ASSESSING THE PUBLIC HEALTH IMPACT OF LEAD EMISSIONS FROM THE HILLSBORO AIRPORT

HILLSBORO AIRPORT ROUNDTABLE EXCHANGE
JUNE 29TH, 2016

WASHINGTON COUNTY OREGON

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BACKGROUND

Asked by Port of Portland to describe how public health could assess the health impacts of lead emissions from the airport.

Methods:

- Conducted a literature review and review of available primary data.
- Summarized public health tools for assessing health risk or health impacts.
- Summarized currently available information and gaps in information.

OUTLINE OF PRESENTATION

Purpose: Share knowns and unknowns about airport lead emissions

Agenda:

- Background on health effects of lead
- Key findings from literature review
- Available data on blood lead levels in Washington County
- Available data from environmental modeling and sampling

FINDINGS AND CONCLUSIONS

- Available data do not suggest that lead emissions from the Hillsboro airport are a significant source of lead exposure in Washington County.
- There are gaps in data
- A blood lead test is the only way to know if a child has an elevated level
- There is no safe blood lead level
- Reducing lead in the environment promotes public health

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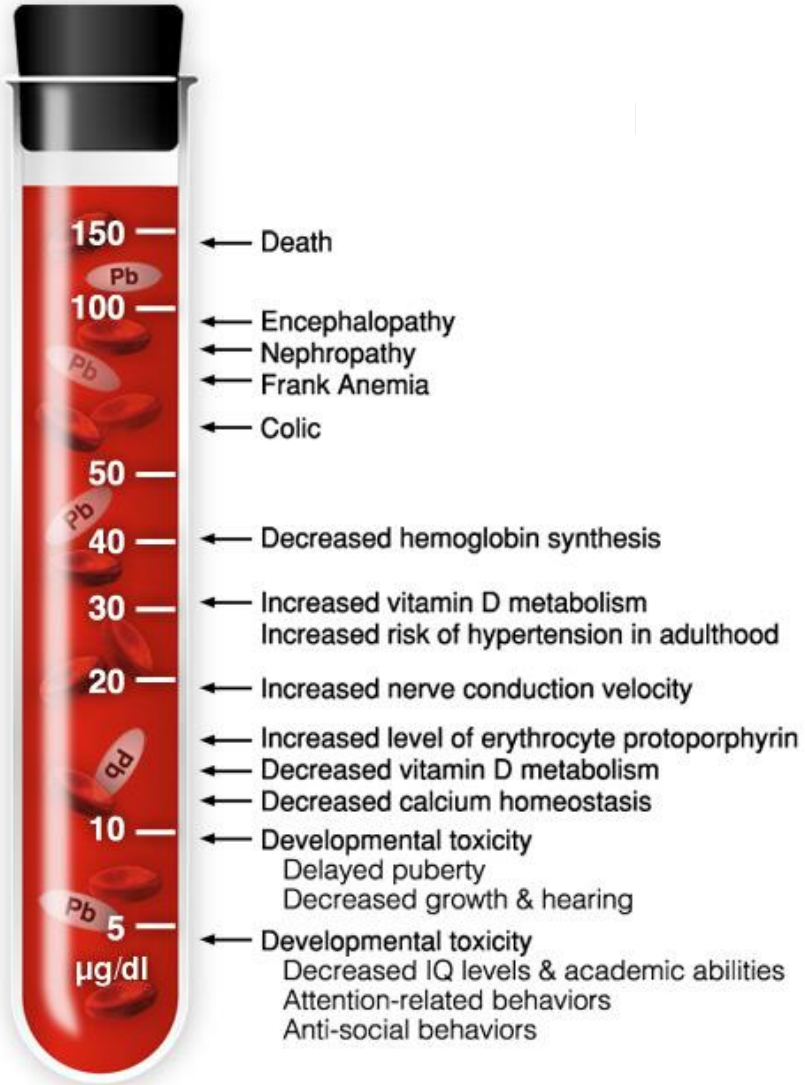
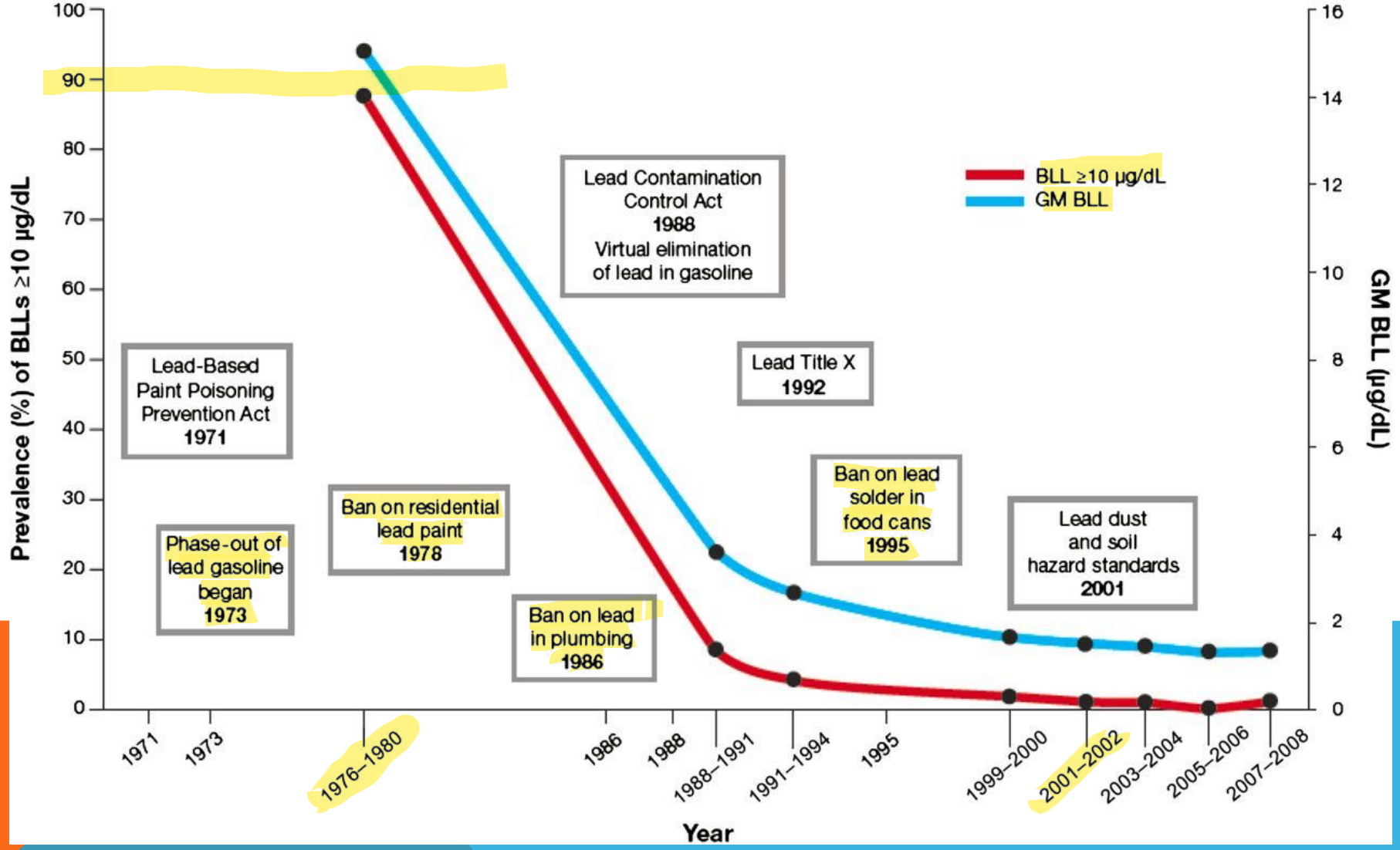
HEALTH EFFECTS OF LEAD



- A harmful neurotoxin
- Health effects for both adults and children
- Most vulnerable are young children, and pregnant or lactating women
- There is no safe blood lead level

Image credit: Canadian Atlas of Environmental Health http://www.ehatlas.ca/lead/human-impact/health-concerns

