



# Parks, Beaches, and Recreation Commission

September 3, 2019

Presentation on

## Marine Avenue Special Tree Removal Request

Public Works Department  
Municipal Operation Division

# Background on Marine Ave Trees

- Eucalyptus trees first appear in 1920's on the 200 Block of Marine Avenue
- Original Eucalyptus species appears to be mainly "Flooded Gum" (*Eucalyptus rudis*)
- Today, there are 42 Trees on Marine Avenue composed of five types of Eucalyptus and Corymbia species. "Lemon-Scented Gum" is the predominate species



# Background on Marine Ave Trees

- The Eucalyptus on Marine Ave. were adopted as Special Neighborhood trees in City Council Policy on November 28, 1988
- The Trees appear to have been topped prior to the City's adoption of International Society of Arboriculture (ISA) standards, up through the early 1980's
  - Prior to 1993, City crews did not have capacity to trim over 55-feet
  - In 1994, first tree maintenance contractor, West Coast Arborists, attempted corrective and structural pruning



# Council Policy G-1

- The City Classifies Public Trees in one of Three Categories:
  1. Special Trees
  2. Problem Trees
  3. All Other Trees
- It is the City's policy to retain City trees categorized as Special Trees (Neighborhood Trees) that *by their unusual size, number, species, or location lend a special character to a residential, commercial, or business area*
- Special Trees shall be retained, unless there are overriding problems, such as death, disease, or the creation of a hazardous situation, which require their removal

# Council Policy G-1

- Prior to consideration for any removal of a Special Tree, *Staff shall prepare a report identifying and implementing specific treatment to retain the tree. If specific treatment is unsuccessful or impractical in retaining a tree, then a full staff report shall be made to the Parks Beaches and Recreation [PB&R] Commission for consideration before any further action considering removal is taken*
- Past Treatments
  - Minor root pruning & shaving to accommodate hardscape repairs
  - Ramping with asphalt patches. Repeated grinding of lifting sidewalks
  - Deferred hardscape maintenance
  - Annual Inspection and trimming
  - Review by Consulting Arborists
  - Treatments of diseases and insects (Lerp Psyllid and Tortoise Beetle)
  - Supplemental irrigation and nutrition via water truck



# Site Conditions

- Very Crowded Pedestrian Sidewalks and Street Parking underneath Trees on Marine Ave (*busy business, tourist area*)
- Small Tree Wells, surrounded by concrete in various states (*restricts air / water / nutrients to roots*)
- No Supplemental Irrigation
- Shallow Available Root Growth Area due to High Salt Water Table
- Years of Tree Root Crowns covered by Decomposed Granite, then more recently Artificial Turf (installed by BIIA).
- Canopies in Close Proximity to Buildings / Roofs and Signage



# Maintenance History



- For the past 25 years, the City has Pruned all Marine Ave Trees Annually
  - This occurs over multiple days in the early morning, so as to minimize disruption to businesses - last service on 3/11/19- 3/12/19)
- Over the past 25 years, the City has Removed and Replaced approximately 30% (20-25) of the Eucalyptus Trees
  - In May 2017, based on Risk Assessments, PB&R approved the removal of two Special Eucalyptus Trees (at 318 and 326 Marine)
- The City Responds annually to Large Limb Breakages, typically during Storm Events and Santa Ana Winds
- Prior Replacements were composed of Lemon-Scented Gums & Water Gums Eucalyptus Trees, and more recently African Tulip & Gingko trees
- Considering the location, older trees are reaching the end of their typical lifespan (50-60 years)



