

Letter of Transmittal

To: Santa Clara County Board of Supervisors

From: Santa Clara County Airport Commission

Cc: Clerk of the Board

The members of the Santa Clara County Airport Commission have gone to great lengths over the last two years to communicate with members of the Board of Supervisors on the issue of lead in aviation fuel. We have done so not only to meet our obligation under the commission bylaws but also in an effort to provide clear and accurate information to the public.

Santa Clara County Airport Commission - Commission Bylaws:

The commission operates under authorities established by action of the Santa Clara County Board of Supervisors. Among the "Powers and Duties" of the commission are:

Section 1. Function

The Commission shall serve as an advisory body to the Santa Clara County Board of Supervisors.

Section 2. Duties

The Commission **shall** have the following duties:

- b. To review and make recommendations on any research studies funded under grants or otherwise, **prior to final considerations of the studies by the Board.**

Despite numerous attempts by the commission to comply with these mandates and engage in a review of the report, the Board denied the commission the opportunity and chose instead to bypass the commission. In doing so, it deprived itself of a buffer and time to gather additional data, receive public input, and ensure the accuracy of the report.

Subsequent to that action, a representative of the County Counsel office engaged the commission (on the record) regarding the interpretation of the word SHALL. His interaction included an attempt to revise the wording of a letter of transmittal to exclude his actions. The view expressed by the County Counsel was that the wording is meant to state that commission action is not required; HOWEVER, the members of the Commission are resolute that the wording here is clear and unambiguous. It is clear that the intent of the Board that drafted the ordinance and approved the bylaws was to provide itself with input prior to consideration by the Board.

Zahran Report:

The Zahran report is a statistical manipulation of a database compiled by the California Department of Public Health. **At no time during the data gathering process did the investigators gather any samples or unique data nor did they compile any blood or airborne lead samples or independent information to supplement the data provided for the study. In addition, no attempt was made to confirm the accuracy of the information provided in the database.**

The report itself presents only "predicted" levels of lead - no verification or sampling to confirm the "predicted" levels was conducted.

The report also ignores four different reports on potential sources (including one in the same journal that published the Zahran Report) that contain documented (and verified) data on sources of lead.

UC Berkeley study identifying almost one-third of the airborne lead over the Bay Area originates in Asia.

(<https://vcresearch.berkeley.edu/news/study-shows-third-lead-our-air-comes-asia>)

Strong evidence that legacy lead from pre-2000 time frame continues to be present in airborne lead samples.

<https://www.pnas.org/doi/10.1073/pnas.2102791118>

Soil is the dominant lead source found in El Paso and Los Angeles

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005019>

“X-ray absorption spectroscopy demonstrates that the source of the majority of the lead in PM in El Paso, and presumably in other US cities, is not current anthropogenic output. Instead, local contaminated soil, a legacy of earlier Pb releases, serves as a long-term reservoir that gradually is leaking particulate lead, much in the form of Pb-humate, to the atmosphere. Given the difficulty and expense of large-scale soil remediation or removal, this Pb-humate may establish a practical lower limit for airborne lead levels in many urban settings.”

Lead-contaminated soils are an important source of lead burdens to urban populations

<https://pubmed.ncbi.nlm.nih.gov/20173294/>

There are many parts of the Zahran Report that are problematic. Some of them were highlighted in a presentation provided by Stephen McHenry of the San Martin Neighborhood Association to the Airport Commission at the December 12, 2023 meeting.

About the Lead Study

Relies on 1 major assumption

- That the measurements were accurate

Many BLL analyzers were developed in the 1990s when BLLs were much higher (10-50)*

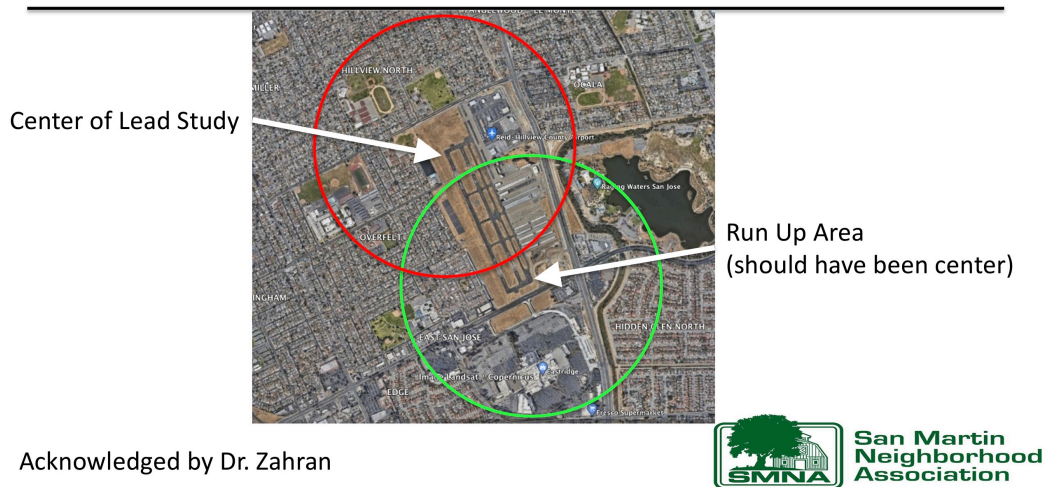
- Below 10 ug/dl, they are not accurate
- Only certified down to 3 ug/dl
 - Accuracy of +/- 4ug/dl
- Lead study attempts to draw conclusions based on readings of 1.9 ug/dl vs. 2.1 ug/dl (difference of 0.2)

* - 3 recently recalled for giving erroneous results



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Incorrect Center



It must be noted that the placement of the center as depicted above negates one of the findings of the study - that being that lead levels to the east would be found to be higher. Based on the study's center location **there are no (ZERO) residences within the .5 mile radius** and the location of the first residences would be found between .9 miles and 1.0 miles from the center.

Science versus Statistics:

Over the last three years, our country has achieved a greater understanding of what Science is and how it should work. Science is and has been a three step process - Develop a hypothesis, Gather and verify data, and deliver conclusions that can then be peer reviewed and challenged using scientific data in the same manner. The Covid Pandemic and suppression of scientific investigation and opposing viewpoints is very fresh in our memories.

The Zahran Study deviated from the scientific process in several ways:

The hypothesis was preordained in that there was a specific target directed by those outside of the scientific community. The goal was set based on preconceived bias and objectives - there have been statements from public officials and activists for years decrying lead in the environment and the supposed source being the airport.

The data was provided from a CDPH data-base - no independent testing or verification was done for the study. The data was then "manipulated" statistically to place it geographically around the airport. The resulting mapping was flawed based on the placement of the center point location of the study.

The single largest flaw of the study was the failure to identify any specific sources of the lead. More to the point, the study failed to reference any other studies that did refer to sources of lead. Finally, additional local factors were not disclosed to the investigators: 1) the existence of the race track adjacent to the current airport, and 2) the previous existence of the original San Jose Airport to the northwest of Reid Hillview (bounded by Cunningham Avenue, King Road, and Story Road) that operated from the late-1920's until the mid-1950's and then was used as a drag strip.

