

EPA Airport Lead Reports: Overview, Communication and Rollout Steps

For the National Association of Clean Air Agencies
February 5, 2020

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Overview

- Leaded aviation gas, used only in piston-engine aircraft, accounts for 62% (456 tons) of lead emissions to the air annually.
- In 2015 we posted on our website the results from air lead monitoring at 17 airports.
 - 2 airports exceeded the lead NAAQS and 2 airports above half the lead NAAQS.
- We are preparing to post two technical reports regarding additional analysis on the potential ranges of lead concentrations at and near airports in the U.S. and the number of people who live in close proximity to airports.
 - We made a public commitment in the Implementation Plan for EPA Actions in the 2018 Federal Action Plan to Reduce Childhood Lead Exposures and Associated Health impacts (<https://www.epa.gov/leadactionplanimplementation>) to post these reports.
 - We are working toward posting reports in mid-February 2020

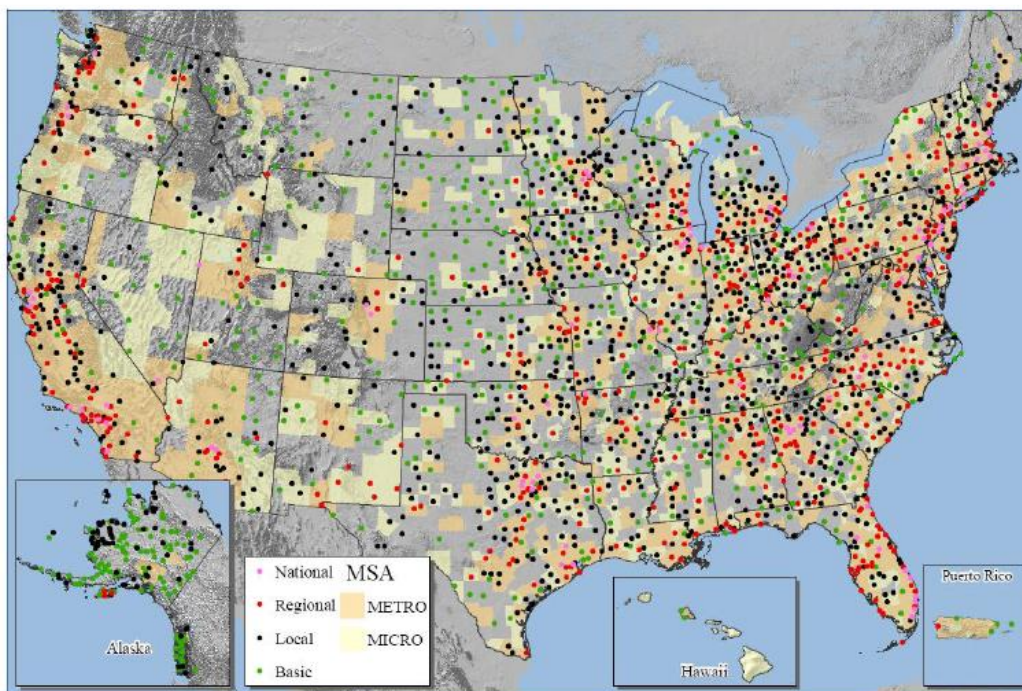
Aircraft That Emit Lead

- Piston-engine aircraft use leaded aviation gasoline (avgas)
 - Tetraethyl lead provides octane and prevents engine knock
 - These aircraft are used for personal transportation, instructional flying, business/corporate, and other uses
- Jet engine aircraft do not use leaded fuel

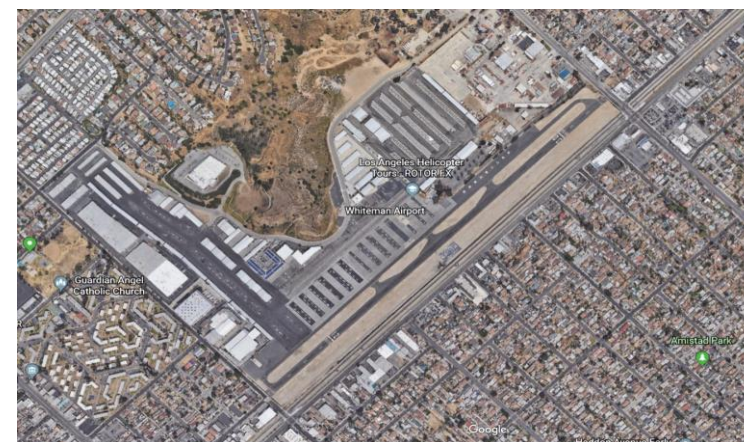


Airports Servicing Piston-engine Aircraft

- There are approximately 13,000 airports in the U.S.
- Piston-engine aircraft are critical to transportation in Alaska