# Example of Recent Fallen Limbs October 2018





# Eucalyptus in Similar Condition in other Cities



Laguna Beach  
Broadway  
Street

High  
Pedestrian,  
Parking and  
Vehicle Traffic

Similar  
Conservative  
Pruning



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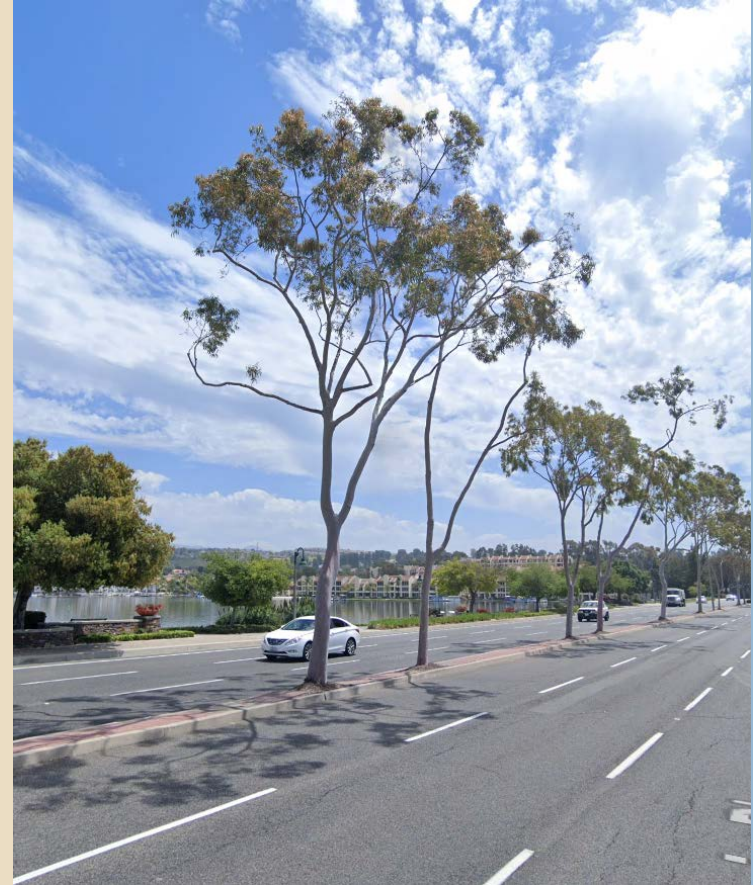
# Eucalyptus in Similar Condition in other Cities



Mission Viejo  
Alicia Parkway

Narrow  
Median High  
Volume Travel  
Lane

Similar  
Conservative  
Pruning





# Eucalyptus in other More Natural Areas



# Consulting Arborist Reports

# Arborgate Consulting Report

## Author - Greg Applegate, Consulting Arborist

- Requested and funded by Jodi Bole & Balboa Island Preservation Association
- Report designated as a “Tree Protection” Report
- Summary Comments on current and future tree maintenance
  - Concerned with Lions-Tailing, structural pruning, and other pruning concerns
  - Concerned about artificial turf and buried root crowns
  - Recommendations on protection of trees during construction and repairs
    - Suggests no root pruning 3 to 5 times the diameter of the tree
  - Included Tree health and condition matrix
- Recommendations include Three Eucalyptus Tree Removals
- Recommends a Hazard Analysis by a Tree Risk Professional versed in Risk Analysis



# Walt Warriner Consulting Report

Author – Walt Warriner, Consulting Arborist

- Contracted by the City of Newport Beach
- Conducted a Tree Risk Assessment and Provided Recommendations
  - Risk Assessment Procedure:
    - Timeframe applied
    - Site factors assessed – **“Tree stability is separate from Tree Health”**
    - Crown considerations: live crown ratio, crown symmetry, and branching issues (lions-tailing)
    - Root conditions and trunk issues
    - Potential Targets
    - Risk Categorization

# Walt Warriner Consulting Report

## Continued

- Likelihood of Failure of a Specific Tree Part is compared with Likelihood of the Specific Tree Part Impacting an Object of Concern
- The result of the above analysis is then compared to the Consequences of Failure
  - Most Consequences for Marine Avenue were Rated at **Severe**
- The Overall Risk Rating was deemed **High** for 27 trees and **Moderate** for 10 trees
- The Consultant Recommends Removal of all 27 trees with a high risk rating and Reassessment in one year of trees with moderate risk

# Sample ISA Tree Risk Assessment Form

# ISA Basic Tree Risk Assessment Form

Client: City of Newport Beach Date: 6/1/19 Time: Noon  
 Address / tree location: 224 Marine Ave Tree no: \_\_\_\_\_ Sheet: 0  
 Species: Eucalyptus camaldulensis dbh: 2.1" Height: 75 ft Crown spread dia: 12 ft  
 Assessor(s): Karen Pelton Tools used: \_\_\_\_\_ Time frame: \_\_\_\_\_

