



# Vegetation Management Impact Analysis Phase II

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## Documentation

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Advanced Analytics

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1

## Process Data

- Use Memo Findings/Reliability Pruning conditions & Outages as indicator of risk
- Create features that capture line clearance distance historically

2

## Create Model to Predict Tree Risk

- Understand performance of the model
- Assign risk score to each tree

3

## Summarize Risk by VMA

- Average of risk scores by VMA
- Count of predicted risk trees by VMA
- % of risk trees to total population
- Rank VMAs by risk level

4

## Create Risk Groups (8)

- 8 groups to do 2<sup>nd</sup> level inspections January-August
- 12 groups to do 2<sup>nd</sup> level inspection January-December (lowest risk groups September-December)
- Riskiest groups being inspected August, next riskiest July, June, etc.

5

## Create 2<sup>nd</sup> Level Inspection Based on Risk Groups

- Maintain Master Schedule for 1<sup>st</sup> Inspections
- Make sure there is a minimum 3 months between inspections
- Some VMAs may have 2<sup>nd</sup> level inspection prior to scheduled first inspection

6

Strategic guidance based on risk factors from the model

7

Explainability on individual predictions – displayed in EPOCH system

- Link to documentation: [https://lucid.app/lucidchart/5108d8f4-e648-490d-bd8b-5f7472a92e5b/edit?page=0\\_0&invitationId=inv\\_a2b6682b-137f-407c-bc5a-84656be9cb83#](https://lucid.app/lucidchart/5108d8f4-e648-490d-bd8b-5f7472a92e5b/edit?page=0_0&invitationId=inv_a2b6682b-137f-407c-bc5a-84656be9cb83#)
- **Condition codes used for memos in above link**

- Underlying data
  - Every Activity per FACILITYID (PI or TT)
- Summarize the data to per FACILITYID (380K)
  - FACILITYID will have features based on latest full year and history (target – will this tree have a memo or reliability or outage in the upcoming year)
    - Training Set or Data
      - Categorical Features
      - Latest year (2019) Inspect and or Trim data (count, avg line clr, max line clr, min line clr)
      - Historical Trends (2014-2018) of Inspections and Trims (count, avg line clr, max line clr, min line clr, count of memos)
      - **Predict** – If tree had a Memo/Reliability/Outage in 2020, **Yes or No**
    - Test Set of Data
      - Categorical Features
      - Latest year (2020) Inspect and or Trim data (count, avg line clr, max line clr, min line clr)
      - Historical Trends (2014-2020) of Inspections and Trims (count, avg line clr, max line clr, min line clr, count of memos)
      - **Predict** – If tree had a Memo/Reliability/Outage in 2021, **Yes or No**

# Features

## Descriptive Features

- SPECIES
- TRAFFIC\_ind
- TIER
- VMA (group)
- Charge Back Description
- Latest Tree Height
- Years in Inventory
- DBH
- ESA

## Historical (Prior 1 Year Prior)

- Inspection activity count
- Avg line clearance (PI)
- Max line clearance (PI)
- Min line clearance (PI)
- Trim activity count
- Avg line clearance (TT)
- Max line clearance (TT)
- Min line clearance (TT)
- All activity count
- All avg line clearance
- All max line clearance
- All min line clearance
- All Memo Finding Count
- *Average time since last activity (PI)*
- *Average time since last act (TT)*

## 1 Year Prior

- Inspection count
- Avg line clearance (PI)
- Max line clearance (PI)
- Min line clearance (PI)
- Trim count
- Avg line clearance (TT)
- Max line clearance (TT)
- Min line clearance (TT)
- All count
- All avg line clearance
- All max line clearance
- All min line clearance
- *Time since last activity (PI)*
- *Time since last activity (TT)*

## Target – Current Year

- Memo Finding (Yes or No) in Current Year

# Create Model - Training and Testing

- Train Set

- 380K FACILITYIDs ()
- Predict 2020 memo or reliability or outage
- 2019 most recent year features or latest year there is data
- 2014-2018 is historical
- *To be in the training set, tree needs to have been inspected 2020, needs to have history prior to 2020 to have at least recent features, if only one year those are used for cumulative features*
  - *(22,274 trees first time inspected in 2020)*

- Test Set

- 380K FACILITYIDs
- Predict 2021 memo or reliability or outage
- 2020 most recent year features or latest year there is data
- 2014-2019 is historical features
- *To be in the training set, tree needs to have been inspected 2021, needs to have history prior to 2021 to have at least recent features, if only one year those are used for cumulative features*
  - *(33,713 trees first time inspected in 2021)*

# Create Model – Variable Importance, All

Call:  
 glm(formula = all\_memo ~ ., family = binomial(), data = activity\_Train)

Deviance Residuals:  
 Min 1Q Median 3Q Max  
 -2.7835 -0.3023 -0.2203 -0.1607 4.6418

Coefficients: (21 not defined because of singularities)

