

# Native Tree Survey and Arborist Report

*for an approximate 0.36-acre Site*

*North of Wildrose Ave., between Deodar Ln. and Bradbury Rd.*

*In the City of Bradbury, County of Los Angeles, California*



Prepared for:

**EPD Solutions, Inc**

Contact: Danielle Thayer, *Project Manager*

2 Park Plaza, Suite 1120| Irvine, California 92614

Prepared by:

**Golden State Land & Tree Assessment**

George J Wirtes, MS, RCA #738

*ISA Certified Arborist*

*Report Date: September 22, 2021 (Final Revision: May 5, 2022)*



## TABLE OF CONTENTS

|   |           |
|---|-----------|
| <b>Section 1: Executive Summary .....</b>                                 | <b>1</b>  |
| <b>Section 2: Background .....</b>  | <b>2</b>  |
| 2.1 - Project Location and Description.....                               | 2         |
| 2.2 - Site and Vicinity Characteristics.....                              | 3         |
| 2.3 - Assignment and Scope of Survey .....                                | 5         |
| 2.4 - Survey Method and Health Assessment.....                            | 6         |
| 2.5 - Hazard Risk Assessment.....   | 6         |
| 2.6 - Local Tree Regulation (Bradbury Municipal Code Chapter 118).....    | 7         |
| 2.6.1 - Tree preservation and landscaping approval (Sec. 9.118.040) ..... | 8         |
| 2.6.2 - Regulations, controls and prohibitions (Sec. 9.118.060) .....     | 8         |
| 2.7 - Limitations and Exceptions of Assessment.....                       | 8         |
| <b>Section 3: Subject Trees and Observations.....</b>                     | <b>9</b>  |
| 3.1 - Species Assessment.....   | 11        |
| 3.2 - Coast live oak ( <i>Quercus agrifolia</i> ).....                    | 11        |
| 3.3 - Interior live oak ( <i>Quercus wislizeni</i> ).....                 | 11        |
| 3.4 - Oak Woodland .....  | 12        |
| 3.5 - Observations.....   | 12        |
| <b>Section 4: Discussion and Recommendations .....</b>                    | <b>17</b> |
| 4.1 - Conclusion .....  | 17        |
| 4.2 - Discussion .....  | 17        |
| 4.3 - Recommendations.....  | 17        |
| 4.3.1 - Monitoring During and After Construction .....                    | 17        |
| 4.3.2 - Tree Preservation and Landscaping Plan .....                      | 17        |
| 4.3.3 - Tree Replacement .....  | 18        |
| 4.3.4 - Monitoring Plan .....   | 18        |
| 4.3.5 - Post Installation Tree Inspection and Monitoring .....            | 18        |
| 4.3.6 - Migratory Bird Treaty Act .....                                   | 19        |
| 4.3.7 - Tree Protection during Construction.....                          | 19        |
| <b>Section 5: Qualifications Of Arborist .....</b>                        | <b>20</b> |
| <b>Section 6: References.....</b>   | <b>21</b> |

## SECTION 1: EXECUTIVE SUMMARY

---

This native tree survey has been performed at the request of EPD Solutions, Inc. for a proposed 0.3-acre site in the City of Bradbury, California, in the County of Los Angeles. The site is a steep, south-facing slope, north of Wildrose Ave. with a dense stand of native oaks trees. The field survey associated with this report was performed on September 1, 2021, with brief follow up site visits performed on March 18 and May 3, 2022.

The subject trees were tagged with an aluminum tag containing a unique number. As part of this survey, details of each tree were recorded documenting their species, stature, health, local environment as well as conditions in which they occur. Within the project site, 46 trees were assessed onsite involving *two* native species, coast live oak (*Quercus agrifolia*) and a single representative of interior live oak (*Quercus wislizeni*), which may be a hybrid. Having a diameter at breast height (DBH) of 6-inches or greater, 38 of the oak trees surveyed qualify as Prominent Trees as defined by the Bradbury Municipal Code, Chapter 118 (Sec. 9.118.030). Due to the dense nature of the stand, local environmental conditions and steep terrain, many of the trees onsite should be removed to mitigate the potential risk of failure they pose. In all, 21 (47.7%) of the trees onsite should be considered for removal as part of the project; this is primarily due to the risk they pose given their current circumstance (instability, poor growth form, etc.). Of the 25 trees in fair or good health, 22 qualify as Prominent given their DBH.

The City of Bradbury's Municipal Code outlines provisions and guidelines for tree removal, installation, preservation, and maintenance within the City; this is especially important when considering native and special status tree species within the City. All trees that are intended for removal as part of a project require a permit for removal and must be approved by the Planning Director. Seriously diseased or dead trees must be removed in accordance with the Code (with approval of a no-fee permit). The Director must approve final mitigation involving all replacement tree species and size.

