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Santa Clara County Supervisors
70 W Hedding St
San Jose, CA

RE: Lead contamination and poisoning in the vicinity of Reid-Hillview

Dear Santa Clara County Supervisors:

I am writing in response to the most recent report dated December 4, 2018 by Santa Clara County staff regarding the County Airports Business Plan Update. In this most recent report county staff state:

County staff have not to-date provided analysis addressing consistent community concerns around lead contamination and poisoning in the vicinity of Reid-Hillview Airport.

Executive Summary

The staff report attempts to address the community concerns around lead near Reid-Hillview, instead it does the following:

1. Confuses concentrations of lead in water, soil, and air, and incorrectly implies that there is no safe level of lead in ambient air, despite the fact that the USEPA and California EPA have determined that there is a level below which the public health and welfare is protected.
2. Appears to discount the fact that the ambient lead levels at the airport are typically less than one-half and always below the ambient air quality standards established by the USEPA and California EPA to protect the public, including the most sensitive individuals and children.
3. Fails to cite the most likely and obvious source of elevated blood lead levels in children: the prevalence of older homes with lead based paint and lead-containing plumbing in East San Jose.
4. Ignores that in the very near future, there will be widespread use of lead-free aviation fuel (avgas) and that there is already lead-free avgas available and used by General Aviation aircraft.

In summary, instead of addressing the concerns about lead contamination the report does the opposite. It inflames the fears of the public and makes no attempt to explore the potential causes of elevated levels of lead in measured in children living in some zip codes near the airport. Instead, it implies the blood lead levels that exist in those children are the result of Reid-Hillview, despite the fact that measured lead concentrations in the air at the Airport are always below the allowable USEPA standards; standards which are promulgated by both the USEPA and the California EPA at a level that protects the public health and welfare with an adequate margin of safety, even in the most sensitive individuals. This does not make sense.

This letter attempts to provide a more balanced view related to lead emissions, standards and the likely sources of lead creating the elevated blood lead levels of the children living in the East San Jose area.

My Background and Expertise

I began my professional career working for an environmental consulting firm focused on air quality in San Diego in the early 1990s'. I personally performed ambient and source emissions testing and compiled data for analysis and recommendations by the firm's scientists. As such I am very familiar air quality concepts, the EPA, National Ambient Air Quality Standards (NAAQS) and the California Air Resources Board's (CARB) California Ambient Air Quality Standards (CAAQS).

With that background, I was surprised at the alarmist tone taken by the staff related to ambient airborne lead concentrations at the airport. Concentrations that are well below the allowable standards for the health of even the most sensitive groups in our population. As a result, I asked a retired principle consultant of the same air quality consulting organization for his informal opinion of the staff report and if the level of alarm presented was warranted. What follows is a combination of his feedback to me and my own research.

National Ambient Air Quality Standards for Lead Emissions

The USEPA is charged with setting air quality standards to protect the public health:

*The Clean Air Act identifies two types of national ambient air quality standards. **Primary standards** provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly.⁽¹⁾*

Ambient airborne lead concentrations are set as "primary standards". Lead concentrations below the "primary standards" as specified in the National Ambient Air Quality Standards (NAAQS) have been scientifically determined to be safe for the public health, including the most sensitive populations. Importantly, the staff report says:

Results through December 2016 indicate that lead concentrations have exceeded 50% of the National Ambient Air Quality Standards – which are standards for harmful pollutants established by the EPA under authority of the Clean Air Act – for airborne lead (0.15 µg/m³)

The staff report does not say lead emissions exceed NAAQS. They are well below NAAQS. This is consistent with the data provided by the Bay Area Air Quality Management District (BAAQMD) to the Airports Commission this October:

We have been measuring lead at Reid-Hillview since February of 2012 and we continue to do so at this location. Reid-Hillview typically has the lowest concentrations of lead compared to the other two airports [PAO and SQL] and has not recorded an excess of the EPA's lead National Ambient Air Quality standard of 0.15 ug/m³ at any time. The measurements are taken as close as possible to the runways "run-up" area, where we expect to see the highest concentrations. Since lead concentrations drop off significantly with distance, we expect that lead concentrations outside the airport fence line are even lower.⁽²⁾

This means that emissions are always below the NAAQS. Despite this fact the staff report implies that all lead emissions at the airport need to be eliminated and raises unfounded alarm. Would the police be justified in raising a safety alert for a neighborhood that has drivers consistently driving below the speed limit? Of course not. How is it reasonable to raise alarm for an airport that always operates below the lead emissions "speed limit" set by the USEPA?

"No Safe Level of Lead"

The staff report consistently confuses ambient concentrations of lead in the air and concentrations of lead in the blood (blood lead levels, BLL). The staff report states there is no safe level of lead, but fails to clarify that this is concentrations in the blood. The USEPA and the California EPA have both determined that there is a safe level of lead in ambient air. The USEPA is required to set their standards for air, water and soil to protect the public health of our most sensitive groups regardless of the technical feasibility or cost of achieving those standards. The USEPA recognizes the difference between concentrations in air, soil, and water. For instance, the USEPA states the following regarding the allowable levels of lead in drinking water:

EPA has set the maximum contaminant level goal for lead in drinking water at zero because lead is a toxic metal that can be harmful to human health even at low exposure levels.⁽³⁾

If there was no safe level of airborne lead concentrations, the USEPA would be required to set the standard for airborne lead emissions to zero even if it were technically impossible or extremely costly to reach those levels. They have not.

Elevated Blood Lead Levels in Santa Clara County

The report identifies five zip codes in Santa Clara county with children with elevated blood lead levels. Staff states:

Although this data does not demonstrate that the use of leaded fuel at Reid-Hillview Airport (RHV) is the cause of elevated BLLs in adjacent areas, it may be a significant contributing factor.

It may be, but that is highly unlikely. Especially considering the low level of lead emissions and low level of ambient air concentrations at the airport. What are the other potential causes of elevated blood levels in children in East San Jose?

The National Institute of Environmental Health Sciences states the following in their discussion on lead(4) :

Today, ... the most common sources of lead exposure in the United States are:

- *Lead-based paint in older homes*
- *Contaminated soil*
- *Household dust*
- *Drinking water*
- *Lead crystal*
- *Lead-glazed pottery*

Lead can still be found in lead-based paint used in older homes, contaminated soil, household dust, drinking water pumped through leaded pipes, lead crystal, lead-glazed pottery, airplane fuel, some toys, and some inexpensive metal jewelry. Until 1978, lead paint was commonly used on the interior and exterior of homes. Deteriorated lead paint in older housing remains the most common source of lead exposure for children in the United States.⁽⁴⁾

Drinking water is also a potential source of lead in the blood stream. The San Jose Water Quality Report from 2017 shows four out of 125 sites tested for lead above the "action level".⁽⁵⁾

In addition, the report goes on to state:

In January 2018, Assembly Bill 746 went into effect requiring water utilities to collect lead samples in all daycare, preschool and kindergarten through 12th grade schools on public property to ensure students have access to safe drinking water. ... San Jose Water has sampled 193 of the 345 schools in our area to date. Of the 940 samples, 4 have been above the action level, all of which were promptly resolved.

San Jose has measured lead contamination in the water as recently as 2017. We do not know how long these elevated levels of lead existed before they were found. The allowable USEPA level of lead in the water is zero.

The NIEHS stated two of the most common sources of lead in a home are lead-based paint from older homes and older plumbing. The CDC states:

Lead-based paint and lead contaminated dust are the most hazardous sources of lead for U.S. children. Lead-based paints were banned for use in housing in 1978. All houses built before 1978 are likely to contain some lead-based paint.⁽⁶⁾

In 1978 the use of lead in paint was prohibited. In 1987 the use of lead in plumbing was prohibited. It would follow that children growing up in homes built before 1978 and/or 1987 would be more likely to have measurable lead in their blood than those living in newer homes because these homes are highly likely to have at least two, if not more, of the common household exposure sources.