The result was a conclusion that was clearly predetermined. With no additional data points to corroborate the findings and no source identification, all the report provides is an opinion (prediction) based on the database and the resulting answer is a solution to a math problem.

The County then commissioned the Jacobs Engineering Study.

Soil-Based Lead Study Results

- Cost - \$130,000
- Requests for the results unanswered for weeks
- Results not released until a news organization made request pursuant to the California Public Records Act
- Soil samples taken from 32 locations around RHV
- 6" deep and 12"-18" deep
- Federal, State and Regional danger levels 50-800mg/kg
- None of the samples exceeded any Federal, State or Regional levels



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To the best of our knowledge, the Board has not yet officially received or acknowledged those results. The study was produced after the Zahran study was already accepted as fact by the Board.

Clearly, lead contamination sources need to be identified and addressed but this must be done rationally and in a proportional manner. Lead paint (yes, we are aware of the \$300 million lead paint settlement that thus far is mostly untouched) which can leach into the soil and contaminate food sources, pipe solder (50% lead), automobile exhaust lead, and agricultural uses of lead arsenate are among the sources that contribute at a far greater level than aviation ever could.

Most importantly, **at no point during this entire process were sources of lead ever identified so that a mitigation process could be established and public health and safety addressed.**

Environmental lead hazards are pervasive throughout the state of California. CDPH developed geographic risk indicators supporting the development of expanded blood lead testing requirements. In addition, mapping the gradation of geographic risk can inform decisions on where to target interventions when resources are scarce.

Taking into account all eleven geospatial risk indicators, 99.2 percent of California's ZIP codes present increased risk for lead exposure. Only 13 California ZIP codes do not have a geospatial risk indicator. See Appendix E for the lists of covered and remaining ZIP codes.

Table 16. Geospatial Indictors of Risk for Childhood Lead Exposure for California ZIP Codes

Criteria ^A	ZIP Codes ^{B,C}	Additional ZIP Codes ^D	Cumulative ZIP Codes ^E	Percent of ZIP Codes Covered ^F
AAP - 25% pre-1960 ^G	888	888	888	51.4%
25% pre-1978 ^H	1,388	500	1,388	80.4%
AAP - 5% BLLs 4.5+ ^I	83	8	1,396	80.9%
2.5% BLLs 4.5+ ^J	207	12	1,408	81.6%
1.7mi current or historic lead emitting facility ^K	854	164	1,572	91.1%
1,000 feet SHN ^L	1,512	127	1,699	98.4%
City with a smelter ^M	232	4	1,703	98.7%
1km airport ^N	328	1	1,704	98.7%
1km railroad ^O	993	8	1,712	99.2%
1,000 feet speedway ^P	84	0	1,712	99.2%
In water district with at least one known leaded user service line or fitting ^Q	175	1	1,713	99.2%
Remaining ^R	--	13	1,726	100.0%
Total	--	1,726	--	--

These are the zip codes identified by the CDPH as having no Geospatial risk for Childhood Lead Exposure:

91377	92567	95672
92067	92587	95962
92091	92697	96063
92253	93262	
92267	93424	

The following table identifies by zip code the areas with the highest percentage of children with a BLL of 4.5 µg/dL or greater. Note that 2 of them are located in Santa Clara County but none of them are near an airport.

Table 5. Percent of Children with a Blood Lead Level (BLL) of 4.5 µg/dL or Greater, by ZIP Code, 2020

ZIP Code	Postal District Name	Number of children under 6 with a BLL of 4.5 µg/dL or greater	Percent of children under 6 with a BLL of 4.5 µg/dL or greater	Total number of children under 6 with a BLL
95821	Sacramento	101	13.87%	728
95608	Carmichael	51	9.64%	529
94536	Fremont	24	4.15%	579
94538	Fremont	23	4.01%	574
90037	Los Angeles	36	3.79%	950
95051	Santa Clara	19	3.61%	527
92021	El Cajon	30	3.08%	975
90042	Los Angeles	12	2.82%	426
93638	Madera	47	2.66%	1,769
90006	Los Angeles	18	2.62%	686
90026	Los Angeles	13	2.50%	520
95670	Rancho Cordova	11	2.44%	450
90002	Los Angeles	21	2.39%	877
95240	Lodi	12	2.39%	502
95823	Sacramento	22	2.38%	923
95035	Milpitas	16	2.38%	672
90011	Los Angeles	43	2.38%	1,809
95076	Watsonville	25	2.36%	1,059
92126	San Diego	11	2.33%	472
95350	Modesto	11	2.24%	492
90018	Los Angeles	12	2.22%	540

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The table below indicates California Local Health Jurisdictions, by percentage of children under 6 years old with Blood Lead Level of 4.5 µg/dL or greater - 2020

Local Health Jurisdiction	BLL < 4.5 n	BLL < 4.5 % (row)	BLL ≥ 4.5 n	BLL ≥ 4.5 % (row)	Totals
Kern	12,623	98.87%	144	1.13%	12,767
Santa Clara	13,900	98.88%	158	1.12%	14,058
Orange	23,019	98.97%	240	1.03%	23,259
Placer	1,156	98.97%	12	1.03%	1,168
San Diego	31,402	98.97%	326	1.03%	31,728
Los Angeles	81,353	99.01%	811	0.99%	82,164
Shasta	416	99.05%	4	0.95%	420
Santa Barbara	4,765	99.13%	42	0.87%	4,807
Sonoma	1,596	99.13%	14	0.87%	1,610
Stanislaus	4,771	99.13%	42	0.87%	4,813
Tehama	1,066	99.16%	9	0.84%	1,075
San Bernardino	20,871	99.20%	168	0.80%	21,039
Marin	1,445	99.24%	11	0.76%	1,456
Napa	781	99.36%	5	0.64%	786
Long Beach	3,674	99.38%	23	0.62%	3,697
Ventura	7,618	99.49%	39	0.51%	7,657
Riverside	25,790	99.53%	122	0.47%	25,912
Tests with unknown jurisdictions	1	100.00%	0	0.00%	1
California Totals	336,386	98.79%	4,130	1.21%	340,516

Table 3. California Local Health Jurisdictions, by Percent of Children Under 6 Years Old with a Blood Lead Level of 9.5 µg/dL or Greater, 2020