## Target Assessment

Target number	Target description	Target protection	Target zone			Down-pull ratio 1: 1:1 2: 2:1 3: 3:1 4: 4:1	Proximity to structures	Proximity to powerlines
			Target within drop line	Target within 15 ft	Target within 45 ft			
1	<u>Buildings</u>							
2	<u>Stairways and Juicy seven</u>	<u>NA</u>	<input checked="" type="checkbox"/>			<u>4:1</u>	<u>N</u>	<u>N</u>
3	<u>Pedestrians</u>	<u>NA</u>	<input checked="" type="checkbox"/>			<u>3:1</u>	<u>N</u>	<u>N</u>
4	<u>Vehicles</u>	<u>NA</u>	<input checked="" type="checkbox"/>			<u>3:1</u>	<u>N</u>	<u>N</u>

## Site Factors

History of failures: branches on marine ave Topography Flat/USlope: \_\_\_\_\_ % Aspect: \_\_\_\_\_  
 Site changes: None ☐ Grade change ☐ Site clearing ☐ Changed soil/hydrology ☐ Root cuts ☐ Describe: side walk, driveway  
 Soil conditions: Timber volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Groundwater over 100 ft ☐ Describe: \_\_\_\_\_  
 Prevailing wind direction: SW Common weather: Strong winds ☐ Ice ☐ Snow ☐ Heavy rain ☐ Drought ☐ South winds

## Tree Health and Species Profile

Vigor: Low ☐ Normal ☒ High ☐ Foliage: None (seasonal) ☐ None (dead) ☐ Normal ☐ 90% Chlorotic ☐ Necrotic ☐ 100%  
 Pests/Biotic: leaf miner, white scale  
 Species failure profile: Branches ☐ Trunk ☐ Roots ☐ Describe: Eucalyptus

## Load Factors

Wind exposure: Protected ☐ Partial ☐ Full ☐ Wind funneling ☒ Relative crown size: Small ☐ Medium ☐ Large ☐  
 Crown density: Sparse ☐ Normal ☐ Dense ☐ Interior branches: Few ☐ Normal ☐ Dense ☐ Vines/Mistletoe/Vess: \_\_\_\_\_  
 Recent or expected change in load factors: N/A - increasing Feb, 2019

## Tree Defects and Conditions Affecting the Likelihood of Failure

### — Crown and Branches —

Unbalanced crown ☐ Dead limbs/branches ☐ DBR 55% Max dbh: 6"  
 Broken/loose limbs: Number \_\_\_\_\_ Max dbh: \_\_\_\_\_  
 Overextended branches ☐ Weak elastic joints ☒ Decay/Wet rot ☐ Ice  
 Pruning history: Previous branch failures maybe Similar to present ☐  
 Crown density: ☒ Thin ☒ Raised ☐ Dense/missing bark ☐ Cracks/splits/joints ☐ Sapwood decay ☐  
 Reduced ☐ Toppled ☒ Limb rot ☐ Canopy ☐ Heartwood decay ☐ major bark loss  
 Flaking bark ☐ Other: yes 180 Response growth: yes integrity

### — Condition(s) of concern —

Part Size: 1B Fall Distance: \_\_\_\_\_  
 Load on defect: N/A Minor ☐ Moderate ☐ Significant ☐  
 Likelihood of failure: Improbable ☐ Possible ☐ Probable ☐ Certain ☐

### — Trunk —

Dead/missing bark ☐ Abnormal bark texture/color ☐  
 Concussion stains ☒ No decay bark ☐ Cracks ☒  
 Sapwood decay/decay ☐ Cankers/Splits/Bark ☐ Sap oozes ☐  
 Lightning damage ☐ Heartwood decay ☐ Cankers/Mushrooms ☐  
 Cavity/dec hole \_\_\_\_\_ % dbh \_\_\_\_\_ Depth \_\_\_\_\_ Feet/layers ☐  
 Lean ☐ Tilted ☐ Response growth: yes partial bark  
 Condition(s) of concern: leaning, history, bark loss  
 Part Size: 2B Fall Distance: 75 ft  
 Load on defect: N/A Minor ☐ Moderate ☐ Significant ☐  
 Likelihood of failure: Improbable ☐ Possible ☐ Probable ☐ Certain ☐