	Estimate	Std. Error	z value	Pr(> z )
(Intercept)	-4.151e+00	2.007e-01	-20.679	< 2e-16 ***
SPECIES_DESC_	-1.136e+01	1.844e+02	-0.062	0.950850
SPECIES_DESC_Acacia	3.369e-01	1.602e-01	2.103	0.035431 *
SPECIES_DESC_Ailanthus	5.993e-01	1.844e-01	3.250	0.001154 **
SPECIES_DESC_Alder	-1.738e-01	4.592e-01	-0.378	0.705114
SPECIES_DESC_Araucaria	4.908e-01	2.209e-01	2.222	0.026301 *
SPECIES_DESC_Ash	6.363e-01	1.050e-01	6.060	1.36e-09 ***
SPECIES_DESC_Aspen	-1.150e+01	3.517e+02	-0.033	0.973925
SPECIES_DESC_Avocado	-1.338e-02	1.072e-01	-0.125	0.900627
SPECIES_DESC_Bay	-1.136e+01	2.829e+02	-0.040	0.967978
SPECIES_DESC_Birch	-1.116e+01	1.413e+02	-0.079	0.937052
SPECIES_DESC_Bottlebrush	-8.717e-01	4.579e-01	-1.904	0.056927 .
SPECIES_DESC_Bottletree	-1.079e+00	1.006e+00	-1.072	0.283582
`SPECIES_DESC_Brisbane Box`	-4.292e-01	2.921e-01	-1.469	0.141759
`SPECIES_DESC_Brush 5X5 Bamboo`	3.213e+00	1.019e-01	31.535	< 2e-16 ***
`SPECIES_DESC_Brush Fast 5x5`	8.064e-01	1.446e-01	5.575	2.47e-08 ***
`SPECIES_DESC_Brush Fast 5X5 Palm`	3.488e+00	4.604e-01	7.575	3.58e-14 ***
`SPECIES_DESC_Brush Med 5x5`	4.274e-02	1.886e-01	0.227	0.820756
`SPECIES_DESC_Brush Slow 5x5`	-5.225e-01	3.896e-01	-1.341	0.179852
`SPECIES_DESC_Brush Slow 5X5 Giant BOP`	-1.097e+01	4.110e+02	-0.027	0.978714
`SPECIES_DESC_Brush Very Fast 5x5`	1.314e+00	1.224e-01	10.741	< 2e-16 ***
`SPECIES_DESC_Camphor-Tree`	-1.316e+00	4.567e-01	-2.881	0.003964 **
SPECIES_DESC_Carob	-3.361e-01	5.112e-01	-0.657	0.510906
`SPECIES_DESC_Carrot Wood`	-3.931e-01	2.227e-01	-1.765	0.077615 .
SPECIES_DESC_Casuarina	9.910e-01	2.232e-01	4.440	9.01e-06 ***
SPECIES_DESC_Catalpa	-1.326e-02	1.013e+00	-0.013	0.989555
SPECIES_DESC_Cedar	-5.964e-02	1.635e-01	-0.365	0.715362
`SPECIES_DESC_Century Plant`	1.853e+00	1.269e-01	14.604	< 2e-16 ***
SPECIES_DESC_Cherry	-6.185e-02	1.030e+00	-0.060	0.952141
SPECIES_DESC_Chinaberry	-6.563e-02	2.480e-01	-0.265	0.791272
SPECIES_DESC_Citrus	-2.004e+00	7.131e-01	-2.810	0.004954 **

