

Health Consultation

**I -75/CANIFF AREA (HAMTRAMCK) LEAD CONTAMINATION
(a/k/a “GRAND HAVEN” AREA (HAMTRAMCK) LEAD CONTAMINATION)**

WAYNE COUNTY, MICHIGAN

AUGUST 18, 2006

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

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In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

I -75/CANIFF AREA (HAMTRAMCK) LEAD CONTAMINATION
(a/k/a "GRAND HAVEN" AREA (HAMTRAMCK) LEAD CONTAMINATION)

WAYNE COUNTY, MICHIGAN

Prepared by:

The Michigan Department of Community Health
Under a Cooperative Agreement with the
U.S. Department of Health and Human Services
The Agency for Toxic Substances and Disease Registry

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Acronyms and Abbreviations

ATSDR	Agency for Toxic Substances and Disease Registry
BLL	blood lead level
CDC	Centers for Disease Control and Prevention
CLPPP	Childhood Lead Poisoning Prevention Program (MDCH)
DCC	Direct Contact Criteria
DEOE	Division of Environmental and Occupational Epidemiology
EPA	U.S. Environmental Protection Agency
IEUBK	Integrated Exposure Uptake Biokinetic (model)
LHRP	Lead Hazard Remediation Program (MDCH)
µg/dl	micrograms per deciliter
µm	micron or micrometer
MDCH	Michigan Department of Community Health
MDEQ	Michigan Department of Environmental Quality
mg/kg/day	milligram per kilogram per day
ppm	parts per million
RRD	Remediation and Redevelopment Division (MDEQ)

Foreword: Responsiveness Summary

The Michigan Department of Community Health (MDCH), in cooperation with the federal Agency for Toxic Substances and Disease Registry (ATSDR), released the public-comment version of this health consultation on April 21, 2006. The only comments received pertained to the need to clarify the geographic area of interest. The document was originally titled “*Grand Haven*” Area (*Hamtramck*) Lead Contamination. The neighborhood described in Appendix A of the original document (page A-2) in which lead-contaminated soil already has been removed, bounded by Dequindre, Caniff, Grand Haven, and Commor Streets, is known locally as the “Grand Haven/Dyar Neighborhood.” The use of “Grand Haven” for both of these areas resulted in confusion and concern. In response to these concerns, MDCH changed the title of the health consultation to *I-75/Caniff Area (Hamtramck) Lead Contamination*. Additionally, MDCH has attempted to clarify, in the text and in the maps (Figures 2 and 3), the area of interest for this assessment.

Summary

The I-75/Caniff area is a neighborhood in northwestern Hamtramck, Wayne County, Michigan. The soil in this area has been impacted by historical lead smelting operations. A small area within this neighborhood already has been remediated. The Michigan Department of Environmental Quality (MDEQ) requested assistance in determining the public health risks in the remaining area. ***Overall exposure to lead in the I-75/Caniff area, via soil, deteriorating lead-based paint, and other sources, has caused local children's blood lead levels to be elevated (10 micrograms per deciliter or greater) and is a public health hazard.*** The presence of lead-based paint is a significant element of this hazard. Remediation of contaminated soil should be conducted concurrent with remediation of home environments to be effective in lowering blood lead levels.

Purpose and Health Issues

In March 2005, MDEQ requested assistance from the Michigan Department of Community Health (MDCH) in evaluating the public health threat posed by elevated concentrations of lead in residential soils in a densely populated urban area downwind from several former lead smelters.

The main purpose of this document is to discuss whether lead in the soils in a neighborhood in Hamtramck, Michigan, poses a significant health hazard to children residing in the neighborhood. The document also discusses other potential sources of lead in the area and the overall public health threat. Lastly, this consultation serves as documentation of actions taken and guidance provided by several divisions within MDCH regarding lead issues at this site.

Background

Following an environmental clean-up conducted by the U.S. Environmental Protection Agency (EPA) at Master Metals Inc., a former lead smelter in Detroit, the State of Michigan Governor's Office issued a "Call to Action" in which MDEQ was called to investigate and address lead smelter-impacted sites in the major metropolitan Detroit area (Figure 1). Upon acquiring initial screening data, MDEQ prioritized the sites (MDEQ 2004a). The I-75/Caniff area is the first site to be addressed.

The I-75/Caniff area is located in the City of Hamtramck (Figure 2), bordering Detroit and Highland Park. The neighborhood of interest lies on both sides of Interstate 75, between Interstate 94 and Davison Highway. Three metals smelters had operated historically near this site: Continental Metals, Federated Metals, and Commodity Metals. (In Figure 1, Continental Metals and Federated Metals are the sites located on Russell Street. Commodity Metals was not on the original list investigated by MDEQ and is not shown in Figure 1.)

The Wayne County Health Department had performed some cleanup of residential soils in connection with improvement and redevelopment of the area. The area bounded by Grand Haven, Caniff, Dyar, and Commor (known as the "Grand Haven/Dyar Neighborhood") has been remediated regarding soil lead concentrations and lead-based