### — Roots and Root Collar —

Collar buried/not visible ☐ Depth: 2" Stem girdling ☐  
 Decay ☐ Decay ☐ Cankers/Mushrooms ☐  
 Ooze ☐ maybe Cavity ☐ Decay ☐  
 Cracks ☐ Cankers/rotted roots ☐ Distance from trunk 2 ft  
 Root plate lifting ☐ Soil weakness ☐  
 Response growth: some  
 Condition(s) of concern: cut roots, lifting  
 Part Size: 2B Fall Distance: 75 ft  
 Load on defect: N/A Minor ☐ Moderate ☐ Significant ☐  
 Likelihood of failure: Improbable ☐ Possible ☐ Probable ☐ Certain ☐

[illegible]



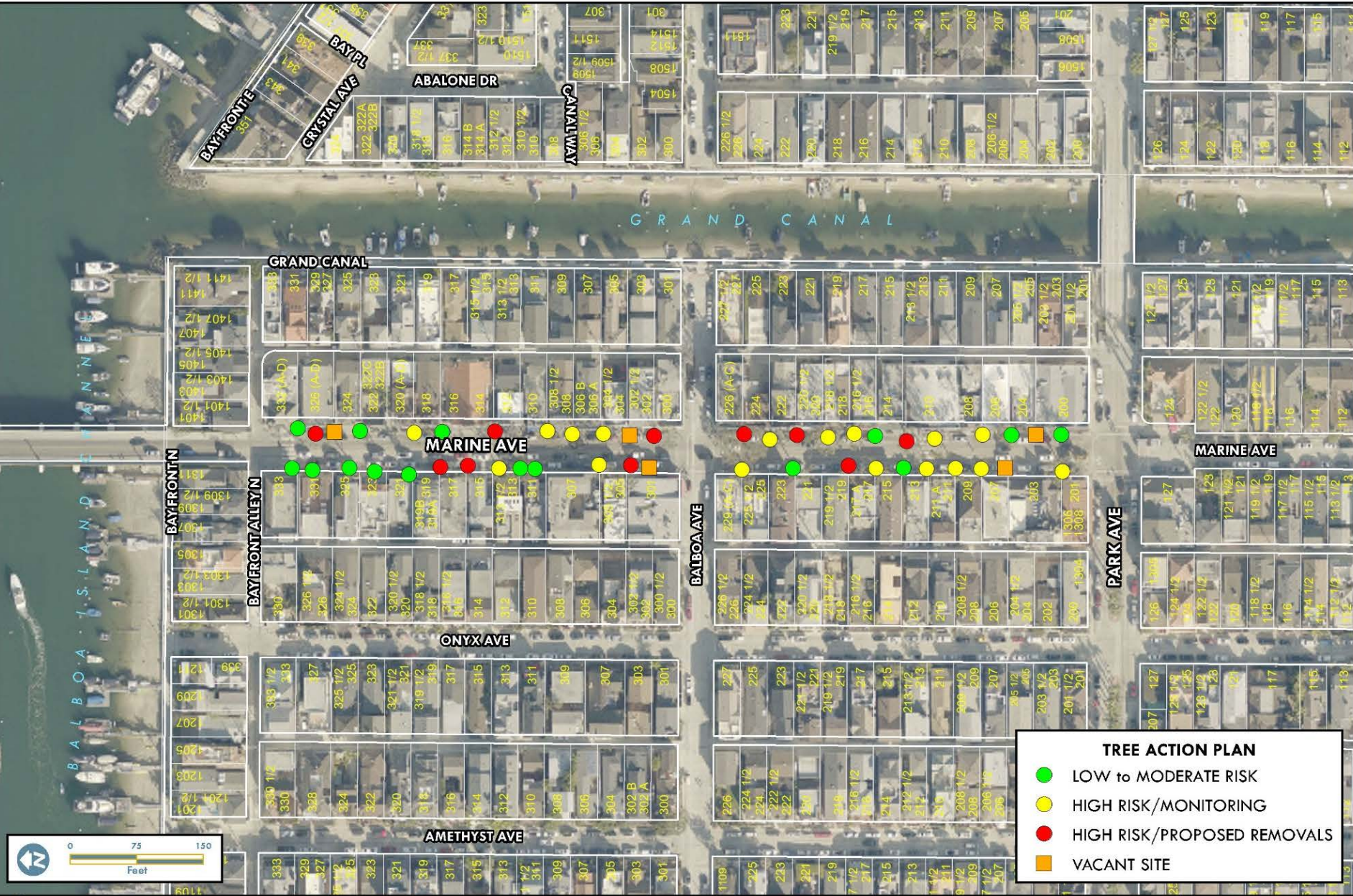
# City Arborist Review & Recommendations