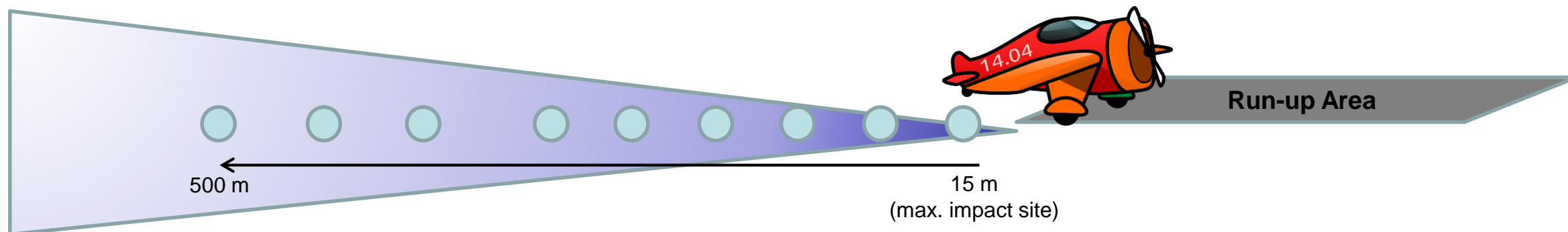
**Subset of General Aviation Airports
Important for National Transportation**



EPA's Newly Completed Reports

- Model-extrapolated Estimates of Airborne Lead Concentrations at US Airports
 - Provides estimated ranges of lead concentrations based on aircraft activity at and downwind from the area of highest concentration
- National Analysis of Populations Residing Near or Attending School Near US Airports
 - Provides an estimate of the number of people living 500m from a runway or attending school 500m from a runway

Report 1: Model-extrapolated Estimates of Airborne Lead Concentrations at US Airports



- **Goal:** to estimate ranges of lead concentrations in air at and downwind from airports that is attributable to piston-engine aircraft activity
- **Method:** used air quality modeling to develop a relationship between piston-engine aircraft activity and lead concentration at and downwind of the maximum impact site at one airport
 - We used this relationship to estimate lead concentrations at all airports based on aircraft activity
 - Air lead concentrations were calculated at the max impact site and downwind locations out to 500m
 - Benchmarked the estimates with monitoring data
 - Conducted a quantitative uncertainty analysis

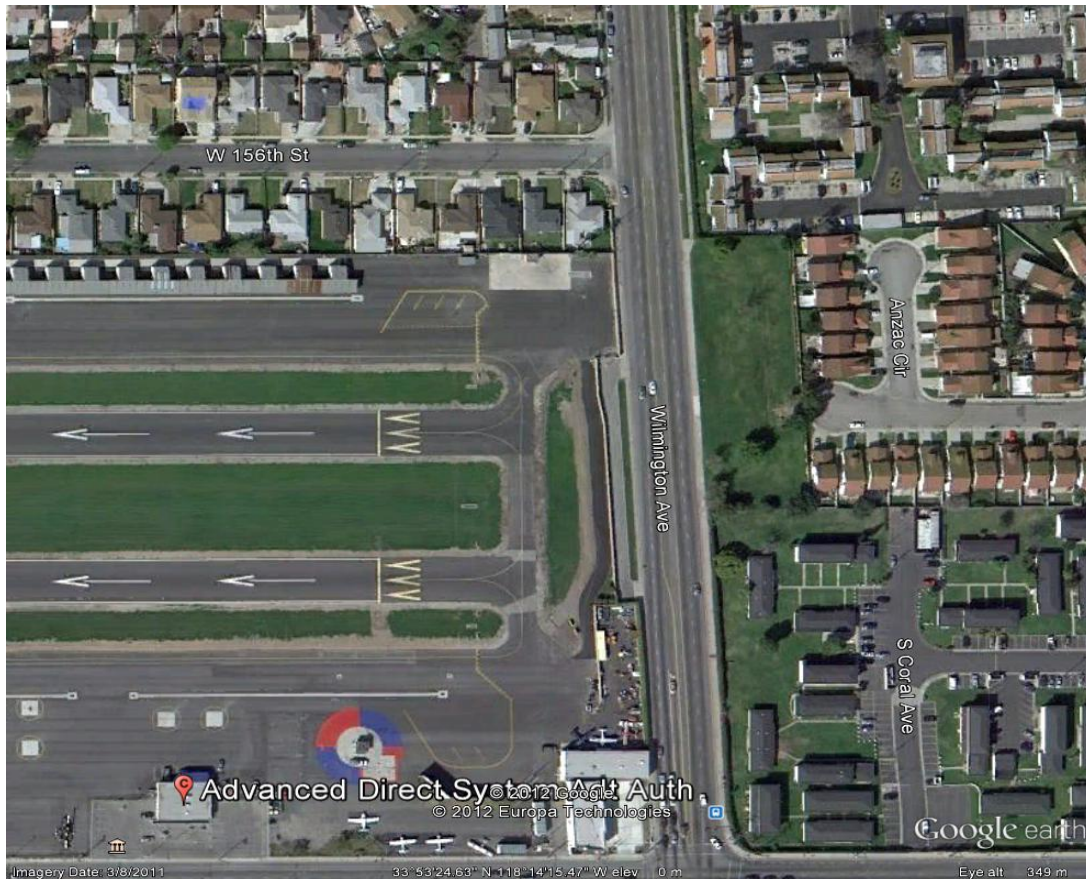
Results of the National Analysis of Ranges of Lead At and Near Airports

