

Reducing Risk of H Street Italian Stone Pines

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ISA Risk Assessment Qualified

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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

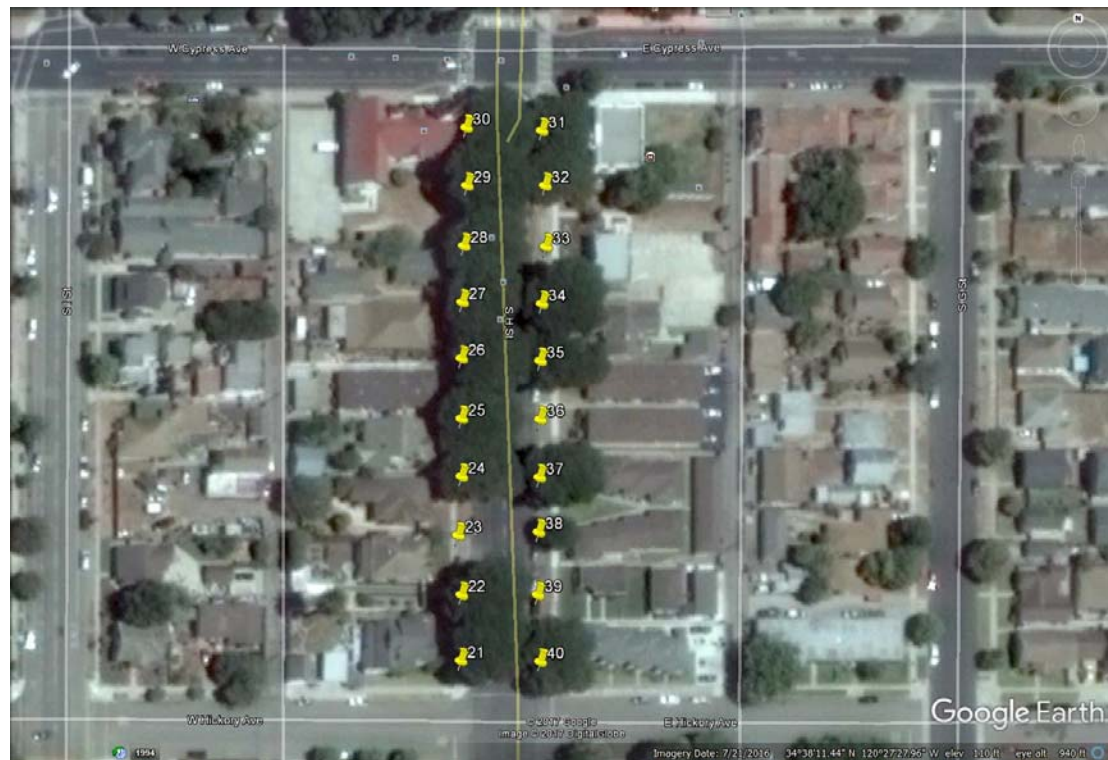
Study Area - Locust to Olive



Study area - Olive to Hickory



Study area - Hickory to Cypress



H St. Italian Stone Pine major tree failures

Date	Tree #	Location	Reason		Replaced?
2002	Tree 38	228 S. H St.	Unknown	No information	2002
2003	Tree 23	231 S. H St.	Trunk	Removed -decay at base of scaffolds	No
6-2009	Tree 43	310 S. H St	Trunk	Removed after one of 4 scaffolds failed	No
8-2009	Tree 14	323 S. H St	Trunk	Removed after scaffold failure	No
2009	Tree 36	224 S. H St	Unknown	Failed – no information	No
2009	Tree 20	303 S. H St	Unknown	Failed- no information	2016
2013	Tree 33	210 S. H St.	Trunk	Removed-decay at base of scaffolds	2016
5-2013	Tree 51	400 S. H St	Unknown	No information	2016
6-20-13	Tree 12	231 S H St	Unknown	No information	2016
9-10-13	Tree 39	236 S. H St	Trunk	Removed- 5' deep cavity in center	No
9-11-13	Tree 47	326 S. H St	Trunk	Removed -cavities within co-dominants	2016
5-23-16	Tree 49	330 S. H St.	Branches	Overextended limb failure	No
2-22-17	Tree 42	306 S. H St	Roots	Whole tree root failure-soil saturation/wind	No
8-10-17	Tree 35	220 S. H St.	Branches	Overextended limb failure	No
8-31-17	Tree 40	238 S. H St	Roots	Whole tree failure- root failure	No
9-15-17	Tree 11	339 S H St	Branch	Overextended limb failure, tree remains	N/A