- Continue Annual Inspections and Pruning with Emphasis on Crown Restoration, as a mitigation measure.
- Concur that 27 trees are in the High-Risk Category due to Risk of Whole Tree or Large Limb Failure.
- Based on a Triage System, and as an Urban Forestry Management Principle:
  - Replace 10 High-Risk Eucalyptus Trees this year (2019/20). The Trees Identified have Significant Defects in the Canopy, the Root System & Trunk.
  - Replace up to 17 (or more) High-Risk Eucalyptus Trees in the Following Two / Three Years, per Re-Assessment, including Level III testing where practical. These Trees Primarily have Significant Defects in the Canopy, which would relate to a Large Limb Failure (*still severe*) vs. a Whole Tree Failure (*more severe*) per the above trees.

# Summary of Recommendations

	<b>Arborgate Report</b>	<b>Walt Warriner Report</b>	<b>City Arborist Review</b>
Maintenance Review	Yes	Yes	Yes
Risk Assessment Included	No	Yes	Partial
Eucalyptus Removals Recommended	3	27+	Year 1 = 10  Subsequent Years * = 17+

\* Based on Re-Assessment



**TREE ACTION PLAN**

- LOW to MODERATE RISK
- HIGH RISK/MONITORING
- HIGH RISK/PROPOSED REMOVALS
- VACANT SITE

# Overview of Tree Evaluation

## (10 High-Risk Trees)



# Common Terms and Meaning

- **Asymmetrical** - having parts or aspects that are not equal or equivalent; unequal in some respect
- **Co-Dominant Limbs** - two or more branches with the same diameter and height that have grown from the same point of origin
- **Dieback** - a condition in which a tree begins to die from the tip of its leaves or roots inward, owing to disease or an unfavorable environment
- **Contact Growth** - when tree roots or trunks grow over or around an object it has come in contact with
- **Heartwood Decay** - caused by a fungus that deteriorates the inner wood of a tree (*naturally occurring tree process*)
- **Deadwood** - Dead branches on a tree
- **Live Crown Ratio** - ratio of crown height to total tree height, (percentage of a tree's total height that has foliage); indicator of tree vigor
- **Root Plate** - part of the root system (excluding the small, outermost roots) needed to keep a tree “windfirm”.

# 210 Marine Ave.

- Asymmetrical
- Co-Dominant Limbs
- Dieback
- Contact Growth
- Suspected Heartwood Decay



# 220 Marine Ave.

- Asymmetrical
- Moderate decline
- Deadwood
- Heartwood decay
- Visible root decay





# 224 Marine Ave.

- Heaving Sidewalk/Root Plate
- Significant Leaning Trunk
- Suspected Heartwood Decay
- Co-Dominant Limbs
- Asymmetrical
- Deadwood





# 300 Marine Ave.

- 20% Live Crown Ratio
- Deadwood
- History of Limb Failures
- Cavity in Trunk
- Roots Pruned
- Heaving Sidewalk



# 312 Marine Ave.

- Asymmetrical
- Poor Overall Health
- Significant Leaning Trunk
- Suspected Heartwood Decay
- Root Pruning for Sidewalk Work.