# Model Results – Tree level risk

## Predicting Memo/Reliability/Outage - All

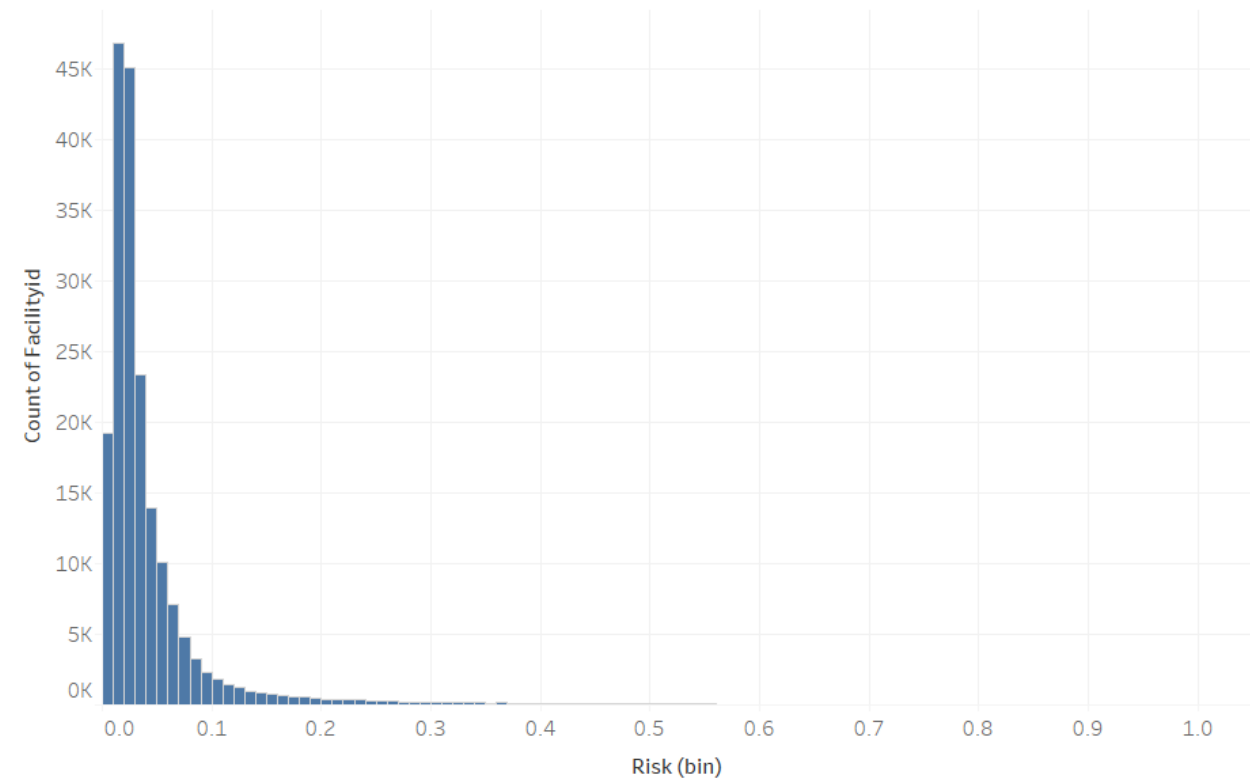
<b>0.04 Threshold</b>			
Predicted Memo	104,137	8,573	Memo Predicted Correctly
Total trees	349,414	11,194	Actual Memo
	29.8%	76.6%	
<b>0.05 Threshold</b>			
Predicted Memo	79,041	7,740	Memo Predicted Correctly
Total trees	349,414	11,194	Actual Memo
	22.6%	69.1%	

## Predicting Memo/Reliability/Outage - HFTD

<b>0.04 Threshold</b>			
Predicted Memo	59,286	4,664	Memo Predicted Correctly
Total trees	198,423	6,187	Actual Memo
	29.9%	75.4%	
<b>0.05 Threshold</b>			
Predicted Memo	45,802	4,164	Memo Predicted Correctly
Total trees	198,423	6,187	Actual Memo
	23.1%	67.3%	

