



Smart infrastructure. Strong communities.

LEADFREE



MEMBERSHIP MEETING

ALIGNING OUR ACTIONS
SMART INFRASTRUCTURE.
STRONG COMMUNITIES.



lead-free-nj



jerseywaterworks

LeadFree_NJ



jerseywaterworks

LeadFreeNewJersey



JerseyWaterWrks

LeadFree_NJ

Thank you to our Host

RUTGERS

Environmental and Occupational
Health Sciences Institute | EOHSI

Thank you for your Support

BANK OF AMERICA



The Fund for
New Jersey

GERALDINE R.
DODGE
FOUNDATION

THE
KRESGE
FOUNDATION



Robert Wood Johnson Foundation



SCHUMANNFUND
FOR NEW JERSEY

**SPRING
POINT
PARTNERS**

VICTORIA FOUNDATION

Agenda

- 8:30 a.m. — Breakfast
- 9:30 a.m. — Opening Remarks
- 10:10 a.m. — Breakout Sessions
- 11:30 a.m. — Lunch
- 12:20 p.m. — Mini-Keynotes
- 2:00 p.m. — World Café

Welcome



Stephen D Marks

Town of Kearny



Rashan Prailow

THINK Group



Dr. Helmut Zarbl,
Ph.D.

Environmental and
Occupational Health
Sciences Institute



Olivia Glenn

U.S. Environmental
Protection Agency,
Region 2 Office;
NY, NJ, PR, USVI, and
Eight Indian Nations



Stephen D Marks

Town Administrator, Town of Kearny
Jersey Water Works Steering Committee

Jersey Water Works

is a **cross-sector collaborative** working to transform New Jersey's water infrastructure through sustainable, cost-effective solutions that provide communities with clean water and waterways; healthier, safer neighborhoods; local jobs; flood and climate resilience; and economic growth.



SHARED GOALS & COMMON AGENDAS

1 Effective and Financially Sustainable Systems

2 Empowered Stakeholders

3 Successful and Beneficial Green Infrastructure

4 Smart Combined Sewer Overflow Control Plans

SUPPORTING MEMBERSHIP

STEERING COMMITTEE



ASSET
MANAGEMENT &
FINANCE
COMMITTEE



GREEN
INFRASTRUCTURE
COMMITTEE



CLIMATE
RESILIENCE



COMBINED
SEWER
OVERFLOW
COMMITTEE



LEAD TASK FORCE



DATA COMMITTEE /
JERSEY WATERCHECK



WATER WORKFORCE
TASK FORCE

BACKBONE
ORGANIZATION



Smart infrastructure. Strong community.

NETWORK



Rashan Prailow

Founder, THINK Group

Lead-Free NJ Steering Committee Co-Chair

Lead-Free NJ



Lead disproportionately affects young children,

causing serious medical and behavioral issues into adulthood.



Low-income communities and/or communities of color are most at risk

due to systemic inequities. Fortunately, these issues are preventable when we target the sources of lead.



We can address this complex problem on a larger scale than any individual or organization can alone.

Working together as Lead-Free NJ, an inclusive and equitable collaborative focused on removing lead from New Jersey's environment.



The time is now to demand action

and organize for statewide lead remediation in every home, childcare facility, school, and water system.

Our Model

Uniting communities with policy-oriented organizations to effect change





Dr. Helmut Zarbl,
Ph.D.

Director, Environmental and Occupational
Health Sciences Institute



Olivia Glenn

Chief of Staff and Senior Advisor for Equity
U.S. Environmental Protection Agency,
Region 2 Office;
NY, NJ, PR, USVI, and Eight Indian Nations

Breakout Sessions

Lead-Free NJ Joint Steering and Advocacy Committee

Room 411

Asset Management and Finance and Smart Combined Sewer Overflows

Room 109

Climate Resilience and Green Infrastructure

Remain here

Mini-Keynotes



Kelvin Boddy
Housing and Community
Development Network
of NJ

Holistic Approaches to
Eliminating Lead
Poisoning



Anthony Diaz
Newark Water Coalition

The Power of
Community Owned
and Managed
Research to Identify
and Address Lead
Hazards



Debbie Mans
TWENTYTWO
public affairs

Aligning Our Actions:
Celebrating Progress
and Articulating
Next Steps



Chris Obropta
Rutgers Cooperative
Extension Water
Resources Program

Green Infrastructure:
Where We've Been,
Where We Are Going



Rick Dovey
Atlantic County Utilities
Authority (ACUA)

