Testimony in support of SJM 1

Oregon Aviation Watch has endorsed this testimony which was presented by Miki Barnes to the Oregon Senate Committee on Transportation and Economic Development on April 15, 2015.

Oregon Aviation Watch extends our gratitude to the sponsors of SJM 1 and to the Senate Committee on Transportation and Economic Development for hearing our testimony.

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We appreciate the acknowledgment in SJM 1 that:

- "The operation of general aviation aircraft is the greatest source of lead emissions in Oregon…"
- The recognition that "Children are especially susceptible to the toxic effects of lead, and that "exposure to lead can lead to irreversible brain damage and reduce a person's cognitive function…"
- "Exposure to low levels of lead early in life has been linked to effects on a person's intelligence quotient, learning, memory and behavior…"
- "There is no safe level of exposure to lead."

In light of these serious health impacts, we appreciate SJM 1's support for prioritizing "the development and certification of unleaded aviation fuel in advance of 2018."

Lead Exposure and Health Impacts in Adults

- Medical research has identified a causal relationship between lead and hypertension, coronary heart disease, decreased red blood cell survival, delayed puberty onset in both males and females, and impaired male reproductive function.

- A likely causal connection was found between lead and cancer, impaired female reproductive function, birth outcomes (low birth weight, spontaneous abortion), decreased resistance to bacterial infections, declines in cognitive function, and increases in depression and anxiety.

Source: *Integrated Science Assessment for Lead.* U.S. Environmental Protection Agency. (June 2013). EPA/600/R-10/075F. Pg. lxxxiii to lxxxvii.. Available online at http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=255721#Download.

Oregon and Lead Emissions

There are 457 airports in Oregon – 97 public use and 360 private use airports.

Source: Oregon State Department of Aviation

Significantly, there are 509 facility sources of lead in Oregon. Of that number 417, more than 80 percent, are airports.

Source: 2011 Environmental Protection Agency National Emissions Inventory.

EPA NEI - Oregon Lead Sources

According to the 2011 Environmental Protection Agency (EPA) National Emissions Inventory (NEI) the top 20 facility sources of lead in Oregon are as follows, 12 are airports (***airports in bold italics***):

- ***Hillsboro Airport (Largest Facility Source of Lead in Washington County) - 1160 lbs.***
- Cascade Steel (Yamhill County) - 1080 lbs.
- Riddle Plywood (Douglas County) - 620 lbs.
- ***Bend Municipal Airport (Largest Facility Source of Lead in Deschutes County) - 560 lbs.***
- Columbia Ridge Landfill and Recycling Center (Gilliam County) - 540 lbs.
- ***Aurora Airport (Largest Facility Source of Lead in Marion County) - 520 lbs.***
- ***Scappoose Industrial Airpark (Largest Facility Source of Lead in Columbia County) - 400 lbs.***
- ***Troutdale Airport (Largest Facility Source of Lead in Multnomah County) - 360 lbs.***
- ***McMinnville Municipal Airport (Second Largest Facility Source of Lead in Yamhill County) - 340 lbs.***
- ***Corvallis Municipal Airport (Largest Facitlity Source of Lead in Benton County) - 280 lbs.***
- ***Mahlon Sweet Field (Largest Facility Source of Lead in Lane County) - 260 lbs.***
- Owen-Brockway Glass Container Inc. (Multnomah County) - 240 lbs.
- PGE Boardman (Morrow County) - 220 lbs.
- ***Hobby Field Airport (Second Largest Facility Source of Lead in Lane County) - 220 lbs.***
- ***Portland International Airport (Third Largest Facility Source of Lead in Multnomah County) - 220 lbs.***
- ***Robert's Field Airport (Second Largest Facility Source of Lead in Deschutes County) - 200 lbs.***
- EVRAZ Inc. NA (Multnomah County) - 197.4 lbs.
- SP Fiber Technologies (Yamhill County) - 194.2 lbs.
- ESCO Corporation (Multnomah County) - 192.6 lbs plus 4lbs. emitted by their NW Brewer location)
- ***Independence State Airport (Largest Facility Source of Lead in Polk County) - 175 lbs.***