TIMELINE: CHANGE IN CHILD BLOOD LEAD LEVELS

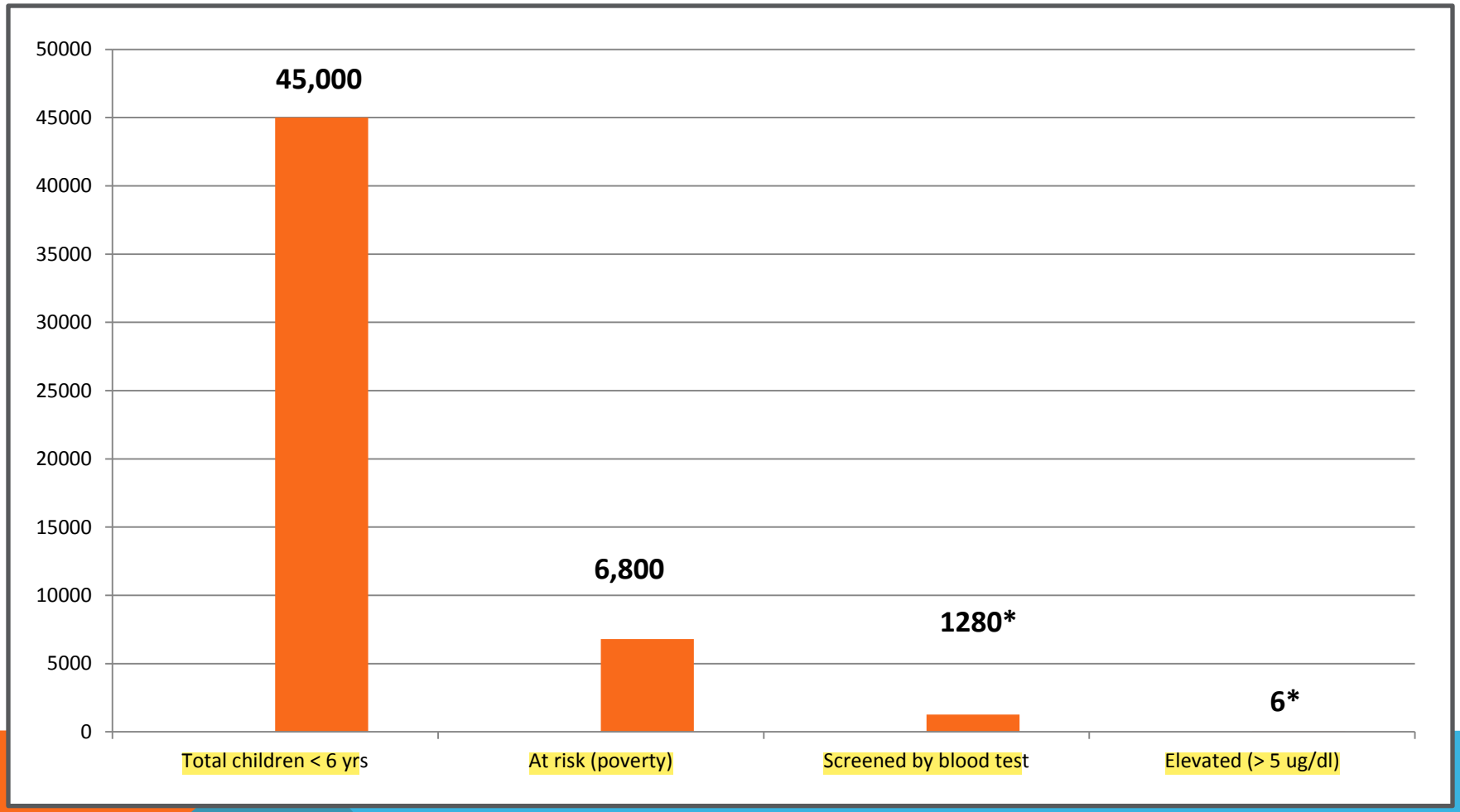


Source: American Academy of Pediatrics. (2016). Policy Statement: Prevention of Childhood Lead Toxicity

