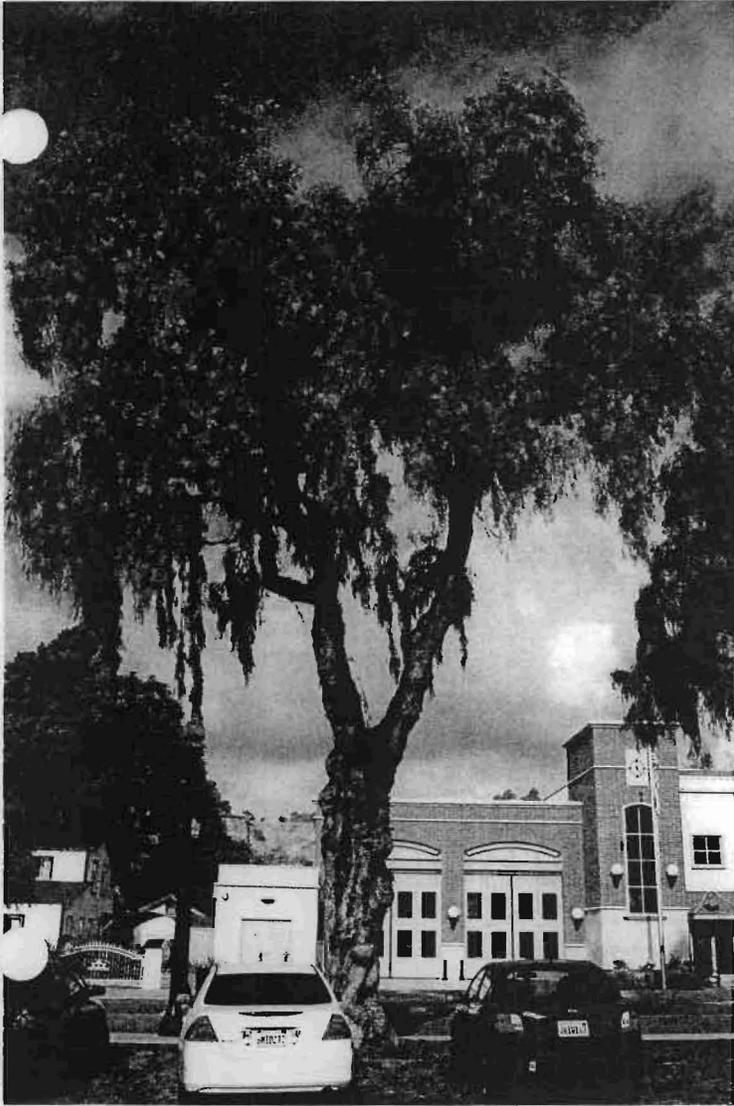
Tree #32



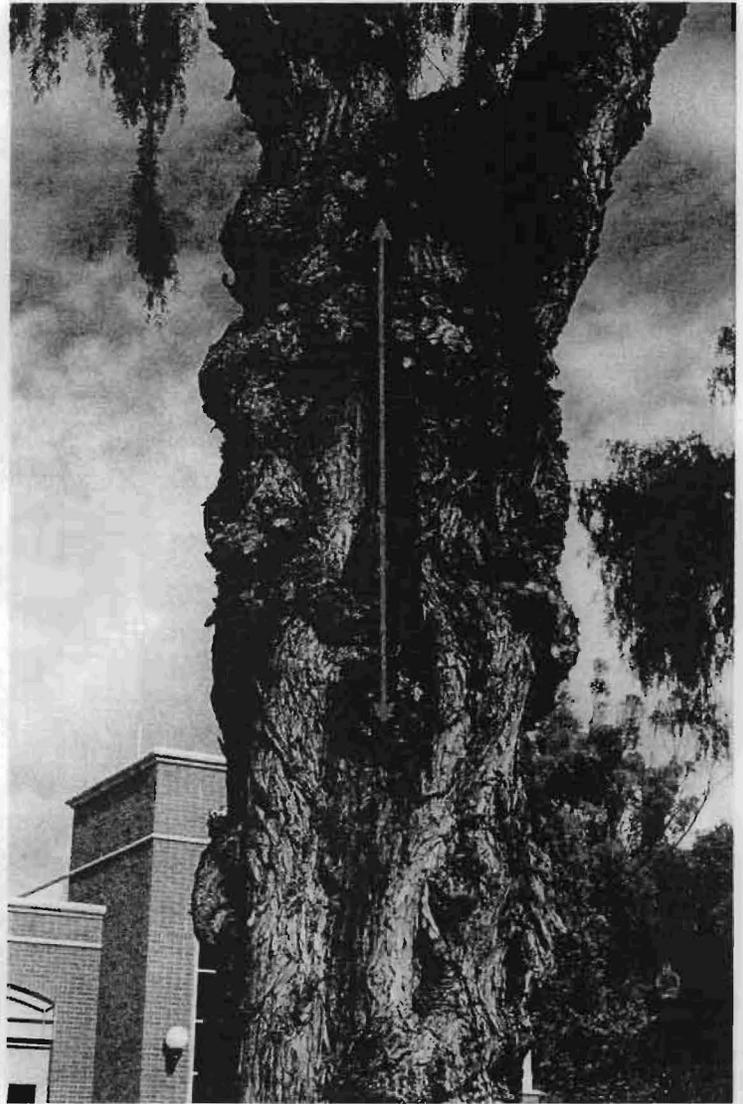
Tree #32, large cavity base of trunk



Tree #32. large cavity in upper trunk area



Tree #33

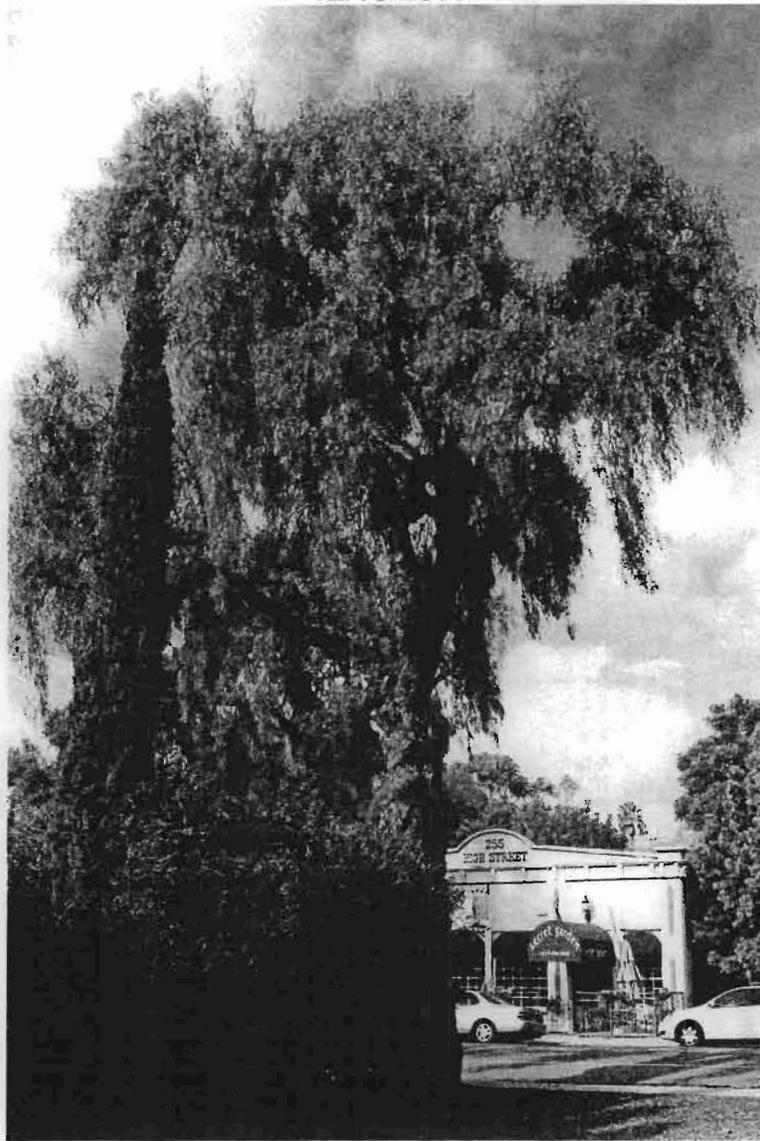


Tree #33, cavities in upper trunk area

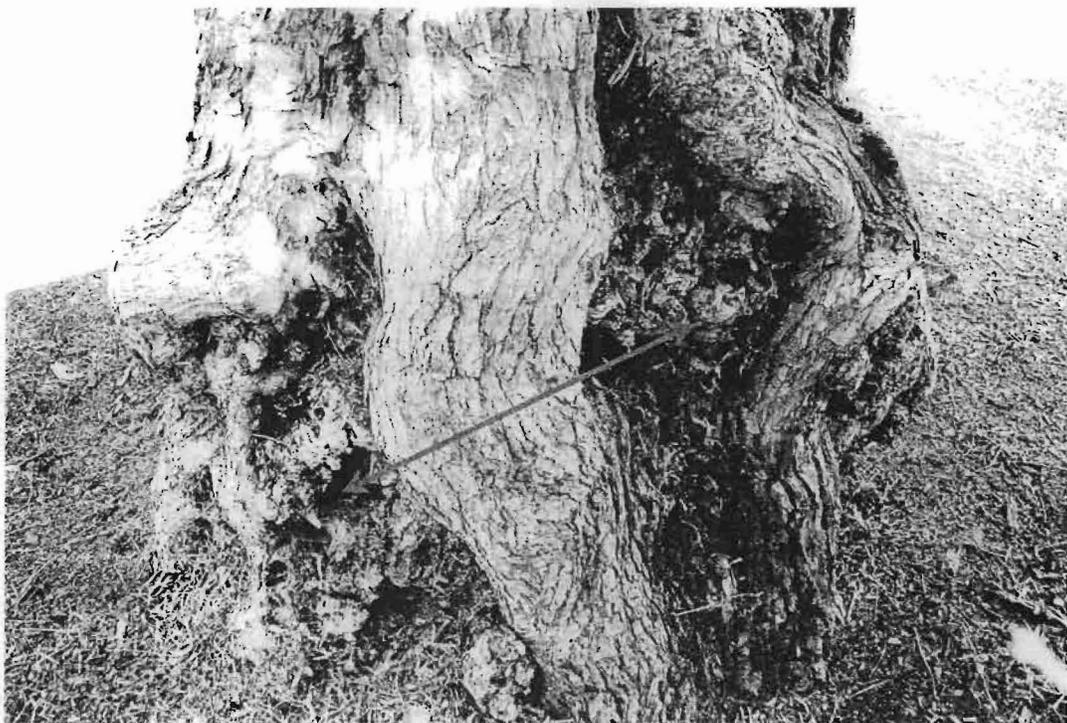


Tree #33, multiple cavities at base of trunk

12/15/2011



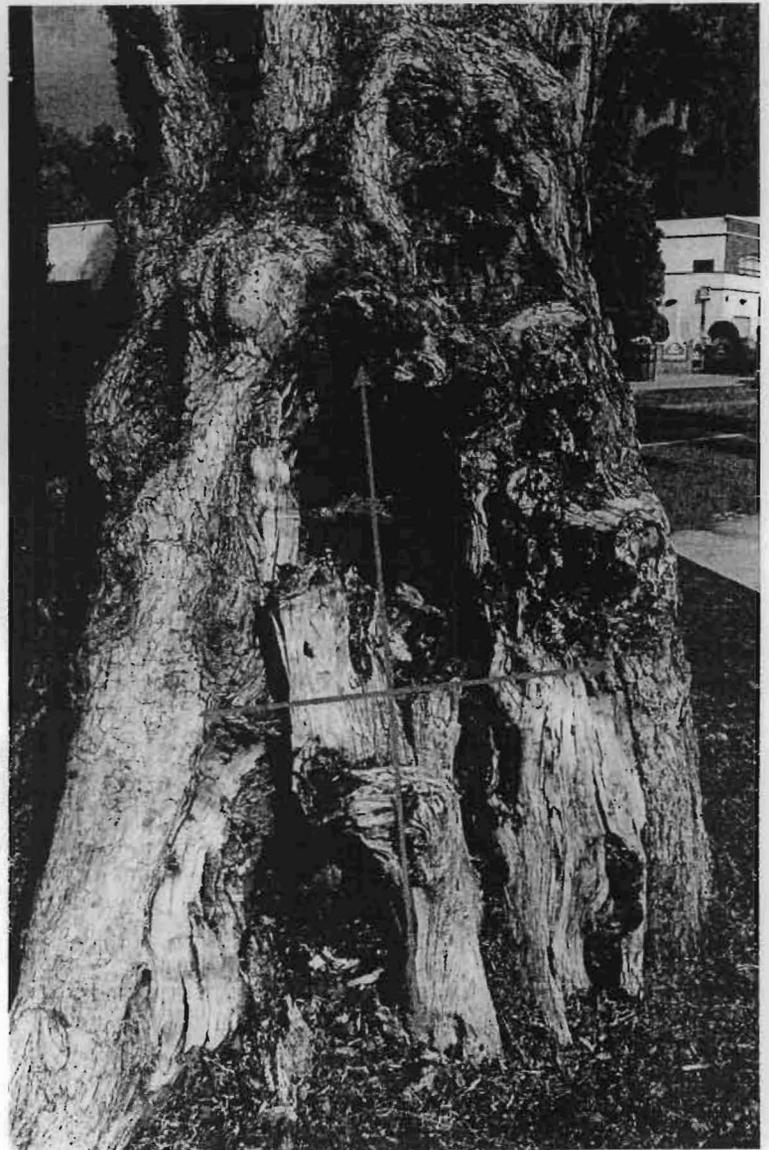