Local Health Jurisdiction	BLL < 9.5 n	BLL < 9.5 % (row)	BLL ≥ 9.5 n	BLL ≥ 9.5 % (row)	Totals
Sacramento	11,978	99.34%	79	0.66%	12,057
Alameda	11,894	99.51%	58	0.49%	11,952
Berkeley	406	99.51%	2	0.49%	408
Merced	2,663	99.51%	13	0.49%	2,676
Butte	1,658	99.52%	8	0.48%	1,666
Contra Costa	5,294	99.53%	25	0.47%	5,319
Humboldt	1,695	99.53%	8	0.47%	1,703
Solano	3,573	99.58%	15	0.42%	3,588
Yolo	1,667	99.58%	7	0.42%	1,674
Santa Cruz	1,718	99.59%	7	0.41%	1,725
Fresno	11,967	99.64%	43	0.36%	12,010
Madera	3,411	99.68%	11	0.32%	3,422
Pasadena	937	99.68%	3	0.32%	940
Suppressed Jurisdictions	7,605	99.69%	24	0.31%	7,629
San Joaquin	8,597	99.69%	27	0.31%	8,624
Tulare	4,573	99.69%	14	0.31%	4,587
Santa Clara	14,016	99.70%	42	0.30%	14,058
San Francisco	6,567	99.74%	17	0.26%	6,584
San Mateo	4,816	99.75%	12	0.25%	4,828
Sonoma	1,606	99.75%	4	0.25%	1,610
Stanislaus	4,801	99.75%	12	0.25%	4,813
Orange	23,204	99.76%	55	0.24%	23,259
San Diego	31,659	99.78%	69	0.22%	31,728
Los Angeles	81,997	99.80%	167	0.20%	82,164
Monterey	5,977	99.80%	12	0.20%	5,989
San Luis Obispo	1,066	99.81%	2	0.19%	1,068
Santa Barbara	4,798	99.81%	9	0.19%	4,807

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For Table 3 (those with BLL's above 9.5 µg/dL), the total in the state is 838 and the average percentage is 0.25%.

The California Department of Public Health presents a very different view of non-housing sources of lead:

Table 10. Categories and Examples of Non-housing Sources of Lead Exposure

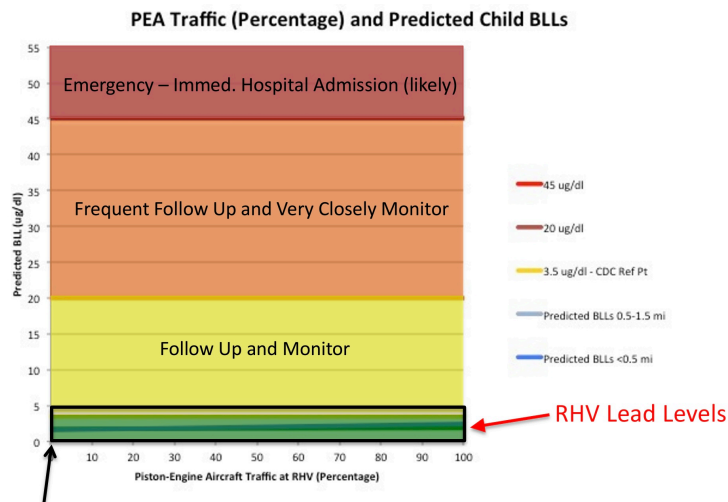
Category	Examples
Cosmetics/ Spiritual Religious Products	Black powder (e.g., kohl, surma, tiro), ceremonial powder, sindoor
Food/Spices/Drink	Dried grasshoppers (chapulines), turmeric, khmeli suneli, lozena, imported candy
Take-home or Occupational	Exposed through either personal or parental work or hobby
Pottery & Utensils	Vintage/hand-made/imported pottery, leaded glassware, water dispenser/urn/samovar, food grinder
Other	Fishing weight, jewelry/charm/amulet, painted object, metal object, lead ammunition, deteriorated vinyl/plastic, game meat/fish (from leaded bullets/sinkers), lead batteries, and lead solder
Traditional Medicine/ Remedies	Azarcon, greta, ayurvedic remedy (e.g., Ghutti, Keasari Balguti), paylooah, traditional Chinese remedies
Retained bullet	
Perinatal exposures	Mother ate food high in lead content during pregnancy, mother took remedy high in lead during pregnancy

As you will note, aviation lead is not even listed in the table shown. In fact, you need to look down to footnote 'N' to find mention of leaded aviation fuel:

"N": Lead continues to be used in avgas for small-craft airplanes. A list of 183 airports where leaded fuel is recorded as being used in the Federal Aviation Administration's Airport Data and Information Portal (extracted on March 21, 2021) were mapped and a 1 km buffer was drawn.

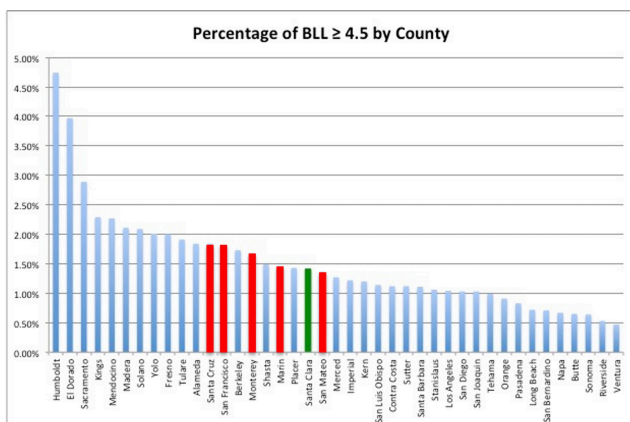
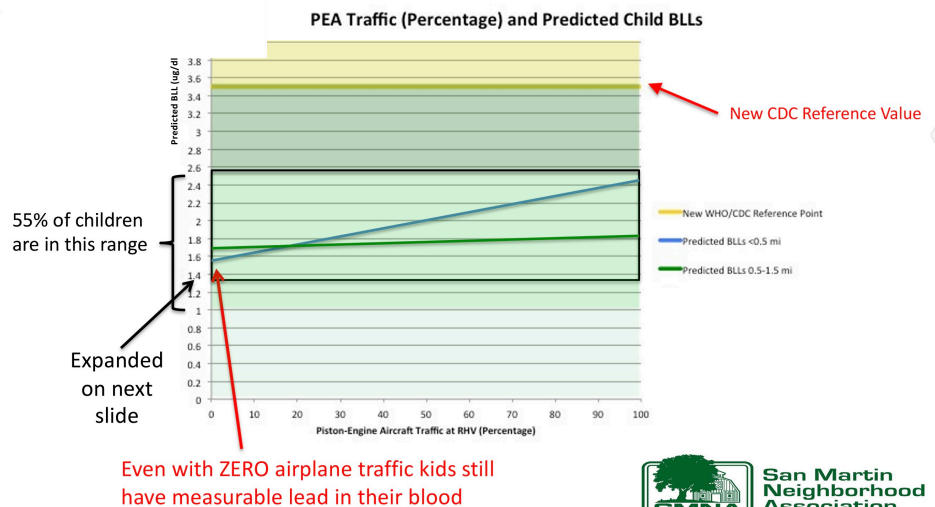
Data Presentation Bias or Poor Scientific Practice - You Judge?:

It became very evident when looking at the data presentation in the Zahran Report is that the desired picture it was painting was intended to be dramatic. This meant creating graphs with steep lines that would indicate dramatic change instead of accurate depictions showing shallower lines demonstrating small or minimal change. There are numerous examples of this and we highlight some of them here:



The graph at the left indicates the Blood Lead Levels at which action is taken. Note that the Reid Hillview levels are in the green range indicating that no action is necessary.