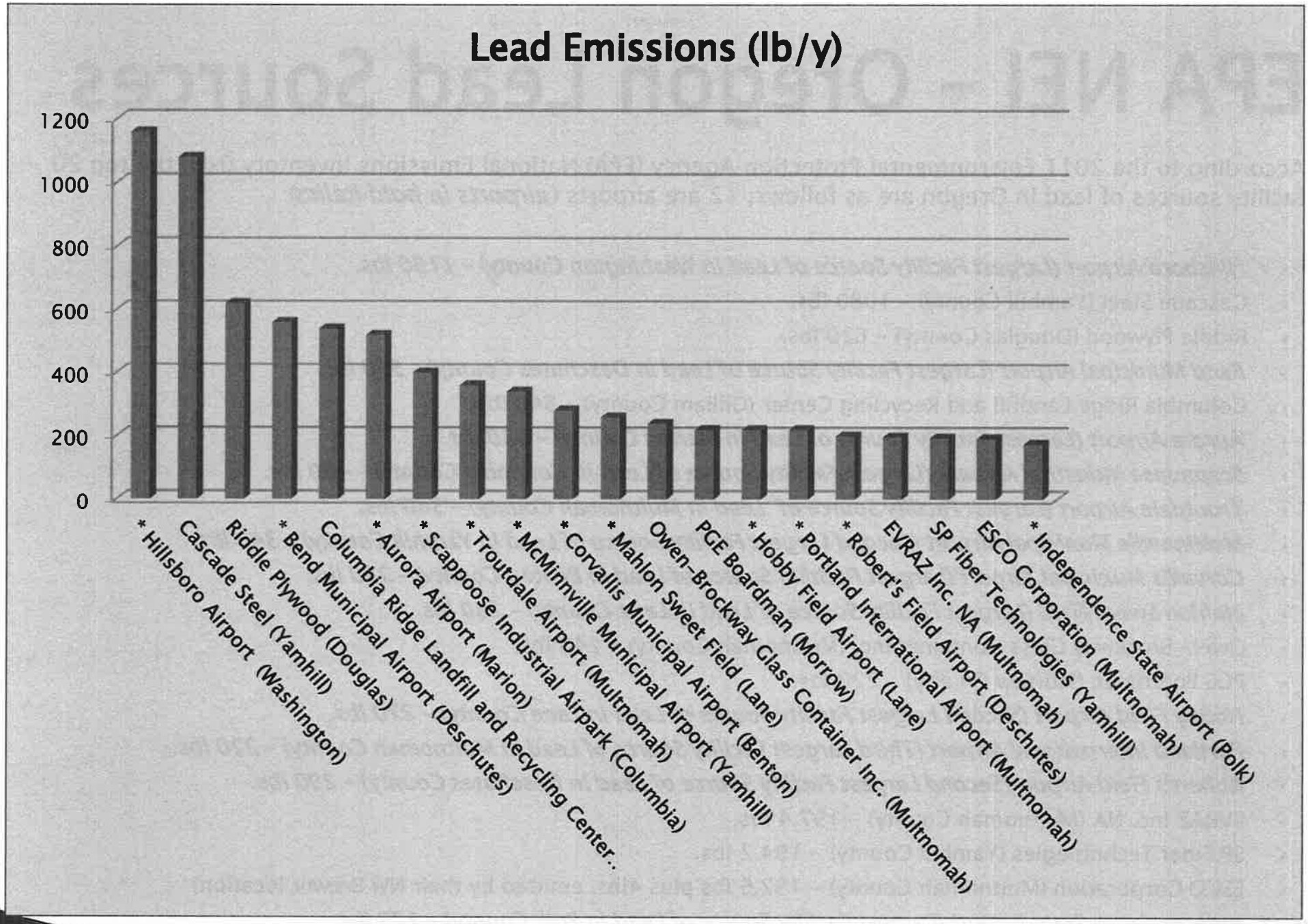
