Outdoor Power Equipment Institute

July 13, 2026

Clerk of the Board
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Via electronic submission cotb@arb.ca.gov

RE: California Air Resources Board 2026 State Implementation Plan Revisions for the California Extreme Ozone Nonattainment Areas

The Outdoor Power Equipment Institute (OPEI) respectfully submits the following comments to the California Air Resources Board (CARB) regarding its *2026 State Implementation Plan Revisions for the California Extreme Ozone Nonattainment Areas* (April 17, 2026). OPEI requests that CARB review and update its Small Off-Road Engine (SORE) SORE2020 emissions model to accurately reflect the sector's baseline emissions and reductions forecasted by the 2022 State Implementation Plan (SIP). In the meantime, CARB should remove incorrect forecasted emissions reductions from the SIP. As evidenced by the examples provided herein, CARB's *2020 Emissions Model for Small Off-Road Engines – SORE2020* (SORE2020) and 2022 SIP grossly overestimates Small Off-Road Engine (SORE) emissions and reductions, especially in California's non-attainment areas like the South Coast Air Basin (SCAB).

OPEI is an international trade association representing more than 100 manufacturers and their suppliers of gas- and electric-powered outdoor power equipment and vehicle applications. OPEI member products are ubiquitous in California households and businesses, including SORE-powered equipment such as walk-behind and riding lawnmowers, grass trimmers, chain saws, snow throwers, portable generators, pressure washers, utility vehicles and other similarly powered lawn and garden, construction/industrial, and vehicle applications. As manufacturers of SORE and SORE-powered equipment, OPEI members and their products have been unfairly demonized and impacted by CARB's inaccurate SORE modeling and the narratives, regulations and SIP emissions reductions the models have been used to support.

In September 2020 CARB published the *2020 Emissions Model for Small Off-Road Engines – SORE2020* (SORE2020). OPEI has repeatedly highlighted that SORE2020's reliance on inaccurate, telephone-based survey data results in overestimates of the

sector's baseline and forecasted exhaust gas and evaporative emissions.[1] This is especially true in California's South Coast Air Basin and the sector's contribution to the region's ongoing federal air quality non-attainment challenges. Additional OPEI research since the publication of SORE2020 strongly supports this conclusion. Several examples of SORE2020's erroneous data are discussed in detail below. Considering these errors, CARB should update its SORE2020 model to accurately reflect the SORE sector's real-world emissions contributions, and in turn revise the 2022 SIP to reflect the sector's true, lower emissions. In the meantime, CARB should remove erroneous SORE assumptions from the SIP.

BACKGROUND

On August 1, 2022, CARB adopted it's *Small Off-Road Engine Regulations: Transition to Zero Emissions* regulations (SORE Amendments).[2] The SORE Amendments set zero-emissions limits for SORE beginning in model year 2024. SORE2020 estimated the amendments would reduce summertime statewide NOx emissions by 7.9 tons per day and ROG emissions by 64.5 tons per day by 2031.[3] CARB also used SORE2020 and the SORE Amendments to estimate emissions reductions from calendar year 2018 to 2037 for the 2022 SIP.[4] Unfortunately, SORE2020's 2018 baseline emissions grossly overestimate the sector's emissions, and in-turn the SIP's forecasted emissions reductions.

Modeling SORE emissions is a complex project. Modelers must establish estimates for equipment population, zero hour (new) emissions, annual runtime (hours/yr), survival rate (age/useful life), and emissions deterioration rate (rate at which a products emissions increase per year due to equipment deterioration), among other key inputs, for each equipment type, engine type, engine power range, and use category. This is incredibly complicated for the SORE sector, which encompasses hundreds of unique combinations.

Annual runtime is one particularly important input – one that OPEI has raised serious questions and concerns about. For example, a residential walk-behind mower's

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[1] OPEI CARB Survey Outlier Analysis, June 2020. See Annex B.

OPEI Comments to the California Air Resources Board's Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions, November 29, 2021

Docket No. EPA-HQ-OAR-2023-0151, California State Nonroad Engine Pollution Control Standards; Small Off-Road Engines; Request for Authorization (OPEI CARB SORE Waiver Request Comments), July 28, 2023

[2] https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2021/sore21/soreexecorder.pdf

[3] *CARB Public Hearing to Consider Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions – Staff Report: Initial Statement of Reasons* (ISoR), pg. ES-5

[4] CARB 2022 SIP, pg. 77, Figure 17

average annual runtime was assumed to be18 hours/year based on bad data, but real-world data or alternative math-based models suggests it's lower, for example 12 hours/year, an 18 hour/year baseline will have overestimated the product category's emissions by more than 50 percent – because emissions are directly proportional to runtime.

CARB has long relied on mailout and telephone surveys of equipment users to establish most crucial model inputs. CARB's most recent survey was conducted by California State University – Fullerton (CSU-F) in 2018-2019.[5] Upon completion of the survey CARB averaged survey data for the 3 user groups to establish model inputs, including hours of use per year, for use in a new SORE model. CARB published its first draft model in March 2020. It was immediately evident from the draft that the underlying data was flawed and lacked the appropriate quality control and assessment from either CSU-F or CARB. Stakeholders raised concerns that the new CSU-F survey results varied wildly from past survey assumptions and modeled data for many equipment categories. As a result, OPEI conducted 100's of hours of in-depth analysis on the CSU-F survey data. This investigation confirmed that telephone-based survey results do not accurately represent product use and models developed from such data will result in gross overestimates of SORE emissions.

Residential walk-behind mowers (RWBM) are a good example of CARB survey-to-survey data discrepancies. Estimated RWBM minutes per use increased from 29.2 minutes/use and 15.5 hours/year (CARB's 2012 survey (n=2999)) to 45.6 minutes/use and 19 hours/year (2018 survey (n=1152)) (see Figure 1 below). This annual runtime increase, approximately 4 hours/year, corresponds to an approximate 25 percent increase in emissions per unit per year. Similarly, the 2012 to 2018 survey data suggested an increase in residential chain saw runtime from 39.2 minutes/use and 7.9 hours/year to a whopping 108 minutes/use and18 hours/year. This is an annual runtime and emissions increase of more than 100% from survey to survey. Recognizing California has the 49th smallest average residential parcel size in the U.S., data suggesting the average RWBM ***runs*** more than 45 minutes per use, or that the average residential chain saw ***runs*** 18 hours per year is highly questionable.

[5] *Survey of Small Off-Road Engines (SORE) Operating within California: Results from Surveys with Four Statewide Populations,* May 15, 2019,

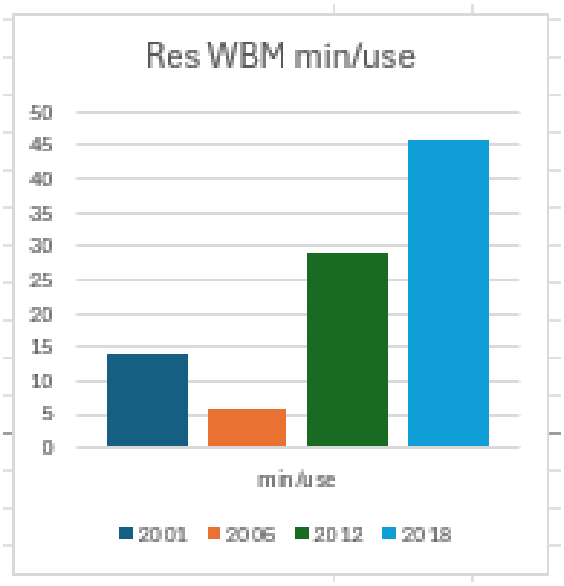

Figure 1 – Residential walk-behind mowers runtime per use (minutes) variability based on CARB telephone surveys (2012 & 2018) and in-use data collection (2001). 2006 commercial landscaper minutes/use accumulated from 2006 in-use data is also included for additional reference purposes.

There are several potential reasons for such deviations. Based on OPEI's in-depth survey data review it is unlikely most SORE-equipment users accurately track equipment runtime and often underestimate SORE-powered equipment's efficiency, in effect crediting themselves for much more work than is performed. Compounding telephone survey response issues include: small sample sizes for some equipment types and use categories (for example, CARB updated residential wood splitter annual use from 1 hour/year to 48 hours/year, a factor of 48x, based on a single survey response and updated residential lawn tractor annual use from 29 hours/year to 83 hours/year based on just 13 gas-powered units); lack of any/appropriate data correction (for example, residential "lawn and garden" equipment responses should be corrected for the respondents property size versus the state average); rounding errors based on survey "telescoping" (for example, respondents often rounded minutes to the next hour or years to the next 5th or 10th year); and exaggerated, dishonest or misinterpreted responses (for example, responses of residential chain saws *running* for 24 hours at a time, residential lawn tractors *running* 7 days a week for 2.5, and landscapers *running* equipment for dozens of man-hours longer than the typical 40-50 hour work week). Some of these potential flaws were highlighted in CSU-F's survey report. CSU-F specifically cautioned: "*(T)he reader should not take for granted that unweighted results accurately reflect the (average of data),*" and "*(T)ake into account that (estimates) based on small sample sizes have large confidence intervals and may be less accurate than desired.... Smaller estimates for particular types of equipment many not be*

(based on a sufficiently large sample size), and should thus be interpreted with caution."[6] Nonetheless CARB used the unweighted data and in several cases small sample sizes to estimate annual runtime and equipment age for the SORE2020. Additionally, CARB's eventual data interpolation was insufficient, arbitrary, and lacked scientific process and rationale.

Real-world in-use data collection is an important tool modelers should consider to establish reasonable survey response limits and model data accuracy. CARB deployed in-use monitoring surveys for residential users in 2001 and for commercial users in 2006. Unfortunately, CARB missed these opportunities to understand survey response accuracy. No CARB report attempted to draw correlations between specific respondent's survey responses and their real-world in-use data collection. Only OPEI has published an oral survey response to in-use data collection comparison.[7] Nevertheless, CARB's multiple survey results tell an intriguing story. CARB's In-use data collection suggested significantly lower runtimes for both residential and commercial users than the CARB's mailout and telephone-based surveys. For example, walk-behind mower data collected from 176 residential users in 2001 suggested an average runtime of approximately 14 minutes/use, or less than 33% of the 2018 CSU-F telephone survey 46 minutes/use average. In-use data collected from residential chain saw users suggest saws are running for minutes at a time, not the almost 2 hours/use runtime indicated by the 2018 survey data. OPEI's aforementioned comparison confirmed the same, end users almost always overestimate runtime per use.

Wild survey-to-survey annual use variability exists similarly for many products across CARB's surveys, lawnmowers, chainsaws, leaf blowers, portable generators, pressure washers and utility vehicles alike. Analysis of this data makes it reasonable to conclude that end-users do not accurately track equipment use and survey responses are not statistically reliable and should not be used for the purpose of developing rules and/or estimating rule benefits. Nevertheless, CARB moved forward with the 2018 CSU-F telephone survey data for support of the SORE2020 model and to predict rule and SIP baseline emissions and benefits. Therefore the 2022 SIP does not accurately forecast emissions reductions from the SORE category from 2018 to 2037 and should be updated.

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[6] *Id*.

[7] *OPEI Comments to the California Air Resources Board's Proposed Amendments to the Small Off-Road Engine Regulations: Transition to Zero Emissions*, November 29, 2021

EXAMPLES OF CARB SORE2020 ERRONEOUS DATA ASSUMPTONS

SORE2020 is critically flawed for additional reasons, including, but not limited to: (1) it's "broad-brushed" application of the same average annual use (hours/year) assumptions statewide, regardless of factors like climate, population density, property sizes or the likelihood of power outages; and (2) it's broad distribution of equipment population based on the human/household populations statewide, regardless of the same factors. For example, SORE2020 models the same population percentage of walk behind and lawn mowers, **chain saws, wood splitters and snowblowers** in SCAB, approximately 40% of the statewide equipment population, and estimates the same equipment annual runtime, for example, residential walk-behind lawnmowers 48 minutes/use, residential chain saws 108 minutes/use and 18 hours/year, residential wood splitters 48 hours/year, and commercial snowblowers 43 hours/year, regardless of how the regions average home size or climate compare to other parts of the 3rd largest state.

Property size and property attributes must be considered when determining practical statewide or regional in-use averages for many types of outdoor power equipment. California ranks 49th in national residential average plot size at just 0.19 acres per plot. The average California home is approximately 1860 square feet with 80% of homes on the U.S.'s west coast having garages or carports. With more than 1M residential pools, California ranks 2nd to only Florida in this category, with nearly 20% of SCAB households featuring pools. Considering driveways, sidewalks and walkways, and patios, the average California property has little room for mowable real estate. Averaged annual runtimes for outdoor power equipment like lawnmowers, leaf blowers, string trimmers and wood splitters *must* reflect these realities.

Unfortunately, CARB did not correct survey responses for these factors. Instead, after following-up with Residential Respondent 555 (R555) the used information that he lived on a 3 acre "farm" as rationale for his *extreme* survey responses, disregarding the fact that his property was nearly 15 TIMES the size of the average Californian's. With a modest understating of outdoor power equipment use it is reasonable to assume a 'farm' may have more equipment than the average resident and/or that a property size 15X the bigger than most will require more runtime and should be corrected accordingly. Absent appropriate corrections and considering the very small residential riding mower survey dataset size (ZERO residential gas-powered units sampled from of the SCAB's estimated 145k units), R555's riding mower responses increased the average residential riding mower runtime from approximately 50 hours/year to 83 hours/year. R555 ALONE increased residential riding mower emissions more than 50% across the state – including for the more than 145k

gas-powered residential riding mowers modeled in the densely populated SCAB for which not a single survey data point exists.

These realizations present real and clear data challenges for the application of SORE2020 not only statewide but also on a region-by-region basis.

Example 1: Residential Wood Splitters in the South Coast Air Basin

SORE2020 estimates residential wood splitters run 48 hours/year. This is an increase of 48 TIMES from CARB's prior modeling assumptions (OFFROAD2007, 1 hour/year). This annual residential use assumption is unreasonable regardless of the region, but it is particularly outrageous when considering the regions climate and CARB's own SCAB estimated residential wood combustion (consumption).

Residential wood splitters, like the 123k 5-25hp gas-powered units estimated statewide are highly efficient wood splitting tools. Depending on the wood type, a conservative average spilt rate is 1 cord per 2 hours (1 cord = 128 cubic feet = 1.5 tons per 2 hours of wood splitter operation). Running 48 hours the average homeowner could reasonably split 24 CORDS, or 3000+ CUBIC FEET, or 36 TONS of wood annually. This is enough wood to fill a 20'x20'x8' 2-car garage from floor to ceiling, EVERY YEAR. This is not a realistic representation of residential wood consumption and their resulting emissions footprint, regardless of if their application is for year-round heating in the coldest corners of the state (5-10 cords per year, depending on climate, home size, wood type, etc…) or for the occasional decorative fireplace use that represents 85% of SCAB residential wood combustion modeled by CARB.

SORE2020's mathematical problem is evident in the SCAB when we compare the SORE2020 wood splitter population distribution, average annual runtime and resulting firewood production to CARB's 2015 residential wood combustion inventory report.[8] CARB's 2015 report estimates the SCAB residential wood combustion is approximately 117k cordwood tons per year, or approximately 78k cords per year. At the same time, SORE2020 estimates almost 46,000 residential wood splitter units operating in the SCAB, each operating 48 hours/year. At an average of 1 cord per 2 hours running 48 hours/year per unit SORE2020 SCAB residential wood splitters can reasonably produce 1.65 MILLION TONS of split firewood every year. SORE2020's SCAB residential wood splitter annual production is nearly 15 TIMES CARB's 2015 report modeled residential consumption. Assuming every residential cord of wood consumed in the SCAB was split by the

[8] https://www.arb.ca.gov/ei/areasrc/fullpdf/full7-1_2011.pdf

homeowner, which itself is an unrealistic assumption, SORE2020 predicts SCAB residents produce approximately 1.5 MILLION TONS MORE wood than they consume EVERY YEAR.

CARB's 2026 draft residential wood consumption inventory update assumes approximately double the SCAB residential annual consumption, 227k cordwood tons.[9] Even then, CARB SORE2020's residential wood splitter use is preposterous, with residential wood splitter production still equaling more than 7 TIMES, or 1.4 MILLION TONS PER YEAR MORE wood split than modeled consumption.

In the best modeling case, assuming nearly 46,000 residential wood splitters in-use for 48 hours per year, SORE2020 overestimates SCAB residential wood splitter runtime and emissions by 7 TIMES.

Example 2: Residential Chain Saws in the South Coast Air Basin

SORE2020 estimates 900k+ residential chain saws in the SCAB running 18 hours/year each. 18 hours/year is nearly 4 TIMES more than CARB's prior modeling assumptions (OFFROAD2007, 4.9 hours/year). This annual residential use assumption is unreasonable regardless of the region, but it is again preposterous when considering the estimated number of chain saws in use and typical property size and number of trees per property in the SCAB, as well as the SCAB's climate and CARB's estimated annual wood combustion.

Conservatively assuming a chain saw can produce 1 cord of firewood size logs in 2 hours of runtime, again comparing SORE2020 estimated population and annual runtime versus and CARB's 2015 wood combustion inventory report, SORE2020 predicts California residents cut more than 12 MILLION TONS of wood annually – 100 TIMES more wood than they consume. In the event of tree removal or storm clean-up, 18 hours of chain saw runtime could easily fell, delimb and buck 18 medium- to large-size residential property trees (trees most homeowners would not likely tackle themselves regardless of if they owned a chain saw). A palm tree could be felled and bucked in just minutes of chain saw runtime. The average SCAB resident could clear their lot of every tree 2 or 3 times over EVERY YEAR. (See sample of trees per SCAB property in Figure 2 below.) SORE2020 clearly overestimates residential chain saw uses, especially in SCAB.

Example 3: Residential Lawn Mowers in the South Coast Air Basin

SORE2020 estimates more that 2.2M residential walk-behind lawn mowers in the SCAB run 19 hours/year each. Estimating 25 uses per year, SORE2020 assumes an average runtime of 46 minutes/use. SORE2020's estimated RWBM runtime per use is more than 3

[9] Residential_Wood_Combustion_Draft_Methodology_CARB.pdf

times that of CARB's 2001 in-use data collection survey 14 minute/use average, and more than 50% greater than CARB's 2012 residential survey (29.2 minutes/use). SORE2020's RWBM 19 hour/year annual runtime is an increase of almost 25% versus the previous model.

The average California residential property is just 0.19 acres (8327 square feet), with the average Los Angeles-Long Beach-Anaheim, CA plot size just 7212 square feet.[10] The average California home is approximately 1860 square feet[11] with 80% of homes having garages or carports.[12] With more than 1M pools, California ranks 2nd to only Florida in this category[13], with 15-20% of SCAB households having pools[14]. Considering driveways, sidewalks and walkways, and patios, California properties have little room for grass-covered (mowable) real estate. Additional data suggests the Southern California ratio of residential plot size to home size continues to decrease[15], meaning landscapable areas are getting even smaller – yet SORE2020 suggests significantly increased use in almost every residential lawn and garden equipment category since 2001 and 2012, including RWBMs.

Review of Zillow and GoogleMaps for more a dozen randomly selected "average" sized residential plots and homes suggest a reasonable grass surface area ("mowable") assumption for SCAB homes could be 2000-2100 square feet. Generously assuming an average of 2500 square feet of mowable grass per yard, at an average mowing speed of 2.0 mph (average walking speed 2-3mph[16]), a typical 21" RWBM cutting width and a 50% mowing efficiency factor (to account for cutting overlap and turnaround times), collectively a 0.21 acre/hour mowing rate, the average SCAB lawn should take no more than 17 minutes – similar to CARB's 2001 in-use survey result of 14 minutes/use. However, SORE2020 is nearly 3x that (46 minutes/use). Considering this mathematical approach, combined with CARB's 2001 in-use data, it is likely SORE2020 overestimates SCAB RWBM emissions by nearly 3x. See Figure 2 below and ANNEX A.

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[10] https://www.angi.com/articles/lot-size-index.htm

[11] https://www.fool.com/the-ascent/mortgages/articles/how-big-is-your-home-here-is-the-average-home-size-by-state/

[12] https://insideevs.com/news/627379/us-share-housing-units-garage-carport/#:~:text=The%20Department%20of%20Energy%20(DOE,had%20a%20garage%20or%20carport

[13] https://www.rubyhome.com/blog/swimming-pool-stats/

[14] https://www.aquamagazine.com/builder/article/15279816/which-us-cities-have-the-most-homes-with-swimming-pools

[15] https://www.storagecafe.com/blog/lot-size-home-size-in-top-20-biggest-us-cities/

[16] https://www.medicalnewstoday.com/articles/average-walking-speed#average-speed-by-age

Address	Living (ft^2)	Property Size (ft^2)	Lawn (ft^2) "Mowable" Front	Back	Total	Acre	%Mowable	Dwellings	Driveway	Garage	Sidewalk/ Walkways	Deck/ Patio	Pool	Est # Trees	Estimated Cutting Time (minutes) 2.0mph, 21" cutting deck, 50% efficiencey 0.21 acre/hr	
CALIFORNIA STATEWIDE AVERAGES (LINKS BELOW)	**1800**	**8327 (0.19 acre)**														
2521 33rd St, Santa Monica, CA 90405	1571	9635	800	2500	3300	0.0758	0.34	2	1CAR	N	Y	N	N	6	21.6	
Zillow – 6042 Delphi St, Los Angeles (Pasadena), CA 90042	1336	9871	300	2500	2800	0.0643	0.28	1	2CAR	N	N	Y	Y	UNK	18.4	
3981 Cedron St, Irvine, CA 92606	1897	8820	600	2000	2600	0.0597	0.29	1	2CAR	2CAR	Y	Y	N	8	17.1	
424 S Gain St, Anaheim, CA 92804	1350	7555	1000	1200	2200	0.0505	0.29	1	2CAR	2CAR	Y	N	N	0	14.4	
1180 N Catalina Ave, Pasadena, CA 91104	1573	10113	750	1500	2250	0.0517	0.22	1	2CAR	2CAR	Y	Y	N	10	14.8	
1544 W 215th St, Torrance CA 90501	1993	6001	600	1500	2100	0.0482	0.35	2	1CAR	1CAR	Y	Y	N	1	13.8	
816 Faysmith Ave, Torrance CA 90503	1907	8928	900	1200	2100	0.0482	0.24	1	2CAR	2CAR	Y	Y	Y	7	13.8	
2272 Orangewood Pl, Pomona, CA 91767	1431	7683	1000	1000	2000	0.0459	0.26	1	2CAR	2CAR	Y	Y	N	0	13.1	
1450 Magnolia Ave, Santa Ana, CA 92707	1573	10113	750	1200	1950	0.0448	0.19	1	2CAR	1CAR	Y	N	N	5	12.8	
2209 West Blvd, Los Angeles CA 90016	1781	6603	800	1000	1800	0.0413	0.27	1	2CAR	1CAR	Y	Y	N	0	11.8	
8954 Kramerwood Pl, Los Angeles CA 90034	1251	5501	1000	600	1600	0.0367	0.29	1	2CAR	1CAR	Y	Y	N	3	10.5	
1634 Goldfield Pl, Pomona, CA 91766	1253	8717	600	1000	1600	0.0367	0.18	1	2CAR	2CAR	Y	Y	N	3	10.5	
2514 Manhattan Beach Blvd, Redondo Beach, CA 90278	1840	7840.8	600	800	1400	0.0321	0.18	1	2CAR	2CAR	Y	Y	N	2	9.2	
1916 W Elm Pl, Anaheim, CA 92804	1794	9147.6	900	0	900	0.0207	0.10	1	2CAR	2CAR	Y	Y	N	5	5.9	
							%		%	%	%	%	%			
AVERAGES	1610.7	8323.5	757.1	1285.7	2042.9	0.0469	0.2498	1.1429	100.0000	85.7143	92.8571	78.5714	14.2857	3.8462		
																CARB SORE2020 48min/mow
EXAMPLE CALCULATIONS																%Difference v. 2.0mph 50% effic.
0.19 ACRE AVG LOT SIZE, 25% MOWABLE CALC		8327			2079.9	0.0477	0.25								13.6	251.8
0.19 ACRE AVG LOT SIZE, 35% MOWABLE CALC		8327			2914.5	0.0669	0.35								19.1	151.1
0.19 ACRE AVG LOT SIZE, 50% MOWABLE CALC		8327			4163.5	0.0956	0.50								27.3	75.8

Figure 2 – Summary of OPEI Zillow and GoogleMaps data for average California SCAB residencies. See ANNEX A for additional details.

Example 4: Snowblowers in the South Coast Air Basin

Despite the region's Mediterranean-like climate, more than 40% of California's statewide snowblower inventory resides in the SCAB. Since 2020 95 out of 99 weather stations across LA, Orange, San Bernadino and Riverside has reported ZERO inches of snow (with only weather stations in the low-population and at high elevations having reported any measurable snowfall.) Despite this, SORE2020 estimates residential and commercial SNOWBLOWERS RUN MORE THAN 29,000 HOURS A YEAR IN THE SCAB. This is not practical.

CONCLUSION

OPEI has repeatedly expressed concerns that CARB SORE2020's emission model relies on inaccurate data and overestimates of the sector's baseline and forecasted exhaust gas and evaporative emissions. In its development of SORE2020 CARB ignored CSU-F cautions about using uncorrected and/or small sample size data. Furthermore CARB put its own data in question closing the SORE2020 report saying "*the need for improvement of future data collection efforts of SORE activity and that accurate, real-world data may be obtained through the use of data logging instrumentation.*"[17] Nevertheless, CARB continues to uses the model to support and defend its SORE rulemaking, its related EPA wavier requests, and its 2022 State Implementation Plan, including SORE reductions forecasted for the South Coast Air Basin through 2037.

SORE2020's errors are plentiful and critical. These comments included just a handful of issues, examples and data-based resolutions. Errors extend beyond SORE lawn-and-garden applications. For example, assuming residential SORE-powered pressure

[17] *2020 Emissions Model for Small Off-Road Engines – SORE2020,* September 2020, pg. 119

washer run 29 hours per year is also unreasonable and results in mischaracterization of the products emissions footprint. OPEI continues to collect data to debate bad assumptions, but data concerns raised by OPEI dating back to 2020 remain largely unresolved.[18] CARB should work to immediately correct the model and/or remove anticipated SORE emissions reductions from the 2022 SIP until a reasonable and stakeholder agreeable model is developed.

OPEI looks forward to collaborating with CARB's modeling team at the soonest possible convenience to address SORE2020's fatal flaws and unfair sector characterization.

Sincerely,

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[18] OPEI CARB Survey Outlier Analysis Summary. See ANNEX B.

ANNEX A

OPEI MOWING TIME ANALYSIS OF RANDOMLY SELECTED SCAB AVERAGE PLOT + HOME SIZE PROPERITIES

Address	Living (ft^2)	Property Size (ft^2)	Lawn (ft^2) "Mowable" Front	Back	Total	Acre	%Mowable	Dwellings	Driveway	Garage	Sidewalk/ Walkways	Deck/ Patio	Pool	Est # Trees	Estimated Cutting Time (minutes) 2.0mph, 21" cutting deck, 50% efficiencey 0.21 acre/hr	
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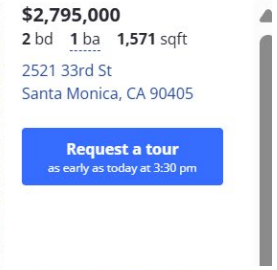
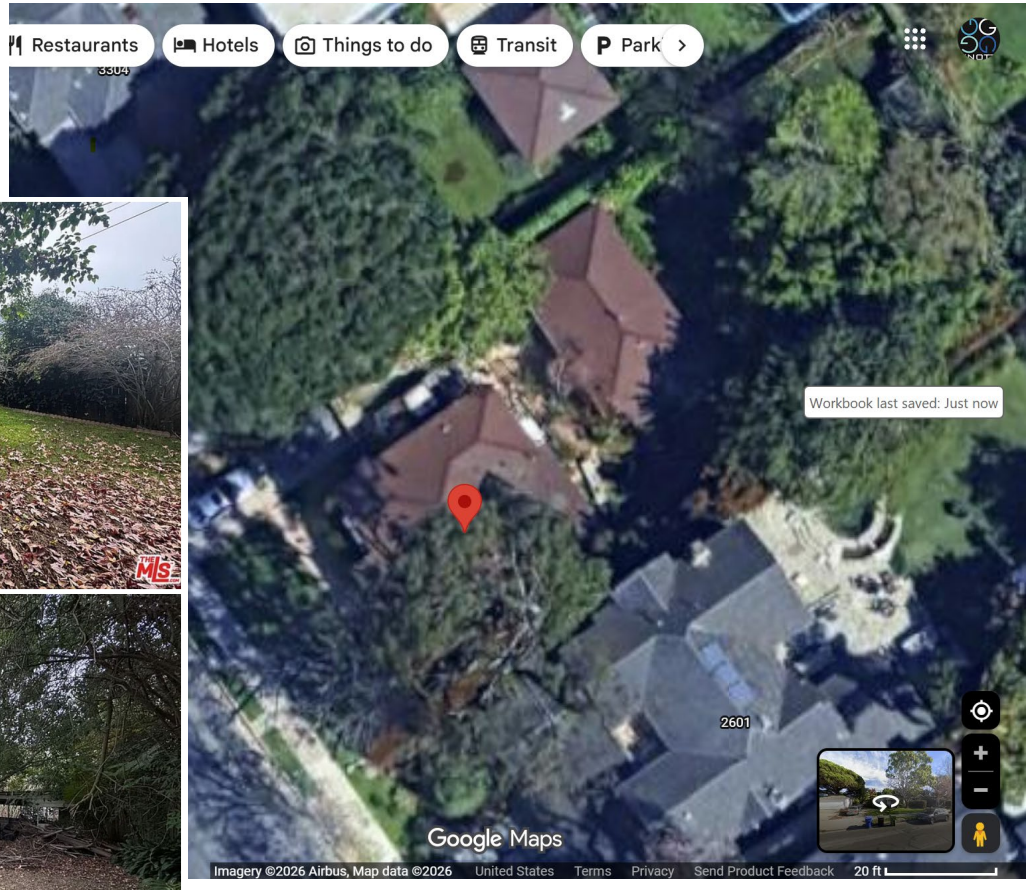
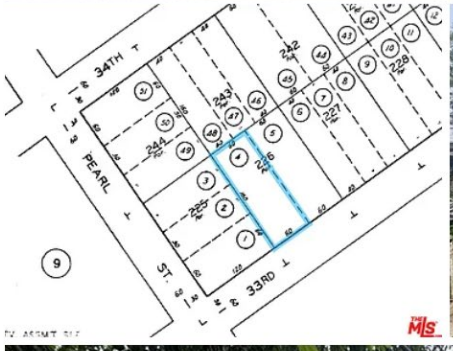
1544 W 215th St, Torrance CA 90501	1993	6001	600	1500	2100	0.0482	0.35	2	1CAR	1CAR	Y	Y	N	1	13.8	
816 Faysmith Ave, Torrance CA 90503	1907	8928	900	1200	2100	0.0482	0.24	1	2CAR	2CAR	Y	Y	Y	7	13.8	
2272 Orangewood Pl, Pomona, CA 91767	1431	7683	1000	1000	2000	0.0459	0.26	1	2CAR	2CAR	Y	Y	N	0	13.1	
1450 Magnolia Ave, Santa Ana, CA 92707	1573	10113	750	1200	1950	0.0448	0.19	1	2CAR	1CAR	Y	N	N	5	12.8	
2209 West Blvd, Los Angeles CA 90016	1781	6603	800	1000	1800	0.0413	0.27	1	2CAR	1CAR	Y	Y	N	0	11.8	
8954 Kramerwood Pl, Los Angeles CA 90034	1251	5501	1000	600	1600	0.0367	0.29	1	2CAR	1CAR	Y	Y	N	3	10.5	
1634 Goldfield Pl, Pomona, CA 91766	1253	8717	600	1000	1600	0.0367	0.18	1	2CAR	2CAR	Y	Y	N	3	10.5	
2514 Manhattan Beach Blvd, Redondo Beach, CA 90278	1840	7840.8	600	800	1400	0.0321	0.18	1	2CAR	2CAR	Y	Y	N	2	9.2	
1916 W Elm Pl, Anaheim, CA 92804	1794	9147.6	900	0	900	0.0207	0.10	1	2CAR	2CAR	Y	Y	N	5	5.9	
									%	%	%	%	%			
AVERAGES	1610.7	8323.5	757.1	1285.7	2042.9	0.0469	0.2498	1.1429	100.0000	85.7143	92.8571	78.5714	14.2857	3.8462		
																CARB SORE2020 48mi
EXAMPLE CALCULATIONS																%Difference v. 2.0mph
0.19 ACRE AVG LOT SIZE, 25% MOWABLE CALC		8327			2079.9	0.0477	0.25								13.6	251.8
0.19 ACRE AVG LOT SIZE, 35% MOWABLE CALC		8327			2914.5	0.0669	0.35								19.1	151.1
0.19 ACRE AVG LOT SIZE, 50% MOWABLE CALC		8327			4163.5	0.0956	0.50								27.3	75.8

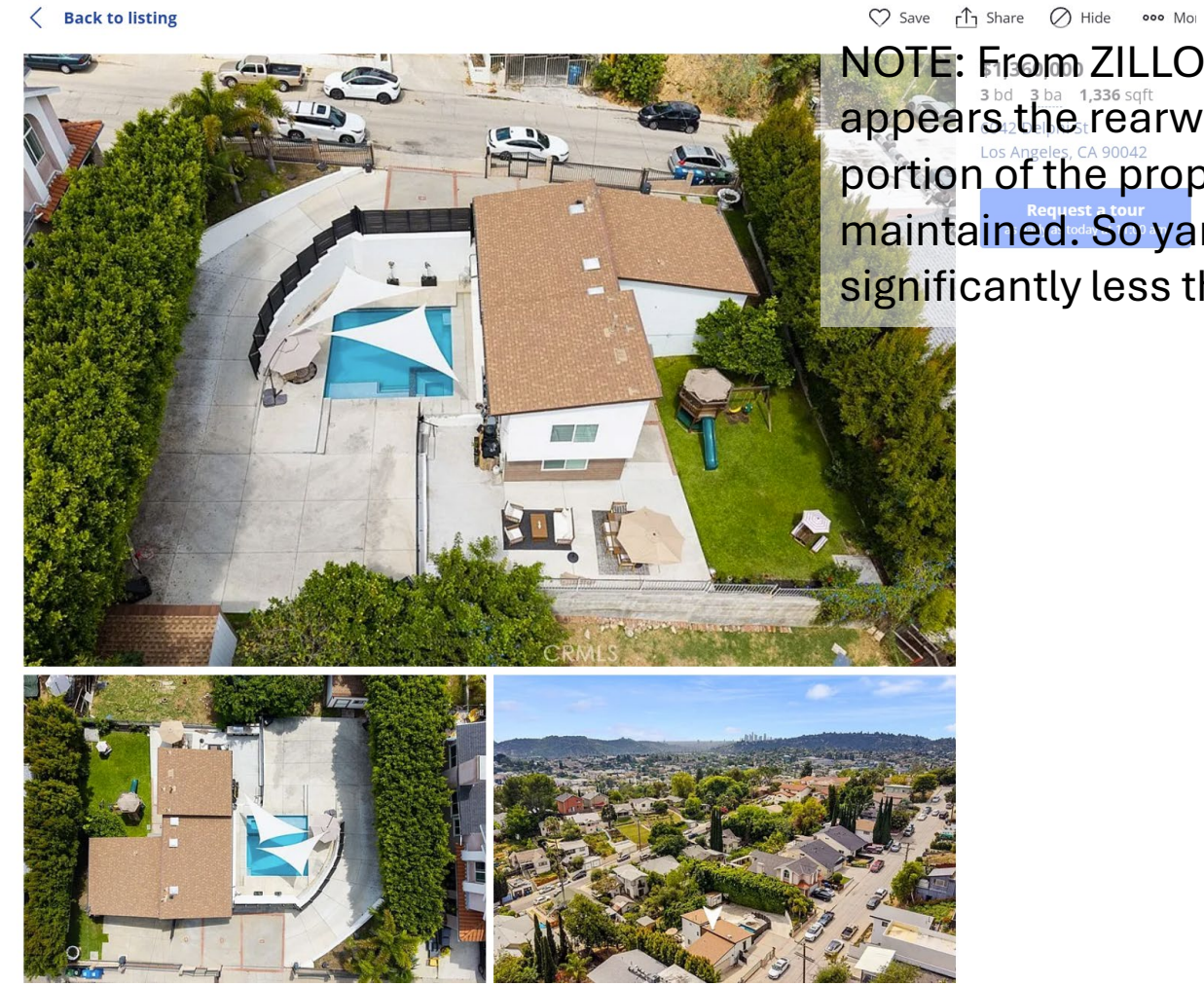
Zillow – 2521 33rd St, Santa Monica, CA 90405
living 1571 ft^2; property 9635.5 ft^2 (0.22 acre)
Estimated lawn size: Front: 800 ft^2 Rear: 2500 ft^2 = 3300 ft^2 (≈ 0.076 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 22 minutes



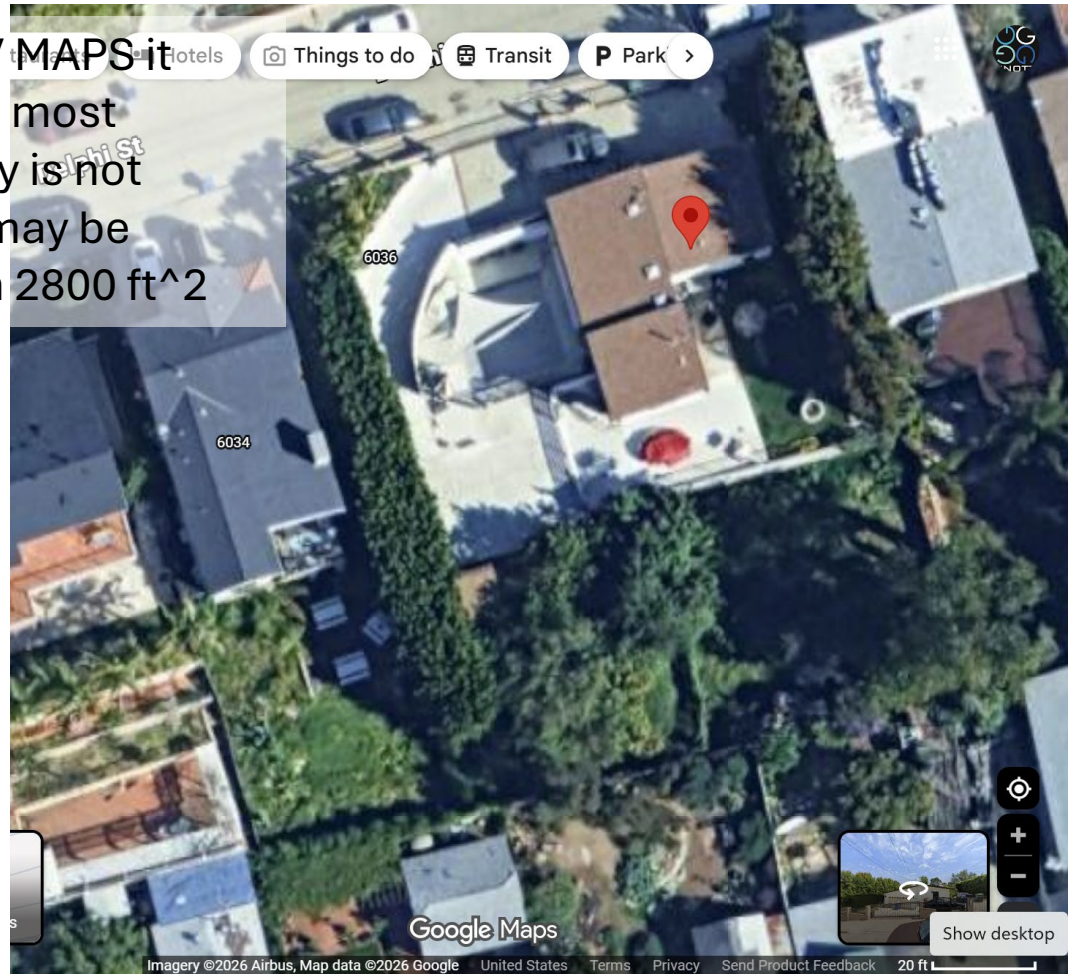




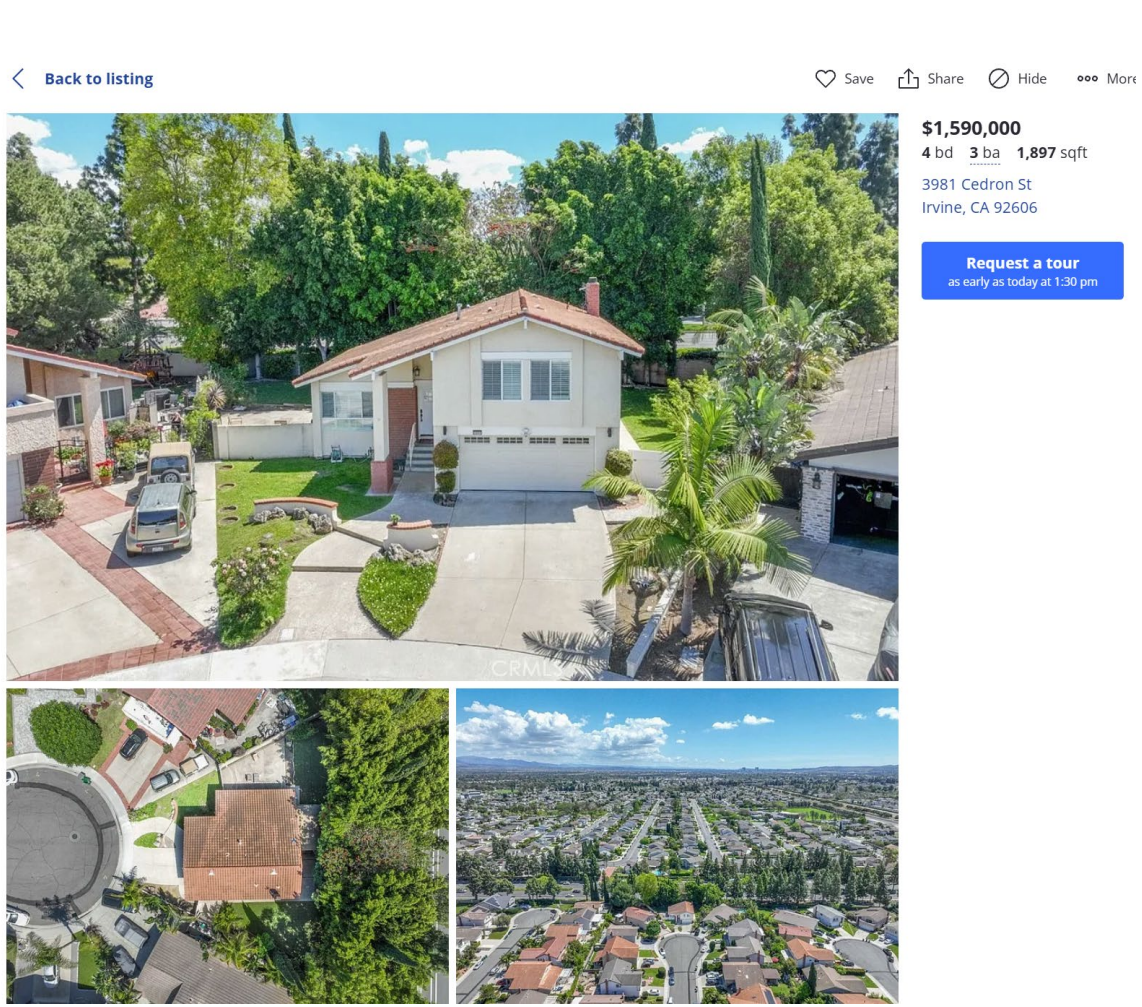
Zillow – 6042 Delphi St, Los Angeles (Pasadena), CA 90042
living 1336 ft^2; property 9871 ft^2 (0.23 acre)
Estimated lawn size: Front: 300 ft^2 Rear: 600- 2500 ft^2 = (max) 2800 ft^2 (≈ 0.064 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 19 minutes

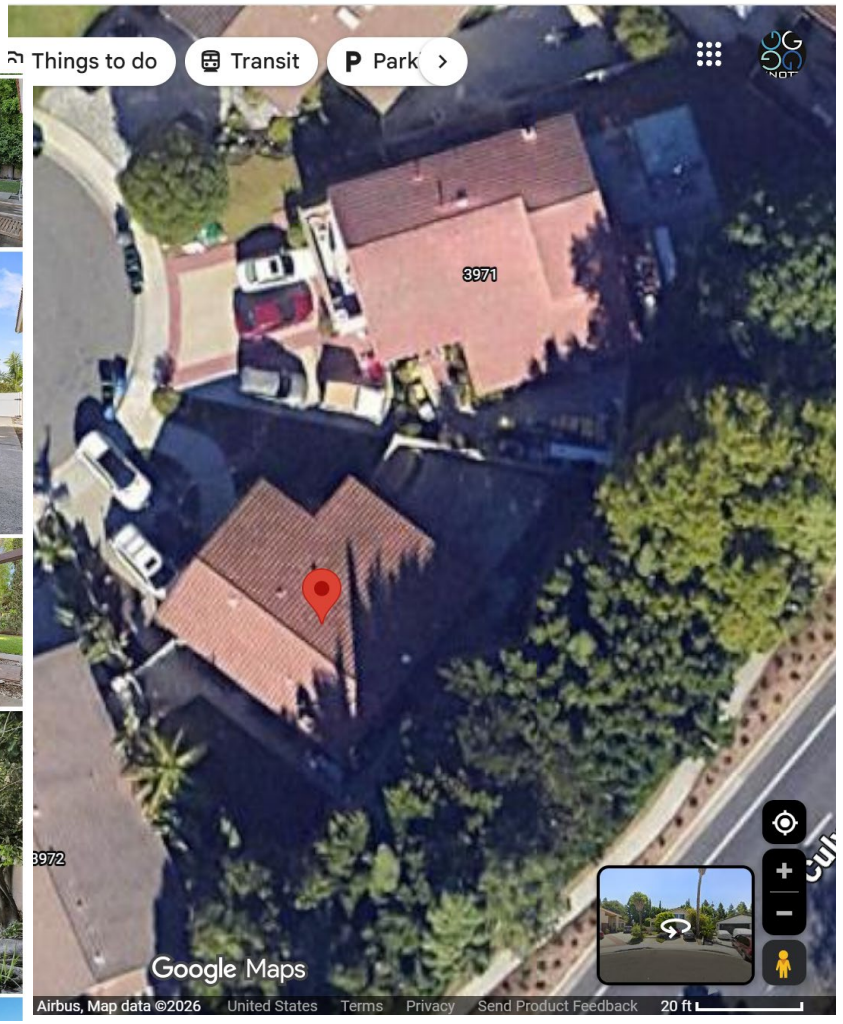


NOTE: From ZILLOW / MAPS it appears the rearward most portion of the property is not maintained. So yard may be significantly less than 2800 ft^2

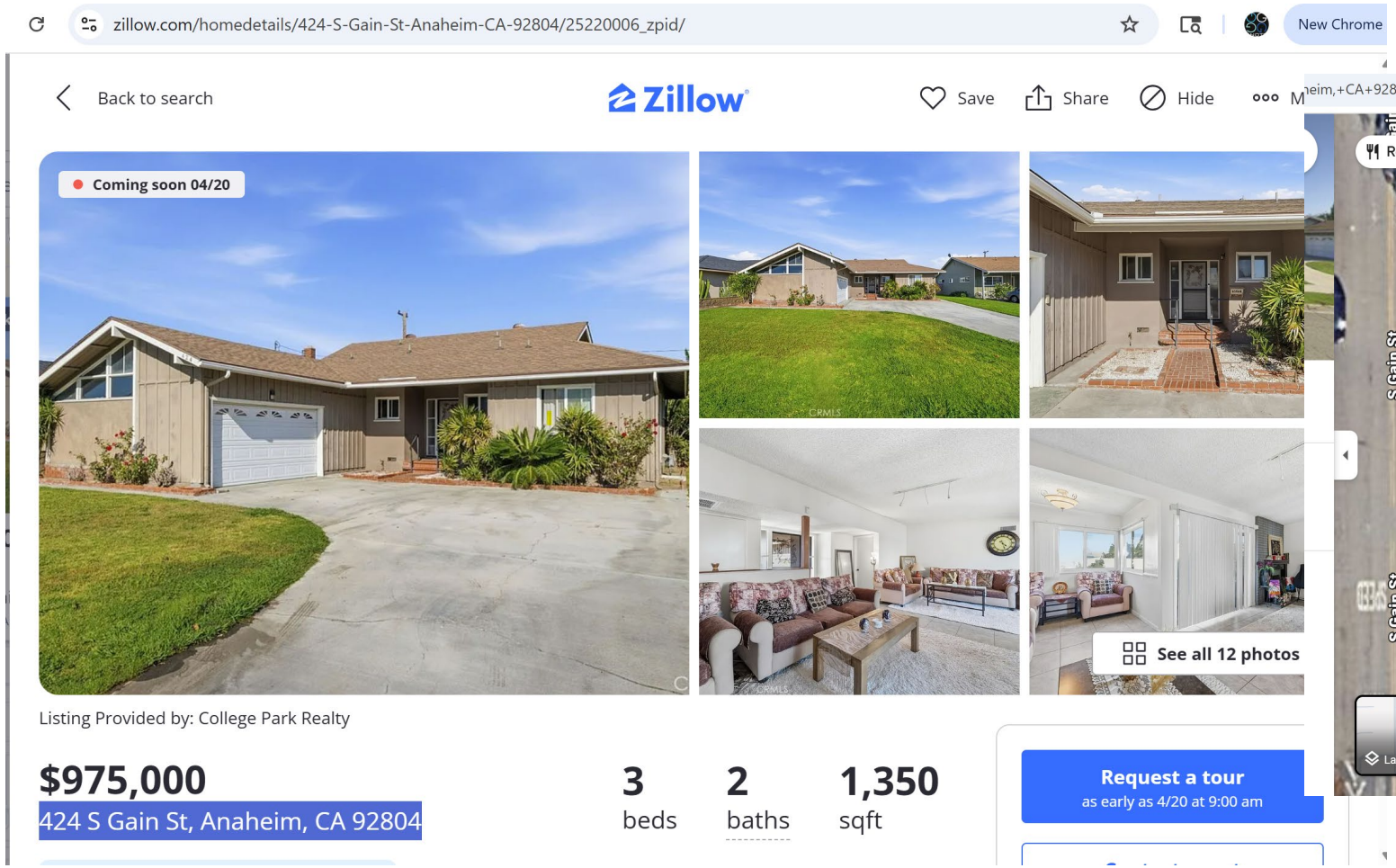


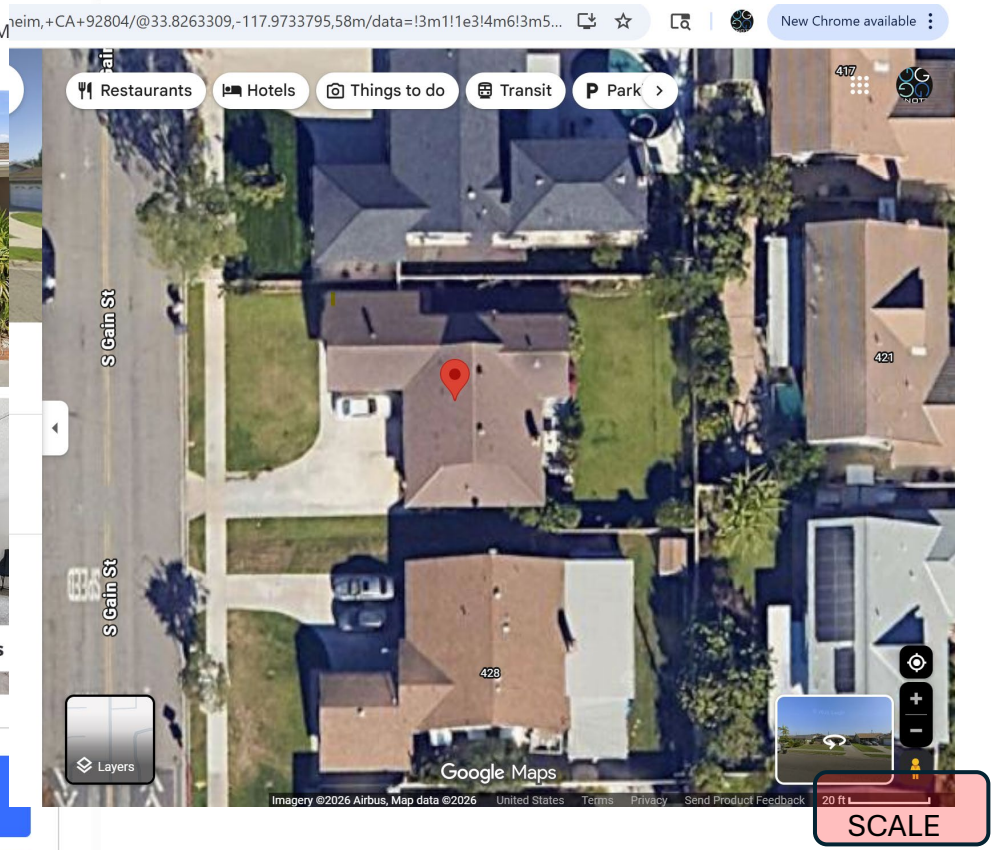
Zillow – 3981 Cedron St, Irvine, CA 92606
living 1897 ft^2; property 8820 ft^2 (0.21 acre)
Estimated lawn size: Front: 600 ft^2 Rear: 2000 ft^2 =2600 ft^2 (≈0.060 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 18 minutes



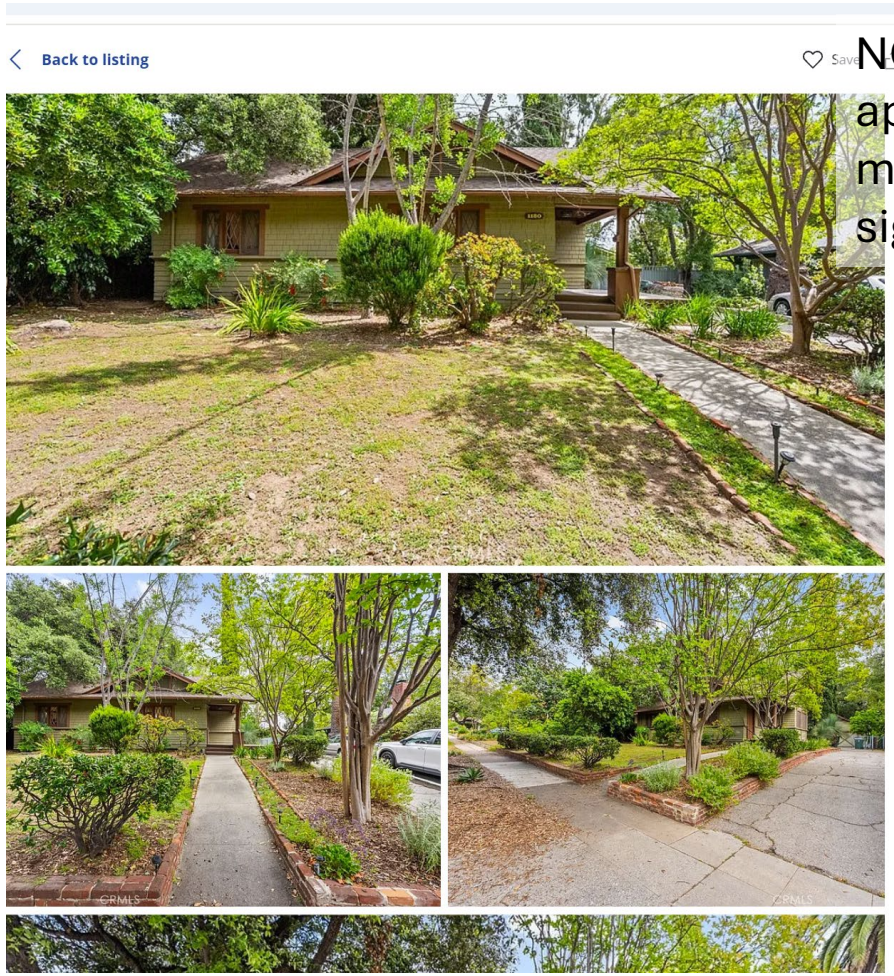


Zillow – 424 S Gain St, Anaheim, CA 92804
living 1350 ft^2; property 7555 ft^2 (0.17 acre)
Estimated lawn size: Front: 1000 ft^2 Rear: 1200 ft^2 =2200 ft^2 (≈ 0.051 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 15 minutes

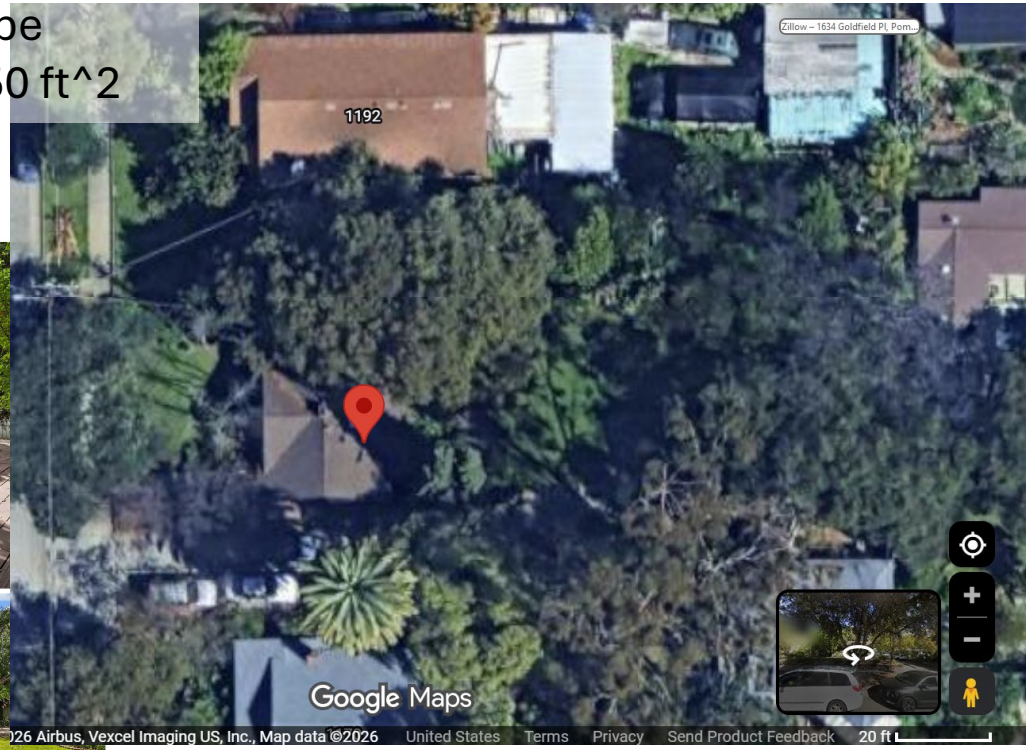




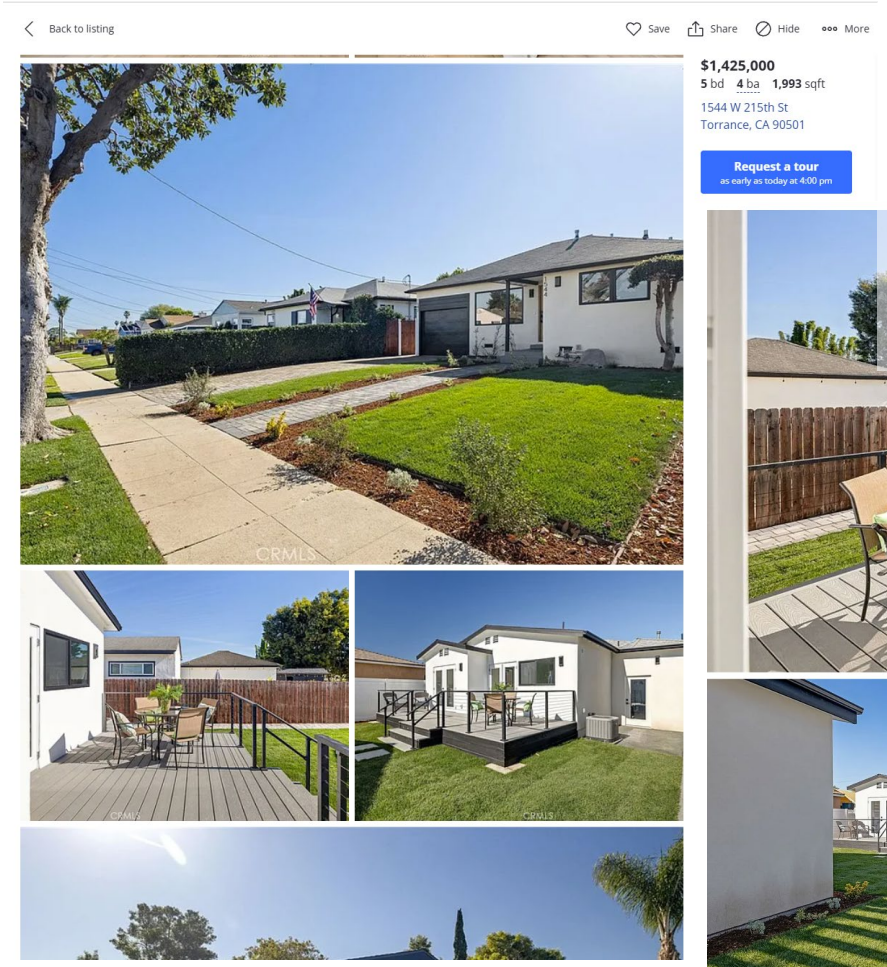
Zillow – 1180 N Catalina Ave, Pasadena, CA 91104
living 1573 ft^2; property 10113 ft^2 (0.23 acre)
Estimated lawn size: Front: 750 ft^2 Rear: 1500ft^2 = 2250 ft^2 (≈ 0.051 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 15 minutes



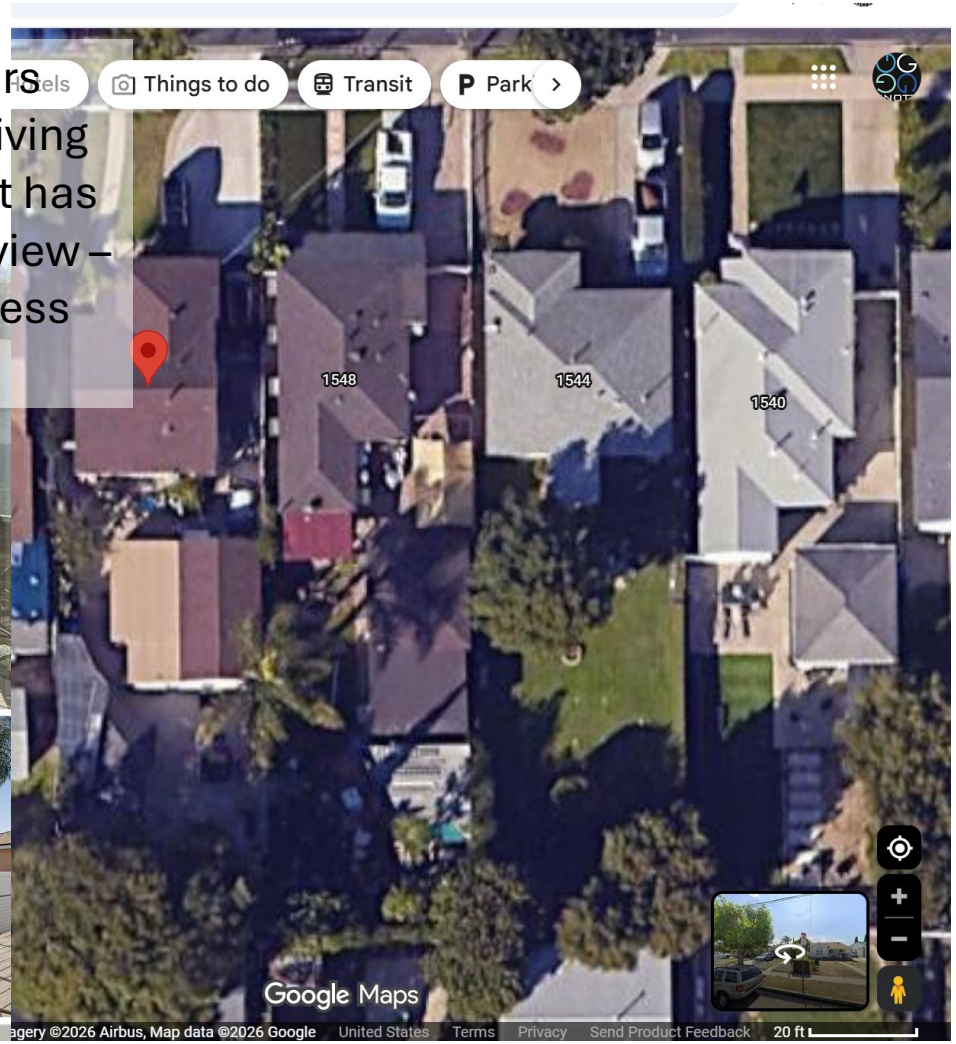
NOTE: From ZILLOW / MAPS it appears the front lawn is not maintained. So yard may be significantly less than 2250 ft^2



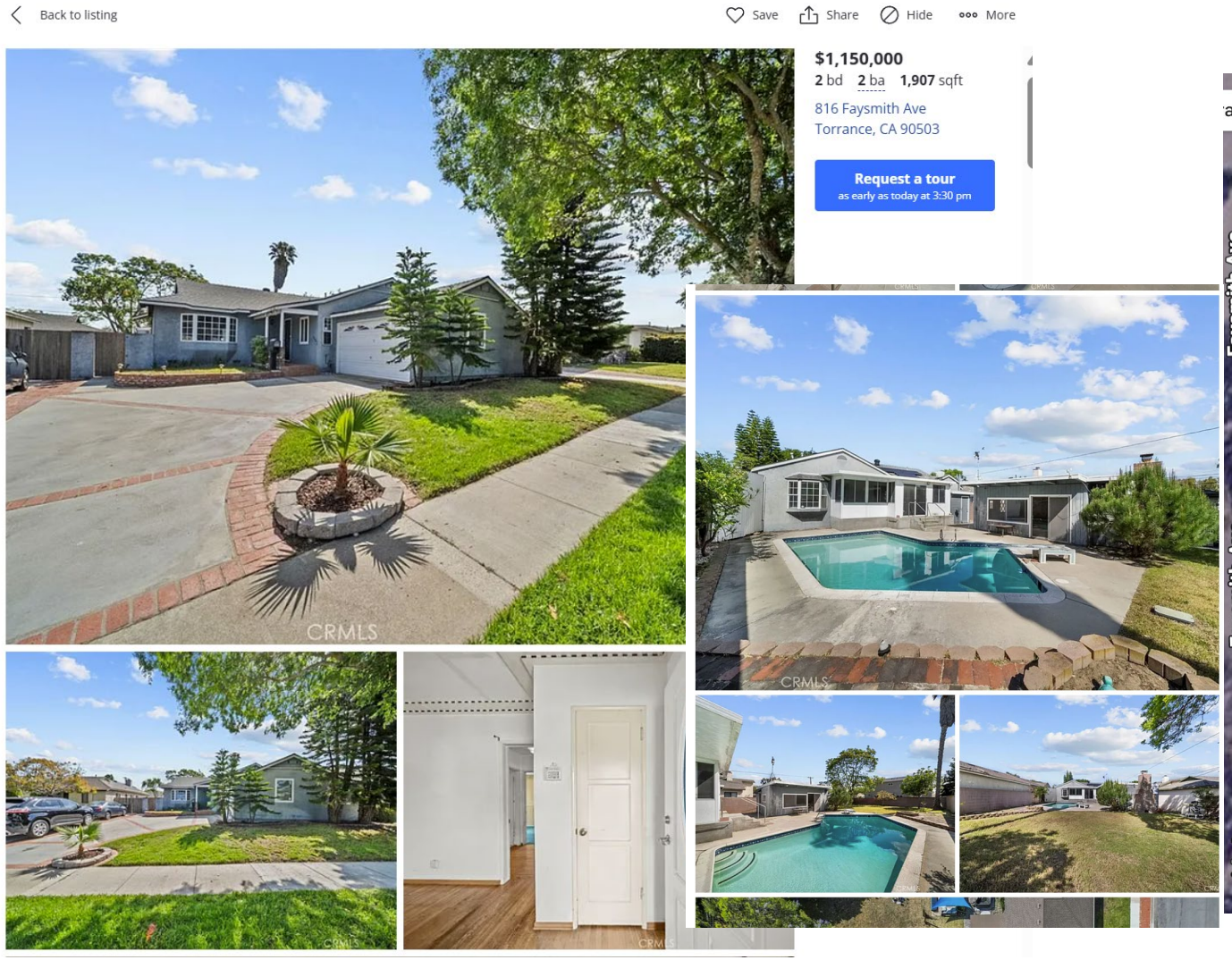
Zillow – 1544 W 215th St, Torrance CA 90501
living 1993 ft^2; property 6001 ft^2 (0.14 acre)
Estimated lawn size: Front: 600 ft^2 Rear: 1500 ft^2 = 2100 ft^2 (≈ 0.048 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 14 minutes

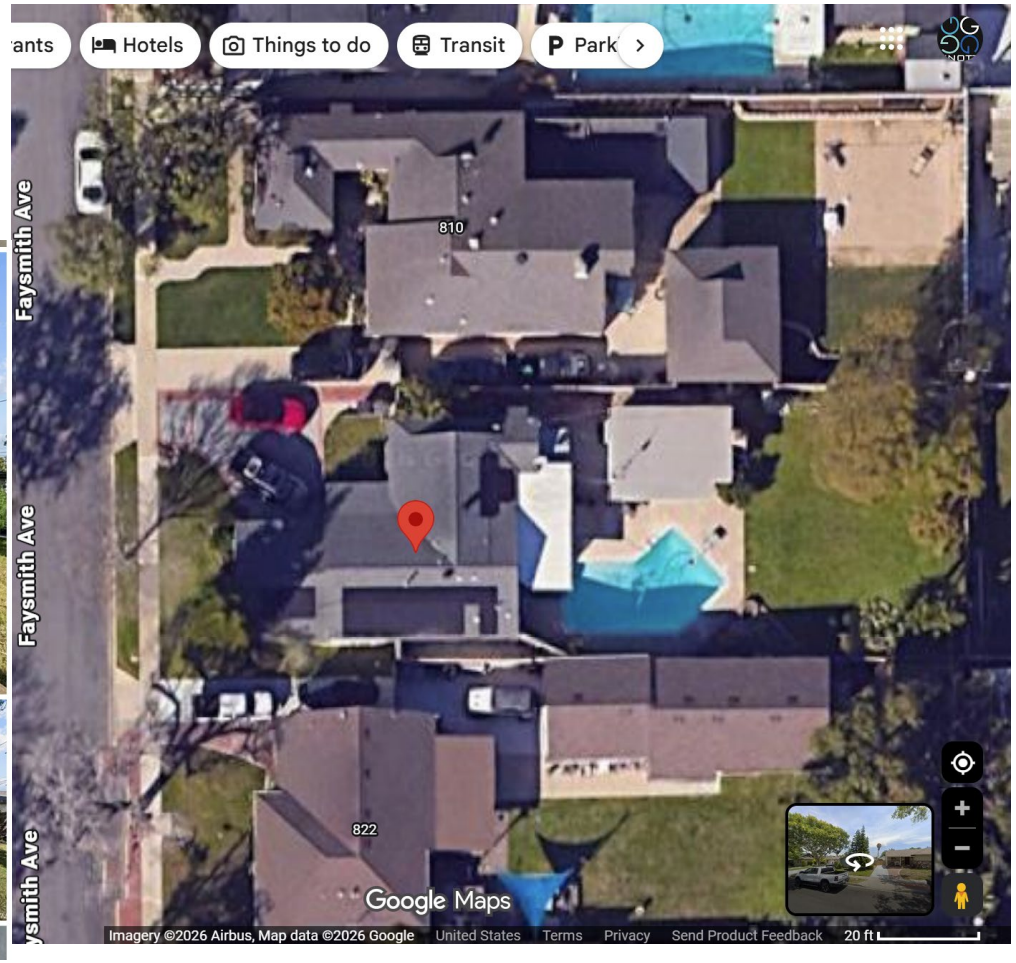


NOTE: From ZILLOW it appears the residence has a second living structure in the backyard that has been added since the maps view – So yard may be significantly less than 1500 ft^2

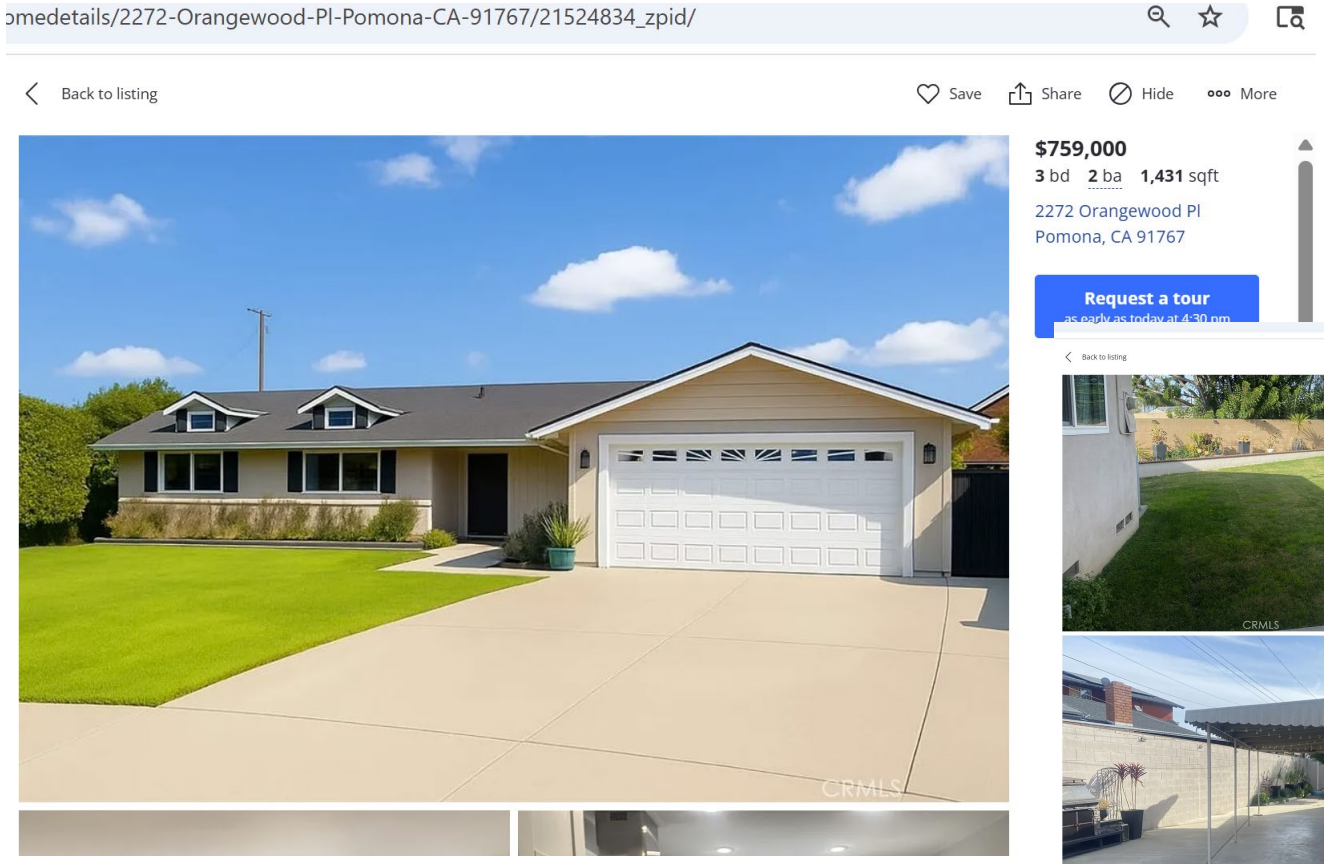


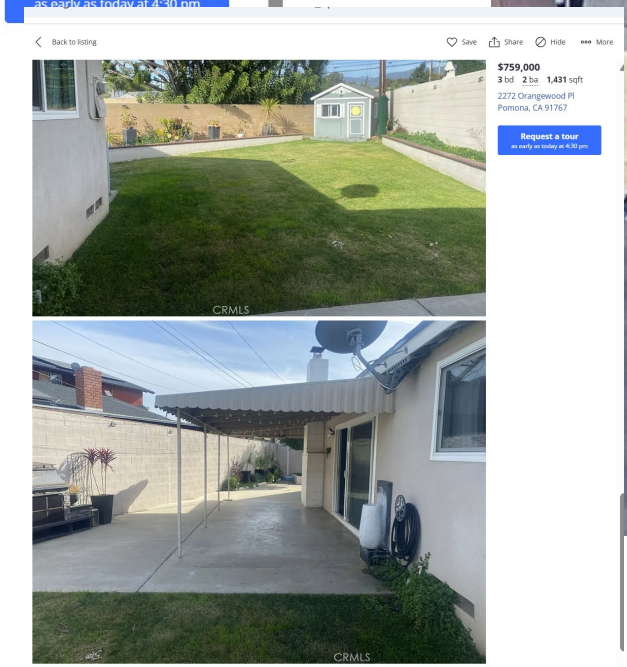
Zillow – 816 Faysmith Ave, Torrance CA 90503
living 1907 ft^2; property 8928 ft^2 (0.20 acre)
Estimated lawn size: Front: 900 ft^2 Rear: 1200 ft^2 = 2100 ft^2 (≈ 0.048 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 14 minutes

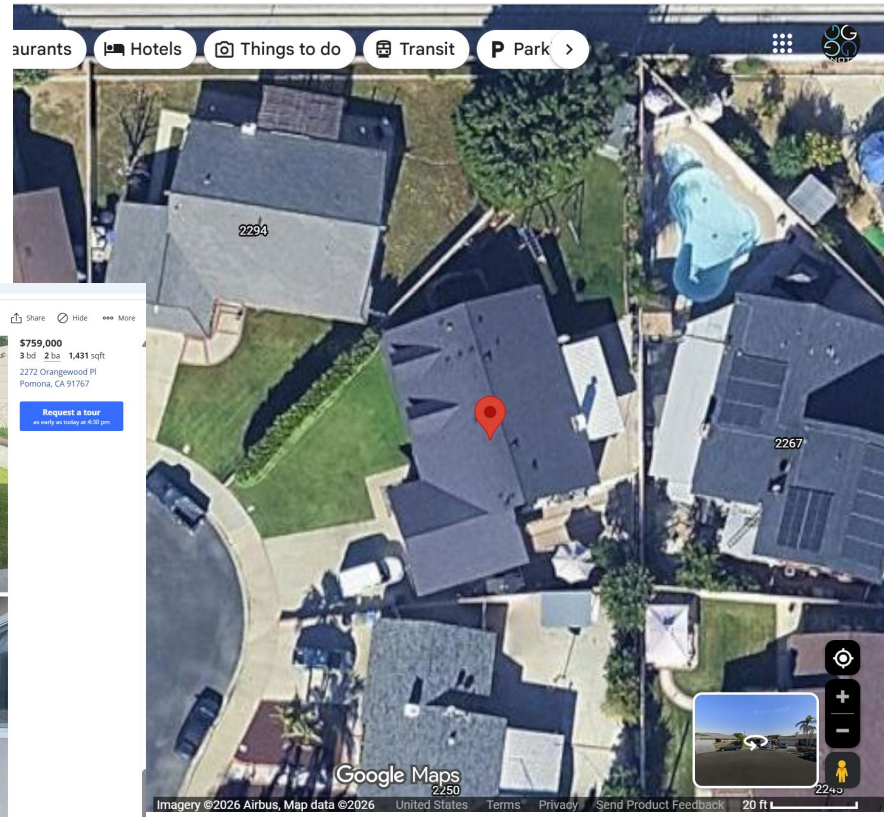




Zillow – 2272 Orangewood Pl, Pomona, CA 91767
living 1431 ft^2; property 7683 ft^2 (0.18 acre)
Estimated lawn size: Front: 1000 ft^2 Rear: 1000 ft^2 = 2000 ft^2 (≈ 0.046 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 14 minutes

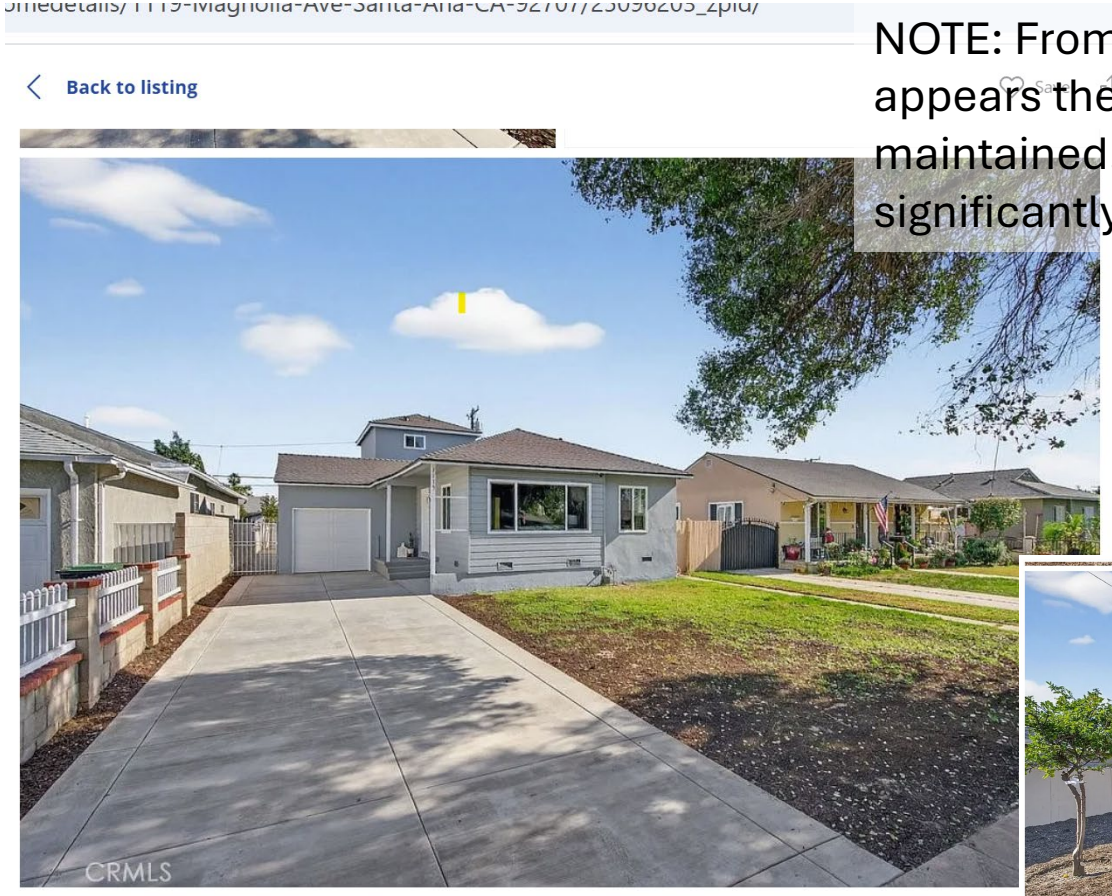


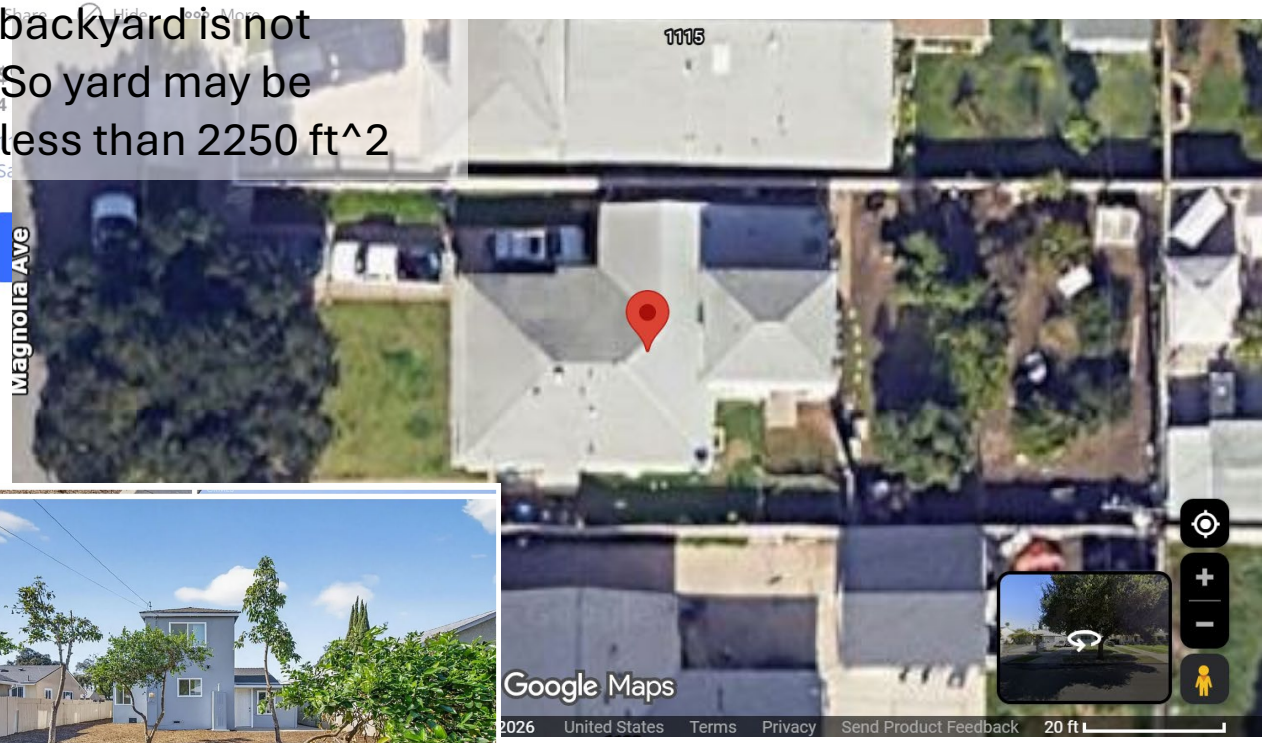




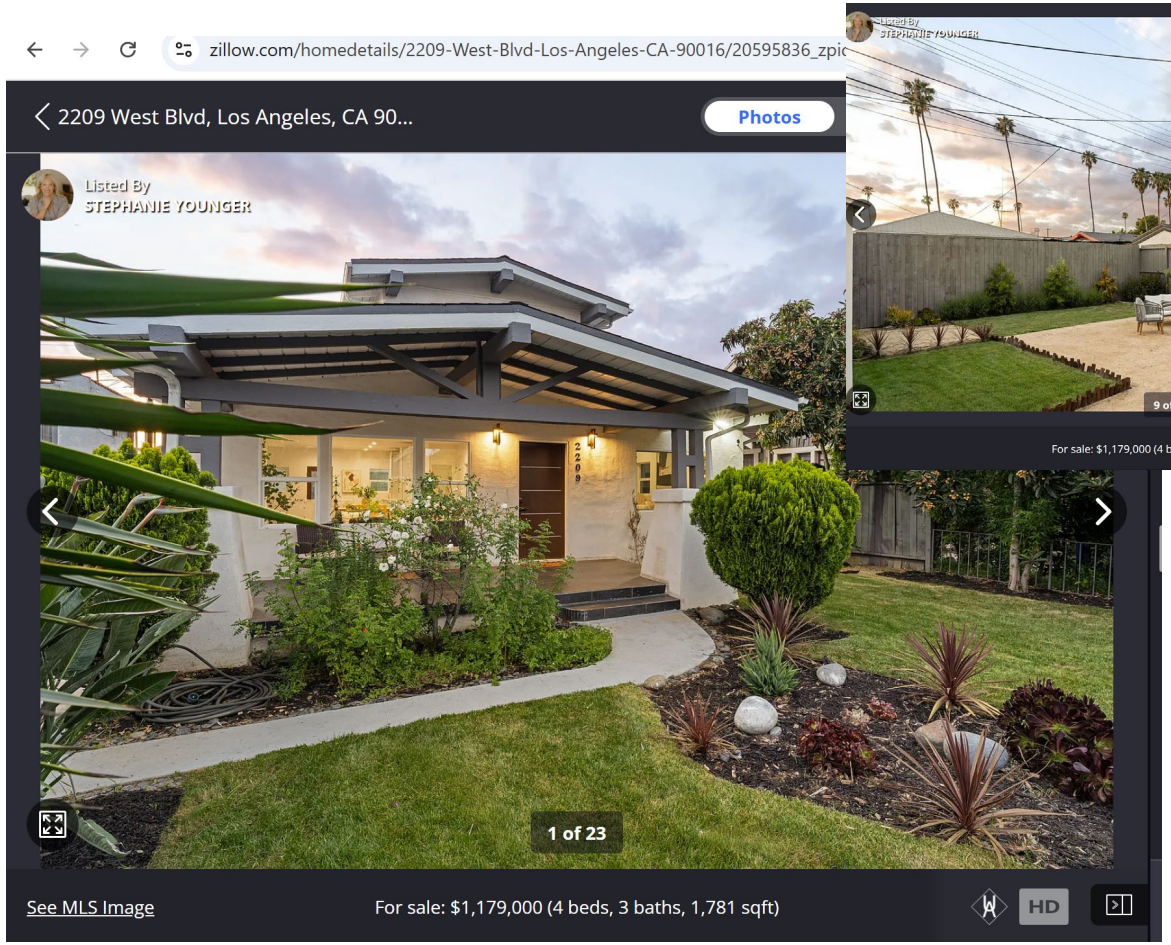
Zillow – 1450 Magnolia Ave, Santa Ana, CA 92707
living 1573 ft^2; property 10113 ft^2 (0.23 acre)
Estimated lawn size: Front: 750 ft^2 Rear: 1200ft^2 = 1950 ft^2 (≈ 0.045 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 13 minutes

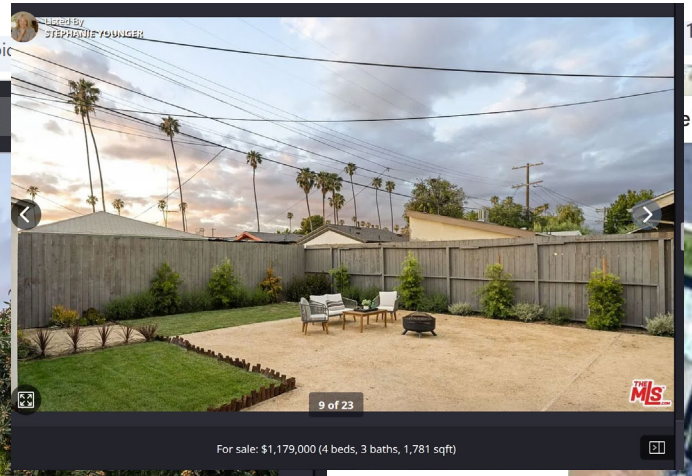
NOTE: From ZILLOW / MAPS it appears the backyard is not maintained. So yard may be significantly less than 2250 ft^2

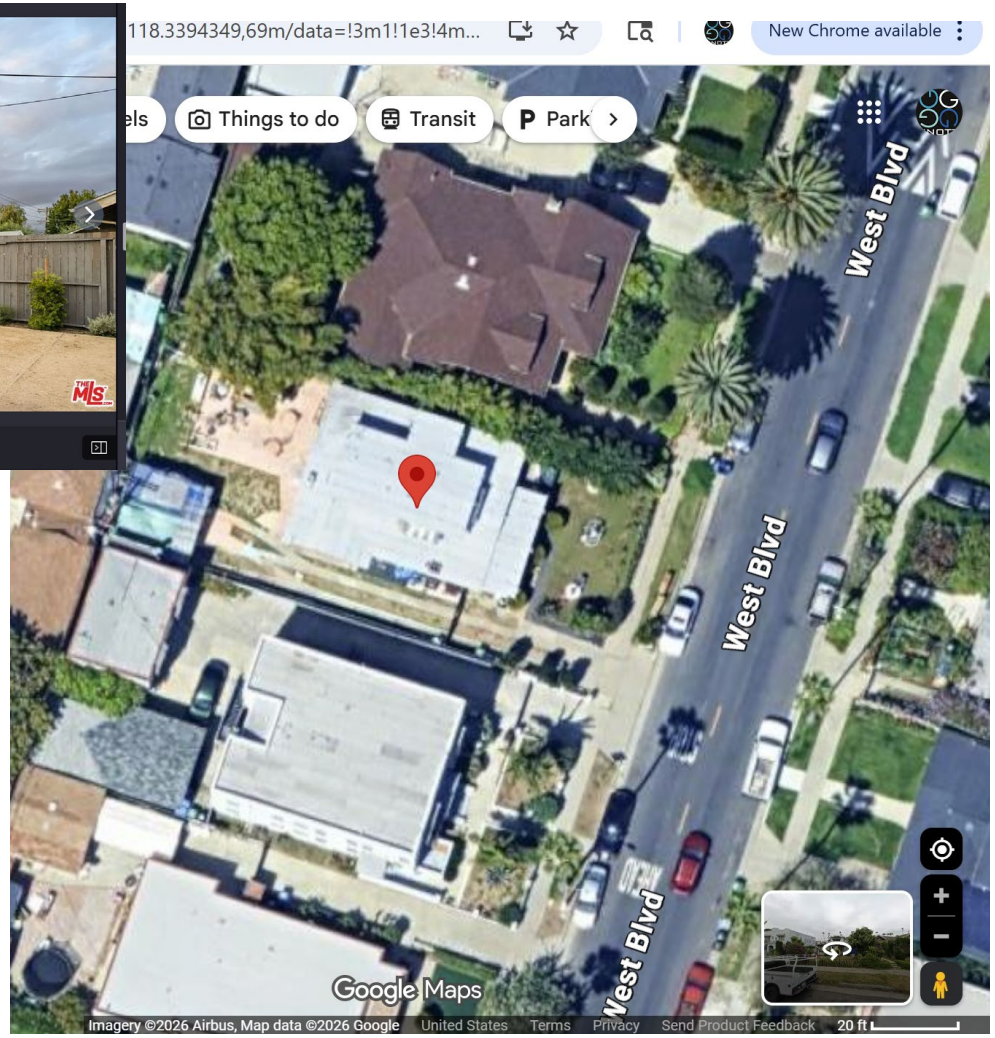




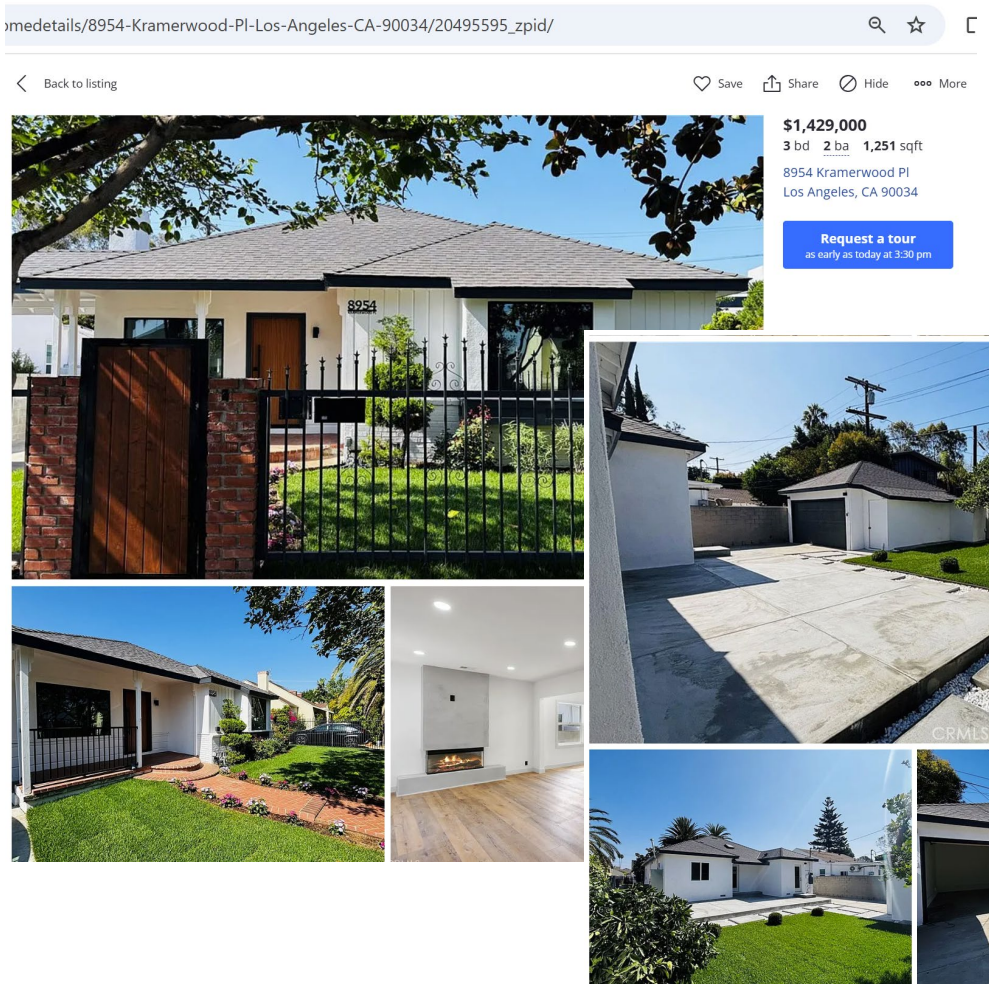
Zillow – 2209 West Blvd, Los Angeles CA 90016
living 1781 ft^2; property 6603 ft^2 (0.15 acre)
Estimated lawn size: Front: 800 ft^2 Rear: 1000 ft^2 = 1800 ft^2 (≈ 0.041 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 12 minutes

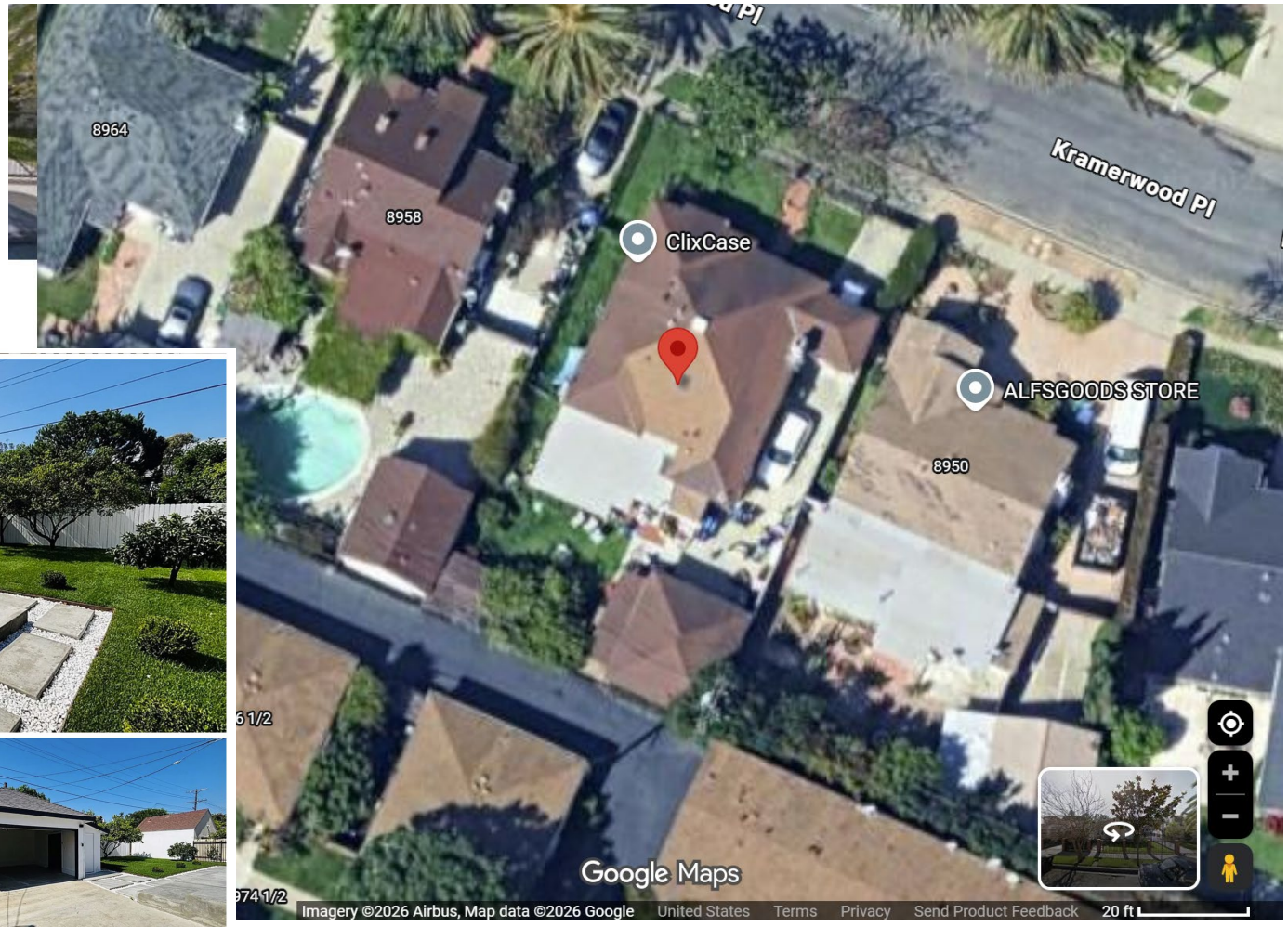




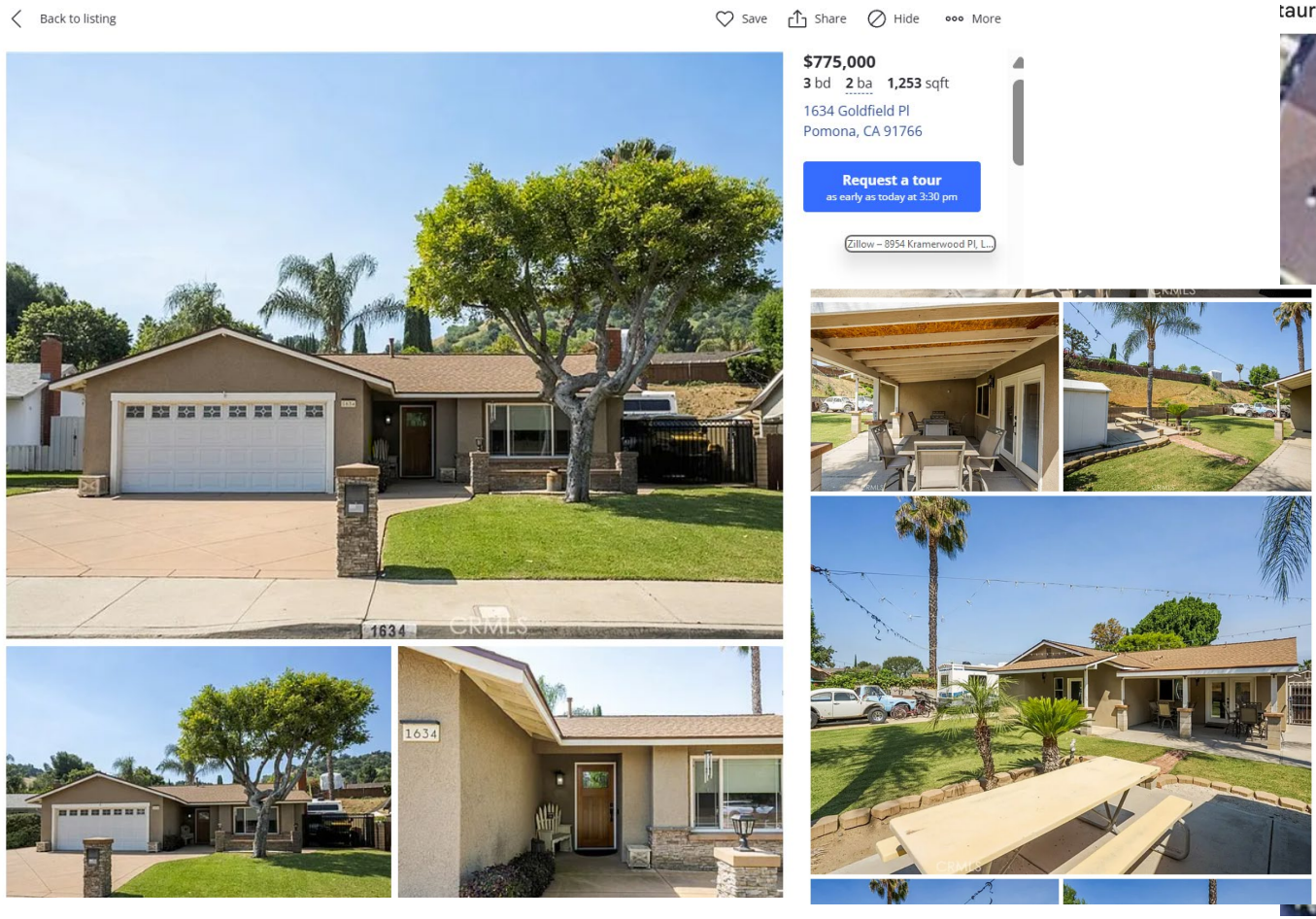


Zillow – 8954 Kramerwood Pl, Los Angeles CA 90034
living 1251 ft^2; property 5501 ft^2 (0.13 acre)
Estimated lawn size: Front: 1000 ft^2 Rear: 600 ft^2 = 1600 ft^2 (≈ 0.037 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 11 minutes

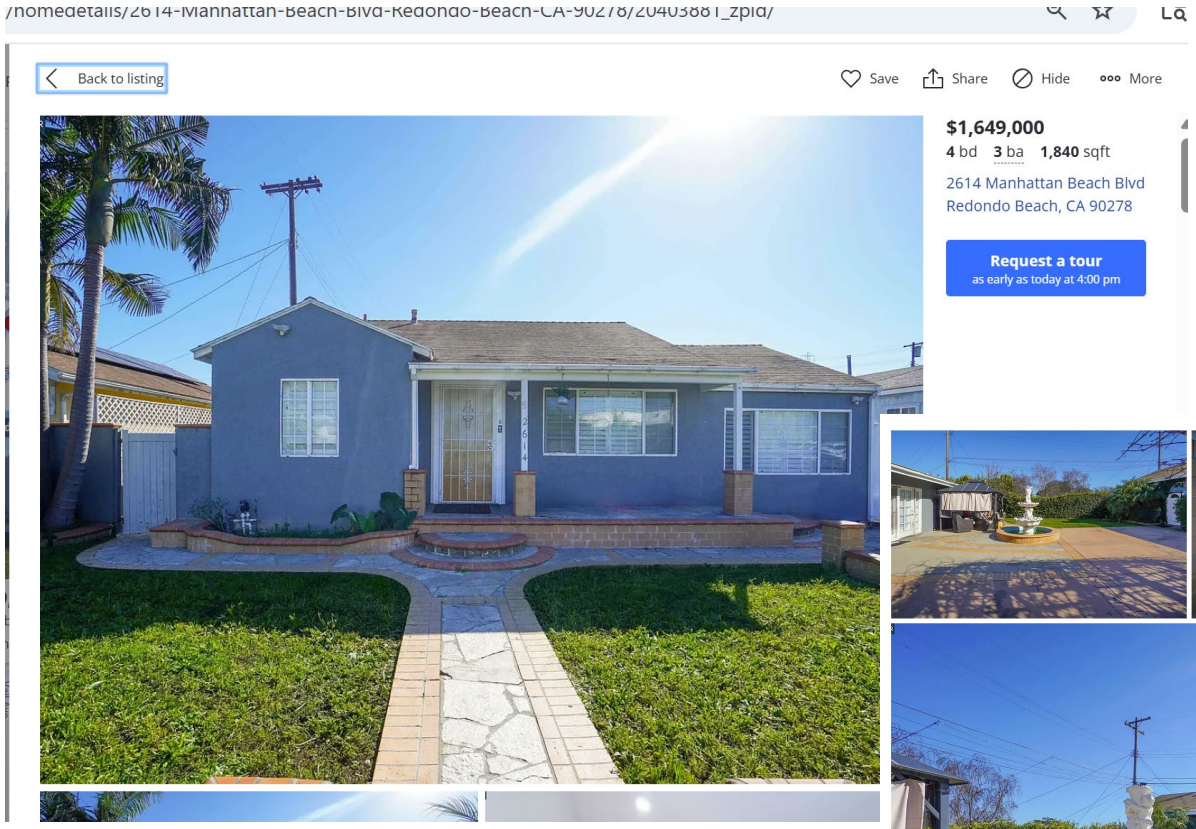


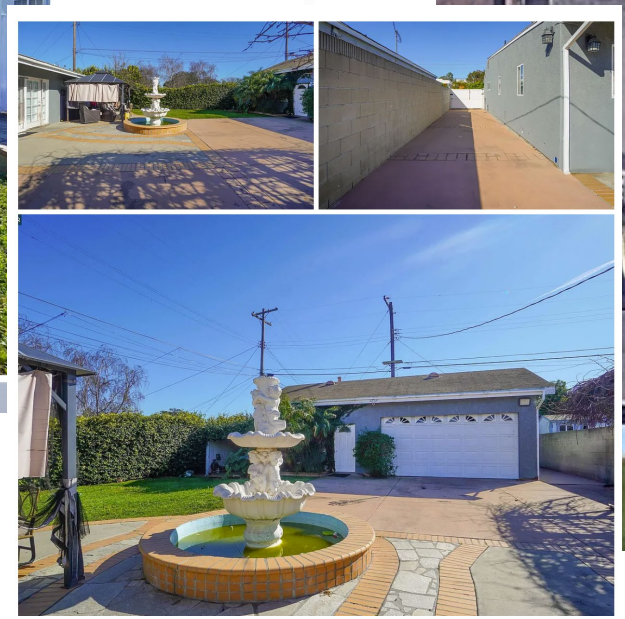


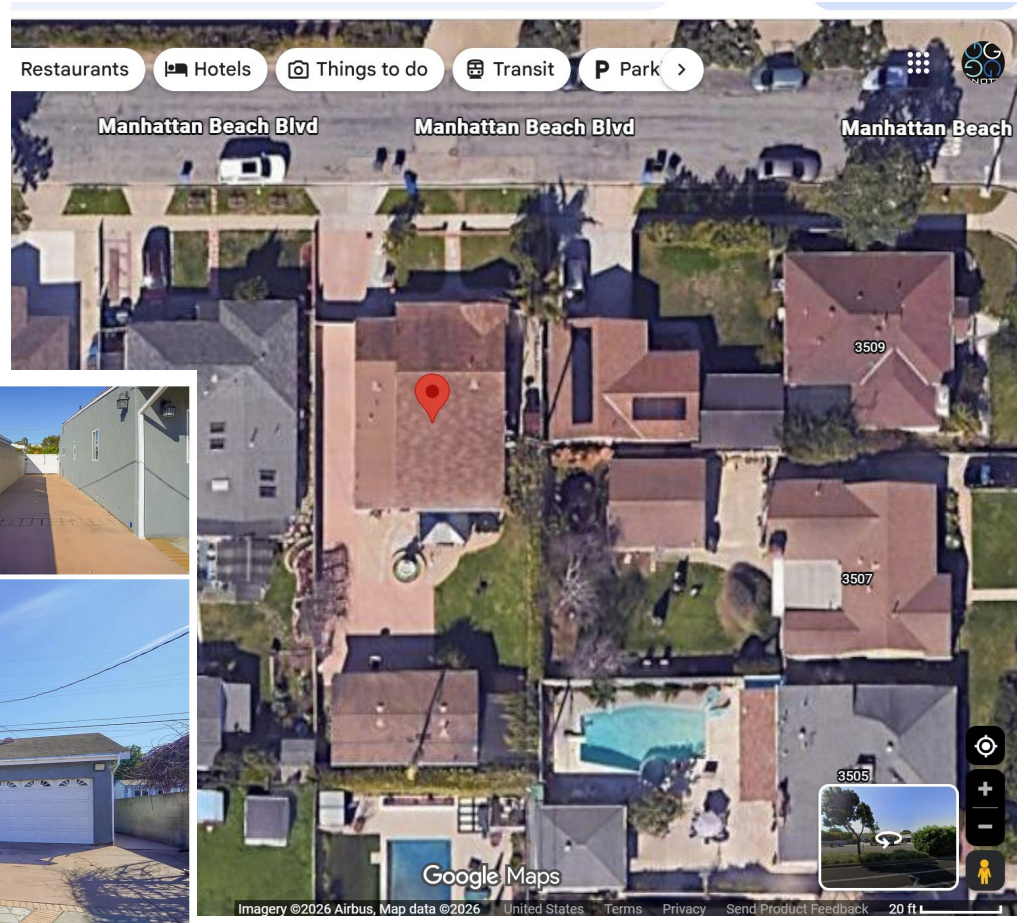
Zillow – 1634 Goldfield Pl, Pomona, CA 91766
living 1253 ft^2; property 8717 ft^2 (0.20 acre)
Estimated lawn size: Front: 600 ft^2 Rear: 1000 ft^2 = 1600 ft^2 (≈ 0.037 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 11 minutes



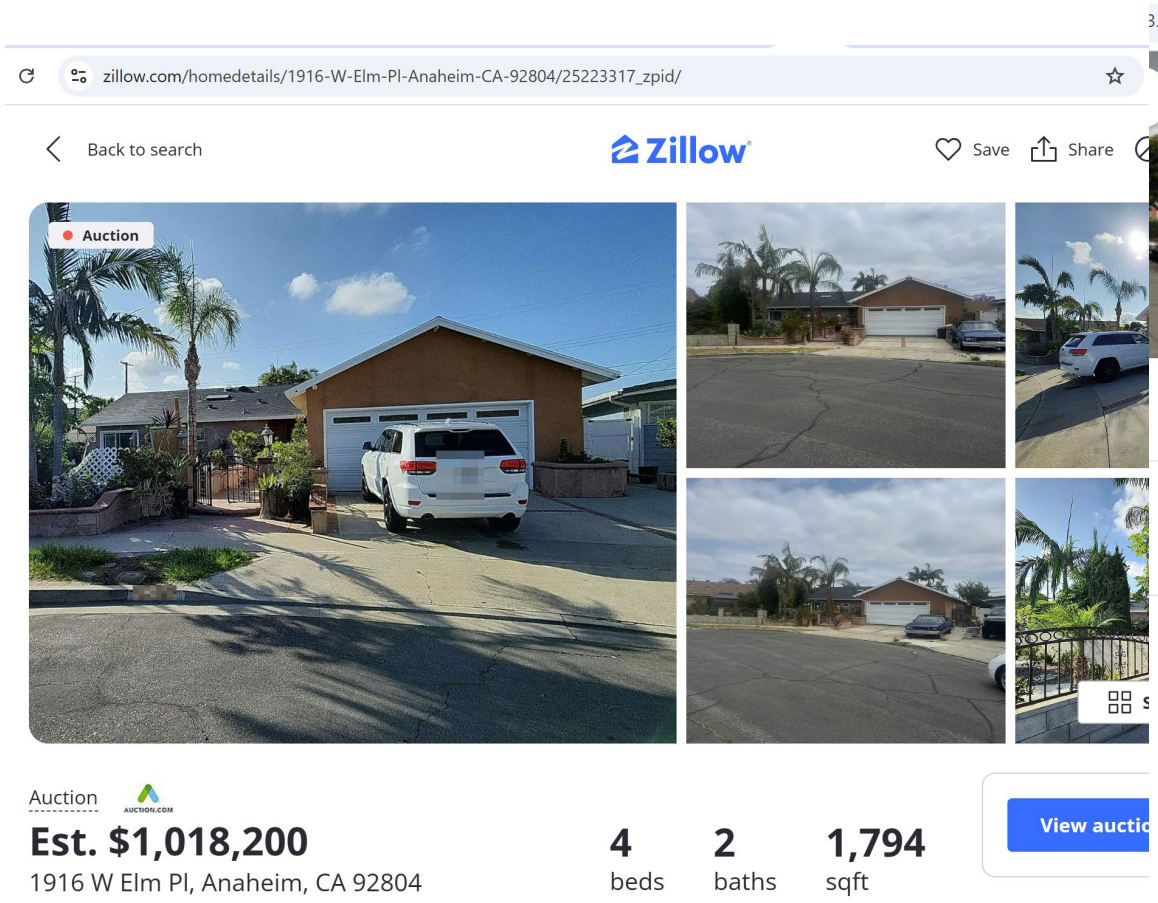
Zillow – 2514 Manhattan Beach Blvd, Redondo Beach, CA 90278
living 1840 ft^2; property 7840.8 ft^2 (0.18 acre)
Estimated lawn size: Front: 600 ft^2 Rear: 800 ft^2 = 1400 ft^2 (≈ 0.032 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 10 minutes

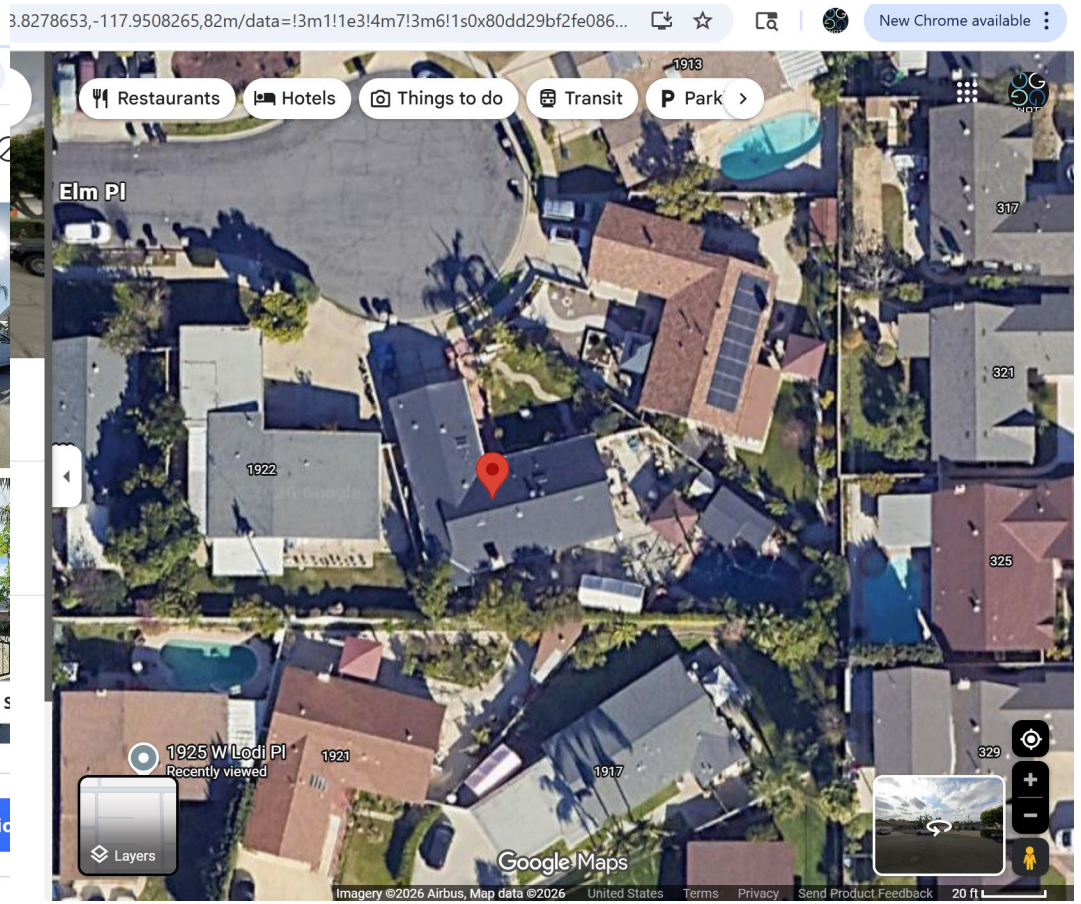






Zillow – 1916 W Elm Pl, Anaheim, CA 92804
living 1794 ft^2; property 9147.6 ft^2 (0.21 acre)
Estimated lawn size: Front: 900 ft^2 Rear: NA (?)=900 ft^2 (≈0.021 acre)
Estimated Cut Time (21” mower, 2.0mph, 50% Efficiency, 0.21 acre/hr) ≈ 6 minutes





KEY
R – Residential
C – Commercial/Business
V – Vendor/Landscaper
- Survey Respondent Number Reference (“R2”); Unit Number (“CS2”)
MR – Male Respondent
FM – Female Respondent
CS – Chainsaw
LM – Lawn Mower
LBV – Leaf Blower / Vacuum
ST – String Trimmer
LT/RM – Lawn Tractor / Riding Mower
COMP – Air Compressor
GEN - Generator
PW – Pressure Washer
PUM – PUM
WELD – Welder
UTV/GC – Utility Vehicle / Golf Car
HR = Hour
YR = Year
YO = Years Old
YELLOW – AMENDED – SEE CARB 2020 Emissions Model for Small Off-Road Engines – SORE2020, Section 4.2 & TABLE J1

IDX	DESCRIPTION	CONCLUSION
RESIDNETIAL AIR IQR + GTK PEER REVIEW		
R3	The MR responses are erratic and unbelievable. The MR utilizes a landscaper and gardener, yet product use time is well above survey averages. The MR initially “refused” to respond or “didn’t know” responses more than 20 times, many times for frequency and duration of use. Considering the full response, Industry suspects much of the dataset responses were unknown or exaggerated. Unfortunately, it is not possible to distinguish what is true or not and as a result Industry has removed the full response. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – After refusing to answer, the MR responded for CS1 and CS2 that the units were operated identically 12-24x/year and both units were used for 2hr/use (2x 18*2hr = 72hr/yr). Industry believes this 36 hr/yr/unit of saw run time is high for residential users. In total the MR reports runningfour chainsaws approximately 80 hr/year. The MR noted that his CS3 was 35 yo and planned to keep the unit for an additional 40 years. Small engine powered equipment that is greater than 30 years old is rare, and expecting to keep equipment for 75 years is not a reasonable or realistic response.	REJECT & REMOVE R3

ANNEX B

OPEI JUNE 2020 CARB SURVEY OUTLIER ANALSYIS SUMMARY

	Lawn Mower Abnormalities – After refusing to answer the frequency and responding "don't know" for time/use, the MR responded operating the LM for "12 HOURS" /use. The MR reported that the unit was 25yo and he was planning to keep for another 10 years. These are not a reasonable or realistic responses. *String Trimmer Abnormalities* – After refusing to answer the ST use, the MR responded that he operated the ST1 for 3hr/use and ST2 for 4hr/use. Industry believes 3 & 4 hr/use of ST run time is high for residential users, especially for units used multiple times per year. The MR also stated that ST2 is 30yo. This is not a reasonable response. *Air Compressor Abnormalities* – When asked about the age and retention of COMP2, the MR responded that the unit was 40yo, and he planned to keep the unit for an additional 30 years. Small engine powered equipment that is greater than 30 years old is rare, and expecting to keep equipment for 70 years is not a reasonable response. *Generator Abnormalities* – When asked the age and retention of GEN2, the MR responded that the unit was 45yo, and he planned to keep the unit for an additional 30 years. Small engine powered equipment that is greater than 30 years old is rare, and expecting to keep equipment for 75 years is not a reasonable response. *Go-cart Abnormalities* – After refusing to answer the go-cart use, the MR stated that the unit was used 12-24x/yr for 3hr/use, that the unit was 60yo, and that he planned to keep the unit for an additional 30 years. Small engine powered equipment that is greater than 30 years old is rare, and expecting to keep equipment for 90 years, is not a reasonable response. *Pump Abnormalities* – After initially refusing to provide the use frequency and duration for four reported pumps, the MR noted that all four pumps were used identically "OVER 100 TIMES A YEAR", with PUM1, PUM2 and PUM3 being used identically for 7hr/use (minimum 700hr/yr x3 units), and PUM4 being used for 12hr/use (total 36,000hrs) and 30 yo. These are not reasonable or realistic responses.	
R11	The FR responded owning and operating four welders, including one rare gas-powered welder, all identical frequency (4-11x/year) and similar minutes/use (WEL1, WEL3 reported as 20mins, and WEL2 and WEL4 reported as 30mins), and that all four welders were identically 6 years old. Industry finds identical responses across each piece of equipment in a category odd. Industry questions whether the respondent considered the use of each unique piece of equipment, or if they owned multiple pieces of equipment to being with. Additionally, the frequency response for WEL1 appears to include multiple data entry errors. The use is recorded as "More than 52 times per year" and specifies just "3 or 4"? Yet, WEL2, WEL3 and WEL4 all are recorded as being used "4 to 11 times per year", with "3 OR FOUR TIMES A YEAR" as the specified answer.	REJECT & REMOVE R11

R20	The interviewer reported "the wording of the survey is very odd and led to confusion between myself and the respondent". The note and responses are confusing seeing as the respondent reports owning and maintaining a lawn, garden or landscaped area, but reports owning no equipment. Industry is concerned the interviewer expressed confusion executing the survey, especially if related to the fundamental early questions. Without knowing the basis for the interviewer's confusion, or if and how it was resolved, the span or impact of the interviewers confusion cannot be determined, and jeopardizes the entire survey. The accuracy of the responses are not reliable.	REJECT & REMOVE R20
R59	The FR responded that she uses the electric-powered air compressor 300x/year for 8hr/use, and that the compressor is 8yo (total 300*8*8 = 19,200hr). This is not a reasonable or realistic response. Oddly, other answers seem reasonable, which raises the question as to whether the COMP1 responses were entered or interpreted correctly by the interviewer.	REMOVE COMP1
R71	The MR responded that he uses the gas-powered welder 2x/week for 6hr/use, and that the welder is 15yo (total 104*6*15 = 9360hrs). This is not a reasonable or realistic response for a residential-use only welder. Oddly, other answers seem reasonable, which raises the question as to whether the WELD1 datapoints were entered or interpreted correctly by the interviewer.	REMOVE WELD1
R91	The FR began the survey before eventually passing the survey to her husband "since he knew more (about the equipment)". This raises Industry concern with accuracy of the answers submitted by the FR. Regardless of who answered, the respondents reported very high annual use on several types of equipment, despite only having two gas cans (1x3gal, 1x5gal) which are refilled twice a month (max 16 gal/month). The uncertainty of the accuracy and reliability of the initial FR, the unusually high number of reported hours on several types of equipment, and lack of correlation between machine run-time and estimated annual fuel use are collectively not reasonable or realistic. Considering the full dataset, Industry suspects much of the dataset was unknown or exaggerated. Unfortunately, it is not possible to distinguish what is true or not. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – The respondent (FR or MR UNK) stated that the gas-powered chainsaw is used 10x/year for 6hr/use (60hr/yr). 6hr run time per use several times per year is not a reasonable or realistic response. Industry questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time), or if the interviewer extrapolated a non-specific response, such as "half the day" for this response. *Leaf Blower Abnormalities* – The respondent (FR or MR UNK) stated that electric leaf blower is used 365x/year for 10min/use (61hr/yr). We believe it is possible the respondent answered "every day", and the interviewer extrapolated the response to 365x/year, however Industry does not believe that a residential leaf blower is actually used 365x/year.	REJECT & REMOVE R91

	String Trimmer Abnormalities – The respondent (FR or MR UNK) stated that gas-powered string trimmer is used 25x/year for 4hr/use (100hr/yr), is 10yo (total 25*4*10 1000hr), and is planning to keep for an additional 20 years (total 3000hr). Industry believes the combined frequency and duration of ST run time is not reasonable or realistic for residential-only use. The response is more peculiar when considering she/he responded they only use their lawnmower 1x/month for 1x/hr. Considering all the information, the use of ST1 is not a reasonable answer. *Air Compressor Abnormalities* – The respondent (FR or MR UNK) stated that gas-powered COMP1 is used 4x/month for 6hr/use (288 hr/yr), and that that compressor is 15yo (total 48*6*15 = 4320hr), planning to keep the unit for another 20 years (total 10,000hr). This is not a reasonable or realistic response for residential-only use air compressor. *Generator Abnormalities* – The respondent (FR or MR UNK) stated that GEN1 is 40yo and plans to keep the unit for another 20 years. Small engine powered equipment that is greater than 30 years old is rare, and expecting to keep equipment for 60 years is not a reasonable response.	
R95	The MR responded that CS2 and GEN2 were not working and no longer in-use. Nevertheless, the interviewer reported that he/she elected to put "don't know" for the use characteristics. The result of the interviewer artificially inflates the average use since the true zero-use/zero-hour datapoints would not have been included in the average calculations. The decision by the interviewer raises great concern about the survey team inappropriately and incorrectly interpreting results. Industry is concerned that such actions, which without survey recordings the span or impact of cannot be determined, jeopardizes the entire survey. CARB corrected to "don't' know to zero hour /use"	CORRECT CS2 AND GEN2 TO 0x/YEAR AND 0HR/USE.
R97	The MR responded that his gas-powered chainsaw is used multiple times a year for 6hr/use. 6hr run time per use several times per year is not a reasonable or realistic response. Industry questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time), or if the interviewer interpreted a non-specific response, such as "half the day" for this response.	REMOVE CS1
R98	The MR responded owning four gas-powered chainsaws, all used identically 5x/year for 2hr/use, with all saws are 3-5yo, and two welders, both used identically 6x/year for 4hr/use. Industry finds identical above average responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each saw and welder, or if they owned multiple pieces of equipment to being with. OPEI believes many of the dataset responses were not appropriately considered.	REJECT & REMOVE R98

R109	The MR, residing in an Apartment, reported to own 4 electric air-compressors that used an identical 5x/mon and 10hr/use, and all 6 or 7yo (total 1x 3600 hours, 2x 4300 hours). The respondent also reported that he owned 2 pumps which he also reported operating identically 5/mon for 45min/use. The interviewers reported that MR "maybe had some trouble understanding some questions or how to answer them" and noted the respondents "(ability) to understand questions?" as "with some difficultly. Foremost, these are not reasonable responses. Industry finds identical, long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist for all categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each piece of equipment, or if they owned multiple pieces of equipment to being with. Optionally, Industry wonders if, due to the difficulty of the MR understanding the questions, the interviewer simply answered the same for additional identical units. When considering the full dataset, and that equipment is used for several thousand hrs/year, Industry believes many of the dataset responses were not appropriately considered, the respondent did not understand the questions, or that the equipment may be used for business purposes.	REJECT & REMOVE R109
R110	The MR is reported using electric PUMP1 365x/year for 24hr/use, for 5 years (total 365*24*5 = 43800). This is not a reasonable or realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable. Industry is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R125	The MR is reported using 2x electric golf car 6x/year 5hr/use and a 3rd electric golf car (new) <4x/year 5hr/use. However, respondent comments note "MR has not used his scooter golf cart yet". First, 5 hr/use (continuous) is unlikely due to charge capacity of electric vehicles an second, the 3rd (new) unit appears to be answering in future speculated tense.	
R145	The interviewer reported that the FR "didn't know much about the equipment, but husband wouldn't take the survey". To that point, the FR reported three rare gas-powered air compressors and originally responded "don't know" for their uses patterns. However, in accordance with interviewer training, the respondent was further probed to guess usage. The FR eventually guessed identical frequencies of 4-11x year for COMP1 and COMP2, and identical time/use of 4hr/use for all three units. Industry finds identical above average responses across every piece of equipment in a category odd. Industry is particularly concerned that the FR appeared to suggest that her husband was better suited to answer the survey, yet when she responded "don't know" the interviewer continued to probe for answers. When considering these factors, Industry is concerned the respondent was not familiar with the surveyed equipment and her responses are not reliable.	REJECT & REMOVE R145

R158	The MR reported using electric UTV/Golf Car 70x/year for 5hr/use for 25 years (total 70*5*25 = 8750hr). This is not a realistic response. Additionally, the respondent using PW1 3hr/use. Industry questions whether the respondent answered estimating the length of all tasks related to using the equipment (vs equipment operation time), and/or if the unit (vehicle) is used for business purposes, and/or if the responses are simply unknown or exaggerated. However, other equipment responses appear reasonable.	REJECT & REMOVE R158
R164	The MR reported that multiple electric compressors were used 7x/week, 8hr/use (2x total 7*52*8 = 2912hr), with COMP2 being 10yo (total 29120hrs). The MR also reported that a welder was used 3x/week for 2hr/use (312hr/yr). Foremost, these are not reasonable or realistic responses. Second, Industry finds identical, long hour/use, responses across every piece of equipment in a category odd. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each piece of equipment, or if they owned multiple pieces of equipment to being with. When considering the full dataset, and that equipment is used for more than 6000 hr/year, Industry believes many of the dataset responses were not appropriately considered, or that the equipment is used for business purposes.	REJECT & REMOVE R164
R167	The interviewer noted at some point into the 13 minutes survey that "(the respondent) was getting very impatient throughout the survey and wanted to hang up. I tired my best to persuade him to say on the line and he told me to say all the equipment he had previously mentioned was broken and refused (to answer other questions)." As a result, "refused" was entered fom 68 responses. Industry is concerned that survey fatigue may resulted in less thoughtful or descriptive responses as the survey proceeded, eventually leading to the respondent just giving up. Additionally, the dataset raises another concern related to interviewer interpretive and selective recordings, seeing as the respondent answered that equipment was broken, and as a result not in use; nevertheless, the interviewer chose to enter that the respondent "refused" to answer questions. Industry is concerned that such actions, which without survey recordings the span or impact of cannot be reviewed, jeopardizes the entire survey.	INCOMPETE SURVEY - REJECT & REMOVE R167
R181	The MR reported to reside in an apartment with abnormally high air compressor use on multiple electric units. The MR reported to use COMP1 2x/week for 8hr/use (832hr/yr) and COMP2 4x/month for 2hr/use (96hr/yr). The MR also reported to use an electric pressure washer 3x/week for 1hr/use (156hr/yr). Industry does not believe these are reasonable responses for residential-only use.	REJECT & REMOVE R181
R192	The FR reported a rare gas-powered air compressor was used 7 days/week for 8hr/use (2912 hr/yr). The FR also reported a rare diesel-powered generator used 7 days/week for 8hr/use. These are not a reasonable or realistic responses. Industry is concerned that the respondent did not understand the questions, seeing as the interviewer reported that the FR was able to understand questions "with a great deal of difficultly".	REJECT & REMOVE R192

	CARB removed air compressor. CARB did *not* remove generator used 7x/week 8hr/use.	
R201	The MR noted pressure washers are used only in the summer, however the response is 1x/week (15min/use).	
R205	The MR reported using a gas-powered chainsaw 52x/year for 2hr/use and a gas-powered string trimmer 5x/year for 6hr/use. 104hr/year for a saw and 6hr/use for a string trimmer are reasonable responses. Industry questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time), or if the interviewer interpreted a non-specific response, such as "half the day" for this response, of if the equipment is used for business purposes. However, it should be noted that use datapoints for other equipment in this response appear reasonable.	REMOVE CS1 AND ST1
R242	The FR is recorded noting "I feel like I'm not the best person to answer these questions because my husband likes tools". Additionally, the interviewer reported that the respondent was able to understand the questions "with some difficulty". Industry is concerned the accuracy of the responses, while minimal, are not reliable.	REJECT & REMOVE R242
R255	The MR reported using two electric compressors 20x/year for 1hr/use. Industry finds identical, above average responses across each piece of equipment in a category odd. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each compressor, or if they owned multiple pieces of equipment to being with.	REJECT & REMOVE R255
R284	The FR reported using one gas-powered chainsaw for 18hr/use and one electric chainsaws for 12hr/use. These are not reasonable or realistic responses. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered similarly for both units, or if the interviewer extrapolated non-specific responses, such as "half the day" or "all day" for these responses.	REJECT & REMOVE R284
R289	The MR reported using two gas-powered chainsaws for very high hours/use. The MR reported CS1 is used 50x/year for 3hr/use and CS2 45x/year for 3hr/use. The combination of frequency and hours are not reasonable or reasonable responses. Industry questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time), or if responses were unknown or exaggerated, or uses the equipment for business purposes.	REJECT & REMOVE R289
R390	The FR is reported using electric PUMP1 7x/week for 6hr/use for 5 year total (7*52*6*5 = 10920hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses. Electric LM1 is also reported at an unrealistic 2hr/use.	REJECT & REMOVE R390
R482	The FR responses are not reasonable. When considering the complete dataset, Industry believes much of the dataset is unknown or exaggerated. It is difficult for Industry to speculate why the dataset is so erratic. It is not clear if the respondent was actually a business, and/or not in good mental health, and/or confusing the time it takes to complete related tasks, and/or	REJECT & REMOVE R482

	was just dishonest, and/or if the interviewer exercised extreme interpretation in combination with probing techniques. While the respondent reports more than 80hr/month of gas-powered product use, she reports filling her 3x5 gal gas cans just once a month. Finally, it should be noted that the respondent resides in Placer County, which averages measurable snowfall November – April. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – The respondent reported using her gas-powered CS1 1x/month for 1hr/use, then gas-powered CS2 for high frequency and hours/use, 6x/month for 1hr/use. CS2 responses are not reasonable or realistic for residential use. *Lawnmower Abnormalities* – The respondent then reported to use her lawnmower 1x/week for 15hr/use for 8 years (total 15*52*8 = 6240hr). This is not a reasonable or realistic number. *Additional L&G Abnormalities* - The respondent reported using a gas-powered LBV 1x/week for 30min/use, a gas-powered string trimmer 1x/week for 1hr/use for 15 years (total 52*15 = 780hrs). Industry concedes, while on the high end, standing with reasonable data the use could considered, however, considering the other high categories, along with the abnormally high number of hours on the aged string trimmer, Industry is concerned these datapoints are also not realistic. *Light Industrial Equipment Abnormalities* – The respondent reported electric pump 7x/week for 2hr/use for 8 years (total 7*52*2*8 = 5824hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. CARB removed only lawnmower used 15 hr/use.	
R514	The MR reported using one chainsaw and an electric compressor in high frequency and for high hours/use. The MR reported using a chainsaw 5x/year for 6hr/use. Industry does not believe that 6hr run time per use is a reasonable response multiple times a year. Industry questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time), or if the interviewer interpreted a non-specific response, such as "half the day" for this response. The respondent also reported COMP1 is used 5x/mon for 6hr/use, and that the unit was 7yo (total 5*12*6*7 = 2520hr). Industry does not believe the COMP1 response is reasonable for residential-only use.	REJECT & REMOVE R514
R518	The MR reported using CS2 for 24hr/use. This is not a reasonable or realistic response. Industry believes that the interviewer extrapolated a non-specific response, such as "all day" or "for a day" for this response. Industry is concerned that such actions, which without survey recordings the span or impact of cannot be determined, jeopardizes the entire survey. CARB removed chainsaw used 24 hr/use, but did *not* remove R659 and R695 both reporting chainsaw 24 hr/use.	REMOVE CS2

R555	The MR responses are not reasonable or realistic. The 65+ bachelor MR responded that he lives in a mobile or modular home with *no* lawn, garden, or landscapable area, yet uses a variety of outdoor power equipment, in excess of 80+ hr/week. The MR initially answered "don't know" 55 times, including for many of the use and age-related questions. However, in accordance with interviewer training, the respondent was further probed to guess usage, consequently guessing unrealistic answers for many use characteristics. When considering the complete dataset, Industry believes much of the dataset is unknown or grossly exaggerated. It is difficult for Industry to speculate why the dataset is so erratic. It is not clear if the MR was actually a business, and/or not in good mental health, and/or misunderstood the survey to be responsive to equipment he has owned over his lifetime, and/or was just dishonest, and/or if the interviewer exercised extreme interpretation in combination with probing techniques. In total, the user, with no lawn or garden are, responded that he used equipment for an unrealistic 130+hr/week, with 80+hrs/week on units that requires a physical operator. Finally, it should be noted that the respondent resides in Shasta County, which averages measurable snowfall November – March. As a result, the use of these products would likely be seasonal. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – The MR reported owning six chainsaws. The MR reported unclear uses for gas-powered CS1 and CS2, reporting that the saws are used "More than 2-3 days" and "COUPLE OF DAYS" per use respectively, then reported 7x/week and 2.5hr/use for both electric CS4 and CS5 (2x 17.5 hr/week, 2x 910 hr/yr) after initially responding that he did not know the use duration. These frequency and operation time are not reasonable or realistic responses for saws. OPEI questions whether the respondent answered estimating the length of all tasks related to using the saw (vs saw operation time). The responses are more peculiar when considering the MR did not know, or reported 0 hr/use for the first three units, then suddenly responded 910 hr/year for units CS4 and CS5. OPEI believes it is unusual for a respondent to list the most common used products fourth and fifth, of six reported products. These are not reasonable responses. *Leaf Blower Abnormalities* – The MR reported not using gas-powered LBV1 (0 x/year), but also reported using the unit 2-3 hr/use after initially responding that he did not know how long he used the product each time. Subsequently, for LBV2, after initially responding that he did not know how often or how long the product was used, he answered 25-51x/year for 2-3hr/use. This high frequency and use/time are not reasonable or realistic answers. The response is more peculiar when considering the MR responded that LBV1 was not used, then suddenly suggests LBV2 is used nearly 100hr/year. These are not reasonable responses. *String Trimmer Abnormalities* – The MR reported using multiple gas-powered and electric string trimmers, one multiple times a month for 2-3 hrs/use after	REJECT & REMOVE R555

	initially responding that he did not know how long he used ST1 and ST2 per use. These are not reasonable responses. *Lawn Tractors / Riding Mowers Abnormalities* – Of the thirteen lawn tractors / riding mowers reported over the 1152 households surveyed, the MR, who owns no lawn or garden area, reported owning three units, two with very high frequency and hr/use. The MR reported using LM/RM1 7x/week for 2-3hr/use and LM/RM2 4x/week for 2.5hr/use after initially responding that he did not know how long he used the units per use. These high frequencies and hr/use are not reasonable or realistic responses. The respondent then reports that LM/RM3 is not used (0hr), but that that it is used for 3-4hr/use. As a result, Industry calculates that this respondent alone increases the average annual use for gas-powered lawn tractors/riding mowers from 146 hr/year to 46 hr/year resulting in 6+ tons/day of excess emissions for riding mowers alone in the CARB SORE2020 model[1] (without consideration of the impact on the population distribution as a result of the small sample size) *Light Industrial Equipment Abnormalities* – The MR reports similar high count, high use/year and high hr/use for several of the light industrial equipment categories surveyed. The MR reports owning four generators, and despite again originally answering "don't know" for several of the use questions, the respondent reports to use GEN1 "SOMETIMES 5MIN, SOMETIMES 6 DAY" and GEN3 50-70x/year for 2-2.5hr/use on an 18yo unit. The respondent reports using gas-powered golf car #1 7x/week for 1-2hr/use after initially answering he did not know, gas golf car #2 1x/week for 1hr/use and electric golf car #3 0x/year, but for 12hr/use. Finally, the MR reported using his electric welder 3x/week "FROM 10 MIN – 2 HR", again despite originally responding "don't know" for the time/use. Collectively, these responses are not reasonable. CARB removed riding mower used 7x/week and changed response of generator from "Sometimes 5MIN, Sometimes 6 DAY" to 2.25 hr/use. No other responses were removed or changed.	
R575	The interviewer reported "she was Russian and very hesitant in answering questions because she doesn't understand much. She rents a home so all of the equipment that she has she didn't know much info about them so she just put no or IDK for most questions". Industry is concerned the accuracy of the responses, while minimal, are not reliable.	REJECT & REMOVE R575
R588	The MR reported using COMP1 2x/month for 5min/use, but COMP2 for 2x/month, 5hr/use. Setting aside our previously stated concerns about duplicative data, Industry is concerned one of the time/use reflects a data entry error. Industry suspects both entries should be the same, especially considering the second reported unit was recorded as being used 60x more that the first reported unit, and the second reported use is unusually high for a residential air compressor used somewhat frequently.	CORRECT COMP2 TO 5MIN/USE

[1] CARB SORE2020 Model, CY2031, Summer Emissions, as provided by CARB to OPEI 4/3/2020.

R592	The FR is reported using electric PUMP1 8x/week for 8hr/use. This is not a realistic number for a pump used comparable to SORE-powered pumps. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses. Gas-powered ST1 is also reported at an unrealistic 4hr/use.	REJECT & REMOVE R592
R594	The MR responses are simply not reasonable ore realistic. The respondent reports near the highest hours/use of all respondents for several categories. The respondent reports identical very high use for multiple categories of equipment. Industry finds identical, long hour/use responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist for all categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, and/or simply answered "same" without considering use time of each product, and/or if they owned multiple pieces of equipment to being with, and/or if the interviewer simply answered the same for additional identical units, and/or if they were just dishonest. Additionally, Industry questions the long operation of the equipment based on the response that he only services units when they break. Industry does not believe it is possible that the equipment listed would last so far beyond engine durability periods without some type of general maintenance. It should also be noted that the MR resides in Humboldt County, which likely limits product use to less than 12 months/year based on its seasonal climate. Considering the full dataset, and that equipment is used for *several* thousand hrs/year, OPEI believes many of the dataset responses were not reasonable or realistic, or that the equipment is used for business purposes. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – The MR reports owing 3 gas-powered chainsaws with identical high annual use rates of 50x/year and 4hr/use (3x 200hr/year). The MR reports CS1 and CS2 are both 5 years old (total 1000hrs each) while CS3 is 2yo (400hrs). These are not reasonable or realistic responses. *Lawn Mower Abnormalities* – The MR reports using his gas-powered lawn mower 4x/month for 5hr/use. 5hr/use is not a reasonable or realistic response considering the frequency of use. *Leaf Blower Vacuum Abnormalities* – The MR reports operating his gas-powered leaf blower 20x/year for 2hr/use. The combined frequency and time/use are not reasonable for residential-only use. *String Trimmer Abnormalities* – The MR reports operating two gas-powered string trimmers 10x/year for 8hr/use. 8hr/use is not a reasonable or realistic response. *Light Industrial Equipment Abnormalities* – The MR reports similar high count, high use/year and high hr/use for several of the light industrial equipment categories surveyed. The MR reports owning three generators, with GEN1 being used 5x/month for 8hr/use and 13yo (total 5*12*8*13 =	REJECT & REMOVE R594

	6240hrs), GEN2 being used 4x/month for 6hr/use and 12yo (total 4*12*6*12 = 3456hrs), and GEN3 7x/month for 4hr/use. These are not reasonable residential-use responses.	
R607	The FR reported high hr/use for the chainsaw is used 12-24x year for 8hr/use (144hr/use). 8hr/use is not reasonable or realistic response for frequent use. Industry questions whether the respondent answered estimating the length of all tasks related to using the chainsaw (vs chainsaw operation time). Additionally, Industry questions if the interviewer extrapolated non-specific response, such as "half the day" or "all day" for these responses. The FR also reports lawn mower use 1x/week for 30min/use. While the respondent reports approximately 170hr/year gas-powered equipment use, she reports using no more than 10 gal/year fuel. Finally, it should be noted that the FR resides in Stanislaus County, which likely limits product use to less than 12 months/year based on its seasonal climate. Considering the full dataset, the responses are not reasonable or reslistic.	REJECT & REMOVE R607
R616	The FR reported using the gas-powered lawn mower 1x/week for 2hr/use and the golf car 5x/week for 3hr/use, for 13 years (10140 hrs). OPEI questions whether the respondent answered estimating the length of all tasks related to using the mower (vs mower operation time) and vehicle use. 2-3hr/use are not reasonable responses for these equipment types, especially considering the frequency reported of each. Additionally, it should be noted that the MR resides in Tehama County, which likely limits product use to less than 12 months/year based on its seasonal climate. CARB removed trimmer w/ 208hr/yr. It is unclear why CARB removed this unit reported to be use twice a week, but left many other residential products throughout the survey reported to be used twice or more times a week.	REJECT & REMOVE R616
R645	The FR reported abnormally high string trimer use. Industry is particularly concerned that the senior respondent initially answered "don't know" 32 times, including for many of the use and age-related questions. However, in accordance with interviewer training, the respondent was further probed to guess usage, consequently guessing unrealistic answers for many use characteristics for some equipment. In turn, the responded reported ST1 is used 24-52xyear 4hr/use after initially responding "don't know", and after much lower usage of typically associated equipment, including a reasonable 7.5hr/yr on a LM1 and 3hr/yr LBV1.	CHANGE ST1 USAGE to "don't know"
R658	The MR responses are simply not reasonable or realistic. The respondent reports near the highest hours/use of all respondents for several categories. The respondent reports identical very high use for multiple categories of equipment. Industry finds identical, long hour/use responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist for all categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, and/or simply answered "same" without considering use time of each product, and/or if they owned multiple pieces of equipment to being with, and/or if the interviewer simply answered the same for additional identical units, and/or if the equipment was used for	REJECT & REOMVE R658

	business purposes, and/or if they were just dishonest. In total, the respondent reports using gas-powered equipment more than 5450 hr/year. Additionally, it should be noted that the MR resides in Tehama County, which likely limits product use to less than 12 months/year based on its seasonal climate. Following are more specific concerns regarding this dataset: *Chainsaw Abnormalities* – The MR reports owing 3 gas-powered chainsaws with identical similar high annual use rates, including CS1 2x/week and 1hr/use, and CS2 and CS3 2x/week 2hr/use. These are not reasonable or realistic responses. *Lawn Mower Abnormalities* – The MR reports using his gas-powered lawn mower 7x/week for 2hr/use. This is not a reasonable or realistic response. *String Trimmer Abnormalities* – The MR reports operating his gas-powered string trimmer 2x/week for 2hr/use. This is not a reasonable or realistic response. *Light Industrial Equipment Abnormalities* – The MR reports similar high count, high use/year and high hr/use for several of the light industrial equipment categories surveyed. The MR reports owning two gas pressure washers, both used 4x/week for 3hr/use, an electric pump used 4x/week for 3hr/use and a rare gas welder used 7x/week for 6hr/use for 16 years (total 7*52*6*16 = 34,944 hours) . These are not reasonable or realistic responses. CARB removed only lawnmower and gas welder used 7x/week.	
R659	The FR reported using a chainsaw 3x/year for 24hr/use. This is not a reasonable or realistic response. Industry believes that the interviewer extrapolated a non-specific response, such as "all day" or "for a day" for this response. Industry is concerned that such actions, which without survey recordings the span or impact of cannot be determined, jeopardizes the entire survey.	REMOVE CS1
R672	The FR commented that "it depends on the seasons when equipment is used", however two leaf blowers were reported to be used 1x/week each for 30min/use. Was it intended that this response was seasonal? FR also responded that the power source for the 2nd pump was the "battery in the car". This suggests the FR is thinking about a tire pressure pump, not a SORE-powered equivalent pump.	
R688	The FM reported using the lawnmower 1x/week for 90min/use. Industry is concerned that respondent resides in Shasta County, which likely limits product use to less than 12 months/year based on its seasonal climate.	CONFIRM DATA ANALSYIS METHOD WITH CARB
R695	The FR reported using a chainsaw for 24hr/use. This is not a reasonable response. Industry believes that the interviewer extrapolated a non-specific response, such as "all day" or "for a day" for this response. Industry is concerned that such actions, which without survey recordings the span or	REMOVE CS1

	impact of cannot be determined, jeopardizes the entire survey. The reoccurrence of the response, just 36 respondents after 659 and one survey day later raises additional concerns about the frequency of non-descriptive responses and potential interviewer interpretation throughout the survey.	
R720	The FR reported using electric UTV/Golf Car 3x/week for 6hr/use for 6 years (total 3*52*6*6 = 5616hr). This is not a reasonable or realistic response. Industry questions whether the senior respondent answered estimating the length of all tasks related to using the vehicle (vs vehicle operation time), and/or if the vehicle is used for business purposes, and/or if the response is just untrue. The respondent also reported using an electric pump 1x/year for 24hr/use. Industry is concerned this not a realistic number for a pump used comparable to SORE-powered pumps.	REJECT & REMOVE R720
R711	The MR is reported using electric PUMP1 7x/week for 24hr/use for 1 year (total 7*52*24 = 8760hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. This is the only piece of survey equipment reported by the respondent. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses. The reoccurrence of the response, just 16 respondents after R695 and the same survey day raises additional concerns about the frequency of non-descriptive responses and potential interviewer interpretation throughout the survey.	REMOVE PUMP1
R750	The MR reported using his cordless electric string trimmer for 10hr/use, but his hedge trimmer 20min/use. 10hr/use is not a reasonable response, and even less so for a battery powered trimmer. Industry suspects this is a data entry error and the units should be min/use.	CORRECT ST1 to 10min/use
R751	The FR is reported using electric PUMP1 7x/week for 6hr/use for 1 year total (7*52*6 = 2190hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R761	The MR is reported using electric PUMP1 365x/year for 24hr/use, for 6 years (total 365*24*6 = 52416hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable, although it should be noted there are several "refused" to respond for equipment other equipment category. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses. This response is the next survey day following other unrealistic 24hr/use responses.	REMOVE PUMP1
R783	The MR reported owning a rare gas air compressor, operating 7x/week for 1hr/use and that the unit is 70 years old (an unrealistic 25480 hours). Despite the heavy use, the respondent is reported as filling 2 gas cans just 3x/year. Collectively these are not realistic or reasonable responses.	REJECT & REMVOE R783
R799	The FR reported using two rare gas-powered compressors 7x/year for 10min/use, then "didn't know" *any* information about the third reported unit. The respondent also reported identical use and age for two gas-powered blowers 2x/month for 20min/use, 8 years old. Industry finds	REJECT & REMOVE R799

	identical use responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist for all categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	
R825	The MR reported unusually high frequency and use/hr on a variety of equipment. The respondent reported 3hr/use on electric-corded CS1, 2x/week and 2hr/use for gas-powered LM1, and 1x/week and 1hr/use for ST1. Industry questions whether the respondent answered estimating the length of all tasks related to using the equipment (vs saw, mower and trimmer operation time), and/or if the responses are just untrue. The combined high use on these products is not reasonable or realistic.	REJECT & REMOVE R825
R855	The FR reported using a chainsaw 52x/year for 3hr/use. The combined frequency and duration are not reasonable or realistic. The respondent also reported an unusually high combination of string trimmer use (1x/week) and frequency (1hr/use).	REJECT & REMOVE R855
R860	The MR reported unusually high frequency and use on a variety of gas-powered equipment, exceeding 380hr/year. The respondent reports operating a chainsaw for more than 60hr/year, a leaf blower for 17hr/year, a lawn mower for 10hr/year, a riding mower for 120hr/year, and a string trimmer for 160hr/year. Despite the heavy use, the respondent is reported as filling 2x 2.5 gal gas cans just 1x/month. The combined particularly high product use, and low overall fuel consumption are not reasonable or realistic.	REJECT & REMOVE R860
R866	The MR reported identical high frequency use on three chainsaws. The respondent reported using all three saws 24x/year for 30min/each, with CS1 20yo, and CS2 and CS3 both 15yo. Additionally, the respondent reports identical use, 6x/year for 30min/use of two string trimmers. Industry finds identical responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	REJECT & REMOVE R866
R883	The MR reported identical high frequency and use on two lawnmowers 1x/week for 2hr/use. The respondent also reports using a gas-powered string trimmer 2x/month for 2hr/use and an electric string trimmer 1x/month for 2hr/use, as well as an electric leaf blower 365x/year for 15min/use. The MR additionally reported using two air compresses identical frequencies (1/week) and time/unit (3/min). Industry finds identical, somewhat long hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	REJECT & REMOVE R883

R899	The FR reported using electric UTV/Golf Car 3x/week for 4hr/use. This is not a realistic response. Industry questions whether the senior respondent answered estimating the length of all tasks related to using the vehicle (vs vehicle operation time), and/or if the vehicle is used for business purposes, and/or if the response is unknown or exaggerated. This is the only piece of survey equipment reported by the respondent.	REMOVE UTV/GC1
R921	The MR responses are erratic and unbelievable. The MR reported abnormally high use of several pieces of equipment. Additionally, Industry finds the pattern of responses odd on several occasions when the second or third units reported were unusually higher than the first. One possibility for the erratic responses could be the repetitive questions and probing following refusals or unknown response. The respondent answered "don't know" 17 times and "refused" to answer 10 questions. Industry is concerned the several number/unit responses were unknown or exaggerated. Finally, the respondent reported that all but one of the 14 pieces of equipment was three years old or less, with many pieces being one or two years old, and the outlier being just 5 years old. Unfortunately, it is not possible to distinguish what is true or not. Following are more specific concerns regarding this dataset: *Lawn Mower Abnormalities* – The MR reported using gas-powered LM1 1x/week and 1hr/use, then reported using gas-powered LM2 1x/month for 6-7hr/use after first responding "don't know". *Leaf Blower Abnormalities* – The respondent reported using gas-powered LBV1 1x/week for 35min/use, then gas-powered LBV2 1x/week for 3hr/use and electric LBV3 200x/year for 10min/use. *String Timmer Abnormalities* – The respondent reported using gas-powered ST1 1x/week for 30min/use, electric ST2 for 1x/week for 1hr/use, gas-powered ST3 1x/week for 30min/use, then "refused" to answer anything about ST4. *Pressure Washer Abnormalities* – The respondent also reports using electric PW1 & PW2 multiple times a year each, both "4 TO 5 HOURS"/use.	REJECT & REMOVE R921
R925	The MR reported using electric PUMP1 7x/week for 24hr/use for 5 year (total 7*52*24*5 = 43680hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. This is the only piece of survey equipment reported by the respondent. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R934	The senior MR reported operating an electric go-kart 365 days/year for 24hr/use while living in a retirement center. This is not a realistic number. The go-kart is the only surveyed equipment reported.	REJECT & REMOVE R934
R969	The FR reported identical high frequency and use on two chainsaws, both 2x/month, 1hr/use. Industry finds identical, somewhat long hour/use, responses across each piece of equipment in a category odd. Industry questions whether the respondent considered the use of each unique piece	REJECT & REMOVE R969

	of equipment, or simply answered "same" without considering use time of each saw, or if they owned multiple pieces of equipment to being with.	
R971	The senior FR responses are not reasonable. When considering the complete dataset, Industry believes much of the dataset is unknown or exaggerated. It is difficult for Industry to speculate why the dataset is so erratic. It is not clear if the respondent was confusing the time it takes to complete related tasks, and/or was confused or dishonest. The respondent reports using a chainsaw 1x/week for 3hr/use, a lawnmower 12-24x/year for 2hr/use, a string trimmer 2x/month for 2hr/use and a lawn tractor 4x/month for 3hr/use. While the respondent reports nearly 30hr/month of gas-powered product use, she reports filling her single 2.5 gal gas cans just once a month.	REJECT & REMOVE R971
R976	The MR reported using the lawn mower, leaf blower and string trimmer identically 1x/week for 1hr/use, and the that all three pieces of equipment were 13 years old. Industry finds identical, somewhat long hour/use, responses across equipment categories odd. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each piece of equipment. Additionally, Industry questions whether the respondent answered estimating the length of all tasks related to using the equipment, such as a total of 1 hour for "cutting the grass" (including blowing and trimming), vs the use of each piece of equipment.	REJECT & REMOVE R976
R1065	The FR is reported using electric PUMP1 90x/year for 8hr/use, for 15 years (total 90*8*15 = 10800hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R1086	The FR responses are erratic and unbelievable. The respondent reported abnormally high use of several pieces of equipment, despite reporting no landscapable area. The respondent reported identical high frequency and use on two chainsaws, 24x/year for 2hr/use, and on two string trimmers, 2x/month for 1hr/use. Industry finds identical, somewhat long hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns across multiple categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each saw and welder, or if they owned multiple pieces of equipment to being with.	REJECT & REMOVE R1086
R1107	The MR reported owning multiple pieces of equipment for many applications, with similar or identical use for many pieces of equipment and similar ages. Industry finds identical, somewhat long hour/use, responses across equipment categories odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each piece of equipment, or if they really owned multiple pieces of equipment to being with.	REJECT & REMOVE R1107

R1148	The MR reported operating a gas-powered compressor and generator unreasonably high frequencies and time/use. The respondent reported operating a rare gas-powered air compressor 7x/week for 5hr/use and a gas generator 7x/week for 6hr/use for 8 years (total 17,472hrs). He expects to keep the generator another 7 years (total 32760hrs). Despite the unrealistically high usage, the respondent does not report owning a gas can. These are not realistic responses.	REMOVE & REJECT R1148
R1144	The FR is reported using electric PUMP1 365x/year for 8hr/use, for 3 years (total 365*8*3 = 8760hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R1149	The MR is recorded as living in a single-family home but interviewer comments note the respondent lived in a elderly center. These would be significantly different weighting factors.	
R1174	The FR is reported using electric PUMP1 365x/year for 24hr/use, for 2 years (total 365*24*2 = 17520hr). This is not a realistic number for a pump used comparable to SORE-powered pumps. Other equipment responses appear reasonable. Industry additional is concerned the interviewer extrapolated non-specific responses, such as "everyday" and/or "all day" for these responses.	REMOVE PUMP1
R1181	The MR reported unusually high frequency and use for equipment, as well as identical use for lawn mowers. The respondent reported using the electric corded chainsaw 2x/month for 90min/use for 10 years, two gas-powered lawnmowers identical 4x/month for 2hr/use for 10 years, an electric blower 3x/month for 10 years, and an electric trimmer 2x/month for 1hr/use for 10 years. Industry finds identical, somewhat long hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use, and/or age of each unique piece of equipment, or simply answered "same", or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT R1181
COMMERCIAL SURVEY AIR IQR + BASCO PEER REVIEW + GTK PEER REVIEW		
C4	The respondent reported landscape maintained by contracted landscaper, yet reports bi-monthly use of lawnmower, leaf blower and string trimmer. These is not a reasonable response for a company that does not maintain its own landscape.	REMOVE & REJECT C4
C26	The respondent reported no landscaped area at the eight employee business, but reports using LB1 & LB2 1x/month for a high 6hr/use for and LB3 2x/month for 14hr/use. These are high use responses for a small non-landscape oriented company with no landscapable area. 14hr/use is not reasonable.	REMOVE & REJECT C26

	CARB removed leaf blower used 14 hr/use.	
C46	The respondent reported using gas-powered WEL1 7x/week, 6hr/use (2184 hr/year), but owns just two 1 or 2.5 gallon gas cans refueled twice/month. Gas-powered welders are typically larger single-cylinder or v-twin engines, well loaded, with fuel consumption >0.5gal/hr. The fuel consumption does not match the reported fuel use. Gas-powered welders are also typically portable for mobile jobs. They are not economical full-time welding solutions for facility-based businesses. This is not a reasonable response.	REMOVE & REJECT C46
C49	The respondent reported using gasoline-powered LM1 30x/year 3hr/use, LB1 364x/year 1hr/use, LB2 2x/mon 1hr/use, ST1 16x/month 2hr/use 4years (total 1536hr), go-kart1 365x/y 6hr/use 4yo (total 8760hr), go-kart2 150x/year 3hr/use 19yo (total 8550hr), PUMP1 90x/year 6hr/use 12yo (total 6480hr), but owns just 5 5-gallons gas cans refueled 2-6x/year. Many products have abnormally high hours for SORE powered equipment and the fuel consumption does not match reported fuel use. This is not a reasonable response.	REMOVE & REJECT C49
C36	The respondent reported landscape maintained by contracted landscaper, yet reports bi-monthly use of lawnmower, leaf blower and string trimmer. These is not a reasonable response for a company that does not maintain its own landscape.	REMOVE & REJECT C136
C93	The respondent reported identical use across all equipment and all categories. Industry finds identical hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT C93
C148	The "Front Desk" respondent reported using an electric-motor powered generator 5x/week 11hr/use, an electric pressure washer 5x/week 12hr/use and an electric pump 5x/week 12hr use. The collective response, with non-existent product (electric motor generator) and long hr/use are not reasonable responses.	REMOVE & REJECT C148
C234	The respondent responded "don't know" for every product type answer, 53 times in total.	
C239	The Dentist Office business respondent reported using a generator 4x/week for 9hr/use. Commercial business generators are intended for back-up power use, not as primary sources of power. They are not economical solutions to power facilities year-round. This is not a reasonable response.	REMOVE & REJECT C239
C268	The respondent reported using a gas-powered generator and a gas-powered compressor high hours, but with potentially low fuel use. Additional discussion required.	3
C301	The respondent reported operating a single 5-acre marina boat-storage facility with just 3 employees, yet reports using LM1, LM2 & ST1 all 3.5x/week 6hr/use, with LM2 8yo (total 8737hr). Assuming all 5-acres were grass covered and a 21"WBM was used, it would take approximately 10hr to cut the property, yet the respondent reports 42hr/week of lawnmower use	REMOVE & REJECT C301

	and more than 21hr/week string trimmer use (ST2 is electric and not accounted for here). It is not economical for a business to cut the grass more that 4+ times/week using gas-powered equipment (thousands of unnecessary gallons/fuel/year). These are not reasonable responses. CARB changed "at least once a week" to "once a week" for lawn mowers and string trimmers. It is unclear how CARB can change responses for multiple pieces of equipment without justification and yet keep the response in the dataset.	
C319	The respondent reported using a propane-powered welder 365x/year 8hr/day for 60 years (total 175200hr). This is not a reasonable use or number of hours response for any type of equipment.	REMOVE & REJECT C319
C360	The respondent ("owners wife") reported having no landscaped area, yet reports using a gas-powered chainsaw 1x/week 1hr/use, and a lawnmower and leaf blower both less than 1hr/use. 1hr/week chainsaw run time is high for non-landscaping use. Additional discussion required.	3
C393	The respondent is reported as a "firewood" business with high chainsaw use/year. Considering the types of similar businesses (arborists and tree removal) included in the "vendor" survey, why is this respondent not considered a "landscaper", or alternatively, why are tree service companies not considered "commercial businesses"? Additional discussion required.	3
C416	The respondent reported high "commercial" use on lawn and garden machinery. The respondent reports the business as "mobile home maintenance". Considering the types of similar businesses (home maintenance and landscaping) included in the "vendor" survey, why is this respondent not considered a "landscaper"? Additional discussion required.	3
C453	The respondent, reported using LB1 and LB2 an identically high 4x/week 2hr/use in Los Angeles, which has banned the use of gas-powered blowers within 500ft of residential properties at its 1-acre municipal police station. The respondent also reports using a >25hp gas-powered UTV 5x/week 6hr/use 15yo (total 23400hr). In comparison, a car at the average life of 175,000miles with an average speed of 30mph would accumulate approximately 6000 total hours. Collectively, these are not reasonable responses.	REMOVE & REJECT C319
C483	The respondent reports no landscapable area yet uses LM1 2x/week 4hr/use and LM2 2x/week 1hr/use, LBV1 2x/week 30min/use, ST1 2x/week 1hr/use, then later reports 1600 landscapable acres at the facility. These responses are not consistent.	
C529	The respondent reported owning two electric-corded go-carts used 5x/week 4hr/use. Additional discussion required.	3
C535	The respondent reported landscape maintained by contracted landscaper, yet reports high identical use of multiple lawnmowers, leaf blowers and string trimmers. These is not a reasonable response for a company that does not maintain its own landscape.	REMOVE & REJECT C535
C545	The respondent reports no landscapable area yet uses LM1 1x/week 30min/use, LBV1 1x/month 45min/use, LBV2 1x/month 30minutes, ST1	

	2x/week 1hr/use, then later reports 100-500 sq ft of landscapble area at the facility. These responses are not consistent.	
C575	The respondent reported using multiple gas-powered welders, despite owning no fuel cans. Gas-powered welders are typically larger single-cylinder or v-twin engines, well loaded, with fuel consumption near a gal/hr. The fuel consumption does not match the reported fuel use. Gas-powered welders are also typically portable for mobile jobs. They are not economical full-time welding solutions for facility-based businesses. Considering the business is an Orchard which may require some mobility, and use is not excessively high, it is possible these are gas-powered welders. Additional discussion required.	3
C670	The (Financial Department "Controller") respondent reported operating an electric-motor generator 25x/week for 3min/use. The equipment type nor the use pattern make sense.	REMOVE & REJECT C670
C688	The respondent reported landscape maintained by contracted landscaper, yet reports weekly use of lawnmower and leaf blower. These is not a reasonable response for a company that does not maintain its own landscape.	REMOVE & REJECT C688
C753	The respondent reported landscape maintained by contracted landscaper, yet reports weekly use of lawnmower, leaf blower and string trimmer. These is not a reasonable response for a company that does not maintain its own landscape.	REMOVE & REJECT C753
C819	The respondent reported identical high use on multiple compressors (2x260hr) and pressure washers (2x1040hr/yr), however reports using 5-5gallon containers 2-6x/year. The reported equipment use would require several times as much fuel as reported. Collectively, these are not reasonable responses.	REMOVE & REJECT C819
C956	The respondent reports no landscapable area yet uses CS1 & CS2 an identical 3x/year 2hr/use (both 10 years old), LM1 1x/week 1hr/use and ST1 1x/month 20 min/use, then later reports 0.75 acre of landscapble area at the facility. These responses are not consistent.	
C965	The respondent reported using an electric welder 7x/week 23min/use 87yo (12139hr). This is not a reasonable age and number of hours.	REMOVE & REJECT C965
C971	The (elementary school Administrative Secretary) respondent reported using a gas-powered generator "at least 1x/day", 8hr/use, 4yo (total 11776hr). Both responses were a result of probing after original "don't know" responses. Commercial business generators are intended for back-up power use, not as primary sources of power. They are not economical solutions to power facilities year-round. Additionally, 11776hr is not a realistic number of hours on a SORE powered generator. This is not a reasonable response.	REMOVE & REJECT C971
C974	The (industrial truck rental "counter service person") reported using a gas-powered pump 30x/week 2hr/use 3120hr/yr (age UNK), 6 gas-powered compressors "at least 1x/day" "23min/use", 2 electric welders 12x/week 6hr/use. The respondent reports owning no gas cans despite more than 5000hr/year gas-powered equipment use. The high hour use of gas-powered equipment is also not economical for facility-based services. These are not reasonable responses.	REMOVE & REJECT C974

C979	The respondent reported using a gasoline-powered generator 10x/year 24hr/use while reporting no gas cans. This is not a reasonable response.	REMOVE & REJECT C979
C993	The respondent reported using an electric compressor 5x/week 2hr/use 20yo (10400hr). This is not a realistic number of hours on an equivalent SORE powered compressor.	REMOVE & REJECT C993
C1096	The respondent reported using multiple chainsaws and hedge trimmers frequently for 4-8hr/use. Chainsaw use for 4-8hr/use with such frequency is not realistic. Similarly, 6hr/use of hedge trimmers is unlikely. Additionally, most of the equipment is reported as identical 6 months old, with 10-year retention plan. Collectively, these are not reasonable responses.	REMOVE & REJECT C1096
C1104	The respondent reported using CS1 2x/week 3hr/use (312 hr/yr) to maintain a 2 acre area. Collectively, the high run time for a single employee mortgage broker and relatively speaking small area of land is not a reasonable response. Other responses appear reasonable.	REMOVE CS1
C1144	The respondent reports no landscapable area yet uses LM1 1x/month 15min/use, then later reports 100 sq ft of landscapble area at the facility. These responses are not consistent.	
C1222	The respondent reported using a gas-powered compressor and a gas-powered pressure washer identical 6x/year 24hr/use. 24hr/use is not a reasonable response. CARB removed the pressure washer and compressor with 24 hr/use.	REMOVE & REJECT C1222
C1233	The respondent reported use of 4 generators 13 hr/year and 4 lawnmowers 0.04 hr/yr. The MR responded "don't know" 52 times.	
C1240	The respondent reported using five chainsaws identical 10x/year 8hr/use. Chainsaw 8hr/use is not realistic and the identical responses raise concern.	REMOVE & REJECT C1240
C1256	The respondent reported operating a single 5-acre reservation facility, yet reports using LM1, LM2, ST1 & ST2 3x/week 2hr/use, LB1 7x/week 2hr/use, LB2 3x/week 1hr/use and ST3 36x/year 4hr/use and ST4 36x/year 3hr/use and a riding mower 3x/week 3hr/use. Assuming all 5-acres were grass covered and a 21"WBM was used, it would take approximately 10hr to cut the property, yet the respondent reports 12hr/week of lawnmower and 9hr/week of riding mower time (approx. 1 acre/hr), and more than 15hr/week string trimmer use. It is not economical for a business to cut the grass 3 times/week using gas-powered equipment (potentially thousands of unnecessary gallons/fuel/year). These are not reasonable responses.	REMOVE & REJECT C1256
C1277	The respondent reported identical use across all equipment and all categories. Industry finds identical hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT C1277
C1293	The respondent responded "don't know" 82 times.	

C1301	The respondent reported using a gas-powered compressor 6x/week, 3hr/use, but reports just 2-2.5gal gas cans filled 2x/month. This is less than half the fuel needed to operate the compressors for the reported time. This is not a reasonable response.	REMOVE & REJECT C1301
C1303	The respondent reported using COMP1 1x/week, WELD1 2x/month. Other equipment reported in x/year. Interviewer notes state "They are seasonal. For 38M gas cans are refilled once a day (5x a week) for only 6 months a year." These are not consistent responses.	
C1352	The respondent reported using gas-powered compressor 5x/week, 8hr/use (2080 hr/year), but reports no gas-cans. Gas-powered compressors are typically portable for mobile jobs. They are not economical full-time compressor solutions for facility-based businesses. This is not a reasonable response.	REMOVE & REJECT C1352
C1378	The respondent reported identical use and ages across all equipment and all categories, with particularly high annual generator use. Industry finds identical hour/use, responses across each piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each unit, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT C1378
C1462	The respondent reported identical high use on leaf blowers, 3x/week 2hr/use, with LB2 15yo (4680hr). The respondent reported 8acre of landscaped area maintained by staff, but 0hr annual lawnmower use and only 6hr/year string trimmer use. Collectively, including the high hours on LB2, these responses are not reasonable.	REMOVE & REJECT C1462

VENDOR SURVEY AIR IQR & PEER + GTK PEER REVIEW G1-"Licensed Outreach" G2-"Non-Licensed Outreach" G3/G4/G5-Other			
V2	G4	The respondent reports 2770hr/yr use on gas-powered equipment with just one employee. This is 53hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing 33 clients once a week, for between 31-60mins, for a total of 25hrs (33*45/60). The equipment use time does not match the client service time. CARB removed 2 hedge trimmers used 1x/day 1+hr, but left 2HT and 2LBV used identical durations, seemingly to get 2770 hr/yr/employee down to <= 2080 hr/yr/employee (equipment run time). Appears to be random selection of equipment to discard. All responses reported in multiple format despite just 2 or 3 units each because CSU-F/CARB decided 5 was too many to report individually at some point in Vendor survey. In this case CARB removed nearly everything (seemingly due to high hr/yr/employee), but in others CARB removed just enough to get to approximately <= 2080 hr/yr/employee.	REMOVE & REJECT V2-G4

V2	G5	The respondent reports >3000hr/yr use on gas-powered equipment with just one employee. This is >58hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing 50 clients once a week and 10 clients once a month, for between 0-60mins, for a total of 27hrs ((50*30+2.3*45)/60) to 29hrs ((42.3*30+10*45)/60). The equipment use time does not match the client service time. CARB "removed lawnmower/ leafblower/ trimmer data", includes 2LMx202hr/yr, 4LBVx227hr/yr, 3HTx390hr/yr and 3STx156.7hr/yr. Based on data CARB included, the per-unit use is not unreasonably high, so it appears CARB randomly removed all the equipment. This is inconsistent with other equipment removals to get worker hours <= 2080 in other responses.	REMOVE & REJECT V2-G5
V3	G2	The respondent reports 13332 hy/yr use on gas-powered equipment with 5 employees, servicing 30 clients a year. This is 51 hr/week engine running time per employee. The respondent reports using LB#4 15x/mo, 7hr/use, 5yr (total 6300hr). Much of the equipment is reported as being used 7days/week for hours/use. Collectively, these is not reasonable responses. CARB removed riding mower (2548hr/yr) but left 3STx1820hr/yr, 2LBV (x1820hr/yr, x1260hr/yr) and LMx1820hr/yr, seemingly to get 2660 hr/worker/year down to <= 2080 hr/worker/year (still 2156.8 hr/yr/employee, 42.5hr/week/employee of engine run time). It is again a random approach to just completely remove a unit.	REMOVE & REJECT V3-G2
V3	G5	The respondent noted, 2920 hours on a string trimmer (8*365), 208 hours on pressure washer. The respondent reports 6778hr/yr use on gas-powered equipment with just three employees. This is 43hr/week engine running time per employee. This is not reasonable equipment run-time per person. CARB removed ST 2920 hrs. The respondent reports to own only one ST. In effect, CARB has assumed the respondent does not use a string trimmer. This is a random assumption.	AIR REMOVE ST1 GTK – REMOVE & REJECT V3-G5
V7	G2	The respondent noted identical operating time and ages of all product withing their respective categories including five chainsaws (520hr/year, 2yo), four hedge trimmers (104hr/yr, 2yo), four lawn mowers (12h/yr, 1yo). CS1-5 all reported an unusually high chainsaw use520 hours; =0.25*2080. Industry finds identical, somewhat long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. When considering the full dataset, OPEI	REMOVE & REJECT V7-G2

		believes many of the dataset responses were not appropriately considered.	
V10	G3	The respondent reports 5968hr/yr use on gas-powered equipment with just three employees. This is 38hr/week engine running time per employee. This is not reasonable equipment run-time per person.	REMOVE & REJECT V10-G3
V12	G1	The respondent reports 2340hr/yr use on gas-powered equipment with just one employee. This is 45hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V12-G1
V12	G4	The respondent reports >2600hr/yr use on gas-powered equipment with just one employee. This is >50hr/week engine running time per employee. The respondent also reports servicing 60 clients at least once a week. This is not reasonable for one person.	REMOVE & REJECT V12-G4
V13	G1	The Respondent noted identical operating time and ages for all products within their categories, including five chainsaws (520hr/year, 2yo), and two string trimmer (104h/yr). CS1-CS5 all reported an unusually high chainsaw use520 hours; =0.25*2080. Industry finds identical, somewhat long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered.	REMOVE & REJECT V13-G1
V13	G2	The Respondent noted identical operating time and ages for many products within their categories, with unusually high hours on leaf blower/vacuums. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered; however there are some differences between responses so additional review should be considered.	ADDITIONAL DISCUSSION REQUIRED
V15	G2	The respondent reports 3650hr/yr use on gas-powered equipment with just one employee. This is 70hr/week engine running time per employee. The respondent also reports servicing 30 clients/week between 1-2hr/service (90hrs/week). The respondent reports owning two 2-gallon gas cans, refueling at least once a month. The equipment use, client service time and fuel consumption are not consistent.	REMOVE & REJECT V15-G2
V17	G2	The respondent reports 4048hr/yr use on gas-powered equipment with just two employees. This is 39hr/week engine running time per employee. This is not a reasonable run-time per person.	REMOVE & REJECT V17-G2

V18	G4	The respondent reports unusually high hours on all equipment, with a total 2600 hr/yr on gas-powered equipment, 50hr/week engine operating time, while servicing exclusively residential customers (number UNK). LB1 is reported as 5x/week, 5hr/use, 2yo (total 2600hr). This is not reasonable for one person. 2600hr is not realistic total hour for handheld products. CARB "remove leaf blower hours due to high use of 5hr/use". Unclear why 5hr/use is high for this user but not for other users and/or equipment types – other than removing this units lowers the hr/yr/employee from 2600 hr/yr/employee to approx. 1300 hr/yr/employee. The user only reports to own 1 of each type of equipment, so in-effect CARB assumes the respondent does not use a leaf blower.	REMOVE & REJECT V18-G4
V19	G2	The Respondent noted, 1092 hr/yr blower use, and 884 hr/yr string trimmer use, with a total gas-powered equipment operating time of 2688 hr/year, or 52hr/week. The respondent also reports servicing 50 clients/week for 2-4hr/service, or 250hr/week with just one employee. The respondent reports owning one 5-gallon gas can, refueling at least once a month. The equipment use, client service time and fuel consumption are not consistent. CARB "remove string trimmer #2 with 2x/week and 6hr/use" (624hr/yr), seemingly to get 2770 hr/yr/employee down to <= 2080 hr/yr/employee (2064 hr/yr/employee equipment run time). However, CARB left a LMx624hr/yr, LBV 1092hr/yr and STx260hr/yr. This is inconsistent with other equipment that CARB retained in the survey.	REMOVE & REJECT V19-G2
V30	G1	The Respondent noted using CS1 16hr/use and CS2 8hr/use. Additionally, the Respondent reports identical use for hedge trimmers 7x/week, 2hr/use, 4yo (total 2912hr/unit), lawn mowers 7x/week, 6hr/use, 6yo (total 13104 hr/mower), leaf blowers 7x/week, 6hr/use, 5yo (total 10920hr/unit), and string trimmers 7x/week, 3hr/use, 4yo (4368hr/unit). These are not realistic responses. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. The respondent reports 28180hr/yr use on gas-powered equipment with twelve employees. This is 45hr/week engine running time per employee. This is not reasonable run-time per person. When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered.	REMOVE & REJECT V30-G1

V30	G2	The respondent reports 2255hr/yr use on gas-powered equipment with just one employee. This is 43hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V30-G2
V35	G1	The Respondent noted identical operating time and ages for all products within their categories, with unusually high operating hours/use hedge trimmers, reporting using all hedge trimmers 16hr/use. The respondent reports that LB1 is used 1/week, 8hr/use, 8yo (Total 3328hr). These are not realistic responses. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. It is also curious to see this kind of product use distribution across just 1 employee. Additionally, the respondent reports average equipment run-time 26hr/week, yet only reports servicing 15 clients less than once/week for less than hr/service (maximum 11hr/week). When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered.	REMOVE & REJECT V35-G1
V55	G1	The respondent reports using CS1 5x/week, 3hr/use, 5yo (total 3900hrs). This is unreasonably high use every day (6 refills of fuel per day) for a respondent that reports no tree-related services, with an unrealistic product total number of hours.	REMOVE & REJECT V55-G1
V58	G1	The respondent reports using LM1 3x/week, 3hr/use, 15yo (total 7020hr) and LBV1 5x/week, 2hr/use, 6yo (total 3120hr). These are not realistic product life-hours.	REMOVE & REJECT V58-G1
V59	G2	The respondent reports unusually high hours on a riding mower 7x/week, 8hr/use, 3yo (total 8736hr), plus operating 3 chainsaws, 1 hedge trimer, 2 leaf blowers, 4 string trimmers and a hedge trimmer, as a single employee landscaper, while servicing a variety of different multi-resident complexes. The respondent reports 5696hr/yr or 109hr/week engine operating time. This is not a realistic response. CARB removed RM (7x/week, 8hr/use, 2912hr/yr). The removal results in 2368hr/yr/employee engine run time (46hr/week, 2340hr/year LBV & ST use). It is unclear what the mower was removed and other reported very high use equipment was retained.	REMOVE & REJECT V59-G2
V63	G2	The respondent report using a string trimmer 7x/week, 4hr/use for a total of 1456 hours on a string trimmer for a single employee business that reports service as landscaper architecture / design & other. This is not a reasonable response.	REMOVE & REJECT V63-G2
V71	G1	The respondent reports CS1 is used 5x/week, 3hr/use, 5yo (total 3900hrs). This is not a realistic response. However, additional chainsaws are reported with much less utilized. Considering the company is a tree trimming company and employees 10 employees, it may be reasonable that one saw has such high use, but it is unclear	AIR ADDITIONAL DISCUSSION REQUIRED GTK REMOVE CS1

		how much use based on either the use or age being exaggerated. Remove CS1 and additional review should be considered.	
V72	G2	The respondent reports >3900hr/yr use on gas-powered equipment with just one employee. This is >75hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing 10 clients weekly and 30 clients less than once a week, all for 31-60 minutes. This results in 12.7 ((10+30/4.33)*45/60) to 30 hrs/week (40*45/60) total. The equipment use time does not match the client service time. CARB remove all units; 6 chainsaws, 3 lawnmowers, 2 leaf blower, 4 string trimmer, 3 hedge trimmer, 1 rototiller. It is unclear why, considering CARB only redacted portions of other responses.	REMOVE & REJECT V72-G2
V77	G1	The respondent reports similarly unusual age and hours across four chainsaws. CS1 4x/week, 4hr/use, 7yo (total 5824hr), CS2 3x/week, 2hr/week, 7yo (total 2184hr), CS3 & CS4 3x/week, 3hr/use, 7yo (total 3276hr). These are not realistic total hour numbers for handheld products.	REMOVE & REJECT V77-G1
V79	G1	The respondent reports identical 250x/year, 2hr/use, 7yo (3500hr/unit) across all 5 chainsaws. These are not realistic total hour numbers for handheld products. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered.	REMOVE & REJECT V79-G1
V89	G1	The respondent reports using a lawnmower 2912 hours per year, with gas-powered total machine use over 3200 hours with just one employee. The respondent reported "Don't Know" 37 times. The respondent reported he owned 4 chainsaws but didn't know how often or for how long any were used (then proceeded to provide responses for other types of equipment). The respondent reported he didn't know how many people work for the company, then said "less than 5". Additionally, the respondent reports only doing tree trimming, yet reports 2912 hr/year on lawnmower (roughly 30x more than the hedge trimmer). CARB removed LM1 2912hr/yr. The respondent reported owning only 1 LM. In-effect CARB assumes the respondent does not use a lawn mower.	REMOVE & REJECT V89-G1
V91	G1	The respondent reported identical operating times and ages of four leaf blowers, 5x/week, 8hr/use, 3yo (total 6240hr/unit). Additionally, the respondent reports 11000 annual hours of gas-powered equipment	REMOVE & REJECT V91-G1

		use across just 3 employees, 70hr/week run time per employee, without considering operating time of CS#1, four reported string trimmers and two hedge trimmers. These are not realistic responses. The MR repots servicing 20 clients once/week, 20 clients once a month and 10 clients once a year for 1-2hr/job, for a total of 38hrs/week. This is not consistent with the reported run times. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. CARB removed all four leaf blowers.	
V96	G1	The respondent reported identical 5x/week, 8hr/use, total 2080hr/year on all products used, including one hedge trimmer, one lawn mower, one leaf blower, one string trimmer. In total, the respondent reports 8325hr/year equipment use, despite just 2 employees, 80hr/week per employee equipment runtime. This is not a realistic response. Additionally, the respondent reports servicing 50 clients total, 20 weekly, 20 less than once a week and 10 less than once a month, all between 1-2hrs/service. If all 50 were serviced per week, which they are reportedly not, it would equal 75hr/week run-time. The equipment use time does not match the client service time. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. CARB removed one hedge trimmer, lawn mower and leaf blower. It is unclear how CARB remove so much yet retain the survey response.	REMOVE & REJECT V96-G1
V105	G1	The respondent reported identical operating time and ages for all products within their categories, with unusually high operating hours/use chainsaws, every one of their 140 chainsaws being used everyday for greater than 1hr/use (min 390hr/yr/unit), while having 90 employees. Every other employee is using two saws a day, 6 days/week, for at least 1.25hr/use. This is not a reasonable response. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT V105-G1

V107	G2	The respondent reports 2421hr/yr use on gas-powered equipment with just one employee. This is 47hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V107-G2
V111	G1	The respondent reports identical high use for all 30 chainsaws 25 saws at least 1x/day, greater than 1hr/use for a minimum 390hr/year/unit, and 5 saws at least 1x/month, greater than 1/hr/use. Additionally, the respondent reports operating five battery powered chainsaws greater than 1hr/use and battery-powered HT3 & HT4 for 8hr/use. This is not realistic.	REMOVE & REJECT V11-G1
V121	G2	The respondent reports 2080hr/yr use on gas-powered equipment with just one employee. This is 40hr/week engine running time per employee. This is not a reasonable run-time for one person. Additionally, the respondent reports servicing 90 jobs / week, spending 67.5 hr/job. These responses collective are not realistic.	REMOVE & REJECT V121-G2
V127	G1	The respondent noted identical high operating time and ages for most products within their categories. The respondent reports using the lawn mower 3x/week, 4hr/use 6yo (total 3744hr), LB1 3x/week 4hr/use, 8yo (total 4992hr), LB2 LB3 LB4 4x/week, 4hr/use, 6yo (total 4992hr) and LB5 4x/week, 4hr/use, 4yo (total 3328hr). Additionally, the respondent reports 7952 annual hours of gas-powered equipment use across just one employee, 146hr/week run time. This is not a reasonable or realistic response. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with. It is also curious to see this kind of product use distribution across just 1 employee. When considering the full dataset, OPEI believes many of the dataset responses were not appropriately considered. CARB "Remove all leaf blower and all trimmer data". It is unclear how CARB can remove so much of the data but retain the response.	REMOVE & REJECT V127-G1
V129	G2	The respondent reports 2048hr/yr use on gas-powered equipment with just one employee. This is 39hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V129-G2
V138	G1	The respondent reports high use across all equipment, with a gas-powered equipment use of 3120hr/yr use across just one employee, 60hr/week. The respondent reports using the lawnmower 5x/week, 5hr/use, 5yo (total 6500hr), leaf blower 5x/week, 2hr/use, 5yo (total 2600hr), and string trimmer 5x/week, 4hr/use, 3yo (total 3120hr). These are not realistic responses. CARB "Remove string trimmer due to high usage of 5 hr/use". Again, 5 hr/use if deemed "high usage" for this respondent, but not for many others, including residential and commercial respondents.	REMOVE & REJECT V138-G1
V140	G2	The respondent reports 2078hr/yr use on gas-powered equipment with just one employee. This is 40hr/week engine running time per	REMOVE & REJECT V140-G2

		employee. The respondent reports servicing approximately 50 clients per week. Industry does not believe this is reasonable for one person.	
V142	G2	The respondent reports 5252hr/yr use on gas-powered equipment with just one employee. This is 101hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing just twenty clients, 1 client daily, 19 clients once/week for no more than an hour per service or 17 – 44hr/week. The equipment use time does not match the client service time. The respondent reports owning one 2.5 gallon and one 5-gallon gas can, refueling at least once a week. The fuel consumption, equipment run time and client service times are not consistent. CARB remove 1 lawnmower, 1 leaf blower, 2 string trimmer with no explanation and while retaining other parts of the response.	REMOVE & REJECT V142-G2
V146	G2	The respondent reports identical high use and age for all 8 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). The respondent reports 4203hr/yr use on gas-powered equipment with just two employees. This is 40hr/week engine running time per employee. This is no reasonable for one person. However, the respondent reports servicing jobs just 10 hrs/week/employee.	REMOVE & REJECT V146-G2
V147	G2	The respondent reports identical high use and age for all 3 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit. Unfortunately, despite just 3 units, the response was collected in bulk and not per unit, so it is unclear if the respondent answered identically for each unit, which as previously described Industry may question. Additional review should be considered.	AIR REMOVE & REJECT V147-G2 GTK ADDITIONAL DISCUSSION REQUIRED
V150	G1	The respondent reports identical high use and age for all 10 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). These are not realistic responses.	REMOVE & REJECT V150-G1
V151	G1	The respondent reports 4 hedge trimmers, with HT4 7x/week, 2hr/use, 7yo (total 5096hr). This is not a realistic total hour use for handheld products. However, HT1, HT2 and HT3 are all only 52 hours per year. Additional review should be considered.	REMOVE HT1
V155	G1	The respondent reports identical high use and age for all 8 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). The respondent reports 3893hr/yr use on gas-powered equipment with just two employees. This is 37hr/week engine running time per employee. Collectively, Industry does not believe this is a reasonable response.	REMOVE & REJECT V155-G1
V155	G2	The respondent reports identical high use and age for all 27 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). These are not realistic responses.	REMOVE & REJECT V155-G2

V162	G1	The respondent reports 4680hr/yr use on gas-powered equipment with just two employees. This is 45hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing 35 clients daily and 15 clients weekly, from 31 minutes to greater than 4 hours. Evenly distributing the frequency over service time results in 580hr/week of service time, or 290hr/week per employee. This is not a realistic run-time per employee. The equipment use time does not match the client service time.	REMOVE & REJECT V162-G1
V164	G2	The respondent reports 2759hr/yr use on gas-powered equipment with just one employee. This is 53hr/week engine running time per employee. This is not reasonable for one person. The respondent reports servicing 50 clients once a week for 30-60 min/job, or 37hr/week. The equipment use time does not match the client service time.	REMOVE & REJECT V164-G2
V169	G2	The respondent reports 4160hr/yr use on gas-powered equipment with just two employees. This is 40hr/week engine running time per employee. This is not reasonable run-time per person. Additionally, the respondent reports servicing 35 clients less than once/week, for 31-60minutes, 26hr/week. The equipment use time does not match the client service time.	REMOVE & REJECT V169-G2
V174	G1	The respondent reports LM1 4x/week, 5hr/use, 17yo (total 17680hr), and LB1 and LB2 an identical 4x/week, 3hr/use, 14yo (total 8736hr). These are not realistic responses.	REMOVE & REJECT V174-G1
V186	G2	The respondent reports 5023hr/yr use on gas-powered equipment with just two employees. This is 48hr/week engine running time per employee with approximately 62 clients/week. This is not reasonable run-time per person.	REMOVE & REJECT V186-G2
V189	G2	The respondent reports 3305hr/yr use on gas-powered equipment with just one employee. This is 64hr/week engine running time per employee with approximately 85 clients/week. This is not reasonable for one person.	REMOVE & REJECT V189-G2
V196	G1	The respondent reports high use across all equipment, with a gas-powered equipment use of 5304hr/yr use across just one employee, 102hr/week, while servicing 60 residential customers. The respondent reports using the lawnmower 6x/week, 7hr/use, 7yo (total 15288hr), leaf blower 6x/week, 7hr/use, 3yo (total 6552hr), and string trimmer 5x/week, 4hr/use, 3yo (total 3120hr). These are not realistic responses.	REMOVE & REJECT V196-G1
V198	G2	The respondent reports identical high use and age for all six (of 7) chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit and 10-20yo (min total 15yo estimate 5850hr). These are not realistic responses. The respondent reports 4065hr/yr use on gas-powered equipment with just one employee. This is 78hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V198-G2

V199	G2	The respondent reports identical high use and age for all 15 chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). These are not realistic responses.	REMOVE & REJECT V199-G2
V203	G2	The respondent reports 2018hr/yr use on gas-powered equipment with just one employee. This is 39hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V203-G2
V212	G1	The respondent reports identical high hours on LB1 and LB2 5x/week, 6hr/use, with LB1 3yo (total 4680hr) and LB2 2yo (total 3120hr). These are not realistic numbers. CARB "Remove 3 leaf blowers – 5x/week; 6-8hr/use"	REMOVE & REJECT V212-G1
V218	G1	The respondent reports high use across all equipment, with a gas-powered equipment use of 13750hr/yr use across just three employees, without accounting for multiple chainsaws and lawnmowers, and blowers, in excess of 88hr/week runtime per employee, while servicing 60+ clients/week. This is not realistic run-time per person. CARB "Remove all the string/hedge trimmers". By removing the string trimmers CARB assumes no string trimmer use. This is a random removal of units to lower total equipment hours per employee.	REMOVE & REJECT V218-G1
V218	G2	The respondent reports 2793hr/yr use on gas-powered equipment with just one employee. This is 54hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V218-G2
V239	G1	The respondent reports high operating hours on CS1, 6x/week, 4hr/use, 2yo (total 2496hr). This is an unreasonably high number for a handheld product. That said, the units are all 1 or 2 years old. Additional discussion needed.	AIR REMOVE & REJECT V239-G1 GTK REMOVE CS1
V261	G1	The respondent reports 2304hr/yr use on gas-powered equipment with just one employee. This is 44hr/week engine running time per employee. This is not reasonable for one person.	REMOVE & REJECT V261-G1
V270	G1	The respondent reports using electric CS1 10hr/use after responding idk to frequency and originally hr/use. Additional discussion needed	ADDITIONAL DISCUSSION REQUIRED
V271	G1	The respondent report high string trimmer use, with a total of gas-powered equipment use of 9347 hr/yr across just 2 employees, for 90hr/week run time per employee, while servicing over 500 clients. These are not realistic responses. CARB removed string trimmer 1. Again a random approach to lower total equipment hours per employee.	REMOVE & REJECT V279-G1
V282	G1	The respondent reported using CS1 12hr/use and COMP1 24hr/use. These are not realistic responses.	REMOVE & REJECT V282-G1

V284	G1	The respondent reported identical operating time and ages for all products within their categories, with unusually high operating hours/use chainsaws. The respondent reported all five saws are operated 7x/week, 2hr/use, 10yo, (total 7280hr/saw), planning to keep all saws another 20years. These are not realistic responses. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT V284-G1
V289	G1	The respondent reports operating LB1 3.5x/week, 15hr/use, total of 2730hr/year, 6yo (total 16380hr). Considering the high total hours on other reported equipment, the response is not reasonable. CARB removed the leaf blower reported to be used 15hr/use.	REMOVE & REJECT V289-G1
V292	G1	The respondent report high lawnmower, leaf blower and string trimmer use, with a total of gas-powered equipment us of 5372 hr/yr, across just 2 employees, 51hr/week run time per employee, while servicing over 80 clients/week. The respondent reports LM1 6x/week, 6hr/use, 5yo (total 9360hr), LB1 6x/week, 6hr/use, 4yo (total 7488 hr), and ST1 6x/week, 4hr/use, 3yo (total 3744hr). These are not realistic responses. CARB removed LM1. It is unclear why CARB did not remove LB1 used 6x/week and 6hr/use based on other CARB analysis (see V18, V91, V212 CARB determines 5hr/use is "high usage")	REMOVE & REJECT V292-G1
V294	G1	The respondent reported using LM2 16hr/use and HT1 and HT2 18x/year, 20hr/use. These are not realistic responses.	REMOVE & REJECT V294-G1
V305	G1	The respondent reports 12699hr/yr use on gas-powered equipment with six employees. This is 41hr/week engine running time per employee. This is not reasonable run-time per person.	REMOVE & REJECT V305-G1
V308	G1	The respondent reported identical operating time and ages for all products within their categories, with unusually high operating hours/use of lawnmowers and string trimmers. The respondent reported not knowing the age of LM1, LM3 and LM4, but reported LM2 and LM5, the later reported as 7x/week, 2hr/use, 10yo (total 7280hr). The reported ST1 ST2, ST3 and ST5 6x/week, 2hr/use, 10yo (total 6240hr) and ST4 6x/week, 2hr/use, 5yo (total 3120hr). These are not realistic responses. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time	REMOVE & REJECT V208-G1

		of each product, or if they owned multiple pieces of equipment to being with.	
V315	G1	The respondent reports identical high use and age for all six chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, 6-10yo (min total 8yo estimate 3120hr/unit). These are not realistic responses.	REMOVE & REJECT V315-G1
V324	G1	The respondent reports using RM1 7x/week, 5hr/use, 10yo (total 18200hr). This is not a realistic response.	REMOVE & REJECT V324-G1
V359	G1	The respondent reports COMP1 3x/week, 30min/use, 50yo (total 3900hr). The combination of relatively high hours and 50yo is hard to believe. This response requires additional discussion.	ADDITIONAL DISCUSSION REQUIRED
V361	G1	The respondent reports using the leaf blower 4x/week for 2hr/use, 3yo (total 1248hr), with a gas-powered equipment use of 4706hr/yr use across just one employee, 90 hr/week. These are not realistic responses. Additionally, the respondent reports servicing 36 clients/week for between 31min and 2hrs, or approximately 30hrs/week. The equipment use time does not match the client service time. CARB removed a leaf blower used 4x/week for 2 hr/use. It is unclear why this was removed the reminder of the response still results in excessive and inconsistent hours of equipment use per employee.	REMOVE & REJECT V361-G1
V362	G1	The respondent reports identical high use for leaf blowers and string trimmers with a gas-powered equipment use of 8748hr/yr use across just two employees, 84hr/week per employee. Additionally, the respondent reports servicing 100 clients at least once a week for between 30minutes and 4 hours, or approximately 826hr/week with just 2 employees. The respondent reports using the LB1 and LB2 5x/week for 8hr/use, with LB2 3yo (total 6240hr), and ST1 and ST2 5x/week, 8hr/use, with ST1 4yo (total 5200hr) and ST2 2yo (total 2600hr). The equipment use time does not match the client service time. These are not realistic responses. CARB removed both leaf blowers and both string trimmers due to hours of equipment use per employee.	REMOVE & REJECT V362-G1
V365	G1	The respondent reports high use on a chainsaw 780 hours, and identical high use on 3 leaf blowers operating and identical 1300 hours/year each. However, the units are only reported to be one year old, and only expected to last one more year. Hedge trimmers and lawnmowers both have identical 43.33hr/year with 2 units each. In total, the 3 employees average 33hr/week run time, which is high, especially considering they service 100 clients weekly and another 100 clients at least once a month, approximately 125 clients/week. All thing considered, these are not realistic responses.	REMOVE & REJECT V365-G1

V376	G1	The respondent reported identical operating time and ages for all products in their categories, with unusually high operating hours/use of lawnmowers and string trimmers. The respondent reported lawnmower 4x/week, 5hr/use, 10yo (total 10400hr), and ST1 ST2 HT1 and HT2 all 5x/week, 4hr/use 10yo (total 10400hr). These are not realistic responses. Additionally, the respondent reports servicing 10 clients weekly and 10 clients at least once/month for 9.4 to 15hr/week service. The equipment use time does not match the client service time. Industry finds identical, unrealistic long hour/use, responses across every piece of equipment in a category odd. The responses draw more attention when repetitive patterns exist across categories with multiple pieces of equipment. Industry questions whether the respondent considered the use of each unique piece of equipment, or simply answered "same" without considering use time of each product, or if they owned multiple pieces of equipment to being with.	REMOVE & REJECT V376-G1
V379	G1	The respondent reports 1996hr/yr use on gas-powered equipment with just one employee. This is 39hr/week engine running time per employee. This is not reasonable for one person. Additionally, the respondent reports servicing 9 clients once per week for between 1-2hr/service. The equipment use time does not match the client service time.	REMOVE & REJECT V379-G1
V380	G1	The respondent reports using the LB2 5x/week for 1hr/use, 8yo (total 2080hr), ST2 5x/week, 2hr/use, 5yo (total 2600hr), with a gas-powered equipment use of 3624hr/yr use across just one employee, 70hr/week, while servicing approximately 85 clients/week. These are not realistic responses. CARB Remove lawnmower 1, leaf blower 1, string trimmer 1	REMOVE & REJECT V380-G1
V401	G1	The respondent reports high use for multiple products with a gas-powered equipment use of 7410hr/yr use across just two employees, 71hr/week per employee, while servicing 150 clients at least once a month. The respondent reports using the LM1 and LM2 1300hr/year and LB1 LB2 & LB3 520hr/year. Collectively, these are not realistic responses. CARB Remove lawnmower 1 (5x/week*5hr/use) / 1 leaf blower (5x/week*2hr/use) / 1 trimmer (3x/week*3hr/use), but retained other high hour units in an effort to lower the number of hours equipment is run per employee.	REMOVE & REJECT V401-G1
V402	G1	The respondent reports high use for multiple products with a gas-powered equipment use of 3412hr/yr use across just one employee, 65hr/week, while servicing 50 residential ("idk") customers. The respondent reports using LB1 5x/week, 4hr/use, 2yo (total 2080hr), ST1 5x/week, 4hr/useV, 6yo (total 10240hr) and ST2 5x/week, 2hr/use, 19yo (total 9880hr). These are not realistic responses. Additionally, the respondent reports servicing 50 clients per week between 31-60 minutes/service, for approximately 38hrs/week. The equipment use time does not match the client service time.	REMOVE & REJECT V402-G1

V409	G1	The respondent reports LM1 3x/week, 3hr/use, 11yo, (total 5148hr), LB1 4x/week, 3hr/use, 11yo (total 6864hr) and ST1 3x/week, 2hr/use 11yo (3432hr). These are not realistic responses.	REMOVE & REJECT V409-G1
V426	G1	The respondent reports 17430hr/yr use on gas-powered equipment with eight employees. This is 42hr/week engine running time per employee. This is not reasonable run-time per person.	REMOVE & REJECT V426-G1
V436	G1	The respondent reports 6253hr/yr use on gas-powered equipment with three employees. This is 40hr/week engine running time per employee. This is not reasonable run-time per person.	REMOVE & REJECT V436-G1
V437	G1	The respondent reports 5122hr/yr use on gas-powered equipment with two employees. This is 49hr/week engine running time per employee. This is not reasonable run-time per person.	REMOVE & REJECT V437-G1
V448	G1	The respondent reported six employees operating 7 chainsaws 390 hr/yr. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion.	AIR REMVOE & REJECT V448 G1 GTK ADDITIONAL DISCUSSION REQUIRED
V470	G1	The respondent reports 2064hr/yr use on gas-powered equipment with just one employee. This is 40hr/week engine running time per employee while servicing 40 clients per week. This is not reasonable for one person.	REMOVE & REJECT V470-G1
V473	G1	The respondent reports identical high hours on multiple products. The respondent reports 2x ST and 4x HT 10-20yo (min 6*52*1.25*15 = 5850hr/unit). The respondent reports 7300hr/yr use on gas-powered equipment with just three employees. This is 47hr/week engine running time per employee. This is not reasonable run-time per person. Additionally, the respondent reports servicing 30 clients/week for 31-60minutes/service. The equipment use time does not match the client service time.	REMOVE & REJECT V473-G1
V484	G1	The respondent reported 10 employees operating 20 chainsaws 390 hr/yr. The respondent reports 25935hr/yr use on gas-powered equipment with ten employees. This is 50hr/week engine running time per employee. This is not reasonable run-time per person.	REMVOE & REJECT V484 G1
V507	G1	The respondent reported 6 employees operating 15 chainsaws 390 hr/yr while servicing 600 clients a year. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion.	AIR REMVOE & REJECT V507 G1 GTK ADDITIONAL DISCUSSION REQUIRED
V509	G1	The respondent reported 6 employees operating 6 chainsaws 390 hr/yr while servicing 600 clients a year. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion. The similarities to V507, just one respondent away may require additional discussion.	AIR REMVOE & REJECT V509 G1 GTK ADDITIONAL

			DISCUSSION REQUIRED
V510	G1	The respondent reported 6 employees operating 12 chainsaws 390 hr/yr. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion. The similarities to V507 and V510, in series in this survey may require additional discussion.	AIR REMVOE & REJECT V510 G1 GTK ADDITIONAL DISCUSSION REQUIRED
V514	G1	The respondent reported 2 employees operating 5 chainsaws 390 hr/yr. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion. The respondent reports 4276hr/yr use on gas-powered equipment with just two employees. This is 41hr/week engine running time per employee while servicing 200 clients. This is not reasonable run-time per person.	REMVOE & REJECT V514 G1
V517	G1	The respondent reports identical high use and age for all three chainsaws at least 1x/day, greater than 1hr/use for a minimum 390/year/unit, CS1 6-10yo (min total 8yo estimate 3120hr), CS2 10-20yo (min total 15yo estimate 5850hr), and CS3>20yo (min total 20yo estimate 7800hr). These are not realistic responses.	REMOVE & REJECT V517-G1
V521	G1	The respondent reports using LB1 6x/month, 1hr/use, 30yo (total 9360hr). This is not a realistic response. Oddly, the other answers appear reasonable. Industry wonders if this is a data entry error.	REMOVE LB1
V525	G1	The respondent reported 6 employees operating 6 chainsaws 390 hr/yr. Considering this is a minimum 1.25hr/unit/day, the amount of saw time requires additional discussion.	AIR REMVOE & REJECT V525 G1 GTK ADDITIONAL DISCUSSION REQUIRED
V532	G1	The respondent reports being a single employee business with 100 chainsaws, all less than 5 years old. This does not seem realistic, especially considering the infrequent use reported. Furthermore, the respondent is unable to account for how long the equipment is used each time. As a result 100 chain saws are included in the total number of units, but omitted from the average hr/year calculation. Even IF the respondent owned 100 saws, and used 6 saws 1x/week, and 94 saws between once a month and once a year, as responded, the average worst max use (1.25hr/use) would have a significant impact on the average number of hours of total saws.	