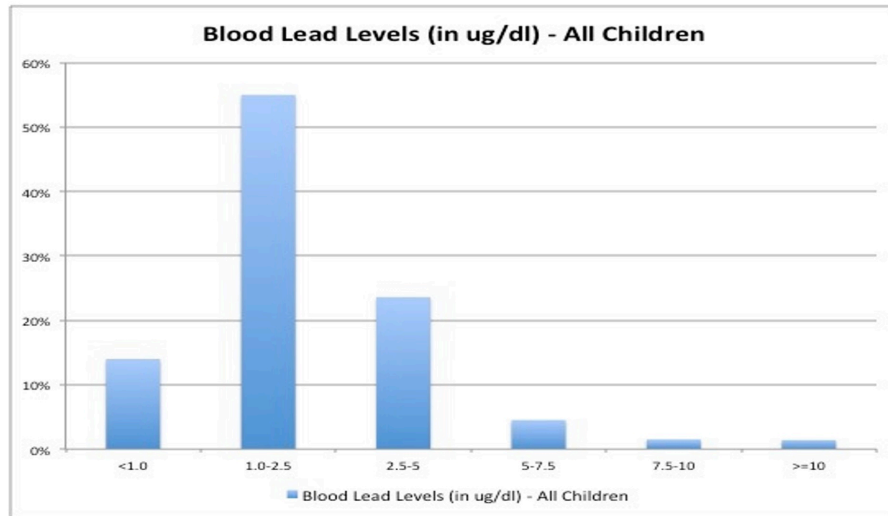
The graph at the right shows the CDC Reference Value relative to the predicted values from the Zahran Report. Note the reference regarding Zero airplane traffic - **We can equate that to all aircraft operating on unleaded fuel in the near future.**



Note the BLL's by county: Santa Clara County is the second lowest in the Bay Area - Only San Mateo County is lower.

Blood Lead Levels in Santa Clara County are about at the median for the state

This graph indicates the Blood Lead Levels of All Children nationwide:

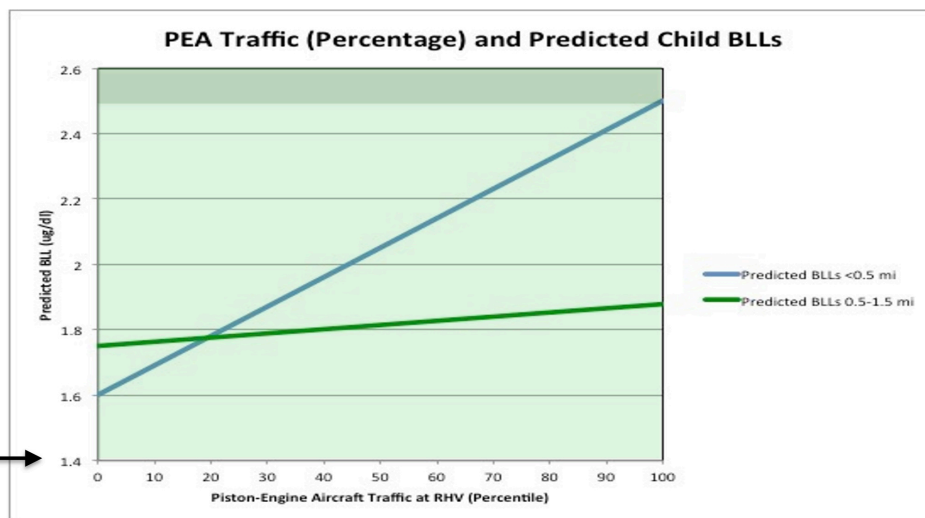


According to this NIH study, the majority of children studied in the US have BLL in the 1.0-2.5 range – same as those studied near RHV

<https://pubmed.ncbi.nlm.nih.gov/19254973/>



Note:
Base of
graph
is 1.4 not
zero

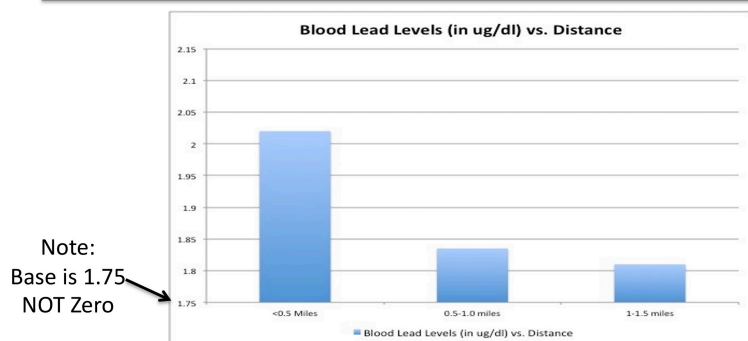


As all lead is removed from the fuel, BLLs will drop, but not to zero due to other lead in the environment (from paint, plumbing, etc. which are bigger sources of lead)

Lead Study - Figure 15 – Page 58



What the Neighbors Were Shown



With the base of the graph moved to 1.75, it makes the situation appear far worse.

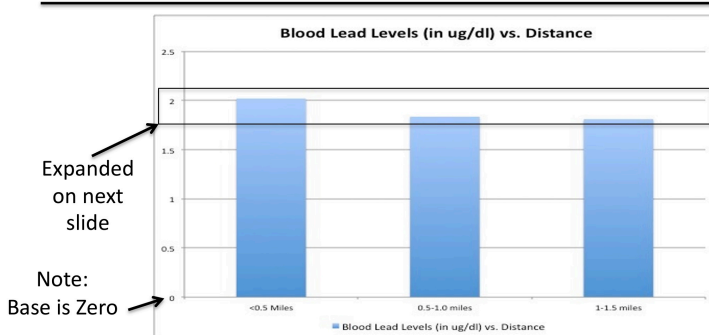
The graph at the left would tend to indicate a steep decrease in lead levels as you move a greater distance away from the airport.

Lead Study - Figure 9 – Page 36



The Accurate Graph

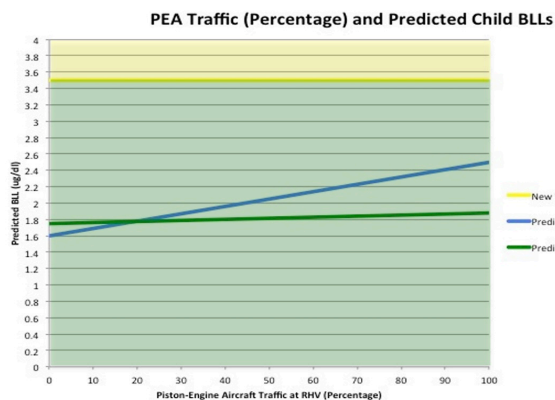
The proper graph presented to the right gives a more accurate depiction of the reduction in lead levels as you move farther from the airport.



Here is an accurate representation of BLL vs distance. Note how similar the values actually are.

