Reducing Risk of H Street Italian Stone Pines

Ken Knight

Registered Consulting Arborist #507

Board Certified Master Arborist #WE6394AM

ISA Risk Assessment Qualified

October 26,2017

H St Italian Stone Pine Study Objectives

- Minimize risks to life and property
- Support health of the trees
- Preserve and continue planting heritage trees
- Maintain canopy
- Long term solutions
- Minimize costs

Ken Knight background

- 20 years experience as arborist /consultant
- 25 years experience in local government
- Current education and credentials in arboriculture
- Tree risk consultant to Cities of Lompoc, Carpinteria, Santa Barbara County Parks, Cachuma Operations and Maintenance Board
- Vitae online at www.goletaarborists.com

Study Area - Locust to Olive

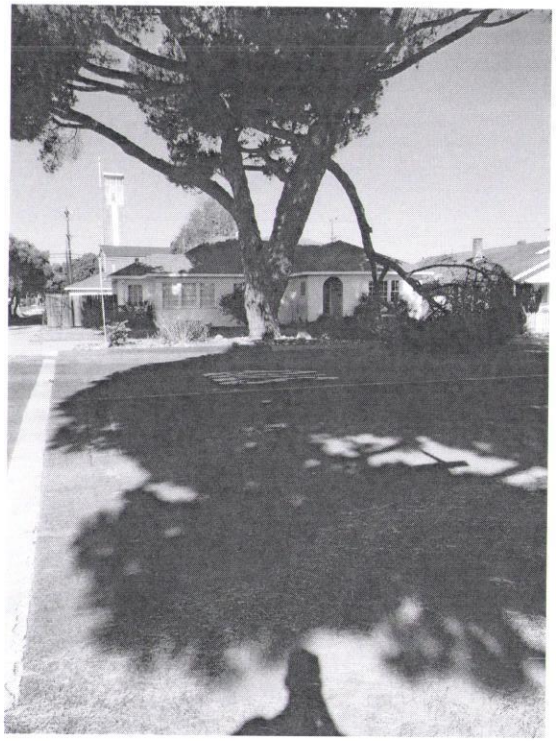
Study area - Olive to Hickory

Study area - Hickory to Cypress

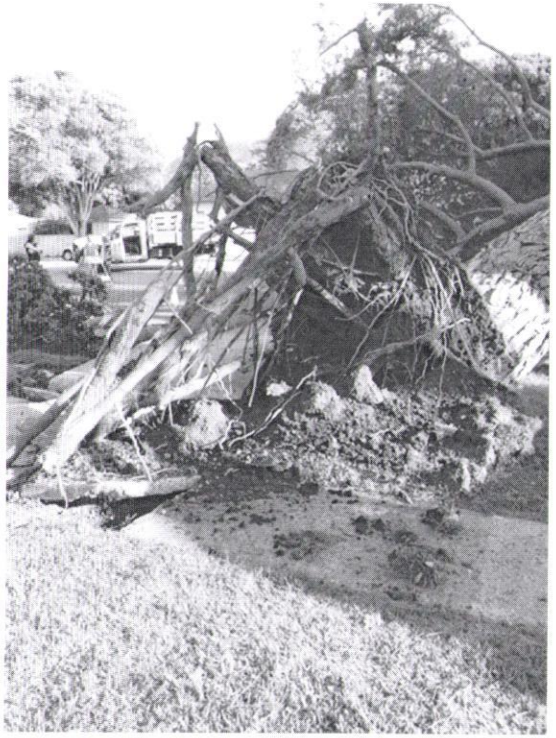
H St. Italian Stone Pine major tree failures

• 5-23-16	Tree 50	330 S. H St.	Overextended limb failure- not replaced
• 2013	Tree 33	210 S. H St.	Removed-decay at base of scaffolds – Replaced 2016
• 2009	Tree 36	224 S. H St	Failed – no information why – not replaced
• 2002	Tree 38	228 S. H St.	No information – Replaced in 2002.
• 2009	Tree 20	303 S. H St	Failed- no information why –replaced in 2016
• 9-10-13	Tree 39	236 S. H St	Removed due to 5' deep cavity in center of tree – not replaced
• 8-31-17	Tree 40	238 S. H St	Whole tree failure- root failure –Not replaced
• 2-22-17	Tree 43	306 S. H St	Whole tree root failure-soil saturation/wind - Not replaced
• 6-2009	Tree 44	310 S. H St	Removed after one of 4 scaffolds failed –not replaced
• 8-2009	Tree 14	323 S. H St	Removed after scaffold failure – not replaced
• 9-11-13	Tree 48	326 S. H St	Removed -cavities within multiple co-dominants- replaced 2016
• 6-20-13	Tree 12	231 S H St	No information – replaced 2016
• 9-15-17	Tree 11	339 S H St	Overextended limb failure
• 5-2013	Tree 52	400 S. H St	No information - Replaced 2016