## **SECTION 2: BACKGROUND**

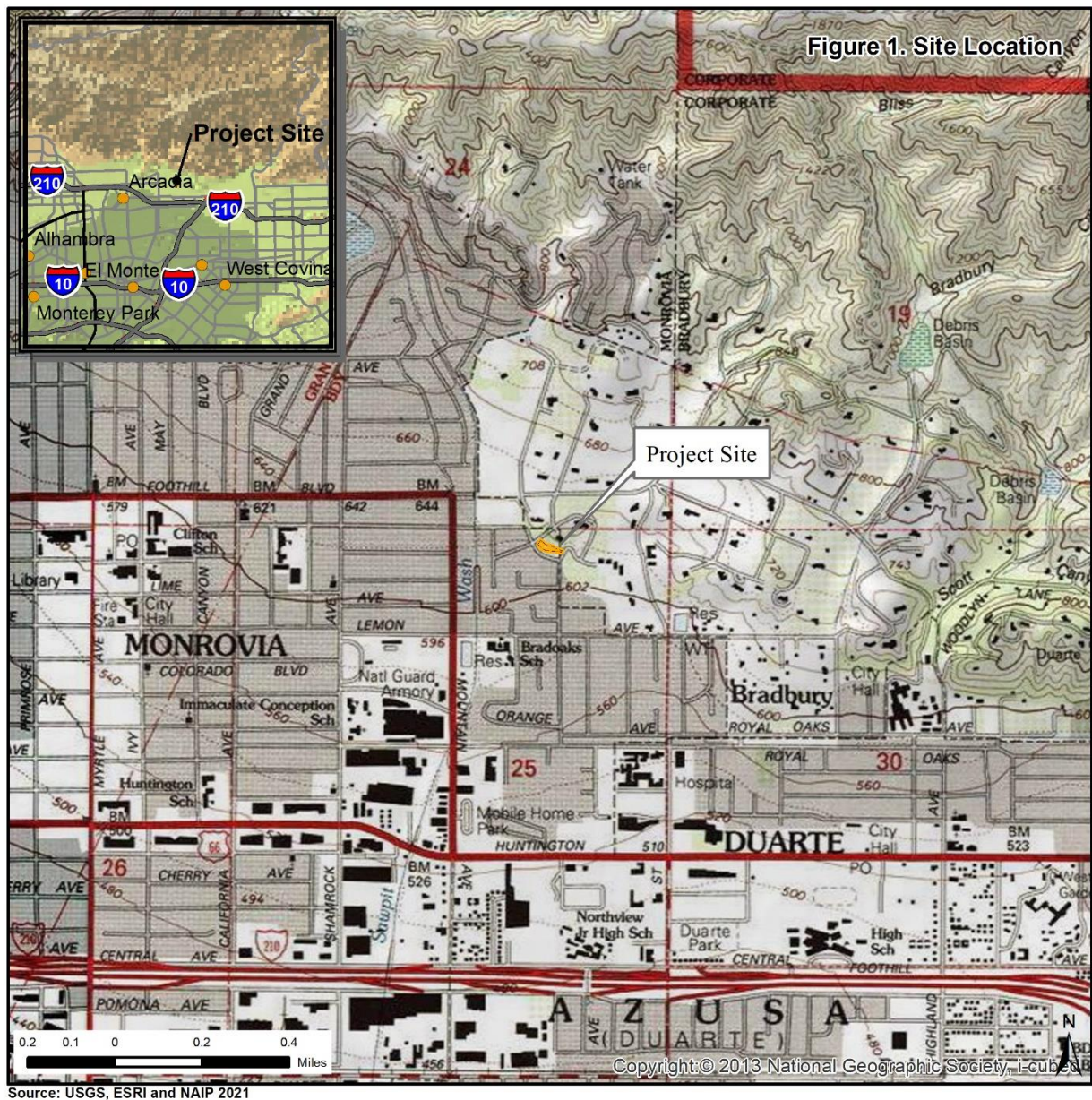
---

### **2.1 - Project Location and Description**

The 0.3-acre site is located along the northern slope adjacent to Wildrose Ave. between Deodar Ln. and Bradbury Rd. in the City of Bradbury; it is approximately 1.8 miles from the intersection of the 605 FWY and Interstate 210 in the City of Bradbury in the County of Los Angeles (see Figure 1 below).

The proposed project involves road widening within the right-of-way of Bradbury Road and Wildrose Avenue to the east and north respectively. The slope containing the stand of native oaks will be remanufactured to accommodate a new slope, and a retaining wall will be installed. The project also includes associated hardscape, irrigation, and landscaping.





## 2.2 - Site and Vicinity Characteristics

The elevation of the site is at approximately 600 feet above mean sea level, and the topography slopes steeply to the south towards Wildrose Ave. The local vicinity is within Sunset Zone 21 and USDA Hardiness Zone 10a. As indicated in Table 1 below, two distinct soil series occur within the site boundary. These soil series are described by the Natural Resource Conservation Service (NRCS) as alluvium, derived from granite (see Table 1 below).

Table 1. Soils on Site

| Map Unit Symbol                    | Map Unit Name  | Acres      | Percent       |
|------------------------------------|--|------------|---------------|
| 1006                               | <p><b>1006—Urban land-Soboba complex, 0 to 5 percent slopes</b></p> <p><b>Description of Urban Land</b></p> <p style="text-align: center;"><b>Setting</b></p> <ul style="list-style-type: none"> <li>• <i>Landform:</i> Alluvial fans</li> <li>• <i>Slope:</i> 0 to 5 percent</li> <li>• <i>Depth to restrictive feature:</i> 0 inches to manufactured layer</li> <li>• <i>Runoff class:</i> Very high</li> <li>• <i>Frequency of flooding:</i> Rare, None</li> </ul> <p><b>Description of Soboba</b></p> <p style="text-align: center;"><b>Setting</b></p> <ul style="list-style-type: none"> <li>• <i>Landform:</i> Alluvial fans</li> <li>• <i>Parent material:</i> Discontinuous human-transported material over alluvium derived from granite</li> </ul> <p style="text-align: center;"><b>Typical profile</b></p> <ul style="list-style-type: none"> <li>• <i>A - 0 to 4 inches:</i> gravelly sand</li> <li>• <i>C1 - 4 to 47 inches:</i> very cobbly sand</li> <li>• <i>C2 - 47 to 79 inches:</i> extremely cobbly sand</li> </ul>  | 0.05       | 19.1%         |
| 1138                               | <p><b>1138—Urban land-Azuvinna-Montebello complex, 0 to 5 percent slopes</b></p> <p><b>Description of Urban Land</b></p> <p style="text-align: center;"><b>Setting</b></p> <ul style="list-style-type: none"> <li>• <i>Landform:</i> Fan remnants</li> <li>• <i>Slope:</i> 0 to 8 percent</li> <li>• <i>Depth to restrictive feature:</i> 0 inches to manufactured layer</li> <li>• <i>Runoff class:</i> Very high</li> </ul> <p><b>Description of Azuvinna</b></p> <p style="text-align: center;"><b>Setting</b></p> <ul style="list-style-type: none"> <li>• <i>Landform:</i> Fan remnants</li> <li>• <i>Parent material:</i> Discontinuous human-transported material over old alluvium derived from granite</li> </ul> <p style="text-align: center;"><b>Typical profile</b></p> <ul style="list-style-type: none"> <li>• <i>^A1 - 0 to 5 inches:</i> loam</li> <li>• <i>^A2 - 5 to 14 inches:</i> loam</li> <li>• <i>2Bt1 - 14 to 24 inches:</i> clay loam</li> <li>• <i>2Bt2 - 24 to 43 inches:</i> sandy clay loam</li> <li>• <i>2BCt1 - 43 to 57 inches:</i> loam</li> <li>• <i>2BCt2 - 57 to 79 inches:</i> fine sandy loam</li> </ul> <p><b>Description of Montebello</b></p> <p style="text-align: center;"><b>Setting</b></p> <ul style="list-style-type: none"> <li>• <i>Landform:</i> Fan remnants</li> <li>• <i>Parent material:</i> Human-transported material over alluvium derived from granite</li> </ul> <p style="text-align: center;"><b>Typical profile</b></p> <ul style="list-style-type: none"> <li>• <i>^A - 0 to 4 inches:</i> silt loam</li> <li>• <i>^C - 4 to 34 inches:</i> clay loam</li> <li>• <i>2Bt1 - 34 to 53 inches:</i> loam</li> <li>• <i>2Bt2 - 53 to 79 inches:</i> loam</li> </ul> | 0.25       | 80.9%         |
| <b>Totals for Area of Interest</b> |  | <b>0.3</b> | <b>100.0%</b> |



The vegetation community onsite includes a dense coast live oak woodland as well as native and non-native trees and shrubs located on a steep slope.