Water Sector Utilities as
Community Anchors:
Lessons Learned From
33 Years Of Service



Nicole Miller
MnM Consulting

Moderator



Nicole Miller
MnM Consulting

Moderator



Kelvin Boddy
Housing and
Community
Development
Network
of NJ

Holistic Approaches to Eliminating Lead Poisoning



Anthony Diaz
Newark Water
Coalition

The Power of Community Owned and Managed Research to Identify and Address Lead Hazards



COMMUNITY DATA SCIENCE: NEWARK WATER COALITION MOBILE LEAD INITIATIVE FOR COMMUNITY OWNED AND MANAGED RESEARCH

Bavisha Kalyan. Anthony Diaz
Lead Free NJ/JWW July Membership Meeting



NEWARK WATER COALITION

Co-Founder & Executive director: Anthony Diaz

Community of people who recognize the connection between systemic environmental racism and capitalism. Grassroots organization centered on liberating natural resources.



Timeline of Newark Water Lead Crisis

2003: Reports of high lead levels in Newark

2016: News reports of high levels of lead in public schools' drinking water ignited a surge of community activism and community science

2017: Highest levels recorded by a large water system in the United States

2018: Newark Education Workers Caucus (NEW Caucus), public school educators, and the National Resource Defense Council (NRDC) **filed a federal lawsuit** alleging numerous violations of the Safe Drinking Water Act and demanded a safe alternative source of water for Newark residents

2019: Swift lead service line (LSL) replacement program

2022: Newark replaced 23,000 lead service lines

STREET TEAM → MOBILE LEAD TESTING UNIT

NEWARK, NJ

MOST POPULATED CITY IN NJ

DEMOGRAPHICS:

Black or African American: 48%

Hispanic or Latino: 37%

White: 23%

30% BELOW THE FEDERAL
POVERTY LINE

MEDIAN INCOME: ~\$40,000

PATTERSON

NEWARK

ELIZABETH

MANHATTAN

New York
New Jersey



WATER



PAINT



SOIL



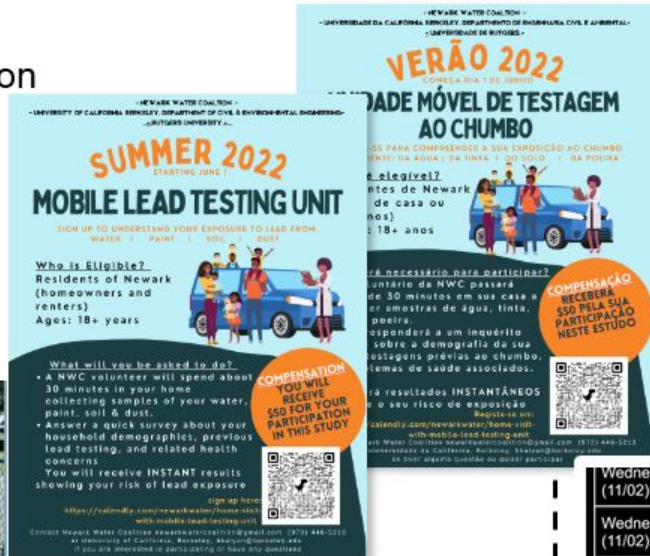
DUST



Holistic lead exposure

RECRUITMENT STRATEGIES FOR MOBILE LEAD TESTING UNIT

- July 2022: Kick Off Community Science Training Day
- Food & water distribution
- Tabled at local events
- Referral program
- **315 Homes**
- Ended Nov 2022



Recruitment materials

Tabling at Laundry Workers Center
Community event & Recruiting at
NWC Weekly Food Distribution at St
Stephans Church

TRAINING THE TESTING TEAM

- ~15-person team (5 high school students)
- Sub teams: Recruitment & Advertising, Scheduling, Lab Team, Testing Team, Data Analysis, Report Back
- NJ Licensed Lead Risk Assessor
- Trained team following EPA and HUD Lead Risk Assessment methods

Wednesday (11/02)	5:30 - 6:30 PM	Jessica, Earl, Jermaine, Delon, Saeed
Wednesday (11/02)	6:30 - 7:30 PM	Danny, Jessica, Jermaine, Delon, Saeed
Thursday (11/03)	9 AM - 10 AM	Christian, Ravin, Jessica
Thursday (11/03)	11:30- 12:30 PM	Christian, Ravin, Jessica
Thursday (11/03)	4:30 - 5:30 PM	Earl, Jessica, Jermaine, Delon, Saeed
Friday (11/04)	9:30 - 10:30 AM	Anthony, Ravin
Friday (11/04)	11 AM - 12 PM	Anthony, Ravin



METHODS WERE DEFINED AFTER INTERVIEWING MULTIPLE STAKEHOLDERS

HOME SURVEY

N = 282



Demographics, Home Conditions, and Health History Questionnaire

WATER

N = 312



eXact Lead Spectrophotometer
Instant results above 3ppb
1st & 5th Liter draw sampling

PAINT

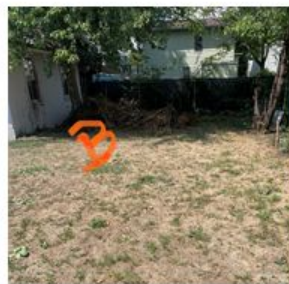
N = 294



Portable X-Ray Fluorescence (XRF) machine to measure lead concentrations from multiple building components in home

SOIL

N = 38



Portable X-Ray Fluorescence (XRF) to measure lead concentrations in-situ
Collected soil samples to dry and sieve and re-measure using the XRF

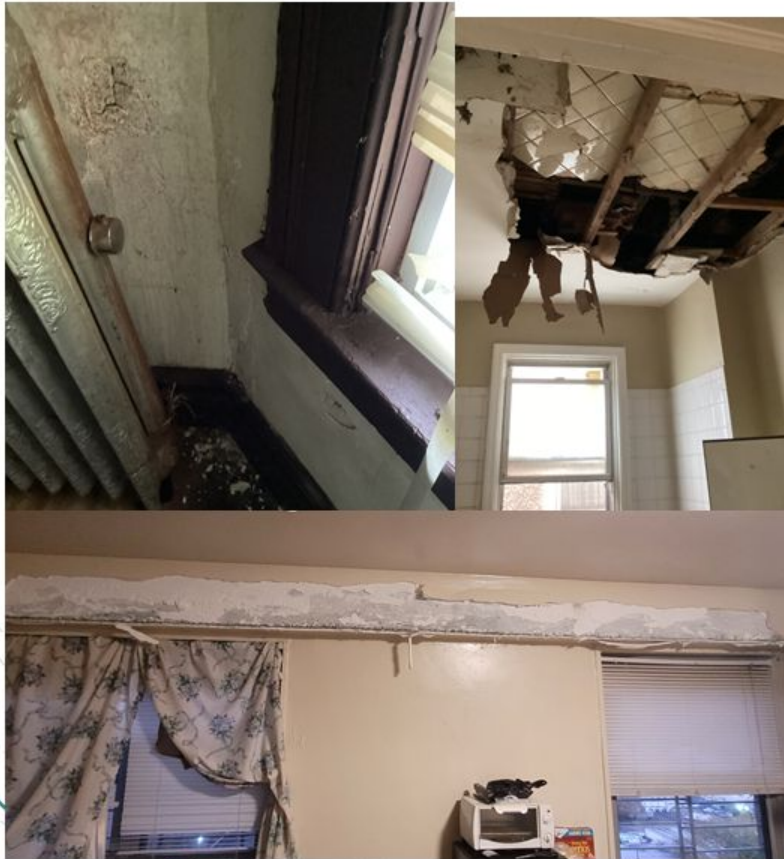
DUST

N = 256



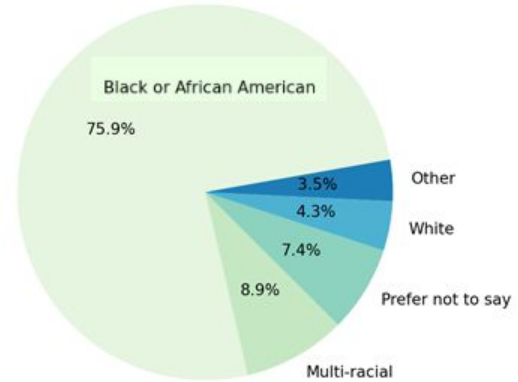
Ghost wipes were used to collect two samples per home (1 sq ft each) in high traffic floors and window sills & measured via ICP-MS

HOME SURVEY - METHODS & RESULTS (HOMES = 282)

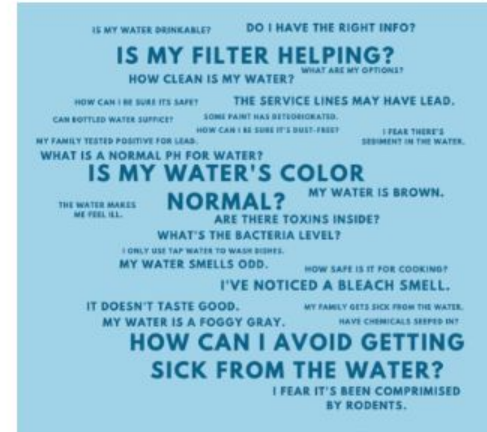


Building condition

Participant demographics



"Common concerns about drinking water"



WATER & PAINT - METHODS & RESULTS

WATER



eXact Lead Spectrophotometer
Instant results above 3ppb
1st & 5th Liter sampling

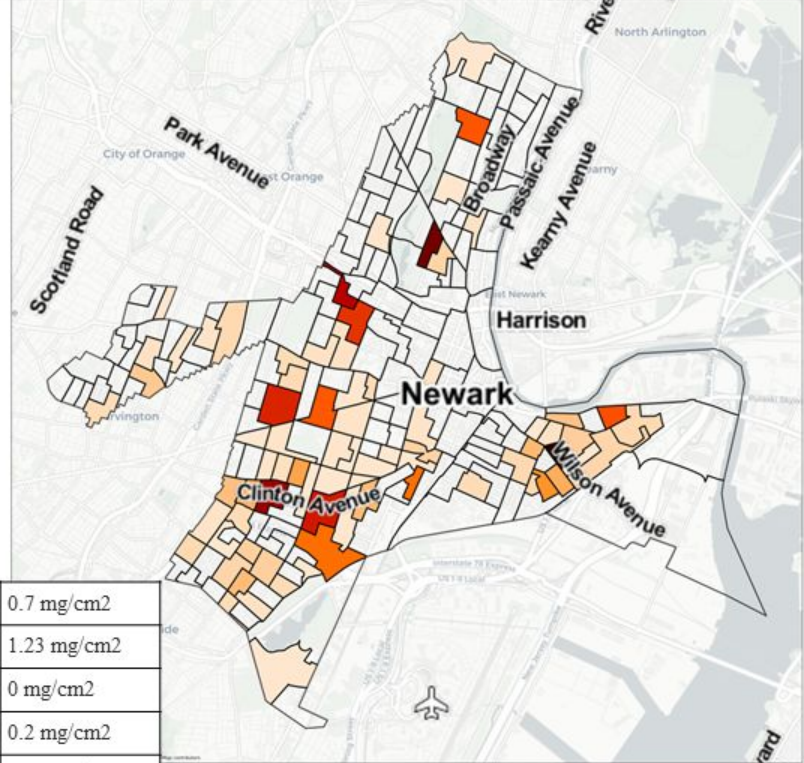
Lead levels in first & fifth draw samples were low

PAINT



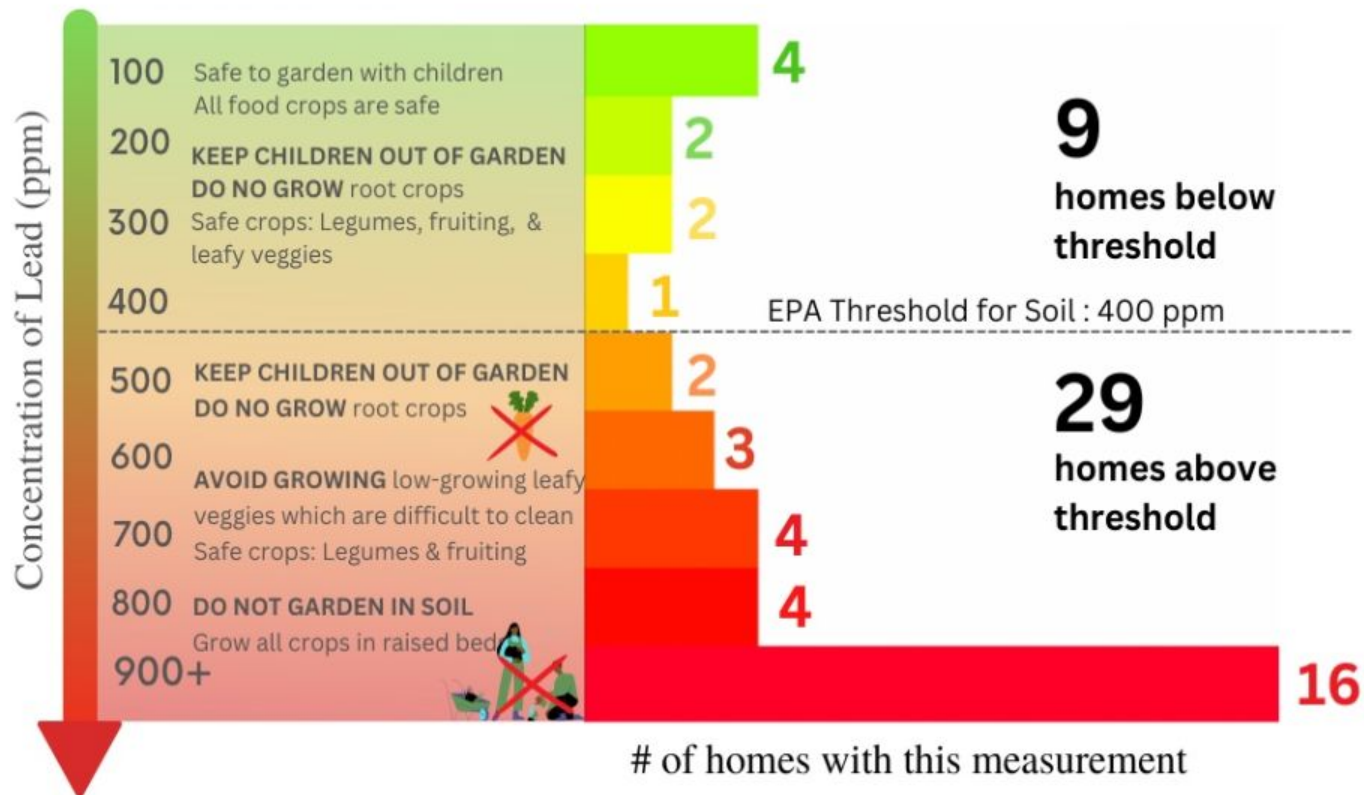
Portable X-Ray Fluorescence (XRF) machine to measure lead concentrations from multiple building components in home

Median lead based paint concentration per census tract (mg/cm^2)



Mean	0.7 mg/cm^2
Standard Deviation	1.23 mg/cm^2
Minimum	0 mg/cm^2
Median	0.2 mg/cm^2
Maximum	7.85 mg/cm^2
Total # of homes with all NDs	75

SOIL- TELLING THE STORY OF THE DATA



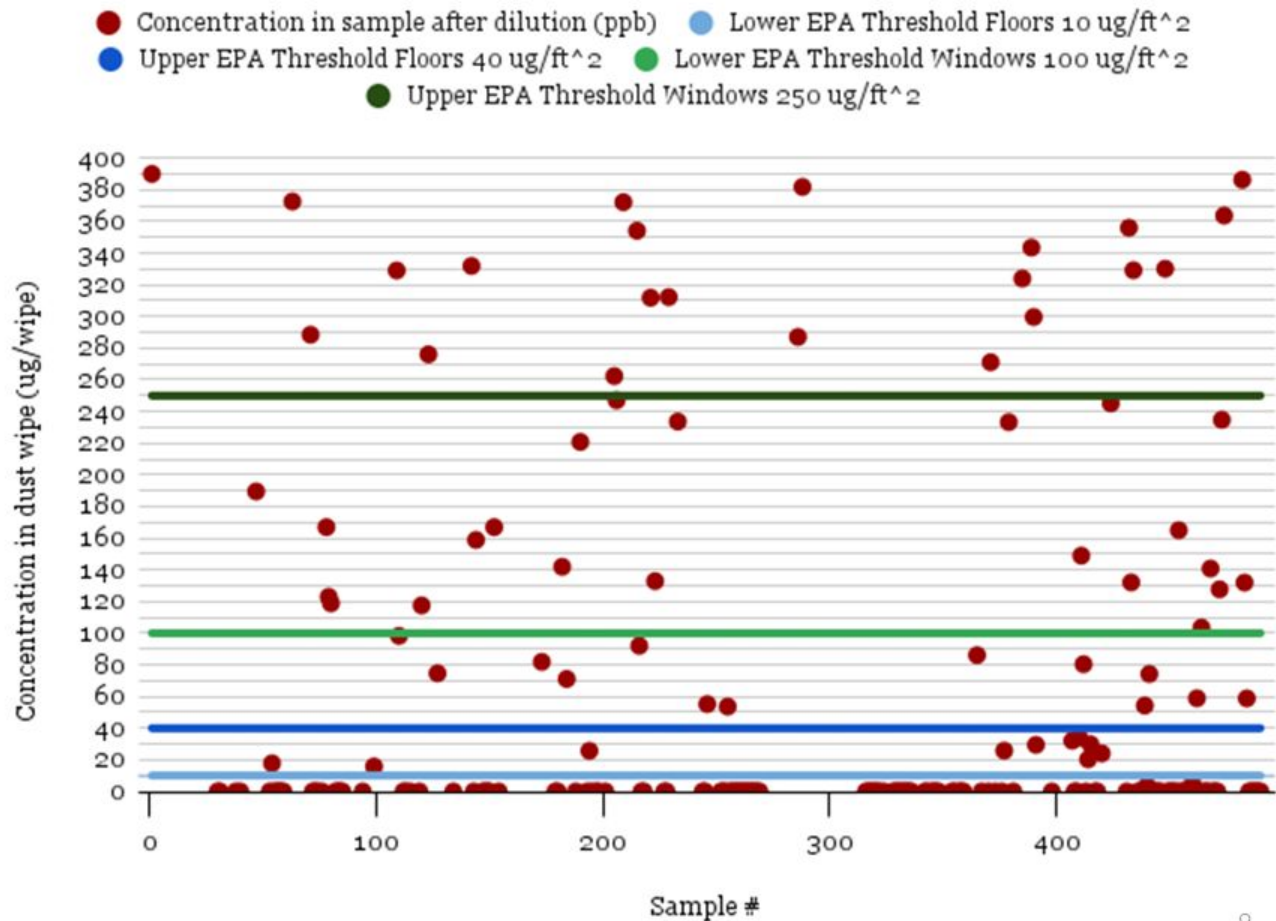
DUST - METHODS & RESULTS

(HOMES = 256)

DUST



Ghost wipes were used to collect two samples per home (1 sq ft each) in high traffic floors and window sills



PUBLIC DATA SHARE BACK FROM MOBILE LEAD TESTING UNIT. JAN 14

Community report

Community voice manuscript accepted for publication in Environmental Justice

Individual reports to participants

"Get the Lead Out" documentary

NWC MOBILE LEAD TESTING UNIT PAINT LEAD ANALYSIS & RESULTS

INTRODUCTION
Lead paint was identified in 10% of mobile lead testing units. This is a significant finding as lead paint is a known neurotoxin and can cause serious health effects, especially in children.

METHODOLOGY
The NWC Mobile Lead Testing Unit is a portable, self-contained unit that can be used in homes, schools, and other buildings. It is designed to be easy to use and provides quick results.

RESULTS
The results of the lead testing are as follows:
- 10% of units tested positive for lead paint.
- The highest lead levels were found in units with peeling or chipping paint.
- Lead paint was found in units with a history of renovation or repair work.

WHAT TO DO IF YOU HAVE LEAD IN YOUR HOME
If you have lead in your home, you should take steps to reduce the risk of exposure. This includes:
- Identifying and removing lead paint.
- Sealing lead paint with a lead-free paint.
- Using lead-free materials for repairs and renovations.

KEY TAKE AWAYS
- Lead paint is a serious health hazard.
- The NWC Mobile Lead Testing Unit is a valuable tool for identifying lead paint.
- Taking steps to reduce lead exposure can protect your health and the health of your family.

Cristian Cerrato

NWC MOBILE LEAD TESTING UNIT SOIL ANALYSIS

INTRODUCTION
Soil lead testing is an important part of lead testing because lead can be found in soil and can be ingested or inhaled. The NWC Mobile Lead Testing Unit can be used to test soil for lead.

OBJECTIVE
The objective of this analysis is to determine the lead levels in soil from the NWC Mobile Lead Testing Unit.

PROCEDURE
The procedure for soil testing is as follows:
- Collect soil samples from the testing unit.
- Prepare the soil samples for testing.
- Test the soil samples for lead.

RESULTS/ FINDINGS
The results of the soil testing are as follows:
- The lead levels in soil from the testing unit are within the acceptable range.
- There is no significant lead contamination in the soil.

CONCLUSION
The conclusion of this analysis is that the soil from the NWC Mobile Lead Testing Unit is safe and does not contain significant levels of lead.

Ravin Ramsaran

Lead Dust

Main Sources of Lead Dust
Lead dust can come from many sources, including:
- Lead-based paint in homes and buildings.
- Lead-based solder in pipes and fixtures.
- Lead-based gasoline in vehicles.
- Lead-based batteries in cars and trucks.

Lead Dust in Your Home
Lead dust can enter your home from the outside or be brought in on shoes and clothing. It can also be tracked in on pets.

What Can You Do?
To reduce lead dust in your home, you should:
- Regularly clean floors and surfaces.
- Wash your hands and clothing.
- Use a vacuum cleaner with a HEPA filter.

WHY IS LEAD DANGEROUS?

Health effects of Lead Poisoning

WHAT IS LEAD?
A Toxin
A naturally occurring element found in small amounts in the earth's crust.

WHERE IS LEAD FOUND?
SOIL
DUST-PAINT
WATER

HOW DOES LEAD POISONING OCCUR?
Lead poisoning can occur through:
- Ingestion of lead (e.g., eating lead-based paint chips).
- Inhalation of lead dust.
- Absorption of lead through the skin.

HEALTH EFFECTS
Lead poisoning can cause:
- Brain damage.
- Kidney damage.
- Anemia.
- High blood pressure.

Nia Wakefield

RESPONSE WORD CLOUD

PARTICIPANT DATA

Common concerns from participants

IS MY WATER DRINKABLE? DO I HAVE THE RIGHT INFO?
IS MY FILTER HELPING? HOW CLEAN IS MY WATER?
HOW CAN I GET IT SAFER? THE SERVICE LINES MAY HAVE LEAD.
CAN BOTTOM WATER CAUSE? BEEN CAN BE THE SOURCE OF LEAD.
MY FAMILY TESTED POSITIVE FOR LEAD. WHAT IS A NORMAL PH FOR WATER?
IS MY WATER'S COLOR NORMAL? MY WATER IS BROWN.
ARE THERE TOXINS INSIDE? WHAT'S THE BACTERIA LEVEL?
I ONLY USE HOT WATER TO WASH DISH. MY WATER SMELLS ODD.
HOW SAFE IS IT FOR COOKING? I'VE NOTICED A BLEACH SMELL.
IT DOESN'T TASTE GOOD. MY WATER IS A FOGGY GRAY.
HOW CAN I AVOID GETTING SICK FROM THE WATER?
I FEAR IT'S BEEN COMPROMISED BY RODENTS.

THE SERVICE LINE BEING REPLACED IS A CONCERN.
THE WATER IS DARK.
FOLLOWUP MAY AFFECT MY WATER.
IS MY WATER SAFE OVERALL?

HOW MUCH LEAD IS IN MY WATER?
CONSTRUCTION MAY AFFECT MY WATER.
IS THERE FLOODING PRESENT?
CONSTRUCTION MAY AFFECT THE WATER RUNS HARD. THERE'S HARSHNESS.

FUNNY ODOR. I FEAR NOT BEING FULLY INFORMED. ARE THERE TOXINS?

MY CITY HAS A HISTORY WITH LEAD.

www.nwcwatercoalition.com

Micah Demarest

Romir Anand
Saneitta Wicks
Danny Feliciano



EXPECTATIONS

Incentive: compensation

Lab sample analysis would be easily accessible

REALITIES

- People were welcoming, wanted to know about lead, goodwill created by NWC
- Compensation & referral = money (cash \$20,000) back to the community

Partnership and resource sharing is complicated:

- Timeline
- Access to local laboratories
- Cost of laboratory sample analysis

ONGOING & FUTURE WORK

- Looking at correlations of data to build predictive models. Incorporating the age of the households
- Purchased XRF - established NWC capacity for further lead assessment. Other NJ Cities: Trenton
- Starting a lead risk assessor training center
- Built partnerships:
 - Rutgers
 - Stevens Institute of Technology
 - NJ Institute of Technology
- Peoples Public Lab





HOW THE TESTING UNIT IMPACTED OUR COMMUNITY

Workshops for Applying to College and Learning Python for Data science

Our highschoolers and team members are pursuing STEM higher education

- Environmental engineering
- Computer engineering
- Biomedical engineering

THANK YOU! QUESTIONS?