# 326B Marine Ave.

- Asymmetrical
- 15% Live Crown Ratio
- Poor Overall Health
- Significant Leaning Trunk





# 319 Marine Ave.

- Asymmetrical
- 15% Live Crown Ratio
- Significant Leaning Trunk
- Root Pruned / Decayed
- Heaving Sidewalk



# 315 Marine Ave.

- Dead Tree
- High-Risk, Necessitates Imminent Removal
- Staff has scheduled removal for this Fall
- PB&R notified at August meeting





# 301 Marine Ave.

- Asymmetrical
- 15% Live Crown Ratio
- History of Limb Failures,
- Suspected Heartwood Decay
- Roots Pruned/Decayed
- Heaving Sidewalk
- Deadwood





# 217 Marine Ave.

- 15% Live Crown Ratio,
- Weakly Attached, Co-Dominant Limbs (past topping)
- Cut and Decayed Roots
- Poor Overall Health



# Current Vacant Tree Sites

- Total of 5 Vacant Tree Well locations currently

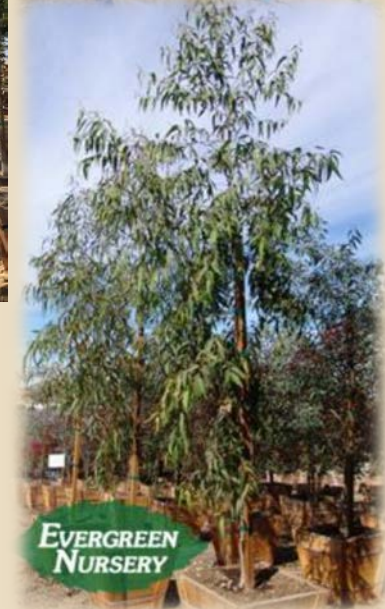




# Examples of 24 and 36-inch box Eucalyptus



36" Eucalyptus citriodora 19'-20' X 5'-6'



Eucalyptus trees are Rapid Growers with approximately 60 percent of their growth established within the first 10 years



# Proposed Path Forward Regarding Marine Avenue Trees

- Schedule Removal of the three Highest Risk trees, soon after Labor Day
  - 210 Marine Ave
  - 217 Marine Ave
  - 224 Marine Ave
- Remove Dead Tree at 315 Marine Ave (soon after Labor Day)
- Make any Necessary Hardscape Repairs Around existing Tree Wells where trees were removed such as uplifted and/or broken sidewalk or curb
- Replant all 9 Tree Wells with 24"-36" Box Eucalyptus  
*(5 currently vacant and 4 from removals)*
- Arrange for on-going Watering on new Trees by Water Truck or Merchant Volunteer

# Proposed Path Forward Regarding Marine Avenue Trees

- Schedule Removal of the other 6 High Risk Trees for Early January 2020
- Make any Necessary Hardscape Repairs Around existing Tree Wells where trees were removed such as uplifted and/or broken sidewalk or curb
- Replant with 24"-36" Box Eucalyptus and Arrange for on-going Watering on new Trees by Water Truck or Merchant Volunteer
- Continue with Annual Inspection and Pruning of All Marine Ave Trees
  - Including Crown Restoration, as a mitigation measure, where applicable
- Schedule Re-Assessment of remaining High-Risk Eucalyptus Trees in 2021 by an Urban Forester, including Level III testing where practical
- Based on Reassessment, remove and replace up to 17 trees in following one – two years

# Further Testing/Review Options

- Level III Tree Risk Assessment of Marine Ave trees to be done by a third party independent arborist with extensive testing experience and appropriate testing equipment for the specified tree issues.
- Independent Urban Forester selected based on consensus of both City and BIPA
- New Tree Risk Assessments and replacement recommendations formulated based on scientific evidence collected as a result of these tests.
- Offer the BIPA the option to witness the testing by the third party tester, as well as advanced notification of the testing.



# Examples of Level III Testing



Image used with permission of Hurricane Tree Specialists

# PROS VS CONS OF LEVEL III TESTING

## PROS

- More Conclusive information with regards to heartwood decay
- Expose decay within root system
- Better ability to determine if tree can withstand severe weather events
- Calculate severity of lean
- More definitive evidence of canopy deformities on included bark, cracked limbs, weak limb attachments
- Potentially offer further mitigation options to prolonging the trees life

## CONS

- Additional stress on tree and limbs that may already have cracks or poor attachments resulting in limb failure (*breaks*)
- Removal of hardscape could further compromise stability of tree and damage roots
- Injuries caused by installation of equipment
- Potentially inconclusive/could reveal even further issues
- Lack of necessary space to conduct testing
- May only eliminate a few of many issues that necessitates the a tree's removal
- Prolonged Interruption to Pedestrian and Business Access



# Comments/Questions

*Your* **Public Works Department**

Protecting and Providing Quality  
Public Improvements and Services