Plate 1. This is a western view of the dense stand of oaks within the project site; it is an isolated community of oak woodland with limited connectivity to other such woodlands along the local foothills.

### **2.3 - Assignment and Scope of Survey**

Golden State Land & Tree Assessment (GSLTA) was retained to inventory all the *native* trees within the project area, determine their species and level of significance, and make a determination as to each tree's health for potential future preservation. Specifically, a health assessment was performed cataloging the health and stature parameters of each tree onsite; this included, but was not limited to: recording total diameter at breast height (DBH), canopy spread, tree height, apparent disease/decay, other signs of potential hazard, and pest damage. A potential risk assessment was also conducted keeping public safety in mind. All documentation in this report is in compliance with industry standards as well as requirements published

by the International Society of Arboriculture (ISA). This report includes recommendations and mitigation measures meant to satisfy all applicable ordinances and permit guidelines.

## **2.4 - Survey Method and Health Assessment**

The field survey for this report was performed on September 22, 2021. Brief follow up visits were performed on March 18 and May 3, 2022 to specifically discuss the location of the City's Right of Way (ROW) and verify survey data. Prior to the field survey, the City of Bradbury's website was accessed to review specific tree protection guidelines. An aerial photograph was used as a visual guide during the assessment.

A handheld Global Positioning System (GPS) device and GPS-enabled smartphone with digitized project boundaries were used to identify the location of each subject tree. The position of the subject trees was recorded using a GPS, whose data was exported into GIS for periodic illustration over aerial photographs.

The crown-width was estimated by pacing, and the height of each subject tree was visually estimated using a tangent height gauge. These data were recorded on field sheets, and associated aluminum numeric tags were affixed to trees on the north side at approximately 4.5 feet above grade for later reference. Aerial views were captured using a DJI Mavic Air 2 controlled by a DJI Fly smartphone app.

Tree status (relative condition, stature, and health) was conducted by ISA arborist/biologist, George Wirtes, RCA from ground level with the aid of binoculars. To estimate wood integrity, a rubber mallet was occasionally used to assess possible decay within the tree stem and flare. As indicated earlier, no invasive procedures were performed. Visual characteristics were recorded on field sheets, and twig/leaf samples as well as digital photographs were taken as needed to assure accurate identification. Overall health and general appearance of each tree was numerically rated (Health/General Appearance Rating - 1-Good, 2-Fair, 3-Poor, 4-Degraded/dead) based on the aforementioned conditions. The local environment was also assessed in relation to the tree species and conditions of its location (Local Environment Rating - 1-Good, 2-Fair, 3-Poor, 4-Inappropriate). For this rating, the species was considered in relation to the environment. Other conditions were also considered such as fence lines, utilities, competing canopies, grade cuts/slope, etc.

## **2.5 - Hazard Risk Assessment**

The International Society of Arboriculture (ISA) recommends a Hazard Assessment to be included with arborist reports. Such an assessment is an important component of any report and is critical if trees are to be located near public areas such as parks, walkways, residences, and buildings. This tree assessment includes a *Level 2 Basic Risk Assessment* as defined by ISA Best Management Practices. This type of assessment is limited to evaluating trees and obvious signs of defects such as:

- Dead or broken structures
- Cracks
- Weakly attached branches and co-dominant stems
- Missing or decayed wood



- Unusual tree architecture or distribution
- Obvious loss of root support

A risk rating is assigned to each tree based on its defects, aesthetics, apparent health, location and the nearby targets (people or property). As defined by ISA, the ratings are defined below:

1. *Low* - Low-risk category applies when consequences are negligible, and likelihood is unlikely, or consequences are minor, and likelihood is somewhat likely.
2. *Moderate* - Moderate risk situations are those for which consequences are minor and likelihood is very likely or likely or likelihood is somewhat likely, and the consequences are significant or severe.
3. *High* - High-risk situations are those for which consequences are significant and likelihood is very likely or likely or Consequences are severe, and likelihood is likely.
4. *Extreme* - The extreme risk category applies in situations in which failure is imminent and there is a high likelihood of impacting the target and the consequence of the failure is severe. The tree risk assessor should recommend that mitigation measures be taken as soon as possible.

*It is impossible to maintain a tree free of risk. A tree is considered hazardous when it has a structural defect that predisposes it to failure, and it is located near a target.*

- A target is person or property that may sustain potential injury or property damage if a tree or a portion of a tree fails.
- Target areas include sidewalks, walkways, roads, vehicles, structures, playgrounds, or any other area where people are likely to gather.
- Structurally sound and healthy trees may also be hazardous if they interfere with utilities, roadways, walkways, and sidewalks, or if they obstruct motorist vision.
- Common hazards include dead and diseased trees, dead branches including bark, stubs from topping cuts, broken branches (hangers), multiple leaders, tight-angled crotches, and an unbalanced crown. Evaluation of risk is as follows: 1-Good, 2-Fair, 3-Poses risk, and 4-Hazardous.

## **2.6 - Local Tree Regulation (Bradbury Municipal Code Chapter 118)**

Below are select elements of the City of Bradbury's Municipal Code (Code). The City affords protection to native and non-native tree species as follows:

- *Native* tree means any woody plant species indigenous to the desert, foothills or canyons of southern California prior to the California Mission Period, provided that the plant has an expected mature trunk size of six inches DBH and has an expected mature height of 15 feet or higher.
- *Prominent* tree means a woody perennial plant with a trunk DBH of six inches or more, and having an expected mature height of 15 feet or higher.
- *Significant* tree means any non-native or exotic tree with a trunk DBH of six inches or more, and having an expected mature height of 15 feet or higher, and known to survive in the southern California environment.

Accordingly, Giant sequoias, redwoods (*Sequoiadendron semperivirens*), and dawn redwoods (*Metasequoia glyptostroboides*), evergreen native oaks (such as *Quercus agrifolia*, *engelmannii*), deciduous oaks (such as *Quercus lobata*, and *kelloggii*) are to be regarded as important native trees even

though they have been planted by man, introduced (or possibly reintroduced) into the Southern California foothill and canyon environments.

### **2.6.1 - Tree preservation and landscaping approval (Sec. 9.118.040)**

The Code also states, no removal or topping of existing prominent and/or significant trees is permitted on a building site without prior approval of the Planning Commission. A tree preservation and landscaping plan shall be included as part of the architectural review.