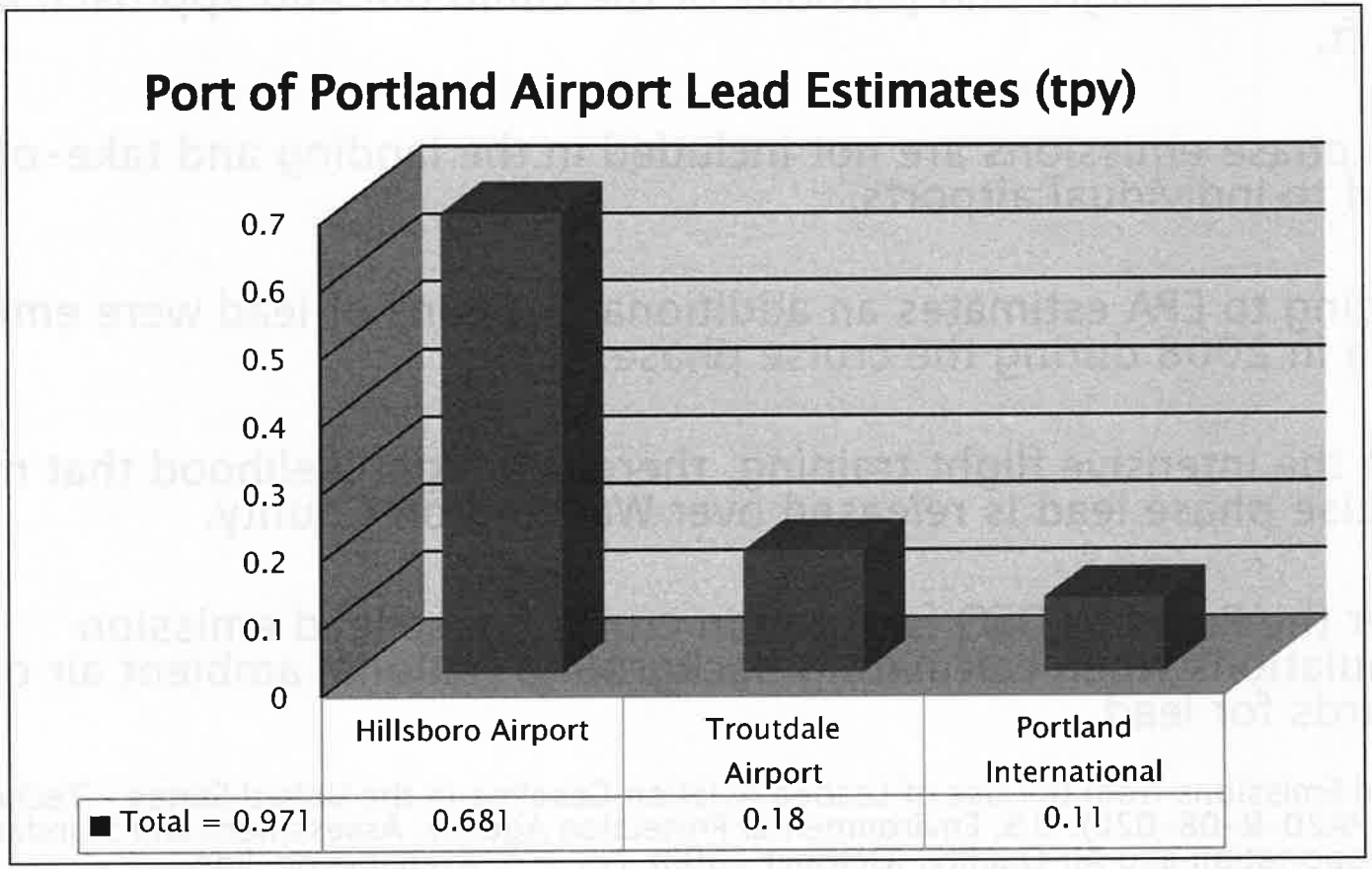