SOURCES OF LEAD EXPOSURE

- Lead paint and paint dust in older (pre-1978) housing
- Occupational exposure and "2nd hand exposure"
- Hobby sources (leaded glass, lead shot/bullets, lead fishing weights)
- Cosmetics and folk medicine
- Tableware (lead-glazed ceramics, leaded crystal)
- Contaminated soil (roadways, lead smelters, other industry)
- Water from lead-containing plumbing or fittings
- Outside U.S. exposures
- Other sources (toys, candies/wrappers, cans)

WASHINGTON COUNTY CHILD BLOOD LEAD TESTING



* Annual average from 2009-2014 data

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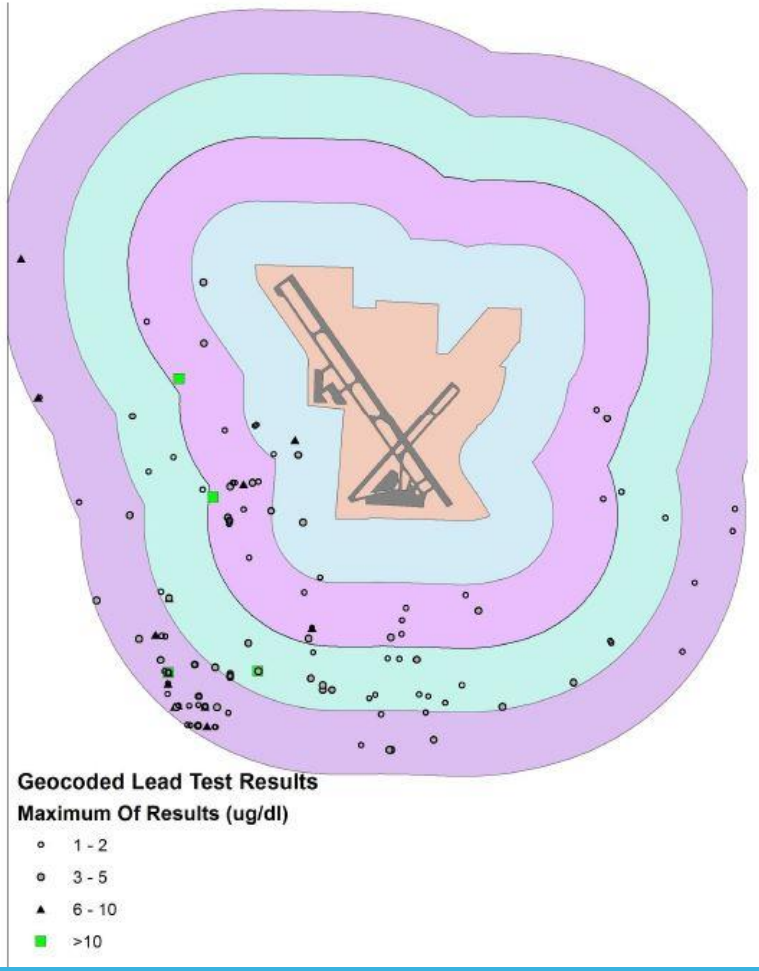
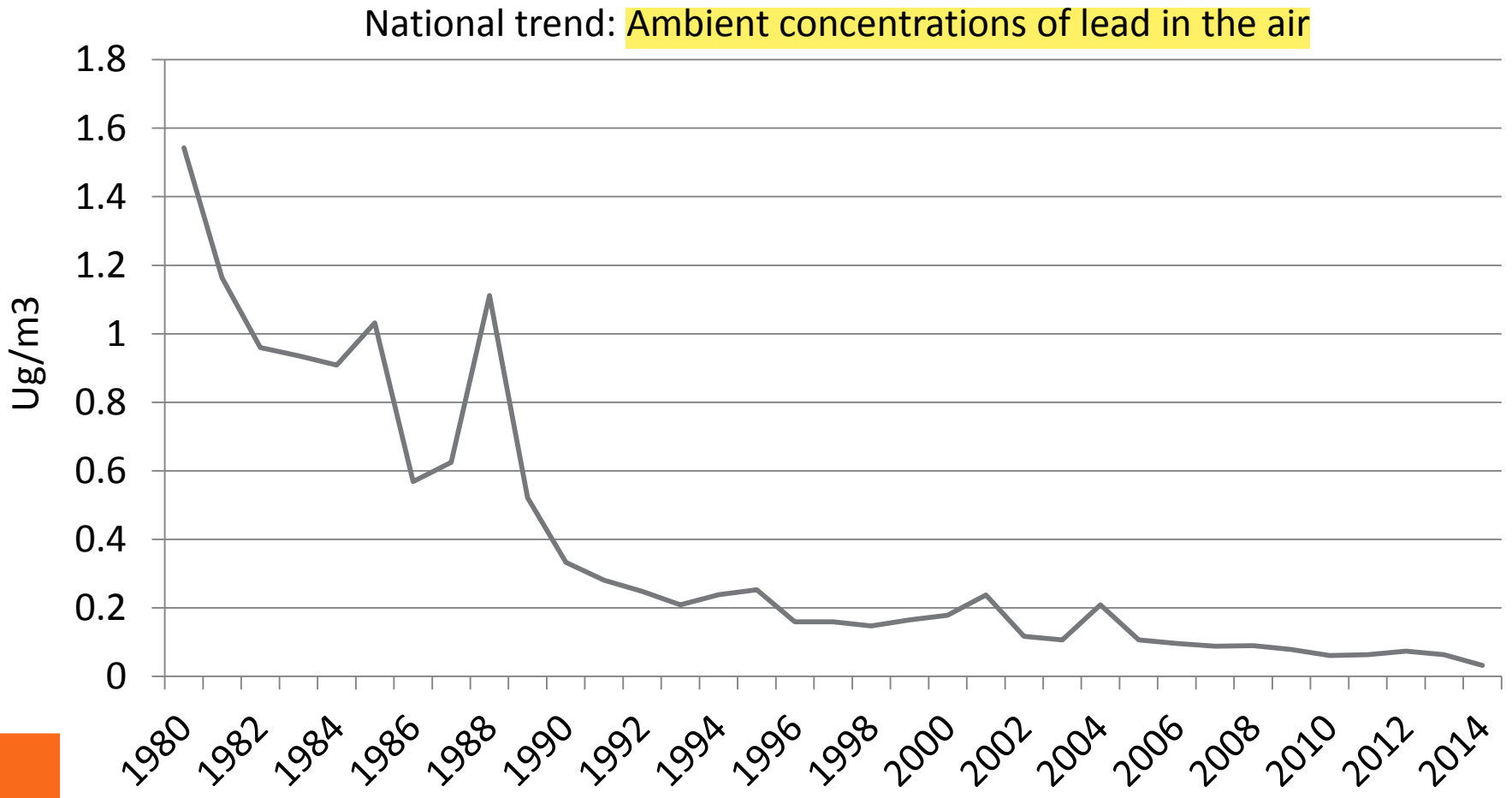
GEOSPATIAL ANALYSIS : CHILDREN LIVING NEAR AIRPORTS