Italian stone pine characteristics, risks

Summary of Key Findings of Britton Fund Italian Stone Pine Failures

- **Root failures 41% of total.** Lean, girdling/kinked roots, and dense crown were key factors contributing to root failures, mostly during precipitation, saturated soils and wind.
- **Trunk failures 30% of total,** Multiple trunks/codominant stems, dense crown, and lean were key factors contributing to trunk failures during wet/dry/windy/calm conditions.
- **Branch failures 29% of total.** 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 during wet/dry/windy/calm conditions . Decay and embedded bark usually not a factor in failures.

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

Tree Health

- 6 Excellent, 33 Good, 12 Fair. 51 Total
- Dieback primarily due to shading from trees no longer there
- No evidence of beetle activity
- Bleeding, no sealing on large (10" or more) pruned branches

Soil Nutrient Study

- Organic matter needed
- Leave pine needles on parkway
- Details in Appendix B

1940 South H Street



Root Collar Excavations

- 6 sample locations – one per block on each side
- Trees 9, 15, 26, 37, 46, 59
- All root collars buried approximately 6' to 12"
- Root collar burial encourages likelihood of fungus, tree failure

Tree Risk Assessments

- H Street 60 feet wide, parkways 12 feet, sidewalks 6 feet
- Trees have over 70 feet canopy, beyond 60 foot maximum average, spreading canopies encouraged
- All trees have multiple trunks/scaffolds of similar size except for 6 trees planted in 2016 and trees 16 and 38.

Resistograph Analysis

- Tests at root collar of trees 26 and 37 indicate soft wood. Typical issue for all pines with buried collars?
- Tests at crotches of trees 29, 37, 57, 58 indicate positive strength threshold but due to load on crotch, likelihood of failure is probable.
- Tests at crotches of trees 48, etc. indicate borderline strength threshold. Due to load on crotch, likelihood of failure is probable

5-23-16 limb failure – Tree 49 - 330 S. H St.

Overextended limb failure



Note pocket of decay on the NE quadrant



Recommendations

- Stabilize the structure of the pines as smaller trees
 - Establish a strong straight central trunk where possible
 - Reduce/remove destabilizing overextended branches
 - Reduce canopy spread from approximately 70 feet to 40 feet
 - Conduct additional Level 3 Resistograph reviews where needed.

Recommendations (continued)

- Remove 6 to 12” of accumulated soil in the parkways to expose the bottom of the pines. Implications:
 - removal of existing shrubs and vegetation in the parkway
 - removal of grass lawns and shrubs in the parkway
 - removal or restructuring of irrigation systems in the parkway
 - removal of concrete, stones, black plastic and other impermeable objects from the parkway
 - uncovering tops of surface roots previously hidden by soil
 - providing a dead pine needle collection area to aid in natural nutrient recycling

Recommendations (continued)

- Use curb bump outs and sidewalk reductions where appropriate
- Prune new trees for structural stability
- Provide uniform written tree care procedures to adjacent property owners, renters and landscape contractors and follow-up with annual inspections.
- Update the risk assessment of the pines every two years.

Recommendations (continued)

- Continue planting new Italian Stone Pine species
 - Alternatives don't provide similar structure or heritage status
 - Properly managed trees will have less risks

Questions and Discussion

If time and weather permits, an examination of tree 34 outside with a laser pen to show locations of proposed pruning.

Further questions, contact City of Lompoc Urban Forestry Division – 805-875-8034, by email at D_Najera@ci.Lompoc.ca.us, or by mail to 1300 West Laurel Avenue, Lompoc, Ca 93436