Chart of 2011 EPA NEI list of top 20 facility sources of lead in Oregon. Facilities marked with an * are airports. Lead emissions at airports are based on landing and take-off cycle emission estimates.

Port of Portland Lead Emissions Landing and Takeoff (LTO)



Sources: 2011 EPA NEI and EPA Memorandum from Hoyer, Marion. and Pedde, Meredith to the Lead NAAQS Docket EPA-HQ-OAR-2006-0735. 11/18/10.

Cruise Phase Emissions

- In addition to the landing and take-off cycle, lead is emitted during the cruise phase of flight and portions of the climb out and approach above 3,000 ft.
- Cruise phase emissions are not included in the landing and take-off cycle applied to individual airports.
- According to EPA estimates an additional 5.3 tons of lead were emitted over Oregon in 2008 during the cruise phase.
- Due to the intensive flight training, there is a high likelihood that much of the cruise phase lead is released over Washington County.
- Neither the Port nor DEQ factored in cruise phase lead emission accumulations when calculating background national ambient air quality standards for lead.

Sources: Lead Emissions from the Use of Leaded Aviation Gasoline in the United States – Technical Support Document. (EPA20-R-08-020). U.S. Environmental Protection Agency. Assessment and Standards Division Office of Transportation and Air Quality. (October 2008). Pg. 3-4. Available on-line athttp://www.epa.gov/ttn/chief/net/tsd_avgas_lead_inventory_2002.pdf.

Calculating Piston-Engine Aircraft Airport Inventories for Lead for the 2008 National Emissions Inventory. EPA-420-B-10-044. (December 2010). Pg. 17. Available on-line at http://www.epa.gov/otaq/regs/nonroad/aviation/420b10044.pdf.

HIO Aviation Activity and Lead

- Hillsboro Airport (HIO) emits more lead than any other facility source in Oregon.
  - Source: Environmental Protection Agency 2011 National Emissions Inventory.

- Nationwide, HIO is in the top one percent and ranks 21st out of nearly 20,000 U.S. airports in lead emissions.

  Source: EPA Memorandum Selection of Airports for the Airport Monitoring Study from Hoyer M. and Pedde, M. to Lead NAAQS Docket EPA-HQ-OAR-2006-0735. (11/18/10).

- Piston-engine general aviation aircraft use lead based fuel whereas commercial jets do not. The majority of the training and recreational operations flying in and out of HIO currently utilize leaded fuel.

  Source: *Lead Impacts from the Use of Leaded Aviation Gasoline in the United States*. Environmental Protection Agency: Technical Support Document (EPA420-R-08-020),. (October 2008).