### **2.6.2 - Regulations, controls and prohibitions (Sec. 9.118.060)**

No prominent tree, native tree or any other tree defined in Section 9.118.030 and/or which is of a desirable genus and species shall be removed without first obtaining a permit to do so. The City Manager shall issue such permits only after the presentation of photographs and/or drawings showing that the prominent tree is a significant health or fire hazard or has become an extremely severe detriment to the view of the mountains or valley from house sites.

The CODE (Sec 9.118.060(b)) also specifies that, seriously diseased or dead trees shall be treated or removed by the property owner as necessary to correct the condition or prevent the spread to trees on adjoining properties. The Eucalyptus species of tree killed by the eucalyptus longhorn beetle (ELB) must be cut down, buried or chipped. Trees which show symptoms of ELB infestation may require removal, unless adequate moisture becomes available allowing the tree to produce sufficient quantities of resin to kill all or enough of the larvae that the tree recovers from the infestation. A no-fee permit will be issued for removal of a dead or diseased tree.

## **2.7 - Limitations and Exceptions of Assessment**

This survey was conducted in a manner that draws upon past education, acquired knowledge, training, experience, and research. It was conducted to the greatest extent feasible, and although the information gathered reduces risk of tree failure/decline, it does not fully remove it.

The project area included a steep slope with a significant duff layer that obscured viewing at times. No diagnostic testing was performed during this assessment. This survey associated with this Arborist Report included no soil sampling, root excavation, trunk coring/drilling or any other invasive procedure. The determinations of damage due to pest infestation and decay were made solely on outward appearance and inspection of the tree structures. Not all tree defects may be visible from the ground. Epiphytic growth can also obscure defects on the stem and in the canopy of a tree. Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms subject to attack by disease, insects, fungi and other forces of nature. Many aspects of tree health and environmental conditions are often not detectable (internal decay, poor root anchoring, etc.). Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time.

The statements made in this report do not take into account the effects of climate/wind extremes, vandalism, or accident (whether physical, chemical, or fire). In addition, this area is known to have periodic, high

velocity Santa Ana winds from transient high-pressure ridges. Golden State Land & Tree Assessment cannot, therefore, accept any liability in connection with these factors, or where prescribed work is not carried out in a correct and professional manner in accordance with current ISA good practice. The authority of this report ceases at any stated time limit within it, after one year from the date of the survey (if none stated), when any site conditions change, or after pruning (or other activity) not specified in this report.

The goal of this survey is to recommend measures to limit risk exposure while enhancing the beauty and health of each tree onsite. Clients may choose to accept or disregard the recommendations contained within this report, or seek additional advice. ***To live near trees is to accept some degree of risk. The only way to eliminate all risk is to remove all trees onsite.***

### **SECTION 3: SUBJECT TREES AND OBSERVATIONS**

---

As previously indicated, specific measurements and parameters of all trees onsite were recorded on tree assessment worksheets at the time of the survey; these data have been transferred into the table in Appendix A at the end of this document. During the follow up assessment, the City's ROW was staked out and each trees location was "ground-truthed" by the project engineer, RKA Consulting. Appendix A was updated to reflect this.

Within the site, 46 trees consisting of two distinct, native species was assessed (see Figure 2 below). The age of the trees onsite ranged from mature to senescent and the health from rigorous to in significant decline.





### **3.1 - Species Assessment**

During the survey, tree assessments were conducted according to general ISA guidelines and City requirements; GPS waypoints were recorded as were specific details of each tree. The tree species represented onsite are described in detail below, and a comprehensive table is provided in Appendix A of this report.

The most common, native tree species on site was the coast live oak (*Quercus agrifolia*), composing 97.8% of all native species within the project area. A single specimen of interior live oak (*Quercus wislizeni*) was also noted; however, this may be a hybrid species of the former species. One Western sycamore was noted outside of the site boundary to the northwest near the water feature along Deodar Lane. In general, the species onsite were appropriate for the location. A species profile is provided below.

### **3.2 - Coast live oak (*Quercus agrifolia*)**

This California native species is a massive, drought tolerant, but a graceful tree. The coast live oak is a beautiful evergreen oak that grows predominantly west of the central valleys near the coast and within the interior foothills of California. Its habit is spreading or weeping and requires ample growing space. Its form is oval, rounded or umbrella shape. The roots of this species are associated with mycorrhizae that aid in water uptake during the dry season.

- Height: 20 - 70 feet. Width: 110 feet.
- Growth Rate: 24 Inches per Season.
- Longevity Greater than 150 years. Some specimens may attain an age exceeding 250 years, with trunk diameters up to three or four meters.

It prefers full sun to partial shade and moist to dry loam or sand textured soil. Its branch strength is rated as strong. this species is susceptible to gold spotted oak borer, aphids, beetle borers, beetle grubs, caterpillars, coddling moths, insect galls, scales and white fly, sudden oak death, crown rot, mistletoe, oak root rot, phytophthora, powdery mildew, root rot and sooty mold.

There were 43 coast live oak trees noted within the project site. As noted in the plates on the following pages, the stand was rather dense and mostly located on a significant slope with a southerly aspect.

### **3.3 - Interior live oak (*Quercus wislizeni*)**

This California native species is a relatively massive tree that grows mostly in the interior areas where it is warmer with less coastal influence. Its habit is spreading and requires ample growing space. Its form is rounded or vase-like shape with evergreen foliage; it is an important native species.

- Height: up to 70 feet. Width: 40-80 feet.
- Growth Rate: 12-24 Inches per Season.
- Longevity Greater than 150 years.

It prefers full sun to partial shade and moist to dry loam or sand textured soil. Its branch strength is rated as strong and its root damage potential is rated as moderate. this species is susceptible to *Armillaria*, crown rot, mistletoe, powdery mildew and caterpillars, codling moths, insect galls, white fly. There was only one representative of this species, but may be a hybrid with a coast live oak species.

### **3.4 - Oak Woodland**

There are 22 different oak species and many other hybrids native to California. They are present in a vast array of habitats from riparian to montane environments. Oaks can occur in dense brush form or as isolated trees dotting a hillside. Oak woodlands comprise a diverse set of communities, but are generally defined as being mixed, oak-dominated plant communities where overall tree cover is greater than 10 percent; the tree canopies or crowns range from largely overlapping to vast, open areas. Oak woodlands can vary considerably in species composition and richness due to varying vegetation, topography, soil, and water regimes. This vegetation community provides food production, spatial diversity, both horizontal spacing and vertical stratification, as well as protective cover.

### **3.5 - Observations**

The stand of oaks within the site is a remnant population of the fragmented stands within the local area with limited connectivity to the other stands. As previously indicated, the majority of the stand of coast live oaks were located on the slope within the project site. It was noted that several trees had fallen in the past and remaining stumps were left in place following the removal of the fallen trees. Very little flora was found beneath the canopy under the dense stand of oak trees.