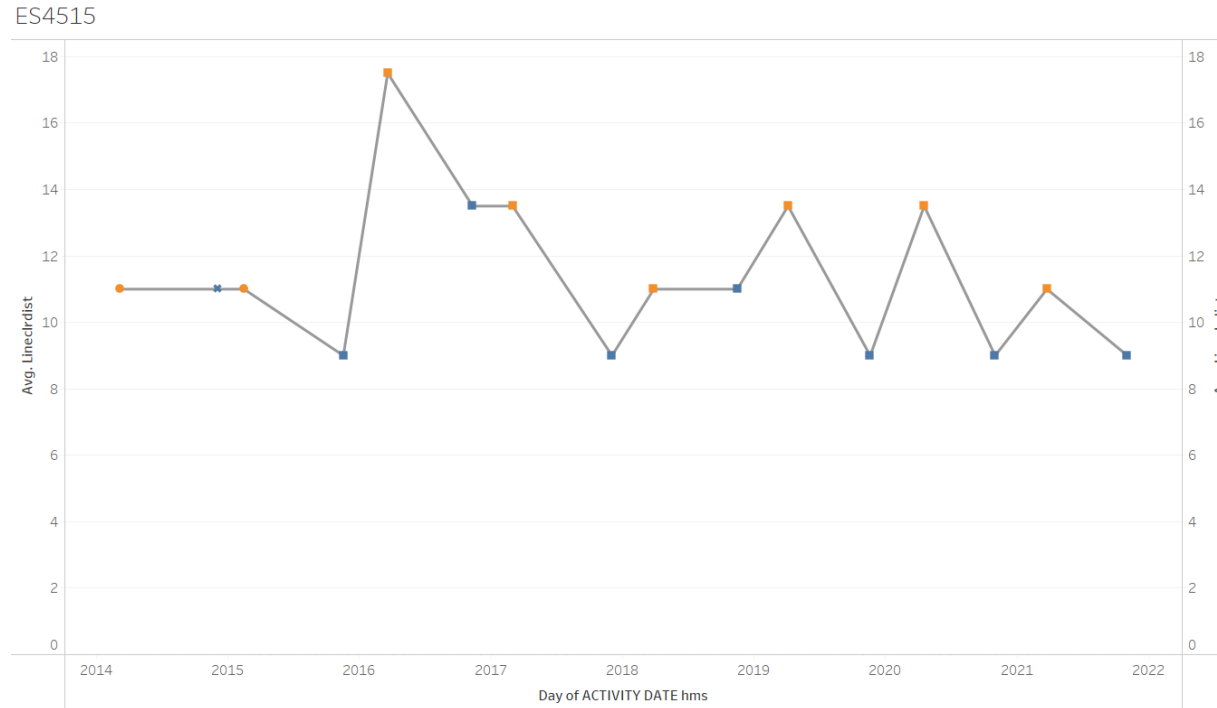
## Distribution of Risk Scores

Count of Trees by Probability Score





# Model Results – Example Risk Tree



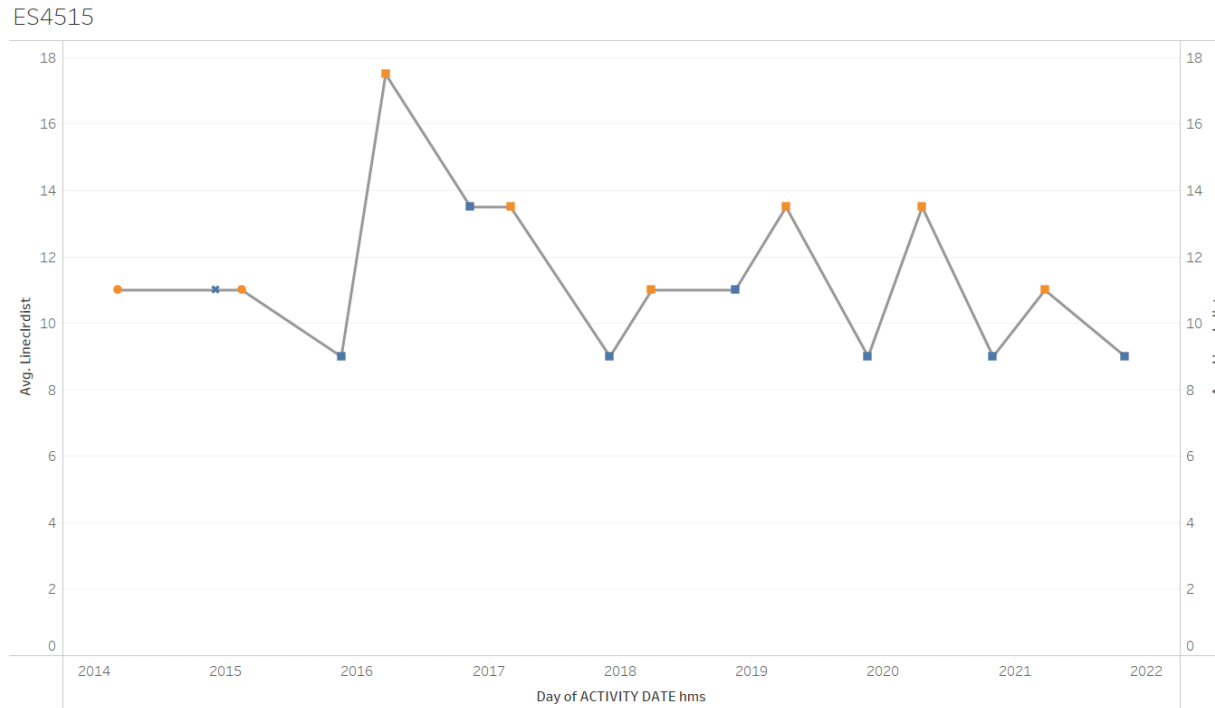
Risk Score: .9919

Risk Level: **High**, Medium, Low

*What variables are driving these scores?*

# Model Results – Explainability, ES4515

Risk Probability Score: .9919



## High Impact Variables

Growth Rate: Fast

Species: Eucalyptus

Tree Height: 140

DBH: 56

Latest year Inspection count=1

Latest year Trim count = 1

Latest year Memo/Rel/Outage Count = 2

Hist Inspect count= 6 times

Hist Trim count = 6 times

Hist Memo/Rel/Outage Count=9

Hist Max Clearance: 17.5

Hist Min Clearance: 9

# VMA Roll Up – Top 20

VMACD_inv	memo_outage	risktrees	counttrees	avgrisk	pctrisktrees	risktimescount
363	348	1470	4783	0.051025711	30.7%	244.055975
458	227	1168	3504	0.063179333	33.3%	221.3803829
454	226	1462	4142	0.052895579	35.3%	219.0934886
462	110	1331	3812	0.056601234	34.9%	215.7639032
357	222	1376	4405	0.046886871	31.2%	206.5366652
469	109	1303	3735	0.052452459	34.9%	195.9099341
362	195	1000	3412	0.057313806	29.3%	195.5547064
468	221	1148	4235	0.045149914	27.1%	191.2098863
365	219	1407	2923	0.063705029	48.1%	186.2097984
399	151	1307	4108	0.044249845	31.8%	181.7783627
460	112	1122	3064	0.057648902	36.6%	176.6362344
394	234	1234	2877	0.061320425	42.9%	176.4188614
465	100	1165	3652	0.046704969	31.9%	170.566545
381	97	1015	3850	0.043463128	26.4%	167.3330413
463	132	1169	3291	0.050316513	35.5%	165.5916453
356	169	1288	2829	0.057490346	45.5%	162.64019
371	201	1010	4150	0.038787807	24.3%	160.9693972
353	188	1003	3403	0.044971847	29.5%	153.0391963
386	113	979	3989	0.038016856	24.5%	151.6492388
368	124	699	3028	0.049232124	23.1%	149.0748716

**VMACD\_inv** – VMA

**Memo\_outage** – sum of 2021 memo, reliability, outage activities

**Risktrees** – count of trees identified as risk trees from model (probability>.04)

**Count trees** – Total HFTD trees in VMA

**Avgrisk** – average of probability score from model

**Pctrisktrees** – risktreecount/total trees

**Risktimescount** – avgrisk\*count of trees

# Curren

# VMAs	VMA	Routine PI	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
10	387, 389, 400, 410, 416, 467, 363, 606, 564, 572	1/1/2021	Routine PI		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit		HFTD Patrol Level 2	HFTD Tree Trim				
9	377, 397, 304, 305, 388, 634, 655	2/1/2021		Routine PI		Routine Tree Trim	Routine Tree Trim	Audit Patrol Level 2	HFTD Tree Trim					
12	393, 394, 451, 477, 601, 306, 362, 382, 311, 353	3/1/2021			Routine PI		Routine Tree Trim	Routine Tree Trim	Audit Patrol Level 2	HFTD Tree Trim				
8	354, 468, 359, 380, 384, 390	4/1/2021				Routine PI		Routine Tree Trim	Routine Tree Trim	Audit Patrol Level 2	HFTD Tree Trim			
9	365, 302, 312, 313, 311, 352, 321, 352	5/1/2021					Routine PI Level 2		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit		HFTD Patrol	HFTD Tree Trim
10	464, 469, 376, 381, 385, 389, 402, 326	6/1/2021	HFTD Tree Trim					Routine PI Level 2		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit		HFTD Patrol
13	521, 553, 360, 378, 379, 388, 701, 703, 707, 708, 753	7/1/2021	HFTD Patrol	HFTD Tree Trim					Routine PI Level 2		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit	
8	361, 364, 370, 375, 422, 465	8/1/2021		HFTD Patrol	HFTD Tree Trim					Routine PI Level 2		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit
9	466, 475, 479, 371, 334, 386, 685	9/1/2021	Tree Trim Audit					HFTD Patrol Level 2	HFTD Tree Trim		Routine PI		Routine Tree Trim	Routine Tree Trim
5	357, 366, 373, 455, 456	10/1/2021	Routine Tree Trim	Tree Trim Audit					HFTD Patrol Level 2	HFTD Tree Trim		Routine PI		Routine Tree Trim
6	420, 430, 452, 358, 220, 434	11/1/2021	Routine Tree Trim	Routine Tree Trim	Tree Trim Audit					HFTD Patrol Level 2	HFTD Tree Trim		Routine PI	
8	454, 458, 350, 351, 633, 663	12/1/2021		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit				HFTD Patrol Level 2	HFTD Tree Trim			Routine PI

# VMA 2<sup>nd</sup> Level Schedule - Current

Current 2nd Patrol (2022 process) <input type="checkbox"/>	Count of VMACD_inv	Sum of counttrees	Sum of memo_outage
5/1/2023	9	19725	902
6/1/2023	28	53857	1835
7/1/2023	39	55035	2786
8/1/2023	30	63619	3042
(blank)			
<b>Grand Total</b>	<b>106</b>	<b>192236</b>	<b>8565</b>

## **Plan Metrics - Current**

- Max # trees inspected in one month: 63,619
- Min # trees inspected in one month: 19,725
- Avg # trees inspected in one month: 48,059
- Max # VMAs: 39
- Min # VMAs: 9
- Min months between inspections: 0
- Max months outside inspections: 12
- Avg months between inspections: 2.5
- Avg months outside inspections: 9.5

Add time frame to columns for clarity\*

# VMA 2<sup>nd</sup> Level Schedule - Proposed

Current 2nd Patrol (2022 process)	Count of VMACD_inv	Sum of counttrees	Sum of memo_outage
5/1/2023	9	19725	902
6/1/2023	28	53857	1835
7/1/2023	39	55035	2786
8/1/2023	30	63619	3042
(blank)			
<b>Grand Total</b>	<b>106</b>	<b>192236</b>	<b>8565</b>

## Benefits of spreading across 8 months

- Spreads out Labor
- Riskiest VMAs still inspected before fire season (riskiest inspected June-Aug)

(8) Proposed 2nd Patrol	Count of VMACD_inv	Sum of counttrees	Sum of memo_outage
(blank)			
1-Jan	21	17895	733
1-Feb	12	25658	739
1-Mar	9	26781	841
1-Apr	10	19102	994
1-May	15	19642	1221
1-Jun	17	26012	1273
1-Jul	11	20401	815
1-Aug	11	36745	1949
<b>Grand Total</b>	<b>106</b>	<b>192236</b>	<b>8565</b>

## Plan Metrics - Current

- Max # trees inspected in one month: 63,619
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- Avg months outside inspections: 9.5

## Plan Metrics - Proposed

- Max trees inspected in one month: 36,745
- Min trees inspected in one month: 17,895
- Avg trees inspected in one month: 24029
- Max count of VMAs: 21
- Min count of VMAs: 9
- Min months between inspections: 4
- Max months between inspections: 8
- Avg months between inspections: 5
- Avg months outside inspections: 7

\*8565 total memos, some trees have >1 memo/reliability/outage in 2021

# VMA 2<sup>nd</sup> Level Schedule - Proposed

Current 2nd Patrol (2022 process)	Count of VMACD_inv	Sum of counttrees	Sum of memo_outage
5/1/2023	9	19725	902
6/1/2023	28	53857	1835
7/1/2023	39	55035	2786
8/1/2023	30	63619	3042
(blank)			
<b>Grand Total</b>	<b>106</b>	<b>192236</b>	<b>8565</b>

## Benefits of spreading across 12 months

- Spreads out Labor
- Riskiest VMAs still inspected before fire season (riskiest inspected June-Aug)
- Lower risk are inspected (Sept-Dec)

(12) Proposed 2nd Patrol	Count of VMACD_inv	Sum of counttrees	Sum of memo_outage
1-Jan	7	14,534	552
1-Feb	5	10,066	513
1-Mar	6	15,430	537
1-Apr	10	24,206	911
1-May	13	13,451	882
1-Jun	9	19,328	1,011
1-Jul	7	17,051	1,131
1-Aug	8	28,143	1,298
1-Sep	8	12,756	503
1-Oct	13	19,092	590
1-Nov	10	13,766	511
1-Dec	10	4,413	126
<b>Grand Total</b>	<b>106</b>	<b>192,236</b>	<b>8,565</b>

## Plan Metrics - Current

- Max # trees inspected in one month: 63,619
- Min # trees inspected in one month: 19,725
- Avg # trees inspected in one month: 48,059
- Max # VMAs: 39
- Min # VMAs: 9
- Min months between inspections: 0
- Max months outside inspections: 12
- Avg months between inspections: 2.5
- Avg months outside inspections: 9.5

## Plan Metrics - Proposed

- Max trees inspected in one month: 24,206
- Min trees inspected in one month: 4,413
- Avg trees inspected in one month: 16,020
- Max count of VMAs: 1
- Min count of VMAs: 5
- Min months between inspections: 5
- Max months between inspections: 10
- Avg months between inspections: 5
- Avg months outside inspections: 7

\*8565 total memos, some trees have >1 memo/reliability/outage in 2021

# One month example - August

- 8 groupings

Aug VMAs	(8) Proposed 2nd	Total	Memo/Reliability/Outage	Max Mnths No Ins	Pre Inspection (Master Sched)	2nd Level Inspect 202
363	1-Aug	4783	348	5	1/1/2023	7/1/2023
306	1-Aug	8	0	7	3/1/2023	7/1/2023
359	1-Aug	2144	127	8	4/1/2023	8/1/2023
380	1-Aug	3121	102	8	4/1/2023	8/1/2023
384	1-Aug	2926	127	8	4/1/2023	8/1/2023
313	1-Aug	2568	109	9	5/1/2023	5/1/2023
365	1-Aug	2923	219	9	5/1/2023	5/1/2023
399	1-Aug	4108	151	9	5/1/2023	5/1/2023
389	1-Aug	2291	92	10	6/1/2023	6/1/2023
454	1-Aug	4142	226	8	12/1/2023	8/1/2023
458	1-Aug	3504	227	8	12/1/2023	8/1/2023
<b>Total</b>		<b>32518</b>	<b>1728</b>			

- 12 groupings

August VMAs	(12) Proposed 2nd Patrol	Total	Memo/Reliability/Outage	Max Mnths No Ins	Pre Inspection (Master Sched)	2nd Level Inspect 2022
363	1-Aug	4783	348	5	1/1/2023	7/1/2023
365	1-Aug	2923	219	9	5/1/2023	5/1/2023
399	1-Aug	4108	151	9	5/1/2023	5/1/2023
420	1-Aug	42	1	9	11/1/2023	8/1/2023
454	1-Aug	4142	226	8	12/1/2023	8/1/2023
458	1-Aug	3504	227	8	12/1/2023	8/1/2023
<b>Total</b>		<b>19502</b>	<b>1172</b>			



# 8 Group Proposal

VMA	Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
312, 352 605, 354 302, 396 221, 701 752, 703 553, 707 521, 520 708, 412 616, 607 356, 390 310	<b>1 (JAN)</b> <b>21 VMA's</b>	Routine PI		Routine Tree Trim	Routine Tree Trim								
360, 388 395, 385 376, 379 378, 462 456, 469 464, 314	<b>2 (FEB)</b> <b>12 VMA's</b>		Routine PI		Routine Tree Trim	Routine Tree Trim							
364, 386 479, 466 465, 463 370, 361 381	<b>3 (MAR)</b> <b>9 VMA's</b>			Routine PI		Routine Tree Trim	Routine Tree Trim						
351, 366 455, 475 374, 674 375, 420 460, 467	<b>4 (APR)</b> <b>10 VMA's</b>				Routine PI		Routine Tree Trim	Routine Tree Trim					
416, 606 601, 367 450, 391 452, 311 358, 394 369, 670 400, 654 368	<b>5 (MAY)</b> <b>15 VMA's</b>					Routine PI		Routine Tree Trim	Routine Tree Trim				
624, 305 372, 655 373, 453 653, 220 397, 371 350, 623 357, 377 398, 383 393	<b>6 (JUN)</b> <b>17 VMA's</b>						Routine PI		Routine Tree Trim	Routine Tree Trim			
309, 382 451, 387 306, 355 477, 362 353, 392 304	<b>7 (JUL)</b> <b>11 VMA's</b>							Routine PI		Routine Tree Trim	Routine Tree Trim		
363 458 389, 313 454, 468 384, 380 365, 399 359	<b>8 (AUG)</b> <b>11 VMA's</b>								Routine PI		Routine Tree Trim	Routine Tree Trim	

# 12 Grouping Proposal

VMA	Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
360,388 389,314 356,390 310	1 (Jan) 7 VMA's	Routine PI		Routine Tree Trim	Routine Tree Trim	Tree Trim Audit							
366,455, 475,375 359	2 (Feb) 5 VMA's		Routine PI		Routine Tree Trim	Routine Tree Trim							
351,450 391,373 374,364 462	3 (Mar) 7 VMA's			Routine PI		Routine Tree Trim	Routine Tree Trim						
371,386 479,466 605,460 463,370 361,616	4 (Apr) 10 VMA's				Routine PI		Routine Tree Trim	Routine Tree Trim					
453,653 220,452 674,465 412,467 369,670 400,654 393	5 (May) 13 VMA's					Routine PI		Routine Tree Trim	Routine Tree Trim				
358,357 456,368 377,398 304,383	6 (Jun) 8 VMA's						Routine PI		Routine Tree Trim	Routine Tree Trim			
363,350 623,458 420,394 362	7 (Jul) 7 VMA's							Routine PI		Routine Tree Trim	Routine Tree Trim		
353,392 454,468 384,380 365,399	8 (Apr) 8 VMA's								Routine PI		Routine Tree Trim	Routine Tree Trim	
397,355 477,354 313	9 (Sept)									Routine PI		Routine Tree Trim	Routine Tree Trim
367,655 382,451 387,306 311,302 381,469 464	10 (Oct) 11 VMA's	Routine Tree Trim									Routine PI		Routine Tree Trim
309,312 395,385 376,396 221,379 378	11 (Nov) 7 VMA's	Routine Tree Trim	Routine Tree Trim									Routine PI	
416,606 624,305 372,601 352,701 752,703 553,707 521,520 708,607	12 (Dec) 16 VMA's		Routine Tree Trim	Routine Tree Trim									Routine PI

# 3 months prior to fire season grouping (8 months)



June VMAs	(8) Proposed 2nd Patrol	Total	Memo/Reliability/Outage	Max Mnths No Ins	Pre Inspection (Master Sched)	2nd Level Inspect 2022
350	1-Jun	1359	79	8	12/1/2023	8/1/2023
623	1-Jun	1074	47	8	12/1/2023	8/1/2023
453	1-Jun	1156	36	8	12/1/2023	8/1/2023
653	1-Jun	805	16	8	12/1/2023	8/1/2023
220	1-Jun	18	1	8	12/1/2023	8/1/2023
393	1-Jun	1701	135	8	3/1/2023	7/1/2023
383	1-Jun	1706	178	8	3/1/2023	7/1/2023
355	1-Jun	1704	42	8	3/1/2023	7/1/2023
477	1-Jun	1338	65	8	3/1/2023	7/1/2023
373	1-Jun	878	21	9	10/1/2023	7/1/2023
371	1-Jun	4150	201	9	9/1/2023	6/1/2023
382	1-Jun	1731	73	8	3/1/2023	7/1/2023
451	1-Jun	1302	29	8	3/1/2023	7/1/2023
387	1-Jun	2130	76	8	3/1/2023	7/1/2023
309	1-Jun	1310	54	8	3/1/2023	7/1/2023
601	1-Jun	20	0	8	3/1/2023	7/1/2023
<b>Total</b>		<b>22382</b>	<b>1053</b>			
July VMAs	(8) Proposed 2nd Patrol	Total	Memo/Reliability/Outage	Max Mnths No Ins	Pre Inspection (Master Sched)	2nd Level Inspect 2022
392	1-Jul	3285	64	8	4/1/2023	8/1/2023
468	1-Jul	4235	221	8	4/1/2023	8/1/2023
353	1-Jul	3403	188	8	4/1/2023	8/1/2023
394	1-Jul	2877	234	8	3/1/2023	7/1/2023
357	1-Jul	4405	222	9	10/1/2023	7/1/2023
362	1-Jul	3412	195	8	3/1/2023	7/1/2023
<b>Total</b>		<b>21617</b>	<b>1124</b>			
Aug VMAs	(8) Proposed 2nd Patrol	Total	Memo/Reliability/Outage	Max Mnths No Ins	Pre Inspection (Master Sched)	2nd Level Inspect 2022
359	1-Aug	2144	127	8	4/1/2023	8/1/2023
384	1-Aug	2926	127	8	4/1/2023	8/1/2023
380	1-Aug	3121	102	8	4/1/2023	8/1/2023
365	1-Aug	2923	219	12	5/1/2023	5/1/2023
399	1-Aug	4108	151	12	5/1/2023	5/1/2023
458	1-Aug	3504	227	8	12/1/2023	8/1/2023
454	1-Aug	4142	226	8	12/1/2023	8/1/2023
313	1-Aug	2568	109	12	5/1/2023	5/1/2023
389	1-Aug	2291	92	12	6/1/2023	6/1/2023
363	1-Aug	4783	348	6	1/1/2023	7/1/2023
306	1-Aug	8	0	8	3/1/2023	7/1/2023
<b>Total</b>		<b>32518</b>	<b>1728</b>			

experience a difference

FX1364 (1)  
vTree

Tree - FX1364

Field	Value
Condition Code	Completed Pruning
Line Clearance	10.0 to 11.9 ft
Last User	JROBLES4
Species	Pepper (California)
Other Species	
VMA Code	310
Growth Rate	Fast
Tree Height	40.1 to 50 ft
Diameter Breast Height	24.0 to 35.9 in
Last Inspection	5/19/2021 12:22:38 PM
Last Trim Date	8/15/2021 10:23:10 PM
Number of Units	1
Number of Trunks	1
Number of Stems	1
ESA Indicator	No
Circuit	476
Tie Line	NONE
Traffic Control	No
Charge Back	Primary Distribution
HFTD Tier	None
Pole 1	P413295
Pole 2	P413296
Add Date	5/12/1999 1:07:57 PM
Last Activity	Tree Trim
Last Audit Date	11/3/2017 10:14:58 AM
Last Audit Results	Fail-Contractor Fault
Climb or Lift	Climb
Inventory	Yes
Xcoord	1759011
Ycoord	306039
Zcoord	111.02602767

Tree-FX1364

Admin Update | Outage | Activities | Outage History | Risk

Species: **Pepper (California)** \* CCode: Completed Pruning \* Clearance: 10.0 to 11.9 ft \* Growth: Fast \* Height: 40.1 to 50 ft \* DBH: 24.0 to 35.9 in \* Trunks: 1 \* Access: Climb \* Units: 1 \* Stems: 1 \* Inventory: Yes \*

ESA: No \* Traffic: No \* Voltage: Primary Distribution \* HFTD: None \* Tie Line: None \*

Structure ID 1: \* P413295  
Last Inspection Date: 05/19/2021 12:22:38 PM

Structure ID 2: \* P413296  
Last Trim Date: 08/15/2021 10:23:10 PM

**Risk Level**  
.96

FX1364 (1)  
vTree

Tree - FX1364

Field	Value
Condition Code	Completed Pruning
Line Clearance	10.0 to 11.9 ft
Last User	JROBLES4
Species	Pepper (California)
Other Species	
VMA Code	310
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Last Audit Results	Fail-Contractor Fault
Climb or Lift	Climb
Inventory	Yes
Xcoord	1759011
Ycoord	306039
Zcoord	111.02602767

Tree-FX1364

Admin Update | Outage | Activities | Outage History | **Risk**

Species: **Pepper (California)** \* CCode: Completed Pruning \* Clearance: 10.0 to 11.9 ft \* Growth: Fast \* Height: 40.1 to 50 ft \* DBH: 24.0 to 35.9 in \* Trunks: 1 \* Access: Climb \* Units: 1 \* Stems: 1 \* Inventory: Yes \*

ESA: No \* Traffic: No \* Voltage: Primary Distribution \* HFTD: None \* Tie Line: None \*

Structure ID 1: \* P413295  
Last Inspection Date: 05/19/2021 12:22:38 PM

Structure ID 2: \* P413296  
Last Trim Date: 08/15/2021 10:23:10 PM

**Risk Level (1-5, 5 highest risk)**  
5

FX1364 (1)  
vTree

Tree - FX1364

Field	Value
Condition Code	Completed Pruning
Line Clearance	10.0 to 11.9 ft
Last User	JROBLES4
Species	Pepper (California)
Other Species	
VMA Code	310
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Climb or Lift	Climb
Inventory	Yes
Xcoord	1759011
Ycoord	306039
Zcoord	117.02603767

Tree-FX1364

Admin Update | Outage | Activities | Outage History | Risk

### Impact Features

**Growth Rate: Fast**  
**Species: Eucalyptus**  
**Hist Inspect count= 6 times**  
**Hist Trim count = 6 times**  
**Hist Memo/Rel/OutageCount=9**  
**Hist Max Clearance: 17.5**  
**Hist Min Clearance: 9**

**2<sup>nd</sup> Patrol Risk Update:**  
  
**Action:**