Bavisha Kalyan

Anthony Diaz

bkalyan@berkeley.edu

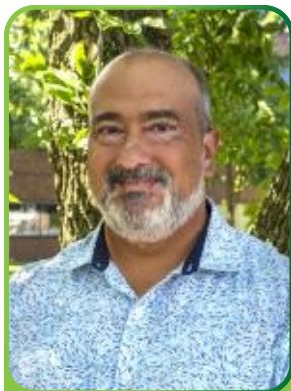
anthony@newarkwatercoalition.org

Acknowledgements

Newark community and study participants for letting us
into their homes
St Stephans Church
Casey Finnerty, Ph.D.
Luis Anaya

*Environmental Justice Data Fund, Windward Fund &
Google.org
Lead Free New Jersey*





Chris Obropta
Rutgers
Cooperative
Extension Water
Resources
Program

Rutgers Cooperative Extension Water Resources Program




Green Infrastructure: Where We've Been, Where are we going?

*Jersey Water Works Membership Meeting
on June 12, 2023 in New Brunswick, NJ*

Christopher C. Obropta, Ph.D., P.E.
Email: obropta@envsci.rutgers.edu



A photograph of Earth from space, showing the curvature of the planet and a bright sun rising over the horizon. The sun is on the left, creating a lens flare effect. The Earth's surface is visible in shades of blue and green, with a thin white atmosphere layer. The background is the dark void of space.

In the beginning...

Lots of Rain Gardens

- Education and outreach programs
- Volunteers
- Limited funding



Lots of Rain Barrels





Where Are

We Now?

New Jersey

- Most densely populated state
- 21 Counties, 565 municipalities
- In 2002, 95% of our waterways were impaired
- In 2022, 95% of our waterways were impaired
- Harmful Algal Blooms (HABS) in many of our lakes
- Hammered by Ida, Henri, Sandy, and a bunch of Nor'easters
- Climate change is real – more severe storms and sea level rise and warmer temp



Causes of Water Resources Problems in NJ

New Development



Causes of Water Resources Problems in NJ

Problems in NJ

Existing Development



Role of Green Infrastructure in NJ

- New “Major” Development is required to use GI to maintain groundwater recharge and reduce Total Suspended Solids (TSS) from runoff
- Communities with combined sewers are using GI to reduce stormwater into system to prevent overflows (GI partially required)
- On a voluntary basis, existing development, is being retrofitted with GI to help improve water quality and reduce flooding



WHERE
are we going?



**WHEN THE WHOLE WORLD IS
GOING TO HELL IN A HANDBASKET.**



Insights

- Stringent stormwater regulations on new development has not improved water quality or eliminating flooding
- We must retrofit existing older development with stormwater management to reduce impairments to our waterways and stop flooding
- Green infrastructure is a great tool to retrofit existing older development for water quality
- Couple green with gray infrastructure to address severe flooding
- Green Infrastructure also can be used to reduce combined sewer overflows
- Local champions are needed to advocate for green infrastructure retrofits

Actions Needed

- Educate community leaders, municipal officials, environmental commissioners, engineers, landscape architects, and planners on new regulations and green infrastructure
- Help CSO communities advocate for GI and identify appropriate locations
- Create local champions to promote GI for retrofitting existing development
- Help communities develop green infrastructure action plans, design demonstration projects, and install projects
- Get the kids involved!









Porous Asphalt



A photograph showing a sidewalk made of pervious concrete. The sidewalk is light gray and has a porous, aggregate texture. It runs alongside a brick building on the left and a road on the right. A concrete curb separates the sidewalk from the road. In the background, there are trees and a clear blue sky. A white text box with a light blue background is overlaid on the sidewalk.

Pervious Concrete



Permeable Pavers



Grass Pavers









RUTGERS

New Jersey Agricultural
Experiment Station



Christopher C. Obropta, Ph.D., P.E.

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Rick Dovey
Atlantic County
Utilities Authority
(ACUA)

Water Sector Utilities as Community Anchors: Lessons Learned From 33 Years Of Service



Debbie Mans
TWENTYTWENTY
public affairs

Aligning Our Actions: Celebrating Progress and Articulating Next Steps

World Café

A world café is a structured way for people to share knowledge and discuss a topic. It involves small groups of people sitting at tables resembling those in a café.

Sit with people you have not met. Please sit 6 or more to a table.

Questions:

- Based on your experience, what resonated with you from today's speaker presentations and/or experience throughout the day?
- How does that factor within your area of work or in your community?