Due to the dense nature of the stand along with the significant slope of the terrain and level of disturbance, many of the trees are diseased, infested, or having a poor growth form requiring removal. In all, 19 (43.2%) of the trees onsite should be removed due to their condition. The remaining 25 trees (56.8%) are in fair to good health and may be preserved as part of the project, but monitoring and bracing may be warranted. The plates below include observations of the trees within the project area that are in decline or showing evidence of pest infestation and disease stemming from lack of irrigation and maintenance.



Plate 2. This is a view a large canker within a lower stem (#435).



Plate 3. This is a view of multiple cankers along the stem in the upper canopy (#435).



Plate 4. This is a view of eroded substrate resulting in exposed structural roots (#436).



Plate 5. This is a view multiple cankers with stained bark (#437).





Plate 6. This is a view of a tree with a significant lean and vertical fissure (#439).



Plate 7. This is a view of embedded fence that has been compartmentalized within the stem tissue (#460).



Plate 8. This is a view of horizontal stem growth along substrate lacking geotropism (#441).



Plate 9. This is a view of a codominant stem system (#468).





Plate 10. This is a view of severe decay on a stem (#435).



Plate 11. This is a view of a diseased tree in decline that has lost its central stem (#444).



Plate 12. This is a view of diseased foliage, possible from a bacterial or viral pathogen (such as anthracnose) (#452). Chlorosis can be seen as well.



Plate 13. This is a view of a tree growing along the substrate redistributing dominance to upward facing limbs (#452).



Plate 14. This is a view of an unclosed branch cut with decayed internal tissue (#464).

## SECTION 4: DISCUSSION AND RECOMMENDATIONS

---

### 4.1 - Conclusion

Within the project site boundary, 46 trees were assessed composed of two distinct species, coast live oak (*Quercus agrifolia*) and a single specimen of interior live oak (*Quercus wislizeni*), which may be a hybrid. A single western sycamore (*Platanus racemosa*) was noted just beyond the project boundary (see Figure 2 above); this species is native to California as well. No other *native* trees onsite have any other special designations as described in the Municipal Code for the City. Of all the trees surveyed, 38 qualify as a Prominent Tree having a DBH of 6-inches or greater (22 of which are of good or fair health). In all, 21 (47.7%) of the trees onsite should be considered for removal due to the trees being diseased, infested, or having a poor growth form (as demonstrated in Appendix A); this can lead to an increased chance of failure, especially given the steep slope in which they occur. The other 25 trees are in fair to good health and would require mitigation, if removed (see Recommendations below).

### 4.2 - Discussion

As indicated, many of the trees onsite are in poor condition due to local conditions, such as local competition for growth and resources, or other variables such as sloped and eroded soil substrate or disturbance. With that said, coast live oak trees (as with many *Quercus* others) are tenacious and capable of sustained growth in adverse conditions contributing to the local ecology despite their present condition. In addition, the subject trees are adjacent to a well-traveled road (Bradbury Road) with their canopy often reaching potential targets.

### 4.3 - Recommendations

#### 4.3.1 - Monitoring During and After Construction

It is significant that many trees surveyed have an exaggerated lean within the existing, steep, eroded slope, thereby increasing their chance for failure. It is important that by a qualified ISA certified arborist with Tree Risk Assessment Qualification (TRAQ) be on-site (or consulted with) during construction activity to make a final determination if any trees may be preserved when grading within the tree protection or critical root zones. It is also highly recommended that a post-construction tree survey be conducted if any large trees are to remain in the vicinity of the improved roadway.

#### 4.3.2 - Tree Preservation and Landscaping Plan

According to Bradbury Municipal Code Section 9.118.040, no removal or topping of existing Prominent and/or Significant trees is permitted on a building site without prior approval of the Planning Department. A tree preservation and planting plan should be included as part of the architectural review. As such, the following measures are recommended for inclusion as part of the tree preservation and planting plan that should be prepared to meet tree preservation and replacement requirements set forth under Bradbury Municipal Code Chapter 118.

#### **4.3.3 - Tree Replacement**

Given the population of trees onsite (native/Prominent Trees), any tree removed requires a removal permit and subsequent mitigation unless otherwise stated by the City's Planning Director. Recommended mitigation for tree removal is replanting with like-kind specimens from a local nursery specializing in native species. Candidate trees should consist exclusively of indigenous oak trees and certified as being grown from a seed source collected from an indigenous oak woodland from local populations (where feasible). Recommended mitigation is as follows:

- Plant two replacement oak trees (ratio of 2:1) at an on-site location for each single oak tree removed. The replacement tree(s) shall be a minimum of fifteen (15) gallon in size and measure at least one inch in diameter one foot above the base. The mitigation area should be protected by chain-link fencing and appropriate signage identifying the site as Protected Habitat.
- Plant two replacement oak trees (ratio of 2:1) at an off-site location with a minimum of fifteen (15) gallon tree (measured at least one inch in diameter one foot above the base).
- Pay an in-lieu fee for each oak removed. This fee shall be adjusted by the planning department and the funds set aside in a pre-determined trust with the objective to purchase off-site oak woodland and provide maintenance for an existing oak woodland.
- Any combination of the measured detailed above

These measures must be in accordance with the City's Municipal Code. Removal of any trees must be preceded by authorization from the City's Planning Department and be replaced with an approved species in an approved-size container based on the diameter of the stem of the tree removed.

#### **4.3.4 - Monitoring Plan**

An ISA arborist should monitor the replacement trees for a minimum of three years, to evaluate the growth, health and condition of the replacement trees. In addition, an ongoing maintenance and monitoring plan is recommended for those trees preserved onsite; this is to ensure public safety and minimize liability due to potential tree failure. Strategic pruning compliant with ISA standards must be performed to subordinate non-primary, codominant stems, and canopy deadwood should be removed. Regular maintenance is recommended according to ISA standards.

#### **4.3.5 - Post Installation Tree Inspection and Monitoring**

The road improvement will significantly impact the substrate beneath many oaks that will remain onsite. Portions of root crowns will inevitably be impacted possible changing the nearby grade, hydrology, and other significant conditions. Given the degree of the resident trees' inherent lean to the south and their potential to fall towards the roadway, a post-installation inspection must be performed that includes a workplan for bracing (as needed) to mitigate potential tree failure. A monitoring plan following this inspection is also recommended to assure survival of the remaining trees.