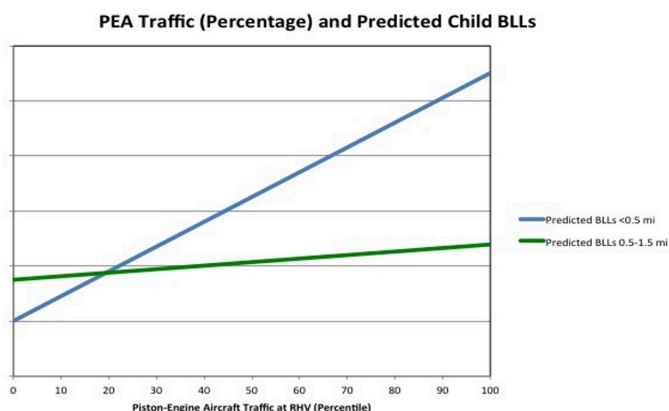


Accurate Graph vs. What Neighbors Were Shown



The accurate graph

VS.

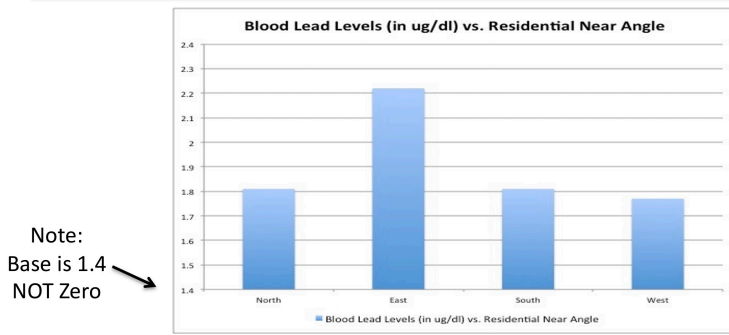


What neighbors were shown



Here, we see just what effect a difference in graphic presentation can have. The graph on the right is what the airport neighbors were shown. The one on the left is a more accurate depiction.

What the Neighbors Were Shown



With the base of the graph moved to 1.4, it makes the situation appear far worse.

Projected Blood Lead Levels (BLL's) were a large concern of the airport neighbors. One of the major conclusions of the study was the impact prevailing wind had on the spread of lead and the corresponding impact it has on specific neighborhoods.

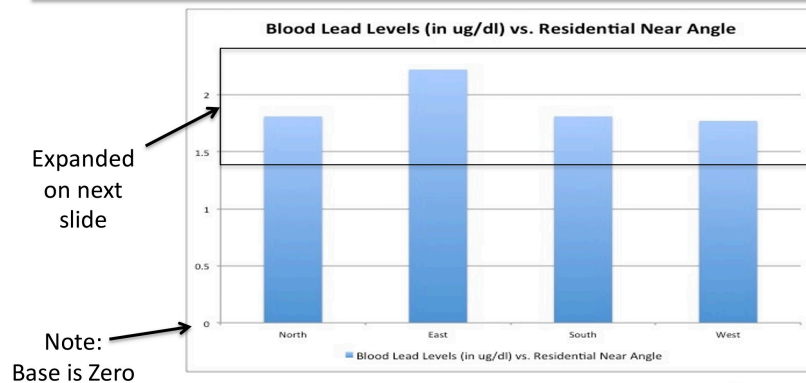
Lead Study - Figure 10 – Page 40



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The Accurate Graph

What you will note is the dramatic looking difference between the graph above and the graph to the right. This is clearly based on a conscious decision to select a base to create an appearance that looks far worse.

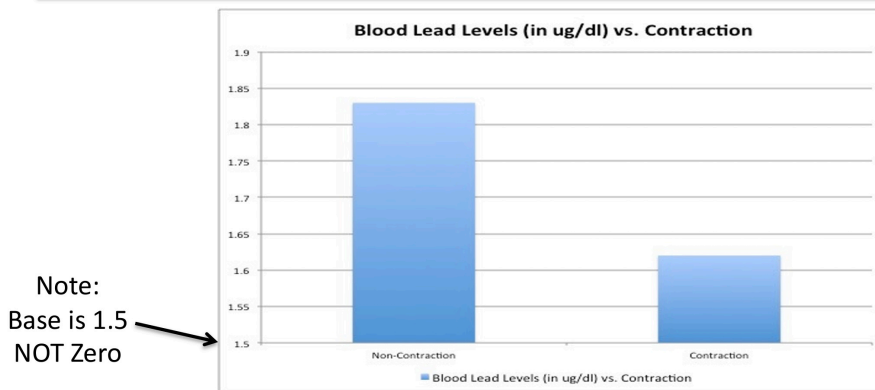


Here is an accurate representation of BLL vs Residential Near Angle



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What the Neighbors Were Shown



And, with the base of the graph moved to 1.5, it makes the elimination of aviation fuel look much more dramatic

Lead Study - Figure 17 – Page 64



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This graph from the study was meant to present what a dramatic decrease in BLL's would occur if lead were removed from the airport (or for some if the airport were closed). **One problem - the airport has already removed the amount of lead necessary to accomplish this contraction. More importantly, since no data has been taken (either before or after the lead was removed) there is no way to prove that this actually happened.**

BAAQMD Lead Monitoring at RHV

- Monitoring from 02/03/2012 through 6/20/2020
 - Every six days (“6d”)
 - Testing discontinued 6/2020 (earth-moving equipment impacted power source)
- Located within airport property; Lead levels will be exponentially lower outside of airport

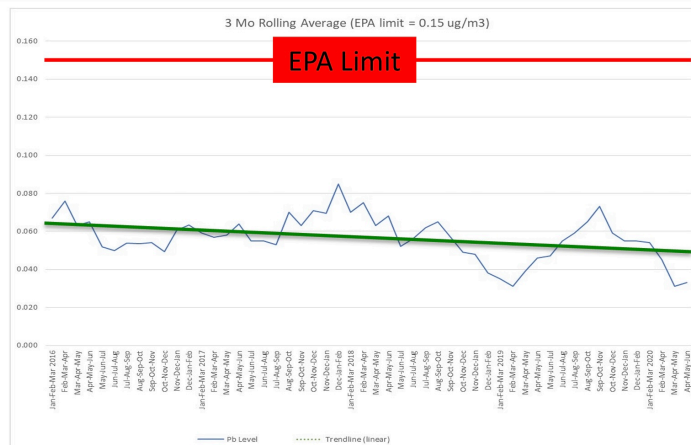


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Rolling 3 Month Lead Average (1/1/2016 thru 6/20/2020)



Mean 0.056561
Median 0.056

- Average was ~0.057:
about 1/3 EPA limit
- EPA limit is 0.15 over a 3
month calendar period
- Average lead (green line)
decreasing over time

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The decrease in lead occurred prior to the introduction of Unleaded Fuel at Reid Hillview

BAAQMD Eliminating Lead Testing Due to Low Measured Levels

“The Air District expects to request EPA approval of the shutdown of the Reid Hillview monitoring site outside the annual network plan process in 2021 **considering the most recent 3-month averages of lead concentrations are below 50% of the NAAQS**”

June 7, 2021 email
Charley A. Knoderer, CCM
Meteorology & Quality Assurance Manager
Meteorology & Measurement Division
The Bay Area Air Quality Management District

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NAAQS – National Ambient Air Quality Standard [EPA regulated]