Tree #35



Tree #35, multiple cavities at base of trunk with signs of buckling



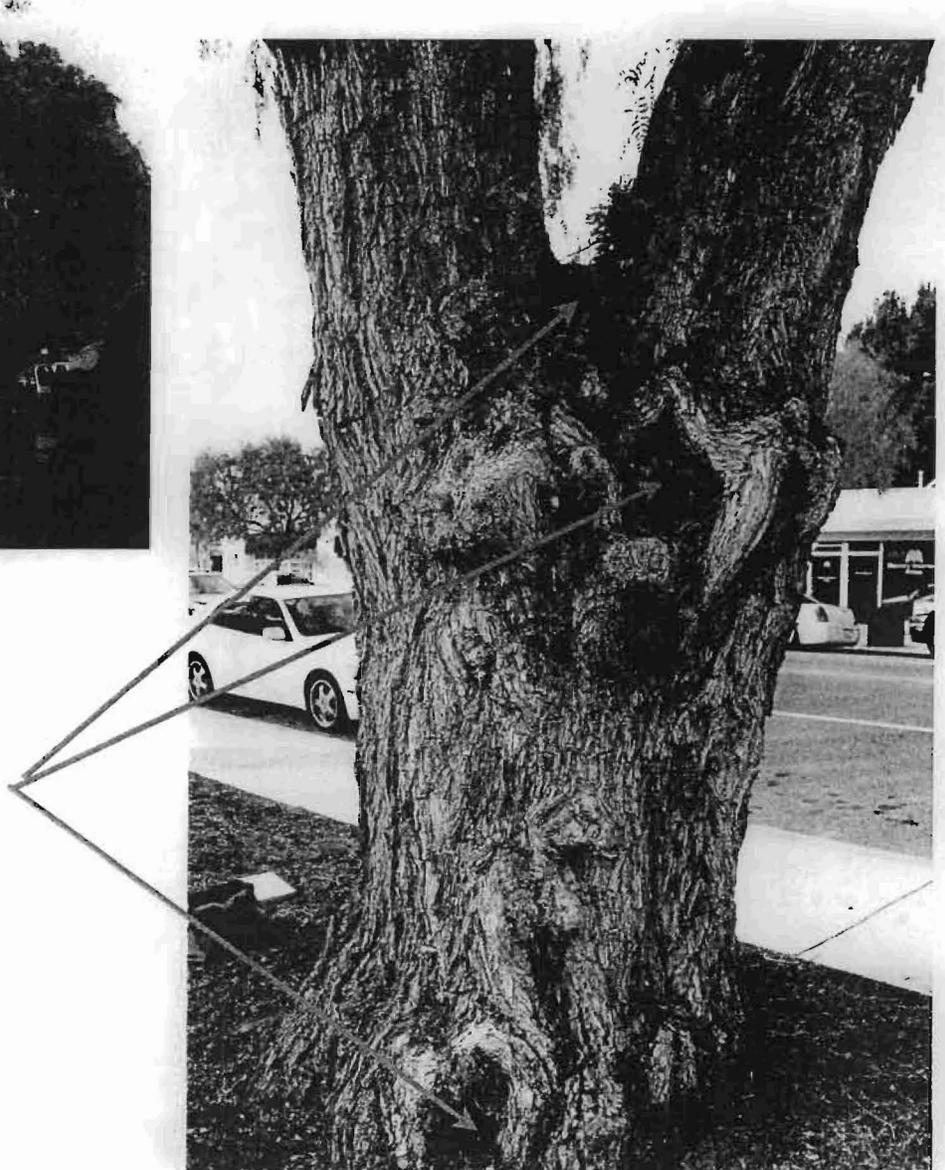
Tree #36



Tree #36, extremely large trunk cavity with areas of very thin shell walls 278



Tree #46



Tree #46, multiple deep cavities and areas of decay, including hollow at crotch 279



Tree #49



Tree #49, visually diagnostic signs of  
*Armillaria mellea* root rot disease 280