#### **4.3.6 - Migratory Bird Treaty Act**

Pursuant to the Migratory Bird Treaty Act (MBTA) and CDFG Code, removal of any trees, shrubs, or any other potential nesting habitat should be conducted outside the avian nesting season. The nesting season generally extends from early February through August, but can vary slightly from year to year based upon seasonal weather conditions.

#### **4.3.7 - Tree Protection during Construction**

Building/grading near trees requires that they are healthy at the start of the project for the stand to recover well. Some older trees have little tolerance for root damage or other stress factors. Younger, more vital trees are more tolerant of changes in their surroundings. However, each change in soil compaction, irrigation, under plantings, and other condition takes some of an older tree's strength and vigor and further diminishes its health. The main stresses and risks of construction are:

- Soil compaction
- Lack of water or changes in the site hydrology
- Change of grade in the root zone
- Physical damage to tree roots and structure
- Dumping of potentially toxic construction wastes
- Lack of pest control and other care
- Dust
- Human error

Mature trees take a long time to heal from, or respond to, injury. It could take 10 years for some trees to make a visible improvement in health after construction impacts occur. On the other hand, it could take 10 years for a tree to visibly start declining after cutting roots, compacting the soil, or raising the grade. To mitigate against adverse impacts to preserved trees onsite, the following measures must be considered:

1. Dripline fencing must be placed a minimum of 1 foot in radius from the tree per 1 inch of diameter at breast height (for example, 6-inch trunk = 6 feet protection radius/12 feet diameter).
2. Dripline fencing must be erected so that it is visible and structurally sound enough to deter construction equipment, foot traffic, and the storing of equipment under tree canopies.
3. Raising or lowering the grade in the root zone of trees can be fatal or ruin the health of trees for years to come. Grade change and soil compaction force out the oxygen and literally press the life out of the soil. A retaining wall can be used to minimize the amount of the root zone that is affected, but it is essential that the footing is not continuous. Gravel and aeration pipes should be placed inside the retaining wall before the fill is placed. Consult with a qualified civil engineer for proper design calculations.
4. Trenching within the protection zone must be avoided wherever possible. Most of the roots are in the top 1 to 2 feet of soil, and trenching can sever a large percentage of roots.
5. Oil from construction equipment, cement, concrete washout, acid washes, paint, and solvents are toxic to tree roots. Signs should be posted on the fencing around trees notifying contractors of the fines for dumping. Portable latrines that are washed out with strong detergents can damage the fine roots of the

trees. Portable latrines should not be placed near trees, nor where frequent and regular foot traffic to them will compact the soil below the trees.

6. Construction creates large amounts of dust, and the oaks and any other trees to be preserved will need to be kept clean. Dust reduces photosynthesis on all trees. Strict dust control measures must be implemented during construction to minimize this impact, and an occasional rinsing with a solution of water and insecticidal soap will help control pests.

## **SECTION 5: QUALIFICATIONS OF ARBORIST**

---

Mr. Wirtes is a Certified Arborist (CH-08084) with the International Society of Arboriculture (ISA) and a Registered Consulting Arborist (RCA #738) with the American Society of Consulting Arborists. Mr. Wirtes was originally ISA Certified in November of 2005 and has conducted numerous tree assessments for residential properties that involve native and ornamental tree species. Most notably, Mr. Wirtes has created an oak regeneration plan and a Joshua tree protection plan as part of a mitigation effort within the Counties of Ventura and Los Angeles respectively. He has performed numerous tree surveys in Riverside, San Bernardino, and Los Angeles Counties on sites with as many as 500 trees. Mr. Wirtes' education includes a Bachelor of Science in Biology and a Master of Science in Environmental Science from California State University at Fullerton.

I certify that the details stated herein this report are true and accurate:



---

George Wirtes, MS, RCA #738  
ISA Certified Arborist, CH-08084

## **SECTION 6: REFERENCES**

---

Calflora. 2021. Website at <http://www.calflora.org>.

Cal-IPC 2021. Website at <https://www.cal-ipc.org/plants/inventory/>

City of Bradbury, 2021. Municipal Code posted on website:  
[| Code of Ordinances | Bradbury, CA | Municode Library](#)

Fite et al. 2016. “Best Management Practices – Managing Trees During Construction” International Society of Arboriculture.

Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

Natural Resource Conservation Service. 2021. Website at <http://ortho.ftw.nrcs.usda.gov/>

University of California, 2021. California Tree Failure Report Program website at <http://ucanr.edu/sites/treefail/>

University of Florida Environmental Horticulture Department 2021. Website at <http://hort.ifas.ufl.edu/>

UFEI, 2021. Urban Forest Ecosystems Institute website at <https://selectree.calpoly.edu/>

Virginia Tech, Dendrology Dept. 2021. Website at <http://www.cnr.vt.edu/DENDRO/dendrology/main.htm>

### Appendix A - Tree Species Matrix

Note - This tree survey and the details recorded below are meant to characterize the trees within the property. The assessment is not exhaustive, but is a balance between the competing forces of in-depth description and cost effectiveness. The goal was to accumulate enough data to make a judgment as to what role, if any, the existing trees may have in the proposed project.