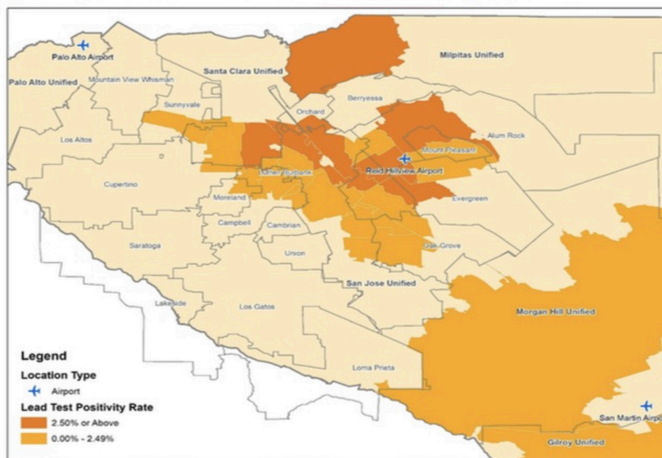
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The Santa Clara County Office of Education produced their own lead study produced a White Paper: Children's Exposure to Lead in Santa Clara County dated August, 2021. In it, they listed Leaded Aviation Fuel at Reid Hillview Airport as a "significant source of airborne lead pollution in the Santa Clara Valley". They listed it first over all other sources of lead, including paint, water pipes, and legacy lead from automobile fuel.

Figure 1: Map of 2012 Child BLL Data in Identified Santa Clara County Zip Codes

% of children
with BLL >
4.5 ug/dl

Source: SCC Office
of Education



2.5% or
more had
BLLs over
4.5 ug/dl

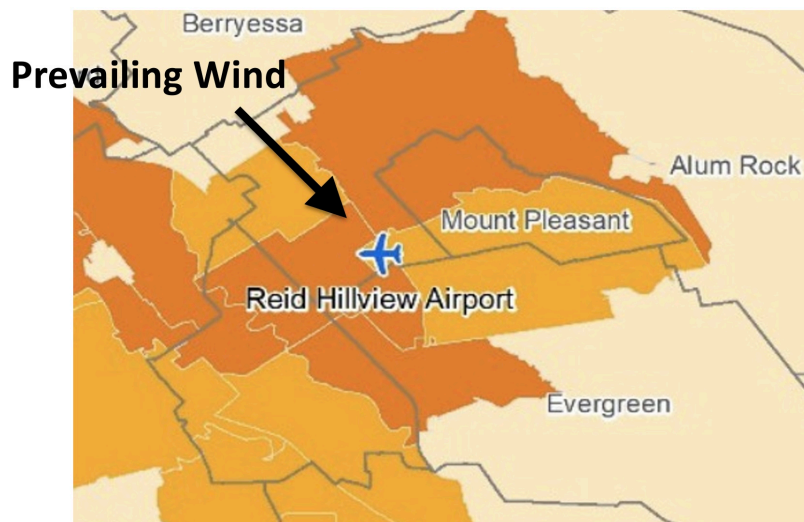
0-2.5%
had BLLs
over 4.5
ug/dl

<https://www.sccoe.org/Documents/Whitepaper%20Children%27s%20Exposure%20to%20Lead%20in%20Santa%20Clara%20County.pdf>



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2.5% or
more had
BLLs over
4.5 ug/dl

0-2.5%
had BLLs
over 4.5
ug/dl

The prevailing wind is from the NW, so the areas SE of the Airport ***should*** have higher levels of lead IF the lead in the environment was predominantly from aviation fuel

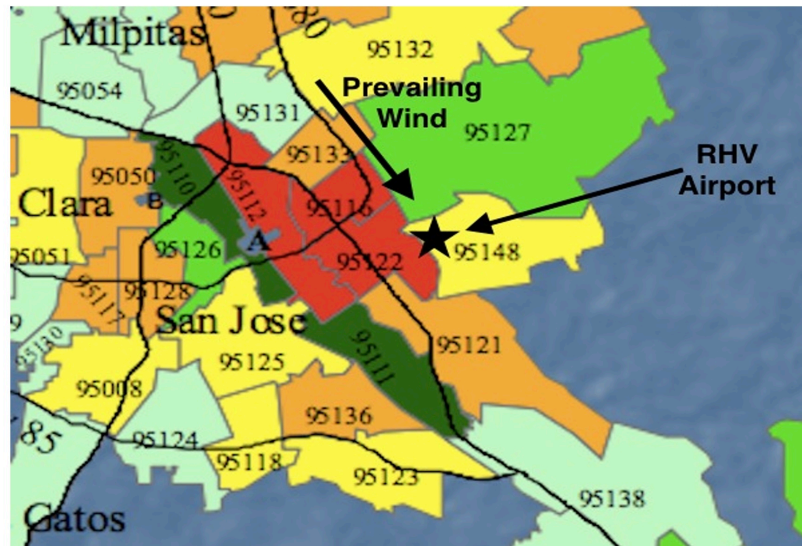


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Interestingly, the graphics they provided are directly contradictory to the Zahran Report - that is, the highest lead levels should be found east of the airport. Their graphic indicates they are found south to west to north and the area east indicates lower lead levels.

Further, these graphics were used by LUNA in their flyers and other public documents to promote lead education while under contract with Santa Clara County.

The Santa Clara County Department of Public Health produced a map displaying similar results
- lowest lead levels to the east of the airport.



Similar results are found in this study.
The highest levels of lead are to the NW and W
of the airport



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Mr. Michael McDonald wrote a letter to the EPA dated February 28, 2022 (excerpted here):

The motive for Santa Clara County ("County") is to close an airport and thereby reap a quick financial windfall. They have dressed up their financial motives with a pretext of health concerns for the marginalized. Unfortunately, the County has manufactured a crisis.....

Even worse, by spreading misleading information about the impact of aviation fuel, the County needlessly creates unwarranted concerns for all families living near airports and undeservedly devalues all communities near airports. They are not helping these communities as they profess; they are hurting them and redirecting scarce health resources in the wrong direction.

...The Study found that there is a correlation between leaded AvGas sales at RHV and child BLLs - an increase in one will increase the other. Just as importantly, the converse applies: if leaded AvGas sales are eliminated, child BLLs will not be elevated. As the County has eliminated leaded AvGas sales at the airport, **the concern by the County that the airport and airplanes elevate BLLs is no longer relevant.**

...The Study results also show that no special action is needed. As opined by a Yale University School of Medicine physician and researcher who provided a peer review of the Study, **"this finding is not a crisis"** and there are "some important differences" to the Flint, MI crisis. **The CDC provides a BLL reference value of 3.5 micrograms per deciliter (µg/dL) for case management;** this level represents the worst 2.5% of the population's BLL levels and prioritizes this population for medical and environmental follow-up; below this level, physicians take no action. **The Study found the mean level for those located closest to the airport was 1.93 µg/dL,** which is below the current CDC reference value and far below the CDC reference values - 5 µg/dL and 10 µg/dL - in effect during the time period covered in the Study.

...It should be noted that the data used in the Study is fundamentally flawed, and so the Study itself should be questioned. BLL testing equipment was developed in the 1990s to detect elevated BLLs above 10 µg/dL. With the substantial reduction of community BLLs since that time, this equipment is inadequate to accurately and precisely test at current BLLs; this is a limitation recognized in the industry. The Study assumes a precision and accuracy in the data that unfortunately is not supported by the equipment used to do the test.

The County actually has an opportunity to validate the research, but has been unwilling to do so, further highlighting their specious health arguments. **The Study indicates that BLLs should go down with the County's actions to stop the sale of unleaded fuel; this can now be validated ... a positive correlation would show that the County's actions have reduced BLLs in the community, and a negative correlation would indicate that aviation did not lead to an increase in BLLs.** **Both results would be positive for the community,** but neither align with the County's political agenda of closing the airport and so aren't being pursued. In addition, while the County is now conducting additional lead studies of RHV, **they refuse to include a forensic analysis of the source of the lead which would serve to better target the real sources of lead** and more effectively use constrained health budgets; their lack of interest in this highlights a political - and not a health - agenda. If their real interest was community health, they should have supported these research opportunities.

Peer Review - (Note: Dr. Cullen is now at Stanford University):

Blood Lead Levels Found Near RHV are not Actionable nor a Crisis

If correct, the Study results also show that no special action is needed. This is a manufactured crisis of the County's own making.

As opined by Dr. Mark Cullen, a Yale University School of Medicine Physician and Researcher, who did the County's peer review of the Study,

[T]his finding is not a crisis. Although reference is made in the report to the debacle in the Flint drinking water several years ago, and the incremental lead effect is quantitatively similar, there are some important differences. The population impacted is relatively small, the impact is seasonal, and most importantly, only 1-2% of the measured levels, even with the attributable exposure, reached the "action level" for removal from exposure if I understood correctly. While the view that no level of exposure is safe is currently the predominant view among experts, there remains debate about how steep the effect on IQ is in the very low range, which is the basis for the cost estimate in terms of impact on lifetime earnings of the "airport effect" ... I am also mindful of the risk that the airport could become an undue focus of community anxiety about health, when there may be better targets for this energy in the pandemic era.⁴

to which Dr. Zahran, the author of the Study, replied:

*Finally, with respect to Dr. Cullen's assessment of the implications of reported results, **we agree fully with the spirit of his remarks that one must be judicious in the allocation of scarce resources in attending to questions of population health and welfare. We agree with all of his distinctions between the Flint Water Crisis – that we use to contextualize the meaning of observed "airport" effects throughout – and exposure to lead-formulated aviation gasoline at RHV.***⁵

Sadly, Dr. Cullen's prediction that this could become "an undue focus of community anxiety" has been exacerbated by the County's own actions; **the County consistently incorrectly compares this to Flint knowing full well this creates a community anxiety that can be leveraged to close the airport.**

A little more explanation on why this is not a crisis. The national CDC currently provides a BLL reference value of 3.5 µg/dL for case management; during the period of the study, this CDC BLL reference value environmental follow-up; below this level, physicians take no action aside from general education. As everyone in society has a positive BLL, this reference level enables physicians to prioritize those at highest risk and similarly allows those under this threshold to not be unduly concerned (or terrorized by the County, in this case).

The Study found the mean level for those located closest to the airport was 1.93 µg/dL, which is below the current CDC reference value and far below the CDC reference values – 5µg/dL and 10 µg/dL – in place during the Study's timeframe. In other words, for the average child living closest to RHV, they should NOT be concerned; they do not have an actionable BLL.

At the high end, the Study found that about 1.7% of the population had a BLL in excess of 4.5 µg/dL⁶; this is less than the 2.5% benchmark set by the CDC. Put differently, of the 17,162 people tested over the 10 years of the Study, 1.7% is roughly 29 children annually with an elevated BLL.⁷ The County estimates that 12,805 children live within the Study area⁸; 29 children annually is therefore **roughly 0.2% of the children living within 1.5 miles of the airport that apparently have an elevated BLL.**

This is clearly not a community crisis.

With respect to the County's constant misleading and incorrect refrain in the press and to government agencies that the "RHV lead exposure is worse than the Flint Michigan lead crisis": the Study explicitly indicates that the switch in water source in Flint caused child BLLs to increase by about 0.35 to 0.45 µg/dL from a pre-crisis baseline of about 2.3 µg/dL.⁹ In contrast, aviation lead at RHV contributed far less than Flint, MI and had a baseline of far less than Flint, MI; shown below are the actual results of the Study.¹⁰

One concern that came up was the question of paying for the peer review. This is a hotly debated issue among academics for which there is no clear answer; **however, in this case there is a caveat that not only is concerning but casts a cloud over the report.**

Here is the explanation: The reason a journal submission is subject to peer review is simple - does the article meet the standards of the journal for accuracy and academic rigor. The peer reviewer is one who is considered an expert in the field and it is considered an academic honor or accolade to be selected to peer review a submission.

There are a number of issues in the academic community relating to peer review: Should peer reviewers be paid? There are two camps here:

Those in favor:

- 1) Time
- 2) Shortage of peer reviewers
- 3) Encourage better quality reviews
- 4) Journals can afford it

Those against:

- 1) Growth in unethical behavior
- 2) kills experimentation
- 3) Costs would increase
- 4) It damages inclusivity

Regardless of the outcome, there are arguments on both sides. The core issue, however, is the need for recognition, for which compensation may or may not play a role.

There is an innovative approach to this debate - the 450 movement: it states that \$450 is an adequate fee to charge for a peer review. This opinion is not universally shared and has generated significant differences of opinion.

There is an ethical aspect to this discussion as well. How do you avoid conflicts of interest for both the reviewer and journal editor? Does compensation speed up the review process? Does this create pay to play among reviewers where representatives shop reviewers for hire?

Why is this being brought up? Simply put: **The county put a bounty on the Zahran Report. That is, the county placed a budget of \$90,000 on the peer review process to get this report published. Is that ethical? Is that an exorbitant amount to offer? How much was actually spent?**

You be the judge, but the lack of transparency on the part of the Board clearly raises questions.

Study Concerns: Relies on Equipment Performance that Does Not Exist

With the substantial reduction of community BLLs, BLL test equipment is inadequate to accurately and precisely test at the levels found in the Study.

BLL testing equipment was developed in the 1990s to detect elevated BLLs above 10 µg/dL.¹¹ The current United States regulatory limits for BLL testing were set more than 25 years ago, at ± 4 µg/dL or 10% of the target value, whichever is greater.¹² Most laboratories can achieve a performance of at least ± 2 µg/dL at low blood Pb levels.¹³ The current US criteria mean a BLL sample of 5 µg/dL could be reported within a range from 1 to 9 µg/dL, and still be considered correct. As the report explicitly states, "This makes interpreting patient blood Pb test results uncertain at low levels."¹⁴

This is a limitation recognized in the industry:

Accuracy and precision may be insufficient to quantitate low blood Pb levels in the 1–5 µg/dL range, which is essential now that the CDC blood Pb reference value is 3.5 µg/dL.¹⁵

The Study assumes a precision and accuracy in the data that cannot be accomplished with today's equipment.

Conclusions:

The Board of Supervisors chose to bypass the Airport Commission and their review of the Zahran Report prior to adoption. Doing so deprived the Board of a review of the report by the Commission in an unbiased manner with adequate time to gather factual data and subject matter expert input.

Dr. Zahran, the author of the Reid Hillview Airport Lead Study, wrote a study that statistically manipulated a California Department of Public Health database on Blood Lead Levels. He did so without independently verifying the data or the methodology of its collection. Further, he did not take steps to verify that the data supported his conclusions.

It would appear that the Board did not consider aviation safety in banning leaded aviation fuels. The Board also lacks the authority under Federal Law to ban 100LL fuel in its entirety from the county airports.

Santa Clara County has referred to airborne lead as an existential threat and continues to point at aviation as a source. Blood Lead Levels (BLL's) in many areas of the state are significantly higher than those found in Santa Clara County, which already is statistically below the state average. **More importantly, the locations in the county with the highest lead levels are not near an airport.**

Given the information stated above, it would appear that the term "crisis" when referring to airborne lead around Reid Hillview Airport is an overreach.

We do agree with one conclusion of Dr. Zahran when he stated that transitioning to Unleaded Avgas would mitigate any future lead impact from aviation. **The majority of operations currently occurring at Reid Hillview Airport already utilize unleaded fuels. The only avgas currently available for sale at the Santa Clara County airports is unleaded fuel.**

With the anticipated availability of 100 octane unleaded fuel in the near future, it is the County of Santa Clara (as the sole provider of fuel to the aviation community) who will decide how quickly the airport goes fully lead free.

The commission respects Dr. Zahran but finds numerous flaws in the report he produced. Specifically, he did not address:

- Errors or problems with the data set provided by the CDPH

- He did no independent verification of the data - either before he did the analysis or after to support his conclusions

- He did nothing to identify the sources of lead in the environment and he did not reference existing studies that provided that information

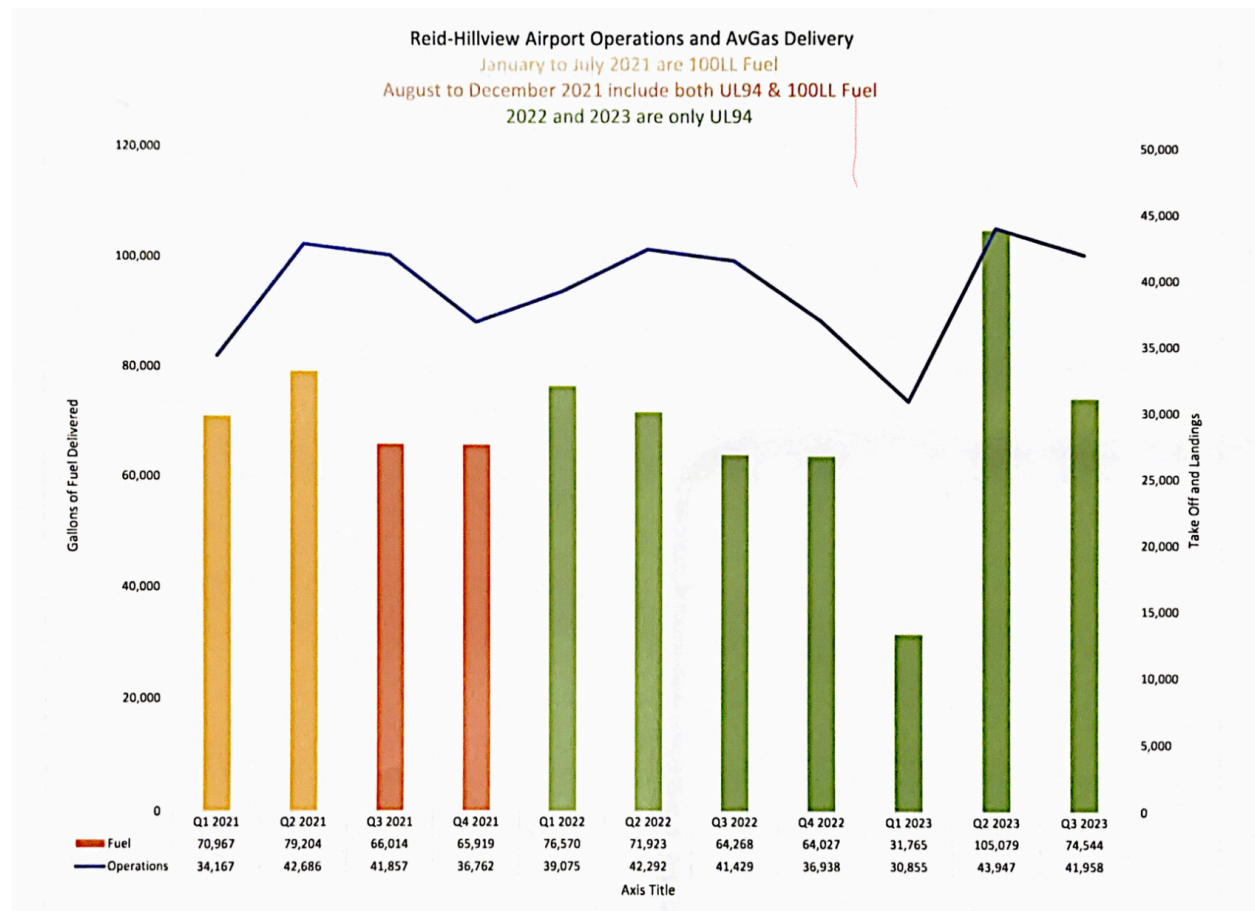
- The presentation of the data does not follow standard practice (base is zero) but rather appears intended to produce more dramatic graphics

- The study ignores findings by BAAQMD and other scientific findings that either do not support the studies conclusions

Finally, the Commission has significant questions regarding the peer review of the report and the exorbitant amount budgeted for that review.

Additional Information -

Recent report from the Airport Department on Operations and Fuel Sales at Reid Hillview:



We also suggest referencing ACRP 02-34 and ACRP 162 (National Academy of Sciences: Transportation Research Board - Airport Cooperative Research Board) for scientific studies on Airport Lead and Airport Lead Studies that will further assist in understanding airport and airborne lead sampling data.

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Before joining Symantec in 2013, Stephen was Director of Security Engineering for Google, with responsibility for maintaining and expanding their PKI infrastructure, as well as several services. Prior to that, he was Engineering Chancellor for Site Reliability Engineering, with responsibility for 42 different external, internal and infrastructure services, including worldwide storage. Before joining Google in 2005, McHenry was System Architect for [Netflix](#)'s electronic delivery system, which was designed to deliver movies to the home via the Internet. Prior experience includes positions as Vice President of Engineering and Consulting Services, and/or Chief Technology Officer for a number of startups including Emasys, Silverturn, and Advanced Software Technologies. He began his career in various software development and management positions with Rockwell, McDonnell Douglas (now Boeing) and Chevron Oil.

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