

**COMPREHENSIVE PLAN
FOR THE ELIMINATION OF LEAD HAZARDS
IN OMAHA, NEBRASKA**

**Developed by
Omaha Lead Site Community Advisory Group**

October 2004

Purpose: Provide a comprehensive approach to address all sources of lead poisoning in the Omaha Lead Superfund Site area.

Intent: It is the intent of the Omaha Lead Site Community Advisory Group to provide this Comprehensive Plan to USEPA Region 7 for inclusion in the Omaha Lead Site Interim Record of Decision as the selected remedy.

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	COMPREHENSIVE PLAN.....	3
3.0	Community Awareness and Education.....	5
3.1	Public Outreach and Community Awareness	5
3.2	Education and Training	7
4.0	Human Health	9
4.1	Screening for Elevated Blood Lead Levels	9
4.2	Monitoring and Case Management.....	10
4.3	Surveillance	10
5.0	Lead Safe Environments	11
5.1	Source Identification.....	11
5.1.1	Soil	11
5.1.2	Residences.....	12
5.1.3	Water and Other Possible Sources.....	12
5.2	Source Remediation	12
5.2.1	Soil	13
5.2.2	Lead-Based Paint	15
5.2.3	Dust.....	15
5.2.4	Water, Air and Other Sources.....	16
5.3	Surveillance	16
6.0	Coordination and Collaboration	17
6.1	Alliance Role and Responsibilities.....	17
6.2	Current service Providers	17
6.3	Expanded and Improved Services.....	19
6.4	Research.....	19
6.5	Funding	19
6.6	Evaluation.....	19

1.0 INTRODUCTION

“Lead poisoning remains the most common and societal devastating environmental disease of young children.” Public Health Service – Louis Sullivan, 1991.

“Children are more sensitive to lead. Children are much smaller than adults and by weight will receive a much higher dose given the same exposure. Differences in absorption of lead also increase the sensitivity of children. Adults absorb only 5-10% of orally ingested lead, while children absorb approximately 50% and can absorb more depending upon their nutrition. Children and pregnant women will absorb more lead because their bodies have a greater demand for calcium and iron, and the intestine responds by favoring their absorption. Lead substitutes for calcium and is thus readily absorbed, particularly if a diet is low in iron and calcium.” (*A Small Dose of Toxicology*-Steven Gilbert) It is important to recognize that children are not little adults.

The central nervous system is the most sensitive target of lead poisoning. Fetuses and young children are especially vulnerable to the neurological effects of lead because their brains and nervous systems are still developing. A 1990 study by Herbert Needleman showed that even low levels of lead exposure would reduce the school performance of children. Numerous additional studies including those by Bellinger (1987) and Schwartz (1987) found similar results. Long term studies of infants and young children exposed to lead indicated that as they became older there was an increased likelihood that they would suffer from decreased attention span, learning disabilities, and failure to graduate from high school.

Adult nervous system effects are also apparent following lead exposure. Evidence points to damage of the peripheral nervous system which causes wrist or foot drop. Evidence also points to hypertension and memory loss in adults, infertility in men and for pregnant women- low birth weight and miscarriages and stillbirths.

In 1991, the Centers for Disease Control and Prevention established a lead level of 10 mcg/dL as an action level when it was determined that a child had a blood lead level of that measurement or higher. Exposure to lead in dust from soil and lead-based paint has been identified as a high source of exposure for young children due to their hand to mouth behavior. In the 1990's, the U.S. Environmental Protection Agency required that information on lead be disclosed when a home or apartment was being sold or rented. In addition, specific training is required for workers removing lead from homes or apartments. Lead-based paint remains a serious problem for many children living in older homes especially in urban areas where they can be exposed to lead dust from soil and deteriorating lead-based paint.

In response to a request from the Omaha City Council regarding concern related to the number of children residing in the eastern area of the City of Omaha who were exhibiting an elevated blood lead level as documented by the Douglas County Health Department, the U.S. Environmental Protection Agency (EPA) launched an investigation in 1997. This investigation determined lead soil contamination from industries in the eastern area of the

City of Omaha posed a health hazard to children and took action to remove this source of contamination.

The EPA determined that contaminated soil in the eastern portion of the City of Omaha contained unacceptable levels of lead, which had the potential for significant hazard to the health of young children living in the designated area. In February 2003, the Omaha Lead Site (a 20 square mile predominantly residential area) was added to the EPA Superfund National Priority List. Initial actions have included the removal and replacement of soil at the residences of homes where a child was identified with an elevated blood lead level and where properties have lead-contaminated soil at or exceeding 1200 ppm

On July 16, 2004, the US EPA, Region VII, issued a Proposed Plan – Residential Yard Soils Omaha Lead Site, which provided four alternatives to be considered as actions to address the site risks. EPA prefers Alternative 4 as an interim action to continue addressing the site risks while a phosphate treatability study is conducted. Alternative 4 involves excavation and replacement of soils from residential properties exceeding 800 ppm. EPA will continue to excavate soils exceeding 400 ppm lead at high child impact areas and homes where a child resides with an elevated blood lead level. This alternative includes a public health education program to deal with the residual risk associated with soil contamination below 400 ppm and other non-soil sources of lead.

Alternative 4 leaves open the decision to use phosphate treatment for lower levels of contamination until the treatability study has been completed. The interim approach will require EPA to propose a final remedy and seek public comment after the completion of the treatability study. This alternative also includes the additional elements of institutional controls, exterior lead-based paint remediation, and interior cleaning.

In February 2004, a Community Advisory Group was established to monitor EPA actions and provide feedback to EPA from the community. The Community Advisory Group is recommending a comprehensive plan be developed and implemented for the Omaha Lead Site. The comprehensive plan includes remediation of soil and actions relating to lead-based paint hazards and other potential sources of lead hazards. One of the goals of a comprehensive plan is to reduce lead exposure to children and pregnant/nursing women from multiple potential sources of lead, thereby reducing elevated blood lead levels within the Omaha Lead Superfund Site.

2.0 COMPREHