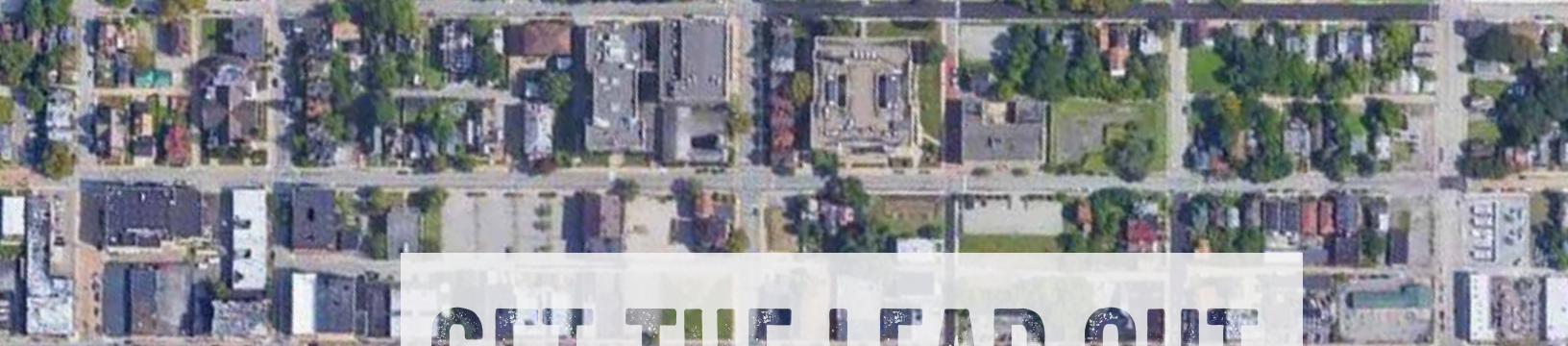




GET THE LEAD OUT, WILKINSBURG:

A study focused on identifying lead hazards

Get the Lead Out, Pittsburgh

APRIL 2021

BACKGROUND

The American Academy of Pediatrics stated,

“We now know that there is no safe level of blood lead concentration for children, and the best ‘treatment’ for lead poisoning is to prevent any exposure before it happens.”

Children, especially those under six years of age, are most vulnerable and at risk from lead exposure due to their rapid growth and development. Their impacts from lead poisoning include neurodevelopmental delays and impacts (behavior and learning problems, lower IQ, ADD, ADHD), hearing problems and speech delays, anemia, weight loss, fatigue and seizures. Further, the body sees lead as a nutrient and absorbs it into the bloodstream. Maternal health impacts from exposure to lead include gestational hypertension, spontaneous abortion, low birth weight and impaired neurodevelopment. And science informs us that adults may experience negative health effects from lead exposure including cardiovascular issues, decreased kidney function and reproductive problems.

Lead is primarily found in paint, dust, soil and water. In addition, it can be found in consumer products such as toys, spices, cosmetics and dishware (glazed pottery); hobbies such as fishing (weights), hunting (bullets), and stained-glass work; and jobs that involve working with lead and lead-based products.

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As the Centers for Disease Control and Prevention indicates, “The goal is to prevent childhood lead exposure before any harm occurs.” This can be accomplished through primary prevention – the identification and removal of lead hazards from the environment before a child is exposed.

“Get the Lead Out, Pittsburgh” (GTLO) is a public awareness campaign designed to shine a light on lead poisoning in Allegheny County, help families who are impacted by lead poisoning and enact changes to make our community safer. Primary data describing residential lead sources is important to protecting public health. Aimed at gaining a better understanding of the primary sources of lead exposure in municipalities across Allegheny County, the campaign

developed a strategy to sample homes for lead in the Borough of Wilksburg. In the fall of 2019, 65 residents were recruited through a combination of community events, door-to-door canvassing, community networks and social media.

This report summarizes the findings of those efforts.

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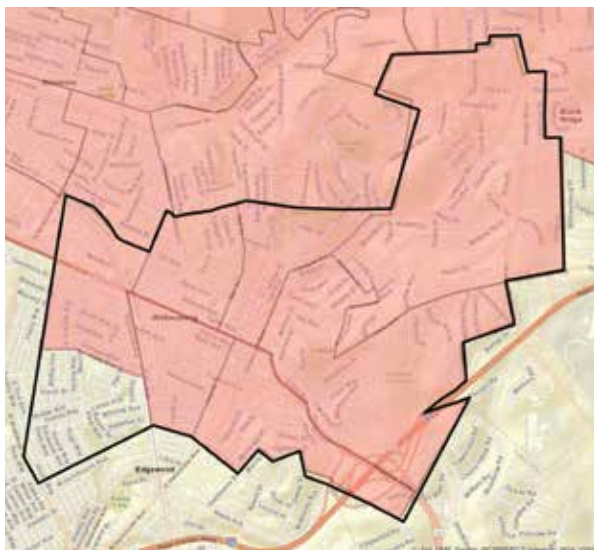
ENVIRONMENTAL INJUSTICE

Wilkesburg is home to several Environmental Justice communities. The Pennsylvania Department of Environmental Protection defines Environmental Justice (EJ) communities as “any census tract where 20% or more individuals live in poverty, and/or 30% or more of the population is a minority.” Below is a distribution of EJ communities in Allegheny County and the Borough of Wilkesburg. As the maps indicate, Wilkesburg is centrally located, and houses a higher concentration of Environmental Justice communities. This concentration is

striking, especially considering only about 30% of the census tracts in the county are designated as EJ areas. These are also the areas in which lead poisoning among children is more prevalent.

There is a disproportionate impact of lead poisoning on communities of color. The CDC summarizes this cumulative burden: “Communities of color are at a higher risk of lead exposure because they may not have access to safe, affordable housing or face discrimination when trying to find a safe, healthy place to live. This is called housing inequity, and it puts some children, such as non-Hispanic Black persons, at a greater risk of exposure to lead.” According to the 2018 Childhood Lead Surveillance Annual Report, 7.47% of “Non-Hispanic black or African American” and “Hispanic” children in Allegheny County tested for lead poisoning before the age of 6 (4,962) in 2018 had confirmed Elevated Blood Lead Levels. This percentage is 6.3 times greater than the 1.19% of “Non-Hispanic white” children in Allegheny County tested for lead poisoning before the age of 6 (15,149) in 2018. In general, households with lower incomes, and particularly those who are renting, are unlikely to have the financial resources or legal ability to remediate lead hazards in their homes.

The data suggests that environmental hazards have disproportionate impacts on populations of color in Allegheny County and within the Borough of Wilkesburg. Our hope is that the findings of this report will shed light on lead hazards found in environmental justice communities across Allegheny County and mobilize communities and decision makers to take action.



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WILKINSBURG DEMOGRAPHICS:

According to the 2010 Census, the population of Wilkesburg is 15,930. There are 7,076.9 people per square mile in the Borough.

66.6% of the population are African American, and 28.3% are Caucasian. About 3.2% are of two or more races, 1% are Asian, and less than 0.5% are Native American and Pacific Islander. Hispanic or Latino people constitute about 1.8% of the population.

There are 10,696 total housing units in the Borough: 9,138 are occupied and 1,558 are vacant housing units. 17% of households have children under the age of 18. Almost 49% of all households were made up of individuals, and 14% had someone living alone who was 65 years of age or older. The average household size in Wilkesburg is 1.92, and the average family size was 2.82.

19% of Wilkesburg's residents are under the age of 18. Residents aged 65 years old or older make up about 16% of the total population. The median age in Wilkesburg is 41 years old. There are 8,866 females and 7,064 males in the Borough. About 38% of households are owner occupied and 62% are renter occupied.

The median household income in the Borough is \$36,743, which is much lower than the median household income of \$61,043 for Allegheny County. The per capita income for the borough is about \$30,455. About 24.5% of the total population are below the poverty line.

According to the Allegheny County Health Department, from 2015-2018 there were 929 children under 6 years of age who were screened for lead poisoning in the Borough. Of that, 58 children (6.24%) had a confirmed elevated blood lead level (EBLL). Comparatively, an average of 1.84% of children under 6 years of age tested in Allegheny County had confirmed EBLLs.



WILKINSBURG SAMPLING PROJECT

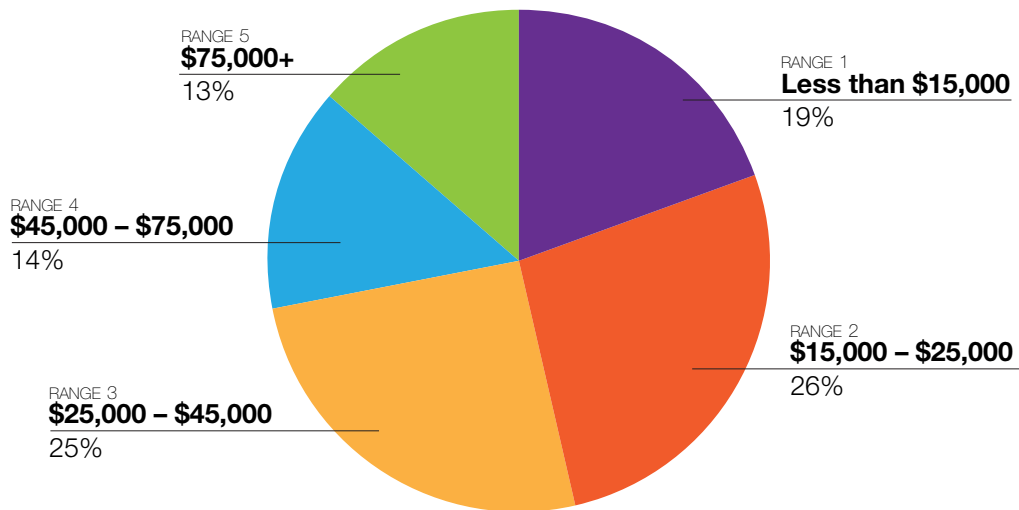
Each participant volunteered to have a full lead risk assessment of their home completed, which included testing for lead in soil, water, paint and dust. Sampling was completed by Pennsylvania certified lead inspectors and risk assessors working at two firms: Conservation Consultants, Inc (n = 23 households) and Accredited Environmental Technologies, Inc. (n = 42 households).

For the report, we gathered information from 65 individuals, asking each individual to answer 36 questions, in nine broad categories such as occupancy and household breakdown by age and size. There are several particularly relevant factors to note: children under 6, Elevated Blood Lead Levels (EBLL), occupancy type, length of occupancy, intention to relocate, income range, monthly housing costs and where residents believe lead may exist in their home.

Out of the 65 respondents, 29% noted that they have children under 6 in the home; however, several of these respondents noted that they have several children under 6 in the home for a total of 26 children under 6 accounted for. Just over 10% respondents noted that they were aware of someone in their household having an EBLL. With respect to occupancy type, 52% were renters and 48% were homeowners. Length of occupancy ranged from 0.5 years to 55 years and residents averaged 11.3 years of occupancy. When asked whether or not they had the intention to relocate, 7% said yes, 91% said no and 2% said maybe.

For income range, 63 respondents provided answers. The income range and corresponding percentage are listed below:

Income Ranges of Respondents



64 of 65 respondents recorded their monthly housing costs which ranged from \$55 to \$3,000 and averaged \$972 per month. Assessing participants beliefs regarding their personal lead risk, about 25% believed they had lead paint within their property, about 28% believed they had lead in their drinking water, 23% believed they had lead in their soil, 9% believed they had lead in dust, 5% believed they had a lead-free home and 78% said they were unsure whether or not there was any lead present in the home.

Individual participants were notified of their results and provided with appropriate guidance on how to protect themselves from lead exposure. In addition, participants were invited to a community meeting held by the GTLO campaign, where they could ask specific questions regarding their results. At the community meeting, attendees received a home cleaning kit and water pitcher certified to remove lead from drinking water.

This report summarizes the sampling results for all

65 homes. Samples were evaluated on the basis of detection (concentrations above or below the limits of the detection equipment), exceedance of recommended regulatory thresholds and the raw observed concentration.

Highlights indicate that lead was detected in at least one source in 88% of households. Lead concentrations in paint, dust (on floors), water and soil (for produce gardens) exceeded recommended levels in 78%, 46%, 2% and 6% of sampled households, respectively. Table ES-1 summarizes additional highlights from the sampling effort. The remainder of this report provides additional summaries of the sampling results.

Biomarkers (such as blood specimens) of potential lead exposure were not collected. As a result, this report cannot draw associations between the presence of lead in the built environment and occupant health effects. Thus, this report is limited to characterizing the presence and concentration of lead relative to regulated thresholds.

SUMMARY OF FINDINGS:

Table ES-1: Summary of sampling for lead in 65 households in Wilkinsburg, PA in the fall of 2019.

Source	Households sampled	Positive samples	Households with at least one sample exceeding regulatory thresholds	Average result	Minimum and maximum result
Paint	65	51	51 above definition for lead-based paint	6 mg/cm ²	1 to 36 mg/cm ²
Dust	65	39	<u>Hazard levels</u> 30 above level for floors 5 above level for window sills 1 above level for window troughs	6 mg/cm ²	11 to 13,000 microg/ft ²
Water	64	26	1 above action level	6 microg/L	1 to 40 microg/L
Soil	19	19	<u>Hazard levels</u> 4 above level for edible garden 0 above level for play areas 4 above level for other areas	1,500 mg/kg	40 to 14,000 mg/kg

ANALYZING LEAD SAMPLES FOR DETECTION LIMITS

Lead concentrations fall either above or below the detection limit of the equipment and methods used. “Negative” and “positive” samples fall below and above the detection limits, respectively. Detection levels vary by equipment and methods used to measure lead concentrations.

A negative reading does not guarantee that no lead is present. The detection limits of certified testing equipment and methods must fall below hazard or action levels. While negative samples have concentrations below action levels determined by federal agencies such as the U.S. Environmental Protection Agency,

previous studies have found no safe levels of lead. For this reason, many of the federal action levels are not health based nor health protective. Thankfully, the EPA lowered its lead dust and paint standards for both risk assessments and clearance testing in 2019 and 2020, respectively. This followed recent findings of increased blood lead levels and cases of childhood lead poisoning between floor dust lead of 10 µg/ft² (current, new standard) and 40 µg/ft² (previous standard).

Positive samples may exceed regulated thresholds. While paint is a primary lead source, lead that is encapsulated is not necessarily a hazard. Thus, paint samples that exceed the federal definition of lead paint, or 1 mg/cm², are often considered a precursor to potential exposure. Lead observed in dust and soil indicates

previous or existing lead paint has been compromised, increasing exposure risks. Federal agencies set health-based hazard or action levels for lead in dust and soil, which vary by source and sample location. In addition to paint, lead may leach into drinking water from lead plumbing and fixtures. Lead in drinking water is regulated by the U.S. Environmental Protection Agency.



Figure 1 summarizes the potential outcomes for any given sample, and Table 1 summarizes the regulatory thresholds used in this report. As an example, consider sampling for lead in dust on floors with equipment that can detect lead concentrations as low as 10 mg/ft². Three samples are taken throughout the home: one is below the detection level and the others are 14 mg/ft² and 170 mg/ft². The first reading would be

described as “negative,” meaning the concentration of lead in the tested surface is somewhere between 0 and the detection limit of 10 mg/ft². The second and third readings could be labeled “positive” because each is above the detection level. However, only the third reading is above the regulatory level.

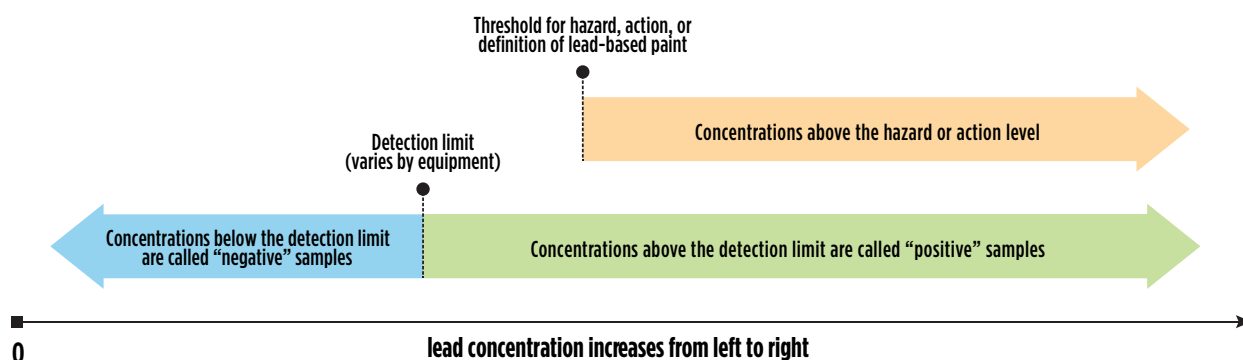


Figure 1: Lead concentrations fall above or below detection limits. Positive samples may exceed regulatory thresholds.

Table 1: Regulatory thresholds for lead by source and location
EPA (2000); HUD (2012); 15 U.S.C. § 2681 (2009); CA (2009)

Paint	Water	Soil	Dust
Lead paint defined as exceeding 1 mg/cm ²	Action level is 15 mg/L	1,200 mg/kg for other areas 400 mg/kg for play areas 80 mg/kg for gardens*	400 mg/ft ² for window trough 250 mg/ft ² for windowsill 40 mg/ft ² for floors

* While there are no federal hazard levels for lead in soil in edible gardens, this report adopts the State of California’s human health screening level for lead in residential soil of 80 mg/kg [CA 2009].

SOURCES OF LEAD EXPOSURE

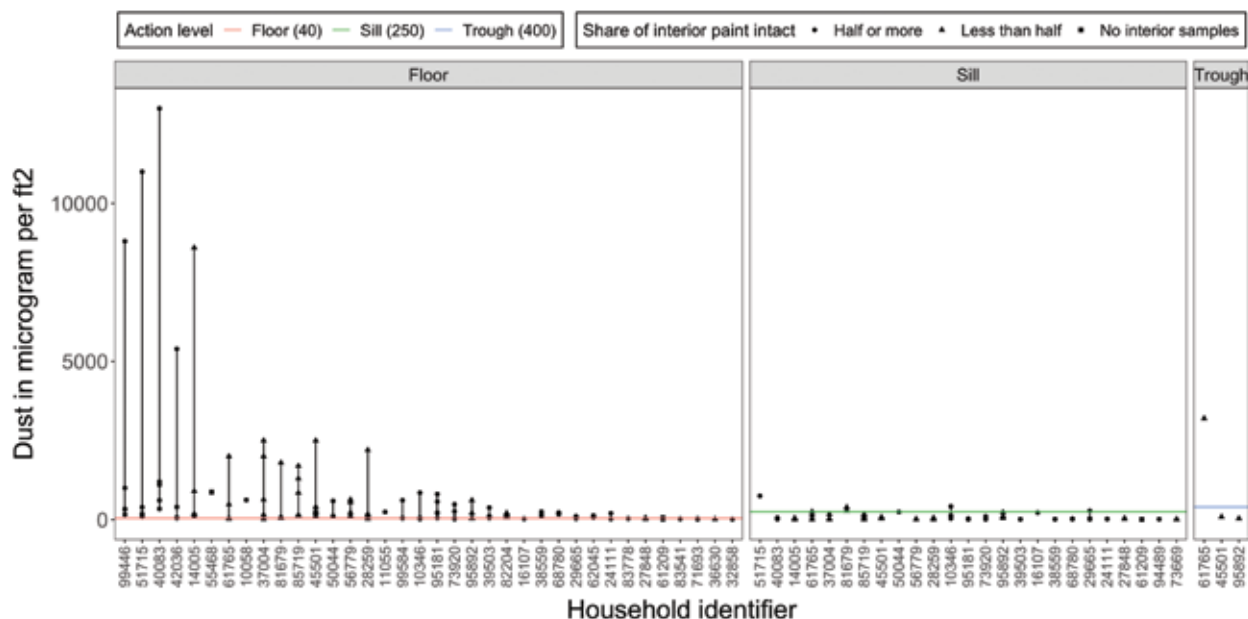
PAINT Lead that is encapsulated in intact paint presents a lower exposure risk than lead coming off of paint that may be compromised. Compromised lead paint ends up in dust inside homes and in soil outside of homes. Thus, sampling in all three sources – paint, dust and soil – is needed to indicate exposure risks. Households with lead in interior paint and dust samples exceeding recommended levels suggest interior lead-based paint may be compromised and be an exposure risk. Similarly, homes with lead in exterior paint and soil samples exceeding the recommended levels suggest exterior paint may be compromised and may be an exposure risk. Importantly, lead detected in dust or soil may come from sources other than compromised existing lead-based paint, such as previous coats of paint or historical off-site industrial sources.

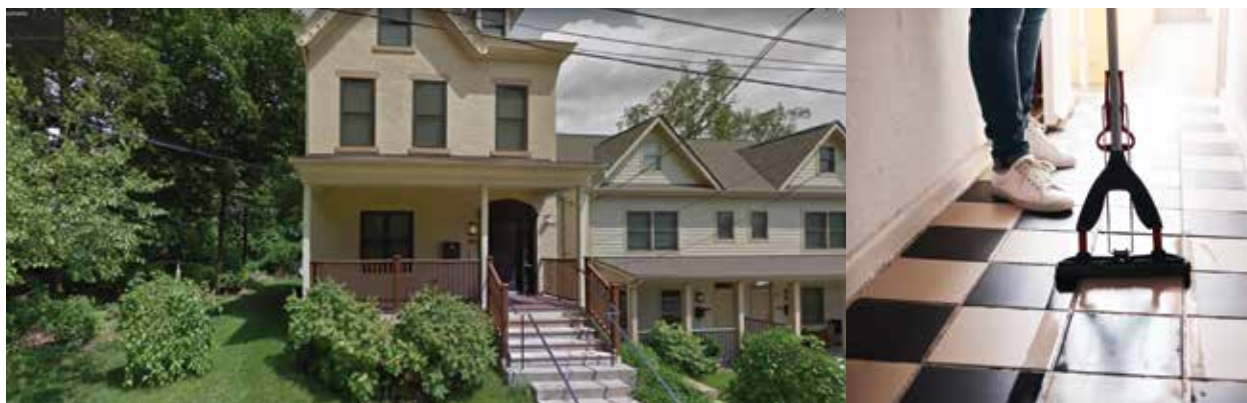
DUST All 65 homes were sampled for lead in dust on floors, windowsills and window troughs. The number of samples taken varied by household depending on household size and characteristic. The average, minimum, and maximum dust samples per

household were 6, 1, and 10, respectively. Lead in dust was detected on at least one surface in 60% of households.

Figure 2 shows concentrations of lead in dust for 39 households testing positive for lead. Dust samples exceeded regulatory thresholds for floors, windowsills and window troughs in 30, 5, and 1 household respectively. Single samples of lead in five homes exceeded 5,000 micrograms per ft² on floors, which is more than 10 times the recommended threshold.

Figure 2 also describes the condition of the exterior paint as whether a majority of paint was intact. The condition of interior paint does not appear to significantly influence the lead concentrations in dust, as indicated by homes with the highest dust levels containing mostly intact paint. However, the condition as described by Figure 2 represents the share of samples intact across the entire home, whereas the deterioration of lead paint into dust may vary by room or even across surfaces within a given room. Similarly, the concentration of lead in paint may vary by room and surface.



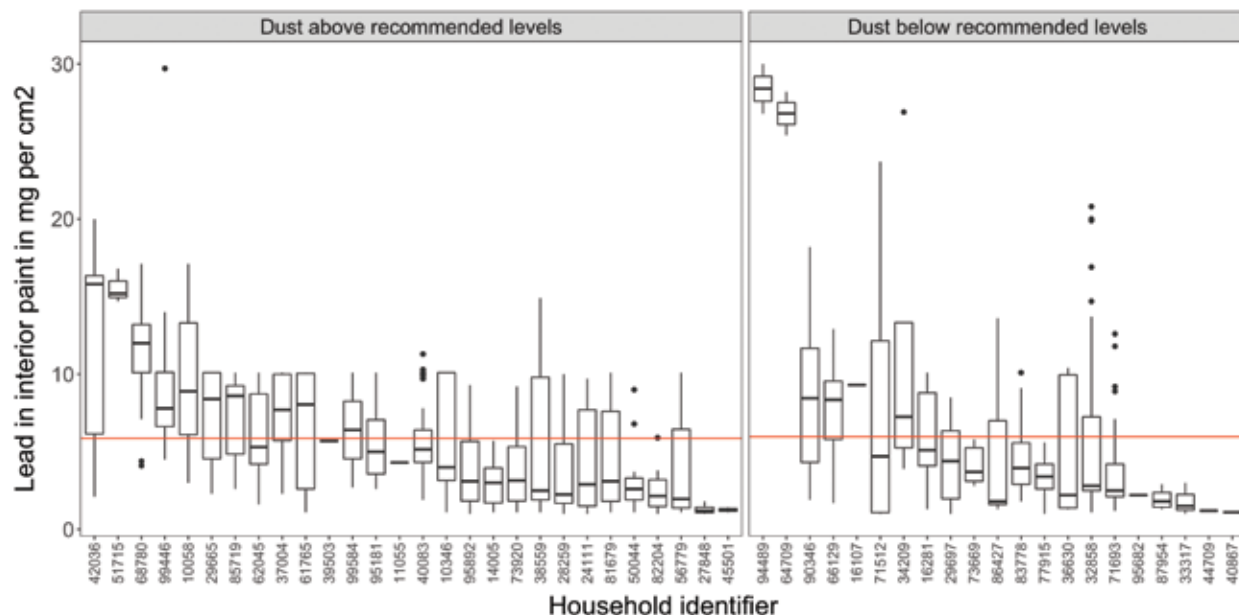


One of the two inspectors (Accredited Environmental Technologies, Inc) reported results for paint samples below the regulatory definition of lead-based paint (1 mg/cm²). Whereas the second inspector, Conservation Consultants, Inc., reported only paint samples that fall above the regulatory threshold of 1 mg/cm². In order to maintain consistency, all paint samples provided by Accredited Environmental Technologies, Inc that fell below 1 mg/cm² were removed from the data unless otherwise noted. As a result, all paint samples presented in this report fall above regulatory thresholds unless otherwise noted.

All 65 homes were sampled for lead in paint. An average of five and 17 samples were taken on various interior and exterior surfaces, respectively. Lead paint was detected in 51 households. The average, minimum, and maximum interior concentrations were 6.5,

1, and 30 mg/cm², respectively. The average, minimum, and maximum exterior concentrations were 7.7, 1, and 36 mg/cm², respectively. There was no obvious relationship between the lead in paint concentration and the paint condition.

Figure 3 shows ranges in observed lead concentrations in interior and exterior paint by household, where households are grouped by indicators of whether any dust and soil levels exceeded recommended thresholds. At the household level, Figure 5 indicates that the concentration of lead paint does not affect whether dust or soil samples exceed action levels. However, as described above, correlations between concentrations of lead in paint, soil and dust may not be meaningful at the household scale given expectation variation by location and surface within households.



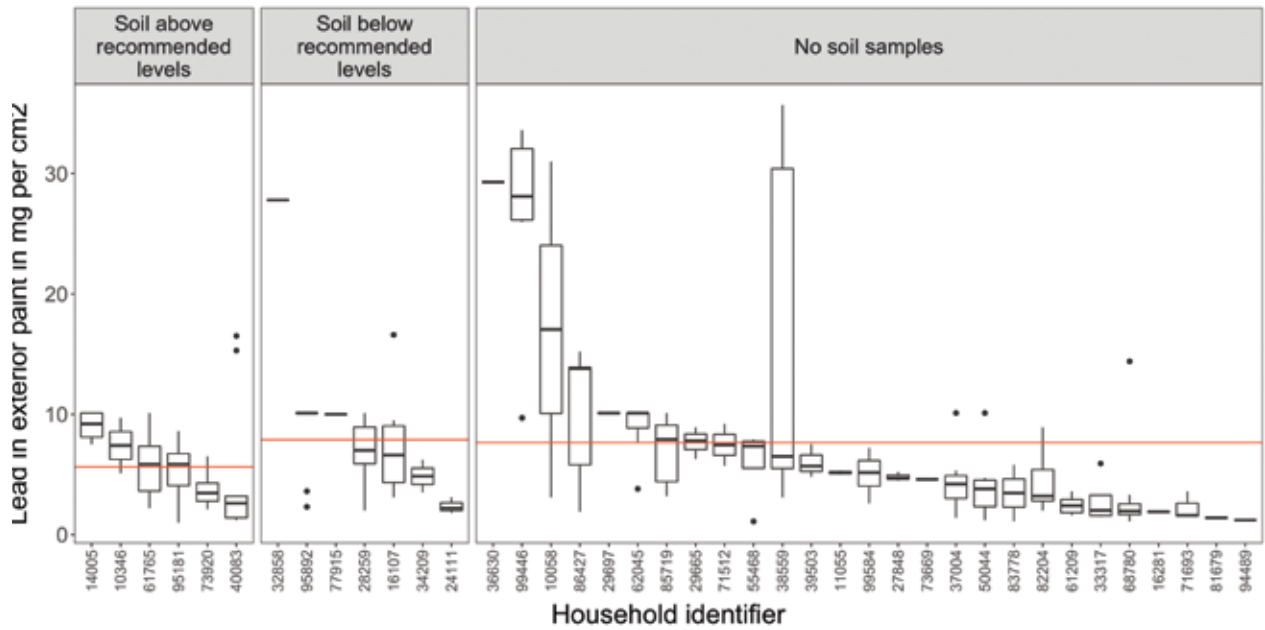
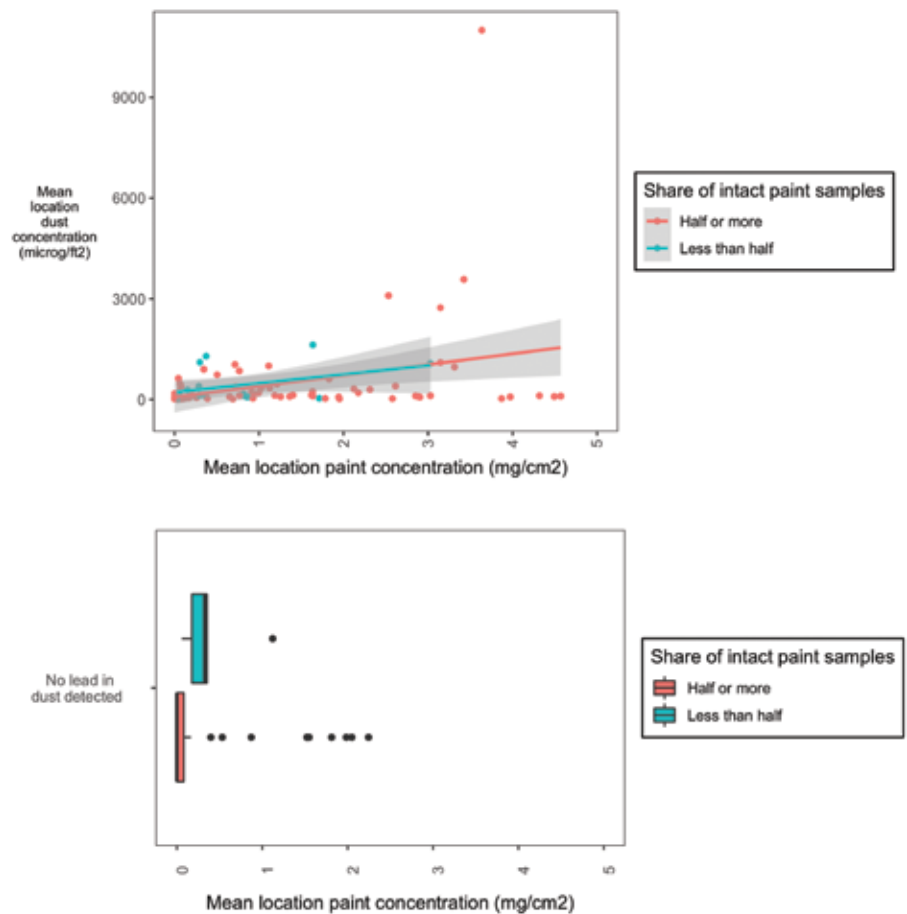


Figure 4 shows the relationship between lead in interior paint and dust by room for locations where the inspection reports clearly indicated dust and paint samples were taken from the same room. Figure 4 shows a moderate positive association between lead paint concentration and lead in dust. This association does not change with the paint condition.





SOIL Lead soil samples were collected at 19 of 65 (29%) participating households. Each of the 19 households sampled tested positive for lead in soil. Inspectors did not collect soil samples where there was no obvious outdoor area to occupy, such as apartment buildings with no common outdoor space. If present, samples were taken from play areas and edible gardens. Samples were also taken from “other” locations with at least nine square feet of topsoil, according to sampling standards.

Figure 5 shows ranges in sampled soil concentration by household. Of these, four exceeded recommended thresholds for edible gardens, and four exceeded

recommended thresholds for other areas. One home was sampled for lead in a play area, which did not exceed recommended levels. One household demonstrated two positive samples ranging from around 5,000 mg/kg to 14,000 mg/kg, which is 60 and 12 times the recommended level for sampled areas (garden and other area).

Figure 5 also identifies the condition of the exterior paint. The condition of the exterior paint does not appear to significantly influence the surrounding soil concentration, consistent with the expectation that lead in soil comes from multiple sources (e.g. industrial pollutants) and not exclusively from lead paint.

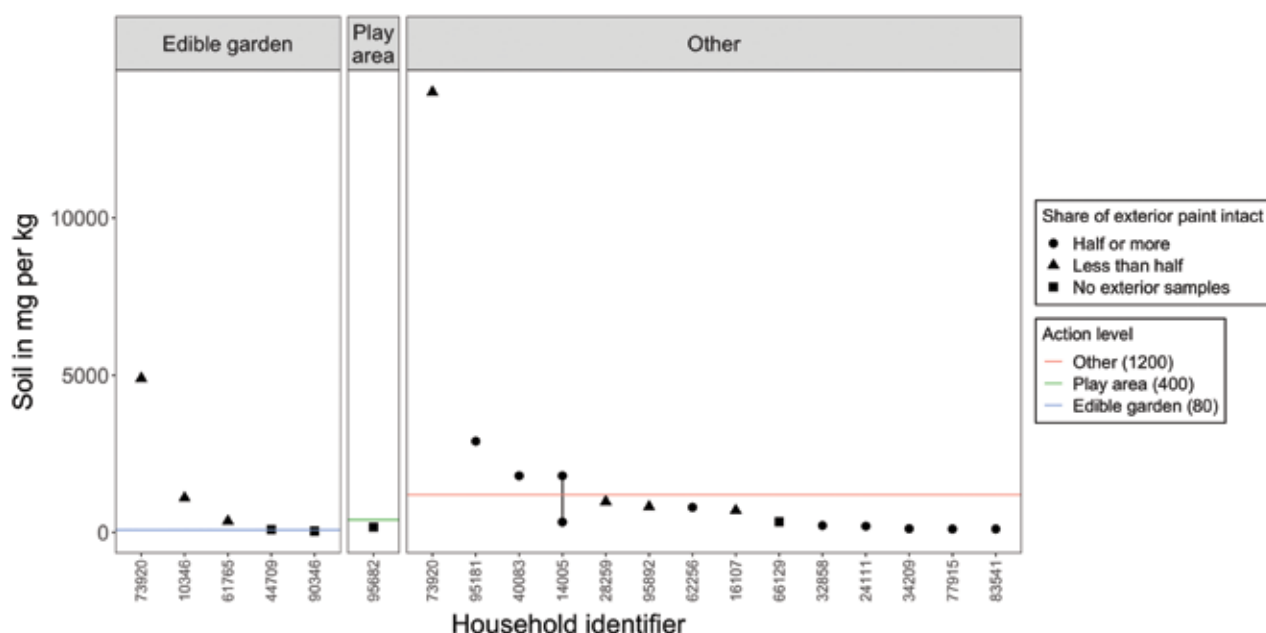


Figure 5: Concentrations of lead in soil 19 households testing positive for lead in soil.

WATER Lead water samples were collected at 64 of 65 participating households. For each sampled household, two samples were taken from the cold water tap in the kitchen. The first sample – or “first draw” – was taken following at least eight hours of stagnation. The second sample – or “second draw” – was taken after flushing the cold water plumbing for at least five minutes.

A majority of households (n = 39 or 60%) tested negative for lead in drinking. First and second draws tested positive for 26 (40%) and 8 (12%) households, respectively. Figure 6 shows the variation in measured concentration of lead in water for the 26 positive households. Water in only one household tested above the action level of 15 micrograms per L.

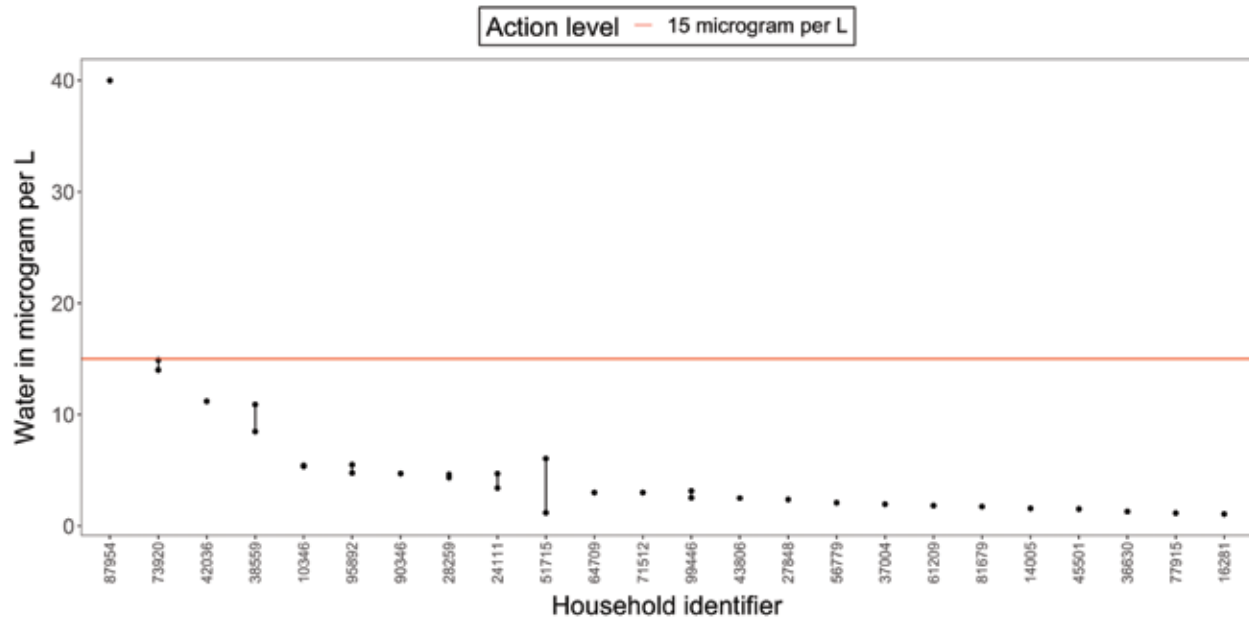
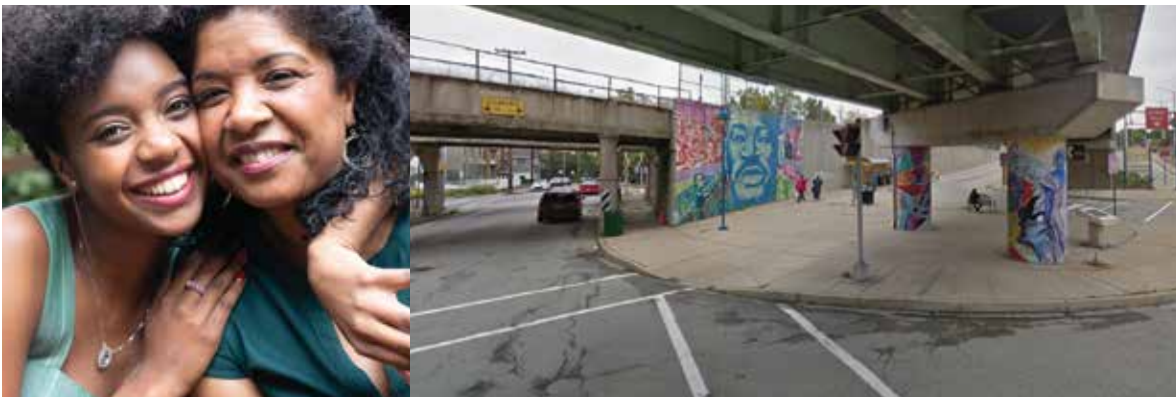


Figure 6: Concentrations of lead in drinking water in 26 households testing positive for lead.





NEXT STEPS

The Get The Lead Out campaign continues to meet with the Borough of Wilkesburg and staff to update them on the report findings. Following the sampling project, a summary was presented to the Wilkesburg Planning Commission on February 4, 2020. According to the Borough of Wilkesburg website, “The Planning Commission plays a crucial role in developing recommendations for implementing change in land use and promoting responsible land use practices. The Planning Commission reviews proposed development plans and ensures the compliance of those plans with the Borough’s Zoning Ordinance and Subdivision and Land Use Regulations and makes recommendations to Borough Council.” The Wilkesburg Planning Commission consists of seven members who are all residents of the Borough. At the February 2020 meeting of the Wilkesburg Planning Commission, they passed a motion to adopt the ‘Get The Lead Out, Wilkesburg’ initiative to raise awareness in the community about the dangers of lead, where it is found and how it can be avoided.

Policy Recommendations

Preventing exposure to lead is key to solving lead poisoning. Primary prevention strategies largely include policies and procedures that require:

- Identification and remediation of lead hazards in the built environment
- Safe (wet) demolition, renovation, repair and painting practices
- Replacement of lead water service lines

There are a number of policies that may be implemented as tools to protect community members from lead exposure. The Borough of Wilkesburg has a number of these tools in place, putting them among a number of Allegheny County municipalities with a promising opportunity to integrate lead safety into their existing codes, programs and requirements.

**Those in blue are tools Wilkesburg already has in place, but do not necessarily include lead safety requirements at this time.*

HOUSING

Proactive Rental Inspections (PRI)

One of the most effective municipal strategies to reduce lead poisoning is a Proactive Rental Inspection (PRI) program. These inspections for lead hazards in rental housing are commonly included in a municipality's rental property occupancy permitting, licensing or registration processes, and are strategically implemented in high-risk areas. The inspections may include any of the following protocols, in order of increasing technicality:

Visual Assessment – Inspecting the residence for any peeling, flaking or chipping paint on the interior or exterior of a home

Dust Wipe Sampling – Identifying the number of micrograms of leaded dust per square foot near high friction surfaces (i.e. doors or windows) and areas where occupants spend large amounts of time

Lead Risk Assessment – Sampling all potential sources of lead (paint, dust, water, soil and household items) and providing recommendations to reduce risk of exposure

Proof of lead dust wipe clearance and visual inspection

Lead dust wipe sampling and visual inspections are recommended for PRI programs when taking both mitigation of risk and cost effectiveness into consideration. This twofold inspection protocol may be conducted by a third-party technician or municipal code enforcement officer with lead inspection training. Obtaining sample results below the federally defined hazard levels – or a successful clearance test – may be required before receiving an occupancy permit or registration for a rental property built before 1978. Results may also be shared on a public database in order to inform the decisions of prospective tenants.

Certificates of Occupancy

A certificate of occupancy is a permit issued to certify that a property meets all applicable codes such as building or zoning regulations. Proactive rental inspections are commonly incorporated into the occupancy permitting process. Occupancy permits often require

an inspection for safety and health standards. Adding lead-specific protocols to these inspections can be easily accomplished.

Before new tenants are permitted to move into a Wilkesburg rental property, the owner of the property must obtain an occupancy permit that is conditioned on a code inspection and correct any cited violations. The inspection carried out by code enforcement staff includes a visual assessment for interior and exterior peeling paint per the International Property Maintenance Code, which ensures deteriorated paint, that may or may not be lead-based, will be cited and remediated. Testing for other lead hazards, such as lead-contaminated dust, is not conducted as part of these inspections currently.

Due to household dust being the leading source of childhood lead poisoning, it is recommended that Wilkesburg explore the integration of dust wipe sampling into the inspection protocol for occupancy permits.

Rental Registry

A rental registry is an inventory with accurate contact information for all rental properties so that property owners/managers can be reached in the event of an emergency or to facilitate code compliance activities, such as scheduling proactive rental inspections. Rental registries also sometimes incorporate property inspections into the registration process, when such inspections are not otherwise implemented under other programs.

In the Borough of Wilkesburg, rental property owners must annually renew registration of their units by completing a “Tenant Registration Application” that requests information about both the property owner and tenants. Because code inspections already occur during their occupancy permitting process, there is no need to integrate lead testing into the registration. However, access to accurate contact information for both the rental property owners and tenants will facilitate success in enforcing the remediation of lead hazards required by the occupancy permitting program.



WORK PRACTICES

Proof of RRP Certification

The 2010 federal RRP Rule requires that renovations, repairs and painting in pre-1978 homes, childcare centers and preschools be performed by firms who are certified in lead-safe work practices. The RRP Rule also requires that individuals and firms must be RRP certified through an EPA accredited program. Typically, the EPA enforces this rule on a complaint-driven basis; however, under-reporting and lack of federal resources have impeded effective enforcement. Although authorized to enforce the RRP Rule directly, Pennsylvania has not undertaken enforcement of the Rule, nor have most municipalities. On the local level, municipalities can enforce this rule through partial or full implementation, outlined below:

Partial Implementation: Verify RRP certification upon application for building permits.

Full Implementation: Adopt RRP rule into housing code and enforce violations of the code.

It is recommended that Wilkesburg consider partial implementation by requesting contractors apply for building permits from the Borough to show proof of RRP certification.

Demolition Requirements

Cities across the nation have instituted lead-safe demolition protocols to prevent exposure to lead hazards that are caused by demolitions. In Allegheny County, municipalities and private parties conducting demolitions must ensure that demolitions are done in an asbestos-safe manner. However, there are no protocols

in place to ensure that demolitions are conducted in a lead-safe manner. Municipalities in Allegheny County can fill this gap by including cost-effective, lead-safe demolition standards in the demolitions that they carry out and permit.

Below is a summary of the five key stages of a lead-safe demolition, per a report released in August 2019 by the Institute of Politics and Lead-Safe Demolition Working Group. These recommendations apply to both private and public demolitions.

Pre-demolition: All supervisory personnel must be trained in lead abatement and all workers must be accredited lead hazard reduction workers according to the state DEP.

Deconstruction: Contractors must deconstruct specific housing components by hand, wrap debris thoroughly and transport it off site.

Demolition: The municipal staff or independent contractor monitors lead emissions in air, soil and water before, during and after demolition.

Post-demolition: At the conclusion of demolition, debris must be wetted, covered and transported to an EPA-approved landfill.

Ongoing Site Safety: Pending redevelopment of the site, a ground cover that grows to a short height and requires little maintenance must be in place.

It is recommended that the Borough of Wilkesburg consider a first step towards this model procedure: the wet-wet-wet method. This method includes wetting structures built before 1978 with water before, during and after the demolition in order to reduce lead dust falling in the surrounding area. A requirement for this protocol could be included in the specifications for public demolitions and proof of this method could be required before issuing private demolition permits.

WATER

Moratorium on partial lead service line replacements

The U.S. Lead and Copper Rule regulates the amount of lead in drinking water. Many water systems across the nation are working to replace lead pipes in order to reduce lead in water levels. Some of these unfortunately include partial lead service line replacements, where the piping from the curb to the interior of the home is left in place.

According to the Centers for Disease Control and Prevention, partial lead service line replacement has been

associated with short-term increases in lead levels in drinking water and has not been found to decrease risk for blood lead levels in children. Studies published in Environmental Science Technology now show long-term increases in lead in water levels as well.

The Borough of Wilkinsburg is encouraged to pass a resolution urging water systems serving their residents to place a moratorium on partial lead service line replacements, as well as partner with stakeholders to support applications for funding, such as the PennVest grants that will be available to water systems across Pennsylvania in early 2021 for full-service line replacements.



CONCLUSION

In summary, this project demonstrates that lead is present in multiple sources, including paint, dust, soil and water in properties and homes in the Borough of Wilkinsburg. We look forward to collaborating with the Borough of Wilkinsburg leadership on the recommendations put forward in this report and working together to create a lead-safe community for all Wilkinsburg residents.

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MISCELLANEOUS NOTES

The condition of one paint sample for household 87954 was not reported. All other samples were reported as "intact." This report assumes that the paint was intact for sampling missing information.

Units for one dust sample for household 16107 reported as "microgram per wipe." This report assumes these units are equivalent to "microgram per ft²," as demonstrated by the remaining dust samples.

Learn more:

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