| Tree Tag #   | Species1       | DBH (inches) |           |           |           |           |           |       | Height (feet) | Canopy Width (feet)<br>(North on top) | Gen | Ann | Env | Risk | Conclusion | Within City ROW* |
|--|----------------|--------------|-----------|-----------|-----------|-----------|-----------|-------|---------------|---------------------------------------|-----|-----|-----|------|------------|------------------|
|  |                | 1st Trunk    | 2nd Trunk | 3rd Trunk | 4th Trunk | 5th Trunk | 6th Trunk | Total |               |                                       |     |     |     |      |            |                  |
| 435  | Coast Live Oak | 16           |           |           |           |           |           | 16    | 18            | 2                                     | 3   | 3   | 3   |      |            | N                |
| Sprouter, Significant decay at mid-stem, Crossing canopy branch  |                |              |           |           |           |           |           |       |               | 16                                    |     |     | 4   |      | Remove     |                  |
| 436  | Coast Live Oak | 30           |           |           |           |           |           | 30    | 45            | 30                                    | 2   | 2-3 | 2-3 |      |            | N                |
| Good Vigor, Some exposed structural roots  |                |              |           |           |           |           |           |       |               | 22                                    |     |     | 18  |      | Prune      |                  |
| 437  | Coast Live Oak | 10           |           |           |           |           |           | 10    | 14            | 4                                     | 2   | 3   | 3   | 3    |            | N                |
| Off center mass, Stained bark/cankers, Competing canopies  |                |              |           |           |           |           |           |       |               |                                       |     |     | 20  |      | Remove     |                  |
| 438  | Coast Live Oak | 6.5          |           |           |           |           |           | 6.5   | 9             | 1                                     | 1   | 3   | 3   | 2-3  |            | N                |
| Poorly developed canopy, Adjacent to failed tree stump   |                |              |           |           |           |           |           |       |               | 8                                     |     |     | 14  |      | Remove     |                  |
| 439  | Coast Live Oak | 11           |           |           |           |           |           | 11    | 17            | 8                                     | 26  | 2-3 | 3   | 3-4  |            | N                |
| Vertical fissures/furrowed, Poor structural footing to south with failed stump, 45 degrees lean to North |                |              |           |           |           |           |           |       |               | 0                                     |     |     | 20  |      | Remove     |                  |
| 440  | Coast Live Oak | 13           |           |           |           |           |           | 13    | 24            | 14                                    | 2-3 | 2-3 | 2-3 |      |            | N                |
| Lean to North, Good vigor, Fair form, Decay at primary branch (remove)                                   |                |              |           |           |           |           |           |       |               | 0                                     |     |     | 22  |      | Prune      |                  |
| 441  | Coast Live Oak | 16           |           |           |           |           |           | 16    | 22            | 36                                    | 3   | 3-4 | 2   |      |            | N                |
| Laying on ground, Poor form  |                |              |           |           |           |           |           |       |               | 0                                     |     |     | 30  |      | Remove     |                  |
| 442  | Coast Live Oak | 15           |           |           |           |           |           | 15    | 16            | 0                                     | 2-3 | 3   | 2-3 |      |            | N                |
| Trim to control mass offset, Footing appears ok, Brace and monitor                                       |                |              |           |           |           |           |           |       |               | 14                                    |     |     | 10  |      | Prune      |                  |
| 443  | Coast Live Oak | 5.5          |           |           |           |           |           | 5.5   | 18            | 6                                     | 2-3 | 2-3 | 2-3 |      |            | N                |
| Small, Crowded canopy, Fair form and vigor   |                |              |           |           |           |           |           |       |               | 0                                     |     |     | 6   |      | Prune      |                  |
| 444  | Coast Live Oak | 6            |           |           |           |           |           | 6     | 12            | 8                                     | 3   | 3   | 2-3 |      |            | N                |
| Topped, Beneath canopies, Internal decay   |                |              |           |           |           |           |           |       |               | 6                                     |     |     | 6   |      | Remove     |                  |
| 445  | Coast Live Oak | 7.5          | 10        |           |           |           |           | 17.5  | 31            | 10                                    | 3   | 3   | 3   |      |            | N                |
| Internal decay up most of primary stem   |                |              |           |           |           |           |           |       |               | 18                                    |     |     | 14  |      | Remove     |                  |
| 446  | Coast Live Oak | 4.5          |           |           |           |           |           | 4.5   | 16            | 6                                     | 2-3 | 2-3 | 2-3 |      |            | N                |
| Small specimen, Fair form and vigor  |                |              |           |           |           |           |           |       |               | 0                                     |     |     | 8   |      | Prune      |                  |
| 447  | Coast Live Oak | 13           |           |           |           |           |           | 13    | 20            | 0                                     | 2-3 | 3   | 3   |      |            | N                |
| Off center mass, Trim to center mass, Increased lean 60 degrees to East                                  |                |              |           |           |           |           |           |       |               | 12                                    |     |     | 10  |      | Prune      |                  |
| 448  | Coast Live Oak | 4.5          |           |           |           |           |           | 4.5   | 10            | 2                                     | 3   | 3   | 3   |      |            | N                |
| Topped, Internal decay   |                |              |           |           |           |           |           |       |               | 4                                     |     |     | 8   |      | Remove     |                  |
| 449  | Coast Live Oak | 11           |           |           |           |           |           | 11    | 14            | 0                                     | 3   | 3   | 3-4 |      | Remove     | N                |



|  |                   |     |    |  |  |  |  |    |      |    |    |    |   |
|--|-------------------|-----|----|--|--|--|--|----|------|----|----|----|---|
| Poor canopy development, Increased lean to street  |                   |     |    |  |  |  |  |    |      | 6  | 6  |    |   |
| 450  | Coast Live Oak    | 11  |    |  |  |  |  | 11 | 16   | 20 |    |    |   |
| Poorly developed canopy, Internal decay  |                   |     |    |  |  |  |  |    |      | 0  | 0  | 6  | N |
| 451  | Coast Live Oak    | 6   |    |  |  |  |  | 6  | 12   | 18 |    |    |   |
| Poor form and vigor, Increased lean to street  |                   |     |    |  |  |  |  |    |      | 0  | 0  | 10 | Y |
| 452  | Coast Live Oak    | 6.5 | 6  |  |  |  |  |    | 12.5 | 12 |    |    |   |
| Co-dominate stem, Decay at primary stem, Borers, Decreased vigor                             |                   |     |    |  |  |  |  |    |      | 0  | 0  | 16 | Y |
| 453  | Coast Live Oak    | 18  | 16 |  |  |  |  |    | 34   | 18 |    |    |   |
| Off-center mass, Trim to decrease risk, Sweep lean   |                   |     |    |  |  |  |  |    |      | 12 | 0  | 35 | N |
| 454  | Coast Live Oak    | 20  |    |  |  |  |  |    | 20   | 38 |    |    |   |
| Strategically prune, good form and vigor   |                   |     |    |  |  |  |  |    |      | 12 | 4  | 22 | N |
| 455  | Coast Live Oak    | 8   | 10 |  |  |  |  |    | 18   | 18 |    |    |   |
| Canopy on ground, Poor prognosis, Significant internal decay                                 |                   |     |    |  |  |  |  |    |      | 13 | 20 | 0  | N |
| 456  | Coast Live Oak    | 12  |    |  |  |  |  |    | 12   | 2  |    |    |   |
| Along fence edge, good form and vigor  |                   |     |    |  |  |  |  |    |      | 0  | 20 | 20 | N |
| 457  | Coast Live Oak    | 6   |    |  |  |  |  |    | 6    | 12 |    |    |   |
| Topped   |                   |     |    |  |  |  |  |    |      | 0  | 1  | 1  | N |
| 458  | Coast Live Oak    | 4   |    |  |  |  |  |    | 4    | 0  |    |    |   |
| Decay at top of canopy   |                   |     |    |  |  |  |  |    |      | 4  | 12 | 12 | N |
| 459  | Coast Live Oak    | 11  |    |  |  |  |  |    | 11   | 4  |    |    |   |
| Good form and vigor  |                   |     |    |  |  |  |  |    |      | 8  | 8  | 12 | N |
| 460  | Coast Live Oak    | 13  |    |  |  |  |  |    | 13   | 8  |    |    |   |
| Embedded fence, good form and vigor  |                   |     |    |  |  |  |  |    |      | 18 | 20 | 14 | N |
| 461  | Coast Live Oak    | 12  |    |  |  |  |  |    | 12   | 4  |    |    |   |
| Sweep lean, Trim to reduce risk to the targets with poor crotch, Offset mass, Crowded canopy |                   |     |    |  |  |  |  |    |      | 0  | 20 | 22 | Y |
| 462  | Coast Live Oak    | 5.5 | 6  |  |  |  |  |    | 11.5 | 0  |    |    |   |
| Co-dominate stem, Monitor, Moist soil  |                   |     |    |  |  |  |  |    |      | 14 | 8  | 0  | N |
| 463  | Interior live oak | 7.5 |    |  |  |  |  |    | 7.5  | 0  |    |    |   |
| Possible hybrid of coast live oak  |                   |     |    |  |  |  |  |    |      | 12 | 12 | 12 | N |
| 464  | Coast Live Oak    | 10  |    |  |  |  |  |    | 10   | 12 |    |    |   |
| Crowded canopy, good vigor, Some possible anthracnose  |                   |     |    |  |  |  |  |    |      | 12 | 12 | 0  | Y |
| 465  | Coast Live Oak    | 13  |    |  |  |  |  |    | 13   | 10 |    |    |   |
| Crowded canopy, Offset canopy, 15-degree lean  |                   |     |    |  |  |  |  |    |      | 16 | 0  | 10 | Y |
|  |                   |     |    |  |  |  |  |    |      | 24 |    |    |   |