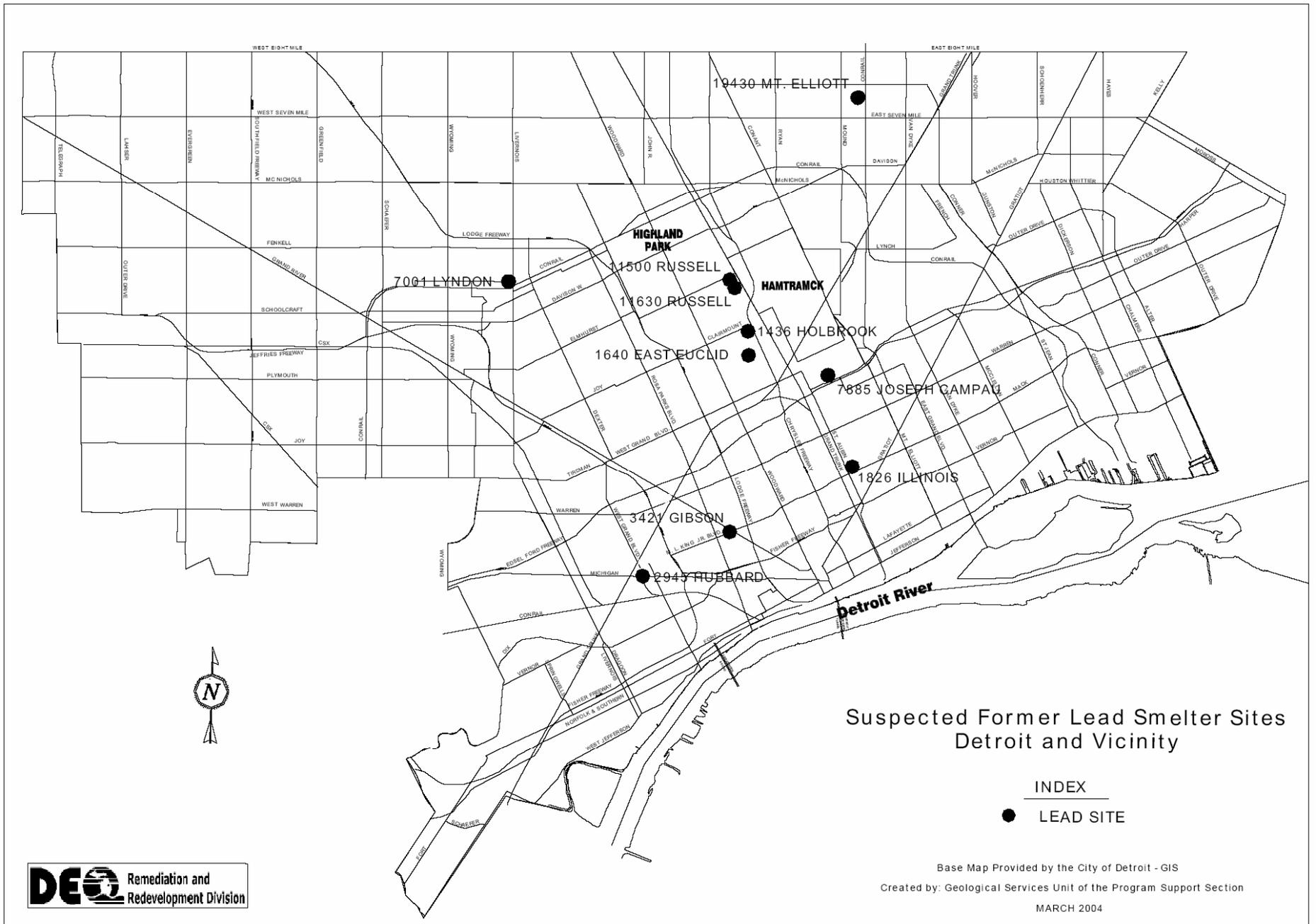


Figure 1

I-75/Caniff Area, Hamtramck, Wayne County, Michigan

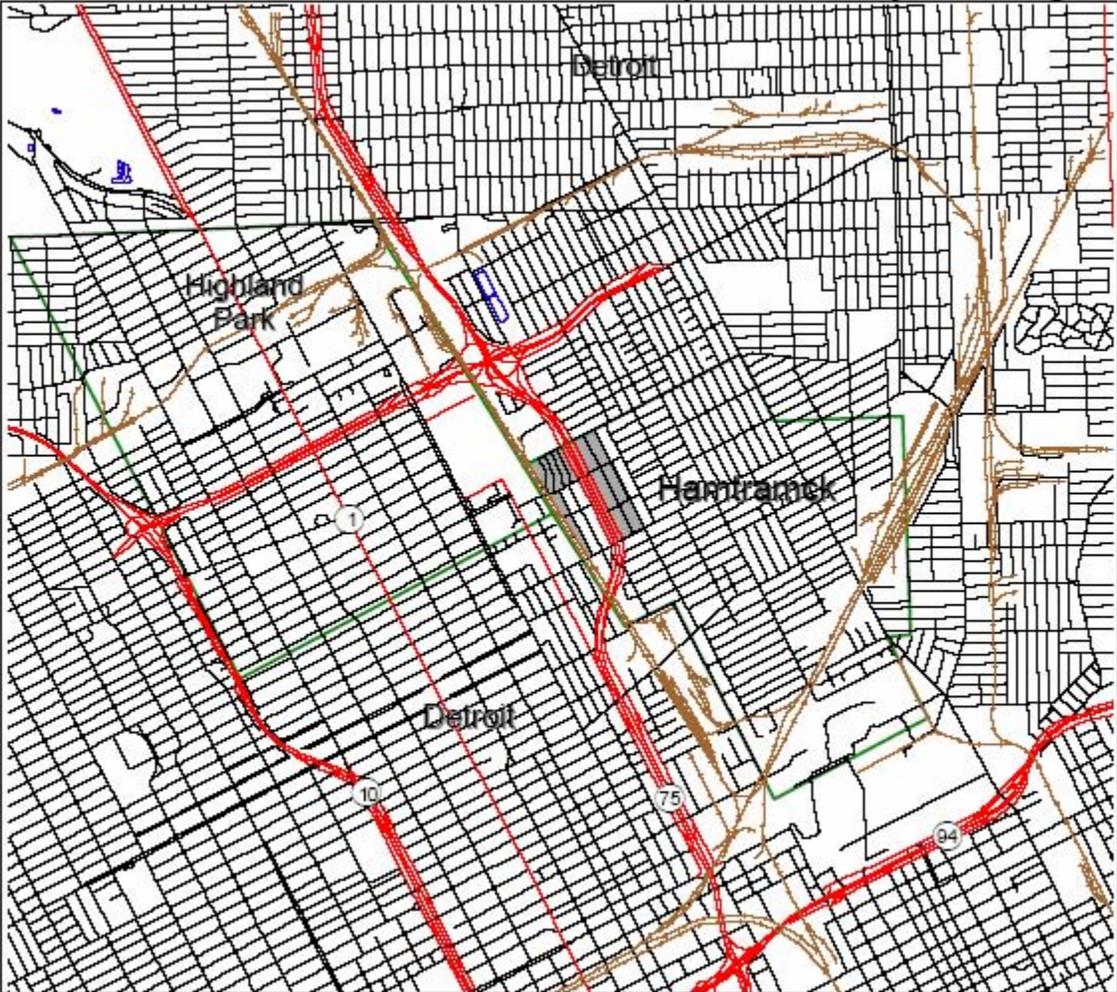


Figure 2



Location

■ I-75/Caniff Area (not including Grand Haven/Dyar Neighborhood)

— Political Boundary



paint. This area is depicted as the non-shaded section within the I-75/Caniff neighborhood of interest shown in Figure 2.

MDEQ is seeking EPA assistance in removing the lead-contaminated soils remaining in the I-75/Caniff neighborhood. The EPA has requested more environmental data before making a commitment. Therefore, MDEQ conducted a public meeting on May 24, 2005, to report the initial findings of the investigation and to encourage more homeowners to grant MDEQ access to their properties for soil sampling.

Discussion

Environmental Contamination

During June and September 2004 and September 2005, MDEQ collected 372 soil samples, representing 187 individual properties. Between one and five samples per address were collected, dependent on lot size and soil availability (whether or not the lot was paved over). Each sample was a composite of five discrete samples, taken from either the front or back yard. Investigators compared findings to the MDEQ Part 201 Generic Residential and Commercial I Direct Contact Criteria (DCC). The residential DCC identifies a soil concentration that is protective against adverse health effects due to long-term (350 days per year for 30 years) incidental ingestion of and dermal exposure to contaminated soil (MDEQ 2001). The residential DCC for lead is 400 parts per million (ppm; MDEQ 2004b). The results of the MDEQ sampling are shown in Table 1. The minimum concentration found was 27 ppm; the maximum concentration was 1,100 ppm.

Table 1. Analytical results for lead testing of soils in the I-75/Caniff area, Hamtramck, Wayne County, Michigan. Samples taken June and September 2004 and September 2005.

Concentration (ppm)	Number of samples
<400	283
400-499	45
500-599	17
600-699	13
700-799	5
800-899	4
900-999	2
1,000-1,100	3

Note: ppm = parts per million

Reference: WESTON® 2005

The values in Table 1 represent the concentration of lead in the fine-fraction of the soil. “Fine-fraction” is defined as particles less than 250 microns (µm). This is the fraction of the soil that is most likely to cling to hands or accumulates in the indoor environment as a result of deposition of wind-blown soil and transport of soil on clothes, shoes, pets, toys, and other objects. Therefore, this is the fraction most likely to be ingested (EPA 2000). The earlier investigation conducted by the Wayne County Health Department in the Grand Haven/Dyar Neighborhood looked at total lead in the soil and did not differentiate between fractions (MDEQ 2005). The data from that investigation cannot be compared to MDEQ’s fine-fraction results and are not shown here.

Urban areas tend to have higher concentrations of chemicals in area soils, due to the industrial nature of most cities. It is likely that soil lead concentrations in the I-75/Caniff area have been affected by deteriorating, peeling, or chipping lead-based paint on the exterior of homes, hobbies such as reclaiming lead from batteries, and historic leaded gas emissions, as well as by past lead smelting activities. These other sources should be considered when evaluating overall exposure, as discussed in the next section.

Exposure Pathways Analysis

To determine whether persons are, have been, or are likely to be exposed to contaminants, MDCH evaluates the environmental and human components that could lead to human exposure. An exposure pathway contains five elements: (1) a source of contamination, (2) contaminant transport through an environmental medium, (3) a point of exposure, (4) a route of human exposure, and (5) a receptor population. An exposure pathway is considered complete if there is evidence, or a high probability, that all five of these elements are, have been, or will be present at a site. It is considered either a potential or an incomplete pathway if there is no evidence that at least one of the elements above are, have been, or will be present, or that there is a lower probability of exposure. The exposure pathway elements for this site are shown in Table 2:

Table 2. Pathways of human exposure to lead in the I-75/Caniff area, Hamtramck, Wayne County, Michigan.

Source	Environmental Transport and Media	Chemicals of Concern	Exposure Point	Exposure Route	Exposed Population	Time Frame	Status
Historical lead smelting	Air	Lead	Air	Inhalation	Local residents, workers	Past	Complete
						Present	Incomplete
						Future	Incomplete
	Air	Lead	Soil	Ingestion, inhalation, dermal	Local residents	Past	Complete
						Present	Potential
						Future	Potential
Lead-based residential paint	Pre1978 housing	Lead	Paint chips, dust, soil	Ingestion, inhalation, dermal	Local residents	Past	Complete
						Present	Potential
						Future	Potential
Other sources (hobbies, leaded gas emissions, solder in pipes, tire weights)	Air, soil, water	Lead	Air, soil, water	Ingestion, inhalation, dermal	Local residents	Past	Complete
						Present	Potential
						Future	Potential

During the operational years of the lead smelters in the area, local residents and workers were exposed to airborne emissions from the facilities. However, the smelters are no longer in operation. Therefore, no current exposure to lead emissions is occurring nor is any future exposure expected.

Air emissions from the smelters settled onto neighboring properties, dependent on wind speed and patterns. Although the smelters are no longer in operation, lead deposited to area soils may be tracked into area homes or become airborne as dust. Unless the lead is removed, local residents, especially children, have a great potential for exposure via the soil.

The sampling protocol indicated that soil would be sampled from bare areas, if any existed, in the yards; otherwise, samples were to be taken from beneath the sod. According to sampling personnel, the vast majority (“about 95%”) of soil samples were taken from beneath the sod, meaning that a patch of lawn was removed and the soil immediately beneath it taken (Weston Solutions of Michigan, Inc., personal communication, 2005). Sod can act as a barrier, preventing exposure to lead in the soil. However, removing the sod for gardening, landscaping, or construction purposes would allow exposure to the contamination.

Table 2 indicates that there is *potential* for exposure to lead in the soil, not that this is a complete exposure pathway. The potential depends on where a person lives. As mentioned previously, soil remediation has occurred in the Grand Haven/Dyar Neighborhood, which falls within the I-75/Caniff area of interest. Therefore, people living in the Grand Haven/Dyar Neighborhood are not being exposed to unsafe levels of lead in the soil.

Most often, lead-based paint in older homes is the primary source of lead exposure in a person’s environment. Lead in paint was at its highest concentration before the 1950s, and lead use in residential paint was discontinued in 1978. Table 3 shows the percentage of housing completed over various years for Hamtramck and surrounding cities, Highland Park and Detroit (three zip code areas). It is possible that many of the homes in the I-75/Caniff and surrounding areas have lead paint and have not had the paint removed or encapsulated (sealed). Lead paint remediation has taken place in the older homes in the Grand Haven/Dyar neighborhood, and newly constructed homes should not have lead-based paint in them.

Table 3. Percentage of housing units completed over various years for Hamtramck, Highland Park, and three Detroit zip-code areas.

City (Zip Code)	Pre1950s	Pre1960s	Pre1970s	Pre1980s
Hamtramck (48212)	76	88	92	97
Highland Park (48203)	62	77	81	92
Detroit (48202)	69	79	84	93
Detroit (48211)	72	87	96	98
Detroit (48234)	47	82	93	98

Reference: Geolytics 2002

Some hobbies, such as reclaiming lead from batteries or jewelry- or stained-glass-making, can expose persons to airborne lead. Although leaded gasoline is no longer used, historical emissions from gasoline engines likely resulted in increased soil lead concentrations, especially in urban areas with large populations. Older homes may have lead solder in their water pipes. Therefore, it is probable that people living in the I-

75/Caniff area are experiencing multiple exposures to lead and could exhibit symptoms of lead poisoning (see “Blood Lead Data” section below).

Toxicological Evaluation

Lead

Lead is a naturally occurring element. It is used in a number of occupational settings and by hobbyists. Sources for lead exposure include battery manufacture and repair, plumbing, pipefitting, jewelry and pottery making, stained glass making, emissions from foundries and smelters, and some imported or folk remedies. Lead was used in residential paint before its use was discontinued in 1978 (ATSDR 1999).

Lead is well known for its neurotoxic effects, causing learning and behavioral difficulties in children. Nervous system effects in adults include decreased reaction times, weakness in the hands and ankles, and impaired memory. It can also damage the kidneys, the reproductive system, and cause anemia.

The National Toxicology Program recently reported that lead may be “reasonably anticipated to be a human carcinogen” (NTP 2004). This determination was based on limited evidence in human studies and sufficient evidence in animal studies. The human studies investigated occupational settings in which workers primarily were exposed by inhalation (NTP 2004). Exposure to the lead in the I-75/Caniff area soils would likely occur primarily through ingestion. It is unknown whether exposure by ingestion has as great a cancer risk as inhalation exposure.

Rather than an external dose in milligrams of lead per kilogram of body weight per day (mg/kg/day), the level of lead in the body, usually expressed as blood lead levels, is used to determine the potential for adverse health effects. This approach is used because exposure can occur from several different sources including air, food, water, and soil contamination. Models that account for multiple exposures to lead often are used to assess potential effects from exposure to lead in the environment (ATSDR 1999). The criterion for lead in soil is based on the IEUBK (Integrated Exposure Uptake Biokinetic) model. All potential sources of lead (air, food, water, soil) must be evaluated to determine if the contribution from contaminated soil is significant (EPA 2004).

Generally, blood lead levels (BLLs) rise 3-7 micrograms per deciliter ($\mu\text{g}/\text{dl}$) for every 1,000 parts per million (ppm) increase in soil or dust concentration. A child is considered lead-poisoned if his BLL, by venous blood sample, is 10 $\mu\text{g}/\text{dl}$ or higher (ATSDR 1992). Nearly all of the soil samples for the I-75/Caniff area were below 1,000 ppm. Therefore, if the only exposure to lead in this area were to soil, it is not likely that any child would be considered lead poisoned.

However, while 10 $\mu\text{g}/\text{dl}$ blood lead in children is considered the “level of concern” by the Centers for Disease Control and Prevention (CDC) and the level at which medical intervention occurs in the State of Michigan, recent research has suggested that subtle neurotoxic effects occur at lower levels (Canfield et al. 2003, Cory-Slechta 2003). These findings have strengthened the assertion, by scientists as well as activists, that there is no

threshold level (no level below which adverse effects are not observed) for lead in the body.

Local Blood Lead Data

To determine the proportion of children with elevated blood lead levels (BLLs) in the I-75/Caniff and surrounding areas, the MDCH Division of Environmental and Occupational Epidemiology requested that the Childhood Lead Poisoning Prevention Program (CLPPP) compile existing (2000-2004) BLL data for children younger than 6 years old by location. The I-75/Caniff area is located on the western boundary of Hamtramck, near Highland Park and Detroit. To determine the percentage of children younger than 6 years old with elevated BLLs in the I-75/Caniff area, all children tested who live within a one-half mile radius of this area (including those who live in the Grand Haven/Dyar Neighborhood) were grouped together. The percentages of tested children younger than 6 years old with elevated BLLs in the surrounding areas were grouped by zip code. The surrounding zip codes include 48202 (Detroit), 48203 (Highland Park), 48211 (Detroit), 48212 (Hamtramck), and 48234 (Detroit) (Figure 3). Zip code boundaries in the I-75/Caniff area overlap with the other surrounding areas; however, BLLs for children in this area were not included in the remaining zip code locations. Note, the data indicated that all children tested in the I-75/Caniff area were from zip code 48212, Hamtramck. All areas are similar in industrial history and age of housing (see Table 3).

The data shown in Table 4 represents the percentage of children (younger than 6 years old) with elevated BLLs. If a child was tested more than once, only the highest BLL measured was included.

Table 4. Elevated blood lead levels in children living near the I-75/Caniff area, Hamtramck, Michigan. Data from 2000-2004. Each child only counted once.

Area Analyzed	No. children tested	No. non-confirmed elevated BLLs ^{1,2}	No. confirmed elevated BLLs (%) ³
One-half mile radius circle centered on I-75/Caniff area ⁴	755	9	79 (10.6)
Zip code 48212 (Hamtramck)	5,050	97	444 (9.0)
Zip code 48203 (Highland Park)	5,973	129	689 (11.8)
Zip code 48202 (Detroit)	2,624	50	402 (15.6)
Zip code 48211 (Detroit)	1,529	68	316 (21.6)
Zip code 48234 (Detroit)	6,201	72	412 (6.7)

- Notes: 1. BLL = blood lead level
 2. Elevated BLLs determined by capillary sample must be confirmed with venous sample.
 3. Those children with elevated BLLs not confirmed by venous sample were not included in the percentage calculation:

$$\text{No. confirmed} / (\text{No. tested} - \text{No. non-confirmed}) \times 100\%$$

 4. See Figure 3.

The BLL data suggest that there are a substantial number of children in the I-75/Caniff and surrounding areas with elevated BLLs. There are likely a number of factors

One-Half Mile Radius Circle Containing I-75/Caniff Area, Hamtramck, Wayne County, Michigan



influencing the observed frequency of children younger than 6 years old with elevated BLLs.

Children's Health Considerations

Children may be at greater risk than adults from exposure to hazardous substances at sites of environmental contamination. Children engage in activities such as playing outdoors and hand-to-mouth behaviors that could increase their intake of hazardous substances. They are shorter than most adults, and therefore breathe dust, soil, and vapors found closer to the ground. Their lower body weight and higher intake rate results in a greater dose of hazardous substance per unit of body weight. The developing body systems of children can sustain permanent damage if toxic exposures are high enough during critical growth stages. Injury during key periods of development of an unborn child could lead to malformation of organs (teratogenesis), disruption of function, and premature death. Exposure of the mother could lead to exposure of the fetus, via the placenta, or affect the fetus because of injury or illness sustained by the mother (ATSDR 1998). The obvious implication for environmental health is that children can experience substantially greater exposures to toxicants in soil, water, or air than adults can.

Young children, especially those from urban-dwelling, low-income populations, are at the greatest risk for experiencing lead-induced health effects. Children under 5 years old absorb lead from the gastrointestinal tract more efficiently than do adults (about 50% versus 15% relative absorption, respectively). Thumb-sucking, other hand-to-mouth and pica behaviors (consuming large quantities of non-food items) can increase the amount of lead-contaminated dust and dirt being transferred to the gastrointestinal tract. Deficits in some nutrients, including calcium, iron, and zinc, can exacerbate the toxic effects of lead. Lead can pass across the placenta to a developing fetus and very small amounts can be secreted through breast milk (ATSDR 1999). When considering the effects that lead in the soils in the I-75/Caniff area might have on children's health, one should also consider and address other sources of lead so that overall exposure is minimized.

Community Health Concerns

On May 24, 2005, MDEQ hosted a public meeting in Hamtramck to discuss the findings to-date and future steps in the investigation. Representation from MDCH included the manager of the Childhood Lead Poisoning Prevention Program (CLPPP) and an industrial hygienist from the Lead Hazard Remediation Program (LHRP). The CLPPP manager discussed the health concerns of exposure to lead, blood lead testing for children, and how people could minimize their exposure. The LHRP industrial hygienist did not have a presentation but was available as a resource person should there have been questions regarding home assessment and remediation. No specific concerns regarding community health were raised at this meeting.

Conclusions

Ongoing exposure to lead in the I-75/Caniff area (not including the Grand Haven/Dyar Neighborhood) is putting residents, especially children 6 years old and younger, at risk of experiencing lead-related health effects and poses a public health hazard. The combined exposure to contaminated soil, lead-based paints, and other

potential sources of lead has likely contributed to elevated BLLs seen in Hamtramck and the surrounding areas. Remediation of contaminated soil should be conducted concurrent with remediation of home environments to be effective in lowering blood lead levels.

Recommendations

1. Due to the high-risk nature of this neighborhood, all children under six years of age should be tested for BLLs (blood lead levels). The testing should occur, preferably, at 12 and 24 months of age, but may be done on previously untested children up to the age of 6 years. Parents seeking to have their children's BLL tested should contact their primary care provider or local health department.
2. As needed, for children who are diagnosed with elevated BLLs, an environmental investigation and lead hazard control measures should be conducted for their homes. Dependent on the individual's BLL, medical management may be indicated.
3. Homes with lead-based paint should be remediated. Priority should be given to those homes with children younger than six years present.
4. Soils containing greater than 400 ppm lead should be remediated, preferably in concert with or after home remediation. Priority should be given to those homes with young children present and where there is bare soil in the yards.
5. Owners of homes where the soil has been tested for lead should be made aware of the analytical results and what the results mean from a public health standpoint.
6. Landlords should be made aware of their legal obligations to their lessees.
7. Residents and homeowners should be educated on the hazards of lead, its sources, and how to prevent exposure.
8. Local governments should make efforts to reduce lead hazards in their cities.

Public Health Action Plan

1. The Wayne County Health Department will provide Hamtramck residents and homeowners information regarding evaluating the home environment for lead hazards and correcting them. (See Appendix A for contact information.)
2. The MDCH Lead Hazard Remediation Program (LHRP) will provide residents and homeowners information regarding remediation of lead-impacted homes. (See Appendix A for MDCH contact information. Lead paint remediation has already occurred in the Grand Haven/Dyar Neighborhood.)
3. MDEQ Remediation and Redevelopment Division (RRD) will remediate affected soils, per the agency's mandate. (MDEQ has asked EPA for assistance in this area. Soil remediation has already occurred in the Grand Haven/Dyar Neighborhood.)
4. MDEQ-RRD will provide analytical results to homeowners. MDCH Division of Environmental and Occupational Epidemiology (DEOE) will provide toxicological information to interested parties. (Upon being requested by MDEQ to offer a public health opinion on the site, MDCH-DEOE conferred with the Childhood Lead Poisoning Prevention Program [CLPPP] and LHRP. DEOE and CLPPP staff met with MDEQ-RRD staff and assisted in writing an information bulletin regarding the investigation and initial findings for residents and homeowners [Appendix A].)

5. MDCH-CLPPP provided general factsheets regarding lead to the public repositories near the I-75/Caniff area. Additionally, CLPPP advised local residents on methods of protecting children (and themselves) from exposure (Appendix B). Following the MDEQ May 24 public meeting, CLPPP prepared guidelines for home gardeners (Appendix C).
6. The City of Hamtramck will continue to participate in the state-wide effort to reduce lead hazards.

MDCH will remain available as needed for future consultation at this site.

If any citizen has additional information or health concerns regarding this health consultation, please contact MDCH's Division of Environmental and Occupational Epidemiology at 1-800-648-6942.

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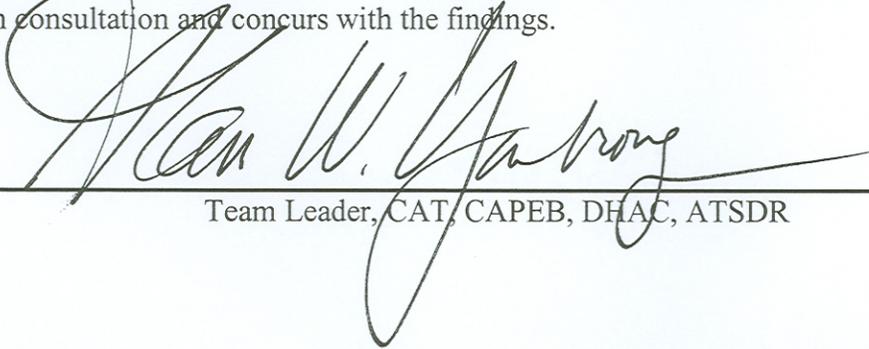
Certification

This I-75/Caniff Area (Hamtramck) Lead Contamination Health Consultation was prepared by the Michigan Department of Community Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures. Editorial review was completed by the cooperative agreement partner.



Technical Project Officer, Cooperative Agreement Team (CAT), Cooperative Agreement and Program Evaluation Branch (CAPEB), Division of Health Assessment and Consultation (DHAC), ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this public health consultation and concurs with the findings.



Team Leader, CAT, CAPEB, DHAC, ATSDR

**Appendix A. Michigan Department of Environmental Quality
Information Bulletin concerning Grand Haven Area Lead
Contamination Investigation, Hamtramck, Wayne County, May 2005.**



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
Jennifer M. Granholm, Governor • Steven E. Chester, Director

REMEDIATION AND REDEVELOPMENT DIVISION
INTERNET: www.michigan.gov/deqrd

INFORMATION BULLETIN

GRAND HAVEN AREA LEAD CONTAMINATION INVESTIGATION Hamtramck, Wayne County May 2005

INTRODUCTION

The purpose of this bulletin is to inform area residents of the soil sampling effort being conducted in the Grand Haven area of Hamtramck, Wayne County, by the Remediation and Redevelopment Division of the Michigan Department of Environmental Quality (DEQ). The reason for the sampling is to determine the extent of contamination that may exist due to past area lead smelter activities. This bulletin includes a summary of the DEQ sampling initiative to date, and a map of the investigation area.

To address any questions or concerns you have about this investigation, please refer to the list of DEQ and other agency contacts provided at the end of this bulletin.

INVESTIGATION ACTIVITIES TO-DATE

To begin the investigation, the DEQ first reviewed historic lead smelter information available for the area. They then sampled area soils from city/state-owned properties that the DEQ had access to in November 2003 to determine the potential for lead contamination. Sampling results indicated that soils in the Grand Haven area may have been affected by past smelter activities. A detailed report of this initial investigation was prepared in March 2004, titled "Comprehensive Phase I Sampling Summary Report," and is available at:

- Hamtramck Public Library, 2360 Caniff Street, Hamtramck, Michigan (earlier related documents are also available at the library);
- DEQ website: www.michigan.gov/deq, click on Land (on the left side of the screen), then Land Cleanup, then Site Investigation and Cleanup, then scroll down and click on Detroit Lead Smelter Site Assessment Project.
- DEQ SE District Office, 27700 Donald Ct., Warren, Michigan

Following these initial sampling efforts, the DEQ performed several additional activities, including a direct mailing to and/or door-to-door soliciting of area residents to request access to their property for soil sampling, followed by soil sampling of the properties in the affected area. During June and September 2004, the DEQ collected 279 soil samples from 143 properties. The samples were collected from the soil surface when there was no grass cover, or from directly below the grass roots. Samples were not collected next to houses or garages since lead paint that may have been used on these buildings could have affected the results.

Previously, Wayne County had conducted an investigation in connection with improvement and redevelopment of the area. Following the investigation they removed lead contaminated soil from a majority of the homes located in the areas bounded by Dequindre, Caniff, Grand Haven, and Commor streets in Hamtramck. Information on this work can be found in an October 28, 2002 report prepared by AKT Peerless titled "Additional Information for the Remedial Action Plan, Grand Haven Residential Redevelopment Site." This report is available for review at the DEQ's Detroit office, 3058 West Grand Boulevard, Detroit Michigan.

INVESTIGATION FINDINGS

The results of the June/September 2004 soil sampling indicate that approximately one-third of the properties sampled contain lead in concentrations that exceed the DEQ health-based criterion of 400 milligrams per kilogram (mg/kg) for exposure to lead. Concentrations of lead up to 1,400 mg/kg were found. The results support the conclusion that the contamination is due to historical smelting activities.

When a DEQ screening level is exceeded, further testing is necessary to determine the extent of

contamination and how best to address it. Exceeding a screening level does **not** automatically indicate a public health threat. Please refer to the Public Health Information section of this bulletin for information about exposure to lead.

PUBLIC MEETING

With the results of the current investigation finalized, the DEQ is planning a public information meeting, to be held from 7 p.m. to 9 p.m. on Tuesday 24 May 2005 at the Kosciuszko Middle School Auditorium, 2333 Burger Street, Hamtramck Mi, 48212. The purpose of the meeting will be to present the DEQ's findings along with recommendations for future work, and to respond to questions residents may have.

PUBLIC HEALTH INFORMATION

The mere presence of a chemical or a metal like lead does **not** mean that the chemical can cause harm. It is necessary for a person to be exposed to that chemical or metal (by breathing, eating, or drinking it) in order for it to have a possible effect. Also, how long and to how much of the chemical a person is exposed, and by what route (breathing, eating, or drinking) are factors that determine whether that person is affected.

Lead occurs naturally but environmental concentrations can increase due to its use. The most common source is lead-based paint, which was banned in the 1970s but may be present in homes built before that time. Lead also was an additive in gasoline, but that use was stopped in the 1980s to improve air quality and protect human health. Other potential sources of lead include hobbies such as jewelry- or stained-glass-making, ceramic ware, imported painted toys, lead solder in pipes or electronics, lead shot in shotgun shells, and fishing sinkers. Soil and dust near lead industries or lead-painted buildings may contain higher than normal levels of lead.

Lead is known for causing learning and behavioral problems in children. It can cause high blood pressure and affect the kidneys in adults. People concerned about their children or themselves being exposed to harmful levels of lead should have their blood lead levels checked. This is a painless and quick test. All children who are insured by Medicaid, as well as all children younger than six years of age (in Detroit) are required to be tested once each year. The Michigan Department of Community Health (DCH) can provide further information about lead poisoning prevention.

(Please see contact information at the end of this bulletin.)

FUTURE DEQ ACTIONS

The DEQ is seeking the cooperation of Grand Haven Area residents to perform additional soil sampling to ensure that all potentially affected properties are identified. Upon completion of this sampling, the DEQ also will seek assistance from the U.S. Environmental Protection Agency (EPA) for the removal of soils that contain lead at levels greater than the health based criterion of 400 mg/kg (parts per million). Depending on the degree of EPA support that can be obtained, the DEQ will also seek state resources needed to conduct removal actions. Implementation of those plans will depend on the availability of federal and/or state clean-up funds.

FOR MORE INFORMATION

- 1. Environmental sampling/analysis issues specific to Detroit lead smelter sampling:**
 - State: Ed Novak, DEQ Remediation and Redevelopment Division, DEQ SE District Office, phone: 586 753-3827.
- 2. Public health effects of lead exposure:**
 - Detroit Residents: Gwen Franklin, Detroit Health Department Lead Program, phone: 313-876-0420.
 - Hamtramck Residents: Josephine Powell, Wayne County Department of Environment, phone: 313-224-2658, or toll free (24-hour environmental hotline – local calls only): 1-888-223-2363.
 - DCH Contact: Cathy Crawford, DCH Childhood Lead Poisoning Prevention Program, phone: 517-335-8885, or toll free (DCH hotline): 866-691-LEAD (5323).
- 3. Local testing for blood lead levels:**
 - Detroit Residents: Kathryn Cook, Detroit Health Department, for community outreach on lead screening locations for children under age six in Detroit, lead testing, or follow-up questions, phone: 313-876-0362
 - Hamtramck Residents: Steve Tackitt, Wayne County Environmental Health Division; phone (for information only; blood lead testing should be conducted by primary care provider): 734-727-7432
 - Other Wayne County Residents: Carol Terrell, phone: 734-727-7054

4. Key lead web sites:

- State: www.michigan.gov/leadsafe
(a comprehensive list of resource links on lead)
- Federal: www.epa.gov/lead

5. Key lead phone hotlines:

- State: (DCH) toll free phone number:
866-691-LEAD (5323)
- Federal: National Lead Information Center:
1-800-424-LEAD (5323)

6. Information repository for reports re: Detroit lead smelter sampling:

- State: DEQ Remediation and Redevelopment Division, SE Michigan District Office, 27700 Donald Ct., Warren, Michigan 48092-2793.
- State: DEQ Remediation and Redevelopment Division, Detroit Office, 3058 West Grand Boulevard, Detroit Michigan
- Local: Hamtramck Public Library, 2360 Caniff Street, Hamtramck, Michigan 48212

The Michigan Department of Environmental Quality (DEQ) will not discriminate against any individual or group on the basis of race, sex, religion, age, national origin, color, marital status, disability, or political beliefs. Questions or comments should be directed to the DEQ Office of Personnel Services, P.O. Box 30473, Lansing, MI 48909

Appendix B. Michigan Department of Community Health, Childhood Lead Poisoning Prevention Program, Suggestions for Interim Measures Families Can Take to Minimize Exposure to Lead in Soils (included with MDEQ mailing).

“WHAT TO DO?”to protect yourself & your family

CHILDREN under the age of six years are the **most vulnerable** to the effects of lead. To protect them:

- Leave shoes outside the door when entering your home
- Help them wash their hands with warm water & lots of soap when they come in from outside play, before each meal or snack, before naps & bedtime.....this should be supervised & assisted by an adult!
- Serve meals & snacks to them while they are sitting at a table, a TV tray, on top of a large box, etc. (not crawling/walking around eating)
- Make sure that they do **not** play in the bare soil in your neighborhood, including the soil in the “drip-line” around the outside of your house. Playing in soil is what kids **DO** in the summer.....but buy them some clean dirt, builders sand, etc., & put it in a large box or inexpensive plastic backyard pool & let them build & dig in **clean** dirt!
- Remember that the #1 source of exposure to lead in your neighborhood is **still deteriorating lead-based paint** in houses and on porches built before 1978! So....**don't let kids play** in the window troughs & on the window sills, or on the porch if your house is old, & paint in those places is chipping, cracking, peeling, flaking or water-damaged. Wet wipe (with a paper towel or disposable rag) the window troughs & sills with warm water & soap every day. Wet mop the floors one or two times each week with warm water & soap.
- Ask their health care provider to test them every year until they are 6 for exposure to lead. The only way to identify exposure is with a **blood lead test**. If you don't have a health care provider, or he/she won't test.....call the health department.
- **Cover** any exposed soil in your yard with shrubs, flowers, grass, rocks, wood chips or other ground cover. Or pave it.
- If you garden and then eat the things that you grow....add compost or lime to the soil before planting. Plant fruiting or leafy vegetables (lettuce, tomatoes, corn, etc.), because they take in less lead than potatoes, carrots, turnips & other root crops. Wash **all** of it very thoroughly (or peel it) before eating. Wash your own hands with warm water and soap before eating, drinking, or smoking, after you have been working in the garden. Leave your gardening shoes and clothes outside; wash your gardening clothes separate from the rest of your laundry.

Appendix C. Michigan Department of Community Health, Childhood Lead Poisoning Prevention Program, Advice for Home Gardeners

LEAD in your GARDEN

Advice for those who live in an urban home & have a home garden

If you have been told that the soil in your yard contains a lead level of/greater than 400 ppm, you can protect your family from eating lead-exposed foods from your garden by following these suggestions:

- 1. Consider gardening fruits and vegetables in areas away from older building foundations (“older buildings” were built before 1978)**
- 2. Test your garden plot for soil lead concentration. Take soil samples from all areas where you plan to garden; *identify and test them separately, so that you know lead levels for each potential garden plot.***
- 3. All your food crops should be grown in soil with lead concentration less than 400 ppm.**
- 4. For root vegetables, leafy greens & herbs, use containers for your plants or build raised beds for them, using clean topsoil. A semi-permeable barrier, which allows water to soak through it, should be placed between the contaminated soil & your clean topsoil.**
- 5. If container or raised bed gardening is not possible, *fruiting crops like peppers, tomatoes, rhubarb* (not shoots or leaves—like collard greens, turnip greens, spinach, or root crops—like carrots, onions, beets) *should be grown.***
- 6. Use *organic compost high in phosphate & maintain an alkaline soil with pH>7*; this will reduce lead mobility in the soil.**
- 7. *Don’t use plants grown in contaminated soil for composting.***
- 8. Remove outer leaves of leafy greens, peel vegetables whenever possible, & *thoroughly wash all items with a detergent* (whatever you use at your sink) before eating them. *Rinse the detergent off thoroughly, as well.***

Source of recommendations: Finster, Gray and Binns, “Lead Levels of edibles grown in contaminated residential soils: a field survey,” www.sciencedirect.com, accepted 13 August 2003.