9-15-17 Branch failure Tree 11 339 S H & Olive

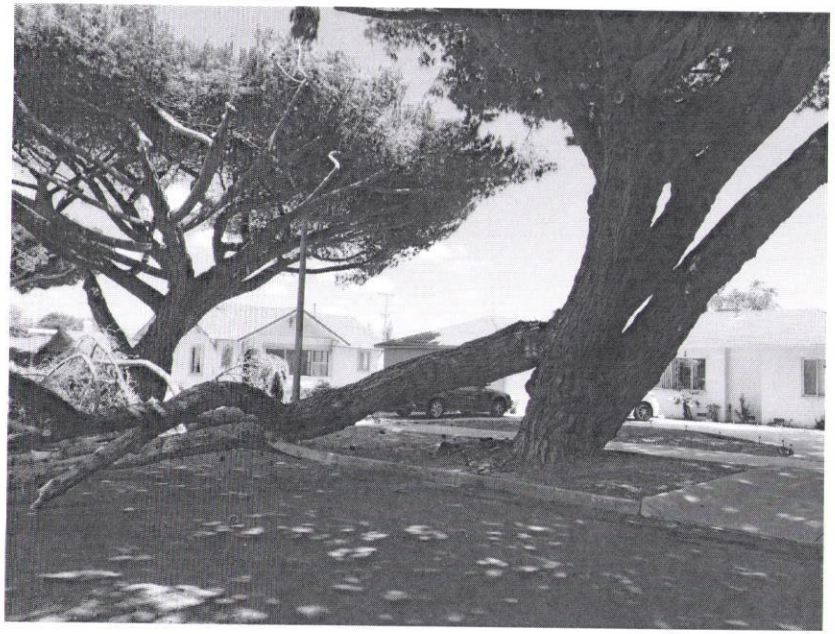


8-31-17 Tree 40 failure 238 S. H St

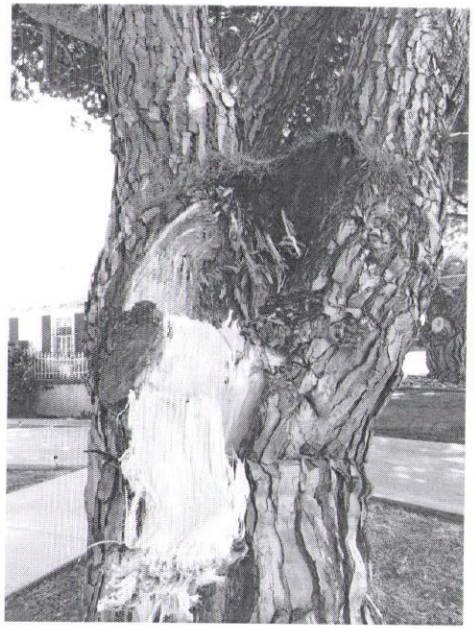


5-23-16 limb failure - address?

Overextended limb failure



Note pocket of decay on the NE quadrant



History of when trees planted

- 1920's Boy Scout project
- Monterey Pines replaced with Italian Stone Pines in the 1930's and 40's
- Trees are approximately 80 years old
- Lifespan of trees averages 50 to 150 years old

Past formal structural studies of H St. pines

- 2003 Mahoney – Risk review –some Resistograph studies
- 2013 Mahoney – Risk Review
- 2015 Knight – risk Review
- 2017 Knight – Resistograph review Tree 56 414 S H St. Tree
- 2017 Knight – Risk, health, root and Resistograph review
- Studies available at www.cityoflompoc.com/publicWorks/urbanforestry

Italian stone pine characteristics, risks

Summary of Key Findings of Britton Fund Italian Stone Pine Failures

- Most common type of failures in Italian stone pine - root 41%, trunk 30%, branch 29%
- Lean, girdling/kinked roots, and dense crown were key factors contributing to root failures.
- root failures were associated with precipitation and saturated soils, while trunk and branch failures occurred almost as frequently during either dry or wet conditions.
- The majority of branch failures (60%) occur at the point of attachment. Heavy end weight, dense crown, and multistem structure were key factors contributing to branch failures.
- Multiple trunks/codominant stems, dense crown, and lean were key factors contributing to trunk failures.
- Decay was not present in the majority of branch, trunk, and root failures. Where decay was present, sporophores (fruiting bodies) were rarely found.
- Embedded bark was reported in only 4% of trunk and branch failures.
- Wind played a role in the majority of root failures (47%), while branch and trunk failures were distributed fairly uniformly during low, moderate, and high wind conditions.

Mature Italian Stone Pines in Rome, Italy

Current Study Process

- Public Meetings Before and after the study
- Level 2 Risk Assessment of top three parts of tree likely to fail
- Tree Health Assessment
- 6 sites (One for each side of 3 blocks) for root collar review of roots
- Soil survey for nutrients
- Resistograph tests for up to 8 trees

Mitigation options under consideration

- Parking restrictions on one or both sides of H Street
- Reduce/remove long horizontal limbs and/or leaning trunks
- Remove high risk trees
- Enlarge growing areas into street and/or acquiring private property easements
- Special assessments to pay for special treatment of H St. trees
- Planting different species other than Italian Stone Pine

Mitigation options not under consideration

- Doing nothing
- Use of growth regulators to reduce height
- Cabling of large limbs
- Props to support weight of leaning trunks

Fig. 7. Lean has been reported as a key factor contributing to root failure of Italian stone pine. Here, large props have been installed to reduce the failure potential of this leaning specimen. *Photo: T. Kipping.*

What can you do to help?

- Implement suggestions in flier "Can you help these trees live another 80 years?"
- Contact the City of Lompoc Urban Forestry Division if you see any changes in tree lean, bulges at the top of branches, root plate lifting, drooping limbs.
- City of Lompoc Urban Forestry Division – 805-875-8034 or contact us by email at D_Najera@ci.Lompoc.ca.us or by mail to 1300 west Laurel Avenue, Lompoc, Ca 93436

Next Meeting to discuss proposed mitigation program November 16 6:30 pm

- Questions and Comments?