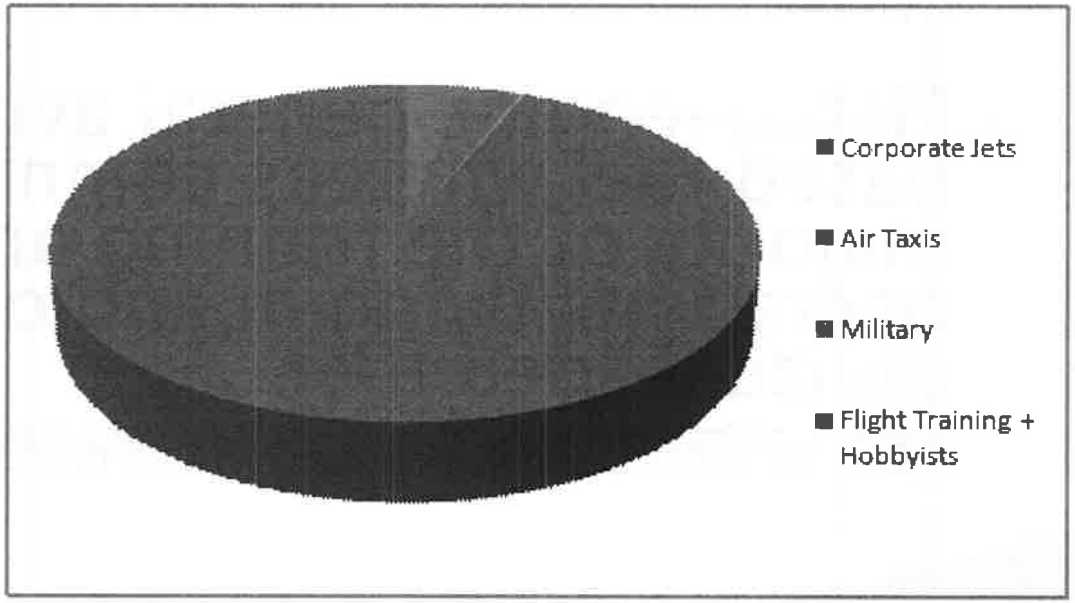
Hillsboro Airport – Aviation Activity

- HIO, a general aviation reliever airport, is owned and operated by the Port of Portland. It logged more operations in 2013 than PDX did. Over the past 15 years, the annual operation count at PDX has dropped to a 30 year low, commensurate with 1984 levels thus there is no congestion at PDX to relieve.

- According to the FAA in 2007 there were 224,461 annual operations (take-offs and landings) at HIO, however, the Port of Portland in their environmental assessment on the proposed third runway, stated that there were over 240,000 that year.

  - Corporate Jets – 7,008
  - Air Taxi/Commuter – 6,860
  - Military – 300
  - Flight Training & Hobbyist – 210,293

Sources: *FAA APO Terminal Area Forecast Detail Report,* (Dec. 2013) and Hillsboro Airport Draft Environmental Assessment. Volume 1. (October 2009). Pg. 5.1-5.



Hillsboro Airport (HIO) – Lead Emissions

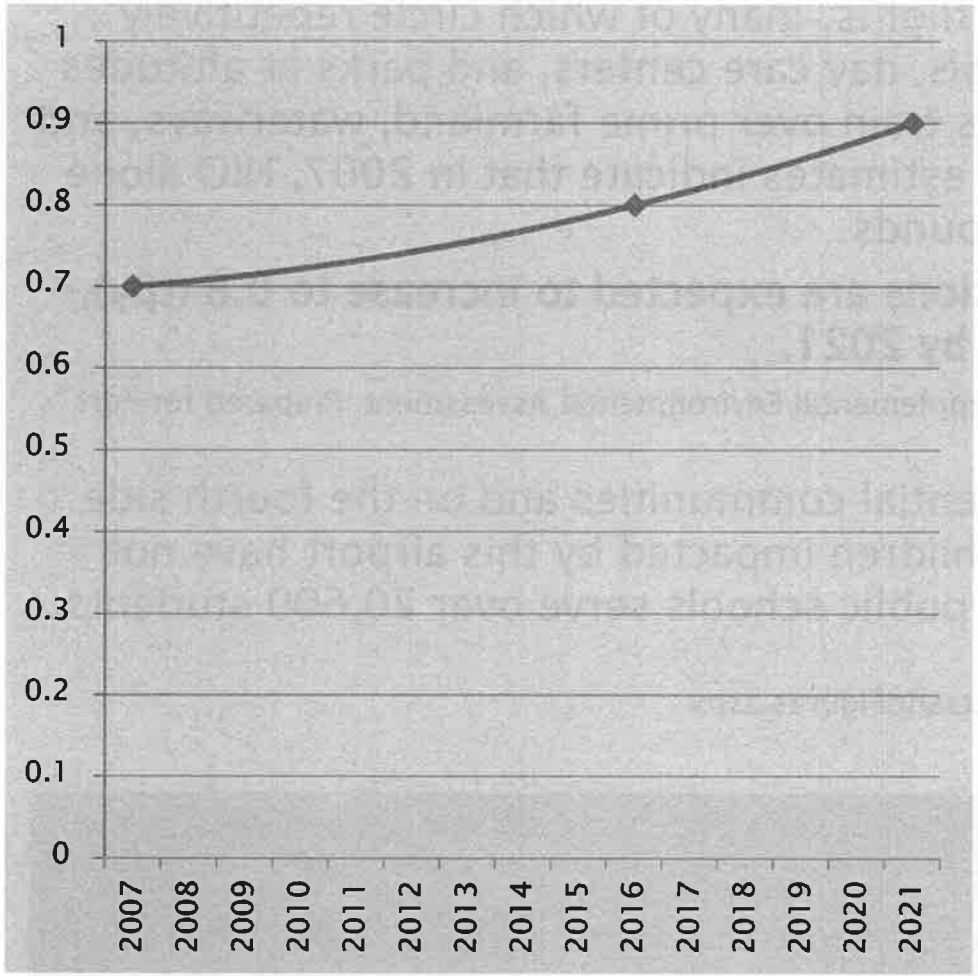
- The vast majority of the approximately 220,000 annual take-offs and landings at HIO are piston engine training and recreational flights, many of which circle repetitively over nearby residential communities, schools, day care centers, and parks at altitudes below 2,000 feet. Additional practice flights train over prime farmland, waterways, and surrounding communities. Port of Portland estimates indicate that in 2007, HIO alone is responsible for emitting 0.7 tpy, 1400 pounds.
- **HIO landing and take-off cycle lead emissions are expected to increase to 0.8 (tpy), 1600 lbs. by 2016 and 0.9 (tpy), 1800 lbs. by 2021.**