Sources:
Miranda, et.al. (2011). A Geospatial Analysis of the Effects of Aviation Gasoline on Childhood Blood Lead Levels. Environ Health Perspect 119:1513–1516.
Oregon Health Authority (OHA). (2011) [Graphic representation and analysis of blood lead level surveillance data for children residing within 2000m of the Hillsboro Airport] ← 1.2 Miles / 6562 ft.

LEAD IN AIR



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AVIATION-RELATED LEAD EMISSIONS

Significant source of *ongoing* lead emissions

Hillsboro Airport emissions

Regulatory framework

- Ambient concentrations
- Fuel standards
- Monitoring requirements

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REVIEW OF ENVIRONMENTAL DATA – AIR MODELING

Regulatory Thresholds	
National Ambient Air Quality Standard	0.15 micrograms/cubic meter (ug/m3)
Oregon Ambient Benchmark Concentration	0.15 ug/m3
Air Modeling at HIO	
National Air Toxics Assessment	0.00647 ug/m3
Oregon DEQ Model	0.00331 ug/m3
Port of Portland (CDM Smith) Model	0.00405 ug/m3

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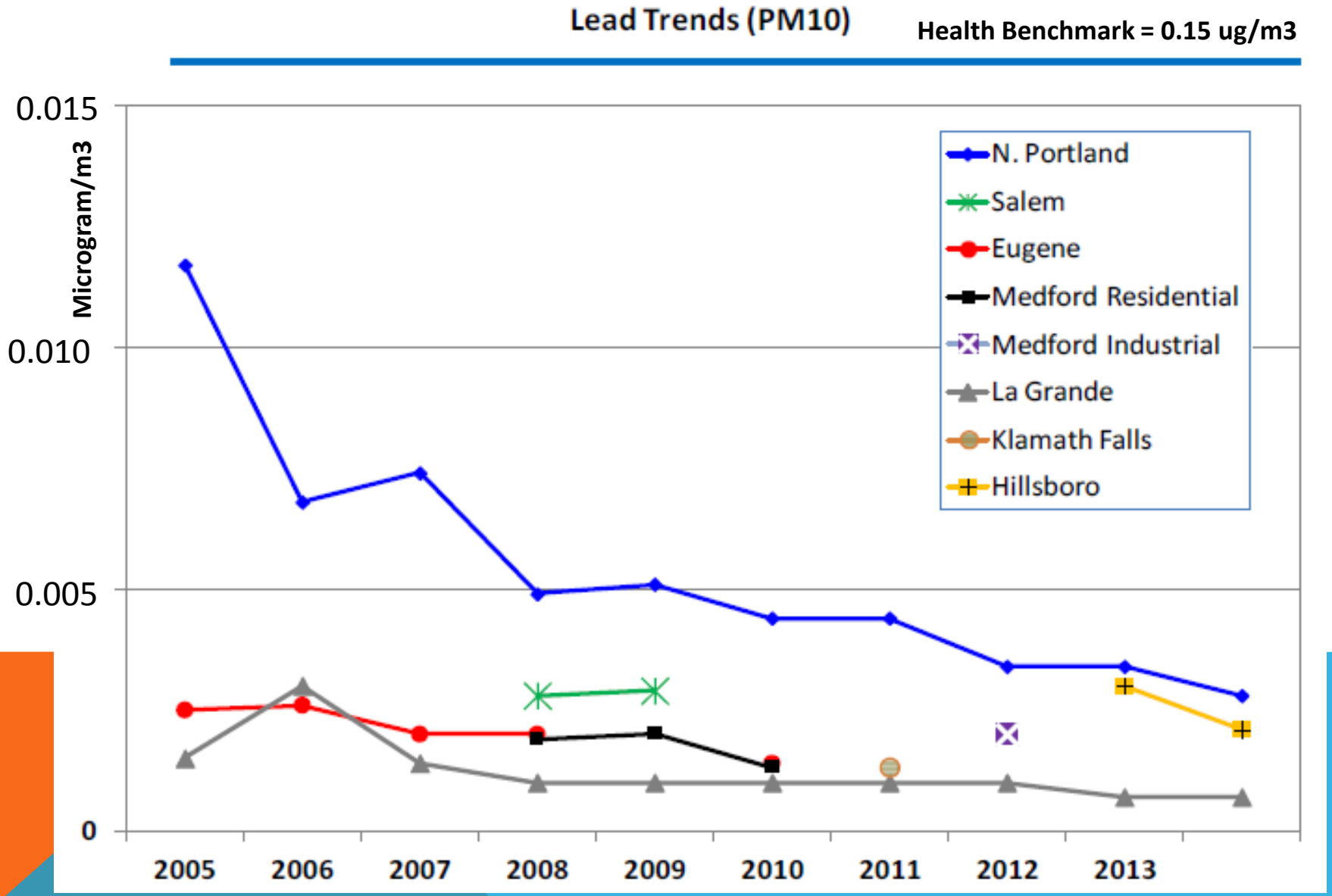
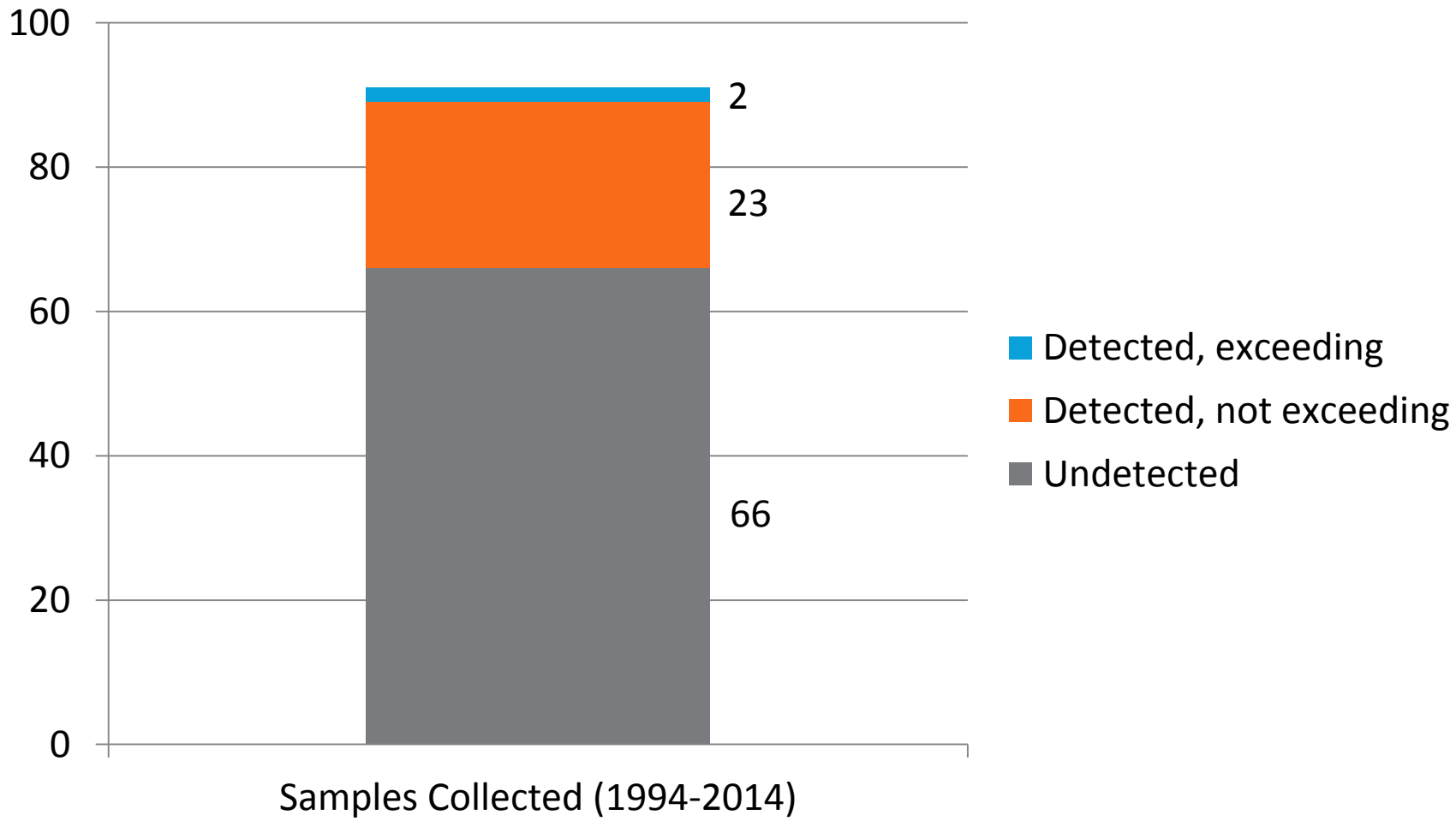
REVIEW OF ENVIRONMENTAL DATA – AIR MONITORING