- Across all 13,000 airports, estimated lead concentrations were typically well below the level of the lead air standard of $0.15 \mu\text{g}/\text{m}^3$
- The model-extrapolated lead estimates in this study indicate that some airports may have air lead concentrations above the lead standard only at the area of maximum impact, near where pilots conduct pre-flight checks.
 - This observation is aligned with monitoring data
 - These data should not be used to evaluate compliance with the lead NAAQS and EPA is not establishing a monitoring requirement based on this study

Refined Assessment of Airports with Maximum Impact Site Concentration Estimates Above the Lead NAAQS

- We used airport-specific data and sensitivity analyses to refine lead concentration estimates at airports where maximum impact sites may have lead concentrations above the lead air standard.
- The airports we identified in the report are those where the public has unrestricted access within 50 m of the maximum impact site.
- There are just a few airports that met these two criteria (in CA, WA, TX)

Report 2: National Analysis of the Populations Residing Near or Attending School Near US Airports



- There are 13,000 airports where these aircraft operate in the U.S. and 3,000 are important for national transportation
- Identified 5.2 million people residing within 500 meters of a runway
 - 363,000 are children 5 years and younger
- Identified 573 schools within 500 meters of a runway
 - 163,000 children enrolled

Communication & Rollout Steps

Communication Materials We Will Send Closer to Posting Date

- Fact Sheet - will be posted to our website with the reports
- FAQ - internal document

Holding Statement EPA will use if press questions arise before we post the reports:

As noted in the [Federal Action Plan to Reduce Childhood Lead Exposures](#), the Agency is taking steps to evaluate the influence of leaded gasoline fuel used by small piston-engine aircraft on air quality, and intends to issue two technical reports on this topic in February 2020. We will provide additional detail when the reports are released.

Our Key Communication Messages

- The Federal Action Plan to Reduce Childhood Lead Exposures focuses EPA action on the key sources of lead exposure including lead-based paint, lead-contaminated drinking water and lead-contaminated soil. These are the priorities.
- For air, the U.S. has made enormous progress in reducing lead emissions. However, piston-engine aircraft using leaded gasoline are the largest remaining source of lead emissions to air.
- In issuing these reports, the EPA is following through on its commitment to better understand potential local impacts from this source, and to share this information publicly.
- These analyses are estimates based on recent available data and reasonable assumptions, and they will be used by the National Academy of Sciences as part of its requirement to provide a report to Congress that assesses the air quality impact of lead emitted by piston-engine aircraft.
- The two reports are based on the best available, recent data, and use sound analytical methods. However, they do not draw definitive conclusions about actual lead levels, or risk, and should not be used to evaluate attainment of the lead NAAQS.
- There are also steps that can be, and have been taken at airports to minimize the potential for exposure to lead emissions. EPA stands ready to help individual airports and the communities near them understand what this information means at the local level.
- The Federal Aviation Administration is actively working to identify unleaded fuels for use in piston-engine aircraft because the reduction or removal of lead from this fuel is under their authority.

Rollout Steps

- January 30th Briefed National Tribal Air Association
- February 5th Brief AAPCA & NACAA
- Mid-February
 - EPA Office of Congressional and Intergovernmental Relations contact Governor's offices (TX, CA, WA, AK), Congressional staffers of affected states (including AK), and Congressional General Aviation Caucus, House Energy and Commerce and Senate Committee on Environment and Public Works
 - Heads up call to local officials, airport operators, and communities
 - Heads up calls to key stakeholders
 - Web posting
 - Email to stakeholders with link to reports, fact sheet and webinar invitation

For follow-up:

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