**Tree Survey and Arborist Report**

|  |                |     |    |  |  |  |     |    |    |    |    |     |     |     |        |   |
|--|----------------|-----|----|--|--|--|-----|----|----|----|----|-----|-----|-----|--------|---|
| 466  | Coast Live Oak | 7.5 |    |  |  |  | 7.5 | 22 | 0  | 12 | 16 | 2-3 | 2-3 | 2-3 | Prune  | N |
| Wet soil, Crowded canopy, Poor canopy development  |                |     |    |  |  |  |     |    |    | 0  |    |     |     |     |        |   |
| 467  | Coast Live Oak | 12  |    |  |  |  | 12  | 22 | 16 | 10 | 10 | 2-3 | 2-3 | 2-3 | Prune  | N |
| Good form and vigor, Leaf rust, Bacteria infection, Anthracnose?   |                |     |    |  |  |  |     |    |    | 18 |    |     |     |     |        |   |
| 468  | Coast Live Oak | 4.5 | 5  |  |  |  | 5   | 14 | 6  | 4  | 2  | 2-3 | 2   | 2   | Prune  | Y |
| Co-dominate stem, good vigor   |                |     |    |  |  |  |     |    |    | 4  |    |     |     |     |        |   |
| 469  | Coast Live Oak | 22  | 16 |  |  |  | 38  | 36 | 20 | 22 | 24 | 2-3 | 2-3 | 3   | Prune  | Y |
| Unstable cliff, Co-dominant, Brace   |                |     |    |  |  |  |     |    |    | 18 |    |     |     |     |        |   |
| 470  | Coast Live Oak | 24  |    |  |  |  | 24  | 32 | 26 | 24 | 24 | 2-3 | 2-3 | 2-3 | Prune  | N |
| Good form and vigor, large specimen  |                |     |    |  |  |  |     |    |    | 22 |    |     |     |     |        |   |
| 471  | Coast Live Oak | 25  |    |  |  |  | 25  | 31 | 17 | 16 | 22 | 2-3 | 2-3 | 2-3 | Prune  | N |
| Good form and vigor, large specimen  |                |     |    |  |  |  |     |    |    | 22 |    |     |     |     |        |   |
| 472  | Coast Live Oak | 36  |    |  |  |  | 36  | 30 | 10 | 4  | 38 | 2-3 | 3   | 3   | Prune  | Y |
| Large unclosed branch cut, some lower stem decay, Termites, Offset canopy  |                |     |    |  |  |  |     |    |    | 32 |    |     |     |     |        |   |
| 473  | Coast Live Oak | 9.5 |    |  |  |  | 9.5 | 16 | 12 | 0  | 0  | 3   | 3   | 3   | Remove | Y |
| 45-degree lean, Poor canopy development, Increased liability, Leans toward street  |                |     |    |  |  |  |     |    |    | 24 |    |     |     |     |        |   |
| 474  | Coast Live Oak | 6   |    |  |  |  | 6   | 20 | 4  | 6  | 6  | 3   | 3   | 2-3 | Prune  | N |
| Lean, Vigor ok, Lean to South  |                |     |    |  |  |  |     |    |    | 16 |    |     |     |     |        |   |
| 475  | Coast Live Oak | 8   |    |  |  |  | 8   | 18 | 8  | 0  | 12 | 2-3 | 2-3 | 2-3 | Prune  | Y |
| Crowded canopy, good vigor   |                |     |    |  |  |  |     |    |    | 12 |    |     |     |     |        |   |
| 476  | Coast Live Oak | 13  |    |  |  |  | 13  | 14 | 6  | 0  | 6  | 2-3 | 3   | 3   | Remove | Y |
| Lean over street, Increased liability, Borer holes, good vigor, Crowded canopy   |                |     |    |  |  |  |     |    |    | 36 |    |     |     |     |        |   |
| 477  | Coast Live Oak | 33  |    |  |  |  | 33  | 28 | 30 | 0  | 8  | 2-3 | 2-3 | 2-3 | Prune  | Y |
| Good form and vigor, Footing ok  |                |     |    |  |  |  |     |    |    | 30 |    |     |     |     |        |   |
| 478  | Coast Live Oak | 6   |    |  |  |  | 6   | 18 | 6  | 2  | 6  | 2   | 2   | 2   | Prune  | Y |
| Good form and vigor  |                |     |    |  |  |  |     |    |    | 4  |    |     |     |     |        |   |
| 479  | Coast Live Oak | 16  |    |  |  |  | 16  | 26 | 20 | 1  | 16 | 2-3 | 3   | 3   | Remove | N |
| Good vigor, evidence of borers, poor crotch formation, exposed structural roots, offset canopy and increased liability                                 |                |     |    |  |  |  |     |    |    | 18 |    |     |     |     |        |   |
| 480  | Coast Live Oak | 17  | 18 |  |  |  | 35  | 28 | 20 | 14 | 16 | 2-3 | 3   | 3   | Remove | N |
| Excess decay beneath primary limb, codominant stem, increased liability, may be able to save with strategic pruning and bracing, poor crotch formation |                |     |    |  |  |  |     |    |    | 16 |    |     |     |     |        |   |

\* Within ROW was determined by RKA Consulting Group