REVIEW OF ENVIRONMENTAL DATA - STORMWATER



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QUESTIONS & DISCUSSION

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GEOSPATIAL STUDY: DISTANCE FROM AIRPORT & BLOOD LEAD LEVEL

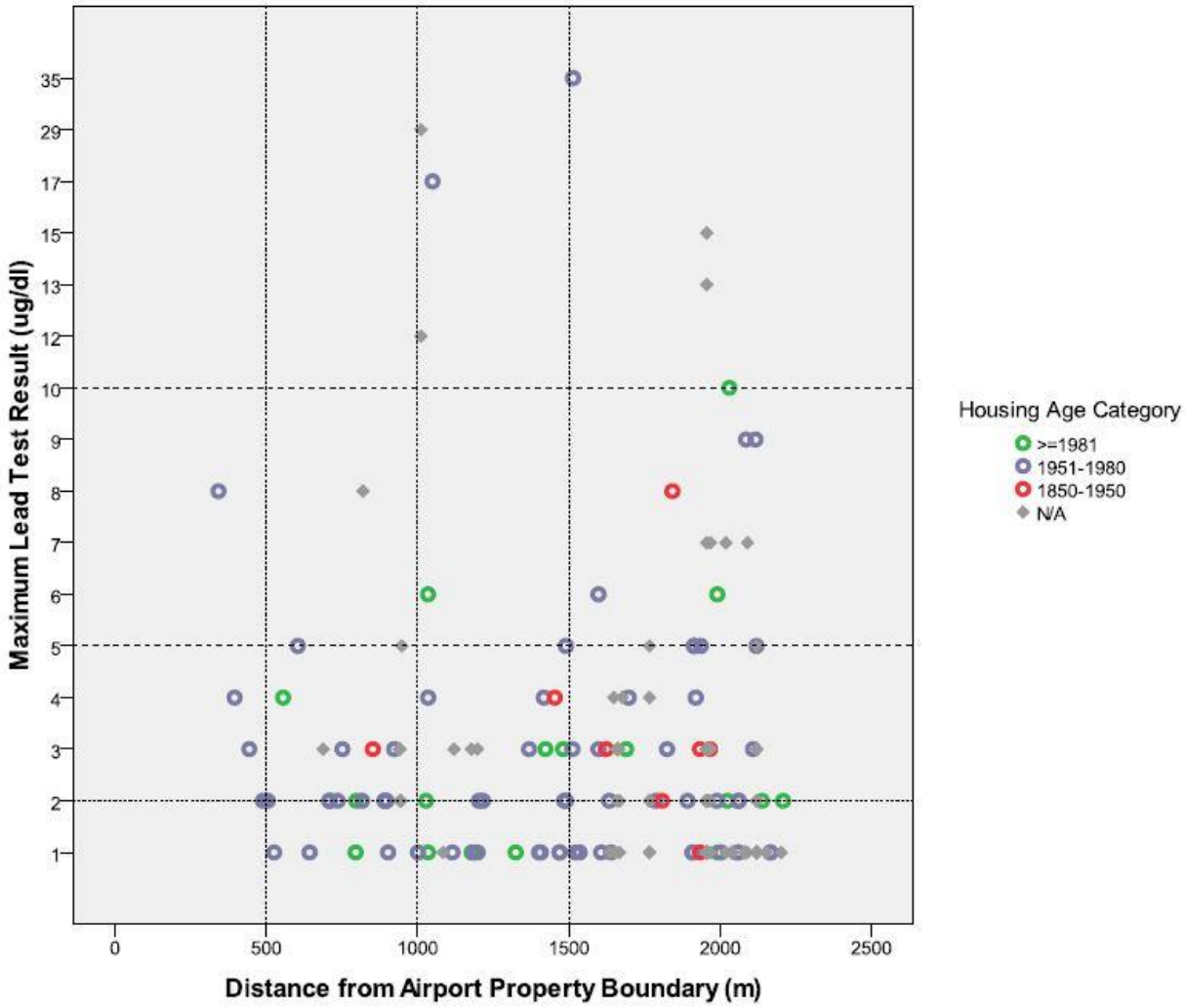

Image 5: Maximum Blood Lead for Individual vs Distance to Airport Property Boundary