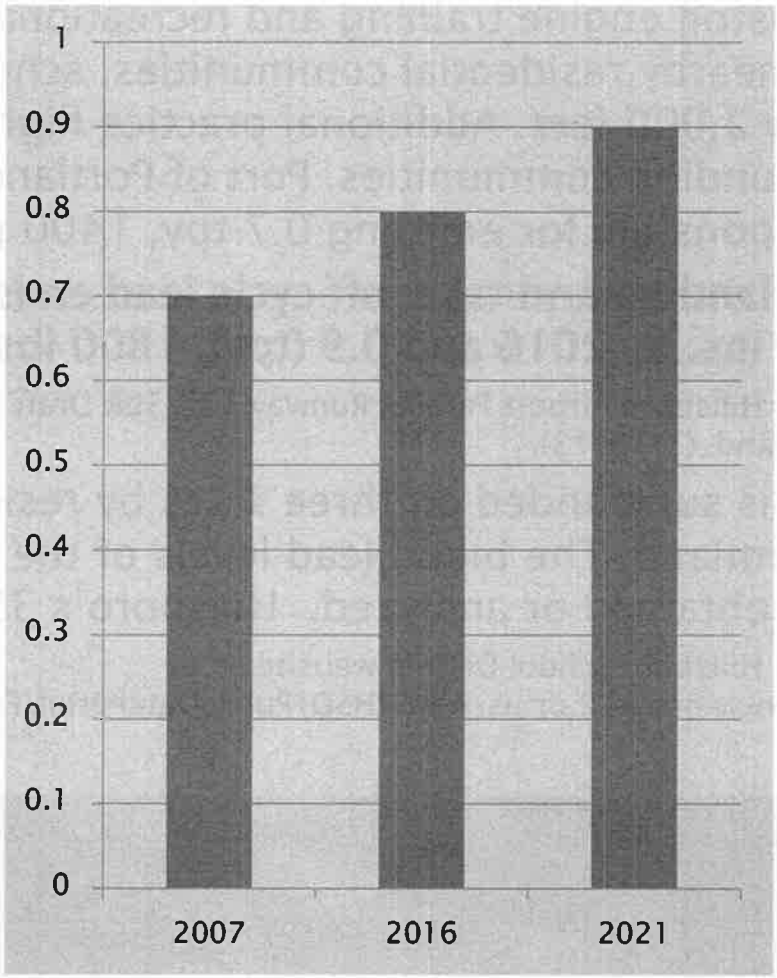
Source: Hillsboro Airport Parallel Runway 12L/30R Draft Supplemental Environmental Assessment. Prepared for Port of Portland. (3/15/13).

- HIO is surrounded on three sides by residential communities and on the fourth side by farmland. The blood lead levels of the children impacted by this airport have not been obtained or analyzed. Hillsboro's 35 public schools serve over 20,600 students.

Source: Hillsboro School District website at http//www.hsd.k12.or.us/AboutHSD/PublicDataPortal/FactsandFigures.aspx

HIO Projected Lead Emissions (tpy)





Sources: *Hillsboro Airport Parallel Runway 12L/30 R: Draft Environmental Assessment* . Vol. 2. Appendices. Pg. C.3-2. Prepared for the Port of Portland by CH2MHILL. (October 2009) and the *Hillsboro Airport Parallel Runway 12L/30 R* Final Supplemental Environmental Assessment,. Prepared for FAA by the Port of Portland. Vol. 1, Pg.28-29. (February 2009.).

Airports and Blood Lead Levels in Children

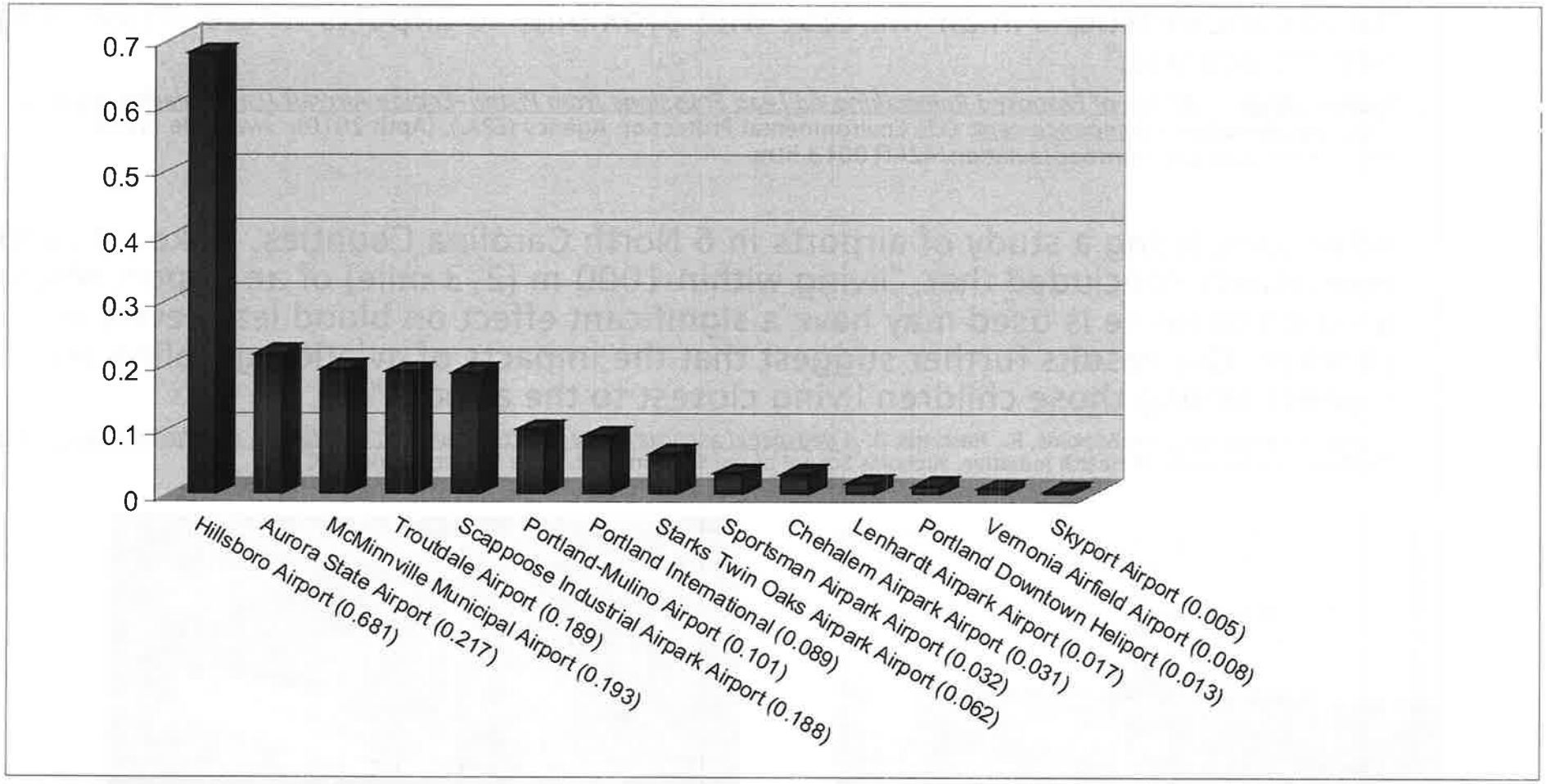
"Lead concentrations in air increase with proximity to airports where piston-engine aircraft operate."

Source: *Advance Notice of Proposed Rulemaking on Lead Emissions from Piston-Engine Aircraft Using Leaded Aviation Gasoline: Regulatory Announcement*. U.S. Environmental Protection Agency (EPA.). (April 2010). Available online at http://www.epa.gov/nonroad/aviation/420f10013.htm.

After completing a study of airports in 6 North Carolina Counties, Duke University researchers concluded that, "living within 1000 m [2/3 mile] of an airport where aviation gasoline is used may have a significant effect on blood lead levels in children. Our results further suggest that the impacts of aviation gasoline are highest among those children living closest to the airport."

Source: Miranda, M.L., Anthopolos, R., Hastings D. *A geospatial analysis of the effects of aviation gasoline on childhood blood lead levels*. Children's Environmental Health Initiative, Nicholas School of the Environment. Duke University. (July 2011).

2005 Lead Estimates: Airports Within 20 NM of Hillsboro



Data included in this graph was obtained from a DEQ public records request

Even if a replacement for avgas is identified by the FAA in 2018 there is currently no federal mandate to phase out leaded fuel

According a 12/15/14 Port of Portland commissioned Business Case Assessment to Provide Mogas at Portland-Hillsboro Airport, an unleaded aviation fuel option, at the Hillsboro Airport (HIO), even if approved by the Port of Portland, would only be likely to decrease lead emissions by 0.1 tons of lead per year which equates to 0.7 tpy in 2016 instead of 0.8 tpy. Thus the community would continue to be subjected to nearly three-quarters of a ton of lead emissions annually from HIO aviation activity.

A decision to use unleaded fuel, mogas, would be voluntary in nature and entirely up to pilot discretion.

Survey results from the above study indicate that the majority of pilots who use HIO purchase leaded aviation fuel at regional airports other than HIO such as Scappoose, Stark's Twin Oaks, Aurora, Grove Field, Mulino and Lebanon, in part because the fuel is cheaper at these facilities. The Port of Portland charges a 7 to 8 cents per gallon fuel flowage fee on all aviation fuel sold at HIO.

Source: Business Case Assessment to Provide Mogas at Portland-Hillsboro Airport. Prepared for the Port of Portland by KB Environmental Sciences, Inc. (12/15/14).

Please Include the Following Documents With This Testimony.

- Drum, Kevin. America's Real Criminal Element: Lead. Mother Jones. (January 3, 2013).
- Fischetti, Mark. Lead Exposure on the Rise Despite Decline in Poisoning Cases. Scientific American. (2/17/13.
- Legal Settlement Aims at Reducing Lead Poisoning Risks from California Airports. Center for Environmental Health. (12/10/14).
- Young, Allison. Lead Poisoning Toll Revised to 1 in 38 Young Kids. USA Today. (4/4/13).

Oregon Aviation Watch submissions.

- Slide Presentation prepared by Miki Barnes, LCSW, President of Oregon Aviation Watch for a June 6, 2014 Air Quality Workshop convened by Senator Michael Dembrow and Representative Mitch Greenlick.
- Barnes, Miki. A Review of the Port of Portland Commissioned Business Assessment on Selling Mogas at the Hillsboro Airport. Oregon Aviation Watch. (2/17/15).

Thank You

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