Let's look at the five zip codes with elevated blood lead levels and the relative age of the housing in those zip codes. To estimate the percentage of homes with potential lead contamination I pulled homes for sale data from Zillow for each zip code and identified the total count of homes for sale, the count of homes built before 1986 (likely to have lead plumbing/fixtures) and homes built before 1978 (likely to have lead-based paint and lead plumbing/fixtures).

For reference, Santa Clara County had 2668 homes for sale on December 1st. 64% were built before 1986 and 53% were built before 1987.

Zip Code	Region	Homes for Sale	% Built Before 1978	% Built Before 1986	Percentage of Children with =>4.5µg/dl BLL
95127	San Jose – East (RHV)	99	83.8%	84.8%	3.02%
95122	San Jose – East (RHV)	68	64.7%	86.7%	2.48%
95116	San Jose – East	68	57.3%	70.6%	1.93%
95111	San Jose – South	111	47.7%	69.3%	1.81%
95020	Gilroy	138	26.8%	41.3%	1.68%

These data show that the majority of homes in the zip codes where children with elevated lead levels live are older homes that are likely to have both lead-based paint and plumbing and fixtures with lead in them. Both of which are among the most common methods for lead exposure. Sadly, it's not at all surprising that children living in these zip codes have elevated blood lead levels. The one zip code with elevated blood lead levels and a lower percentage of older homes, zip code 95020 in Gilroy, is not near an airport.

The data clearly show Reid-Hillview is most likely not the primary source of the elevated blood lead levels in the local community. Instead the most likely culprit is the homes the children live in. Even if Reid-Hillview did not exist, these children would be at high risk for elevated blood lead levels.

Elimination of Lead in Aviation Fuel

No amount lead in aircraft emissions is desirable. The FAA and aviation community agree. The FAA has been testing lead free avgas with the intent to replace 100LL avgas in the near future. Lead free avgas is even available today at San Carlos Airport. There is a near term future where piston GA aircraft will have no lead emissions, not even at the low levels seen today. Santa Clara could provide lead-free avgas at Reid-Hillview to accelerate the reduction of ambient lead concentrations. Since the majority of operations in and out of the airport are aircraft based at that airport it is highly likely that lead emissions would go down quickly once a lead-free option was available locally.

Conclusion

The community appreciates the concern of the county for the health of county residents. The best way to address concerns about the elevated blood lead levels in the children in East San Jose is not speculation by county staff and concerned citizens. A study done by professionals in household, air, soil and ground lead contamination and remediation is required to determine the actual cause of elevated blood lead levels in our children and recommend resolution. Issuing an unbalanced report serves only to increase the fears of the community with no good reason or remedy.

Sincerely,

Anissa Mohler,
CFI at Reid-Hillview

CC: John Carr, Chair, Santa Clara County Airports Commission
CAAPSO – Community and Pilot Organization at Reid-Hillview

References:

- (1) USEPA NAAQS: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>
- (2) Santa Clara County Airports Commission Agenda Packet – October 2018
<http://sccgov.iqm2.com/citizens/FileOpen.aspx?Type=1&ID=9752&Inline=True>
- (3) USEPA Allowable Amounts of Lead in Drinking Water: <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water#health>
- (4) NIEHS Lead Discussion: <https://www.niehs.nih.gov/health/topics/agents/lead/index.cfm>
- (5) San Jose Water Annual Quality Report: https://www.sjwater.com/sites/default/files/2018-05/SanJoseWaterReportv1r2_Web%20Final.pdf
- (6) CDC Discussion of Hazardous Lead Sources: <https://www.cdc.gov/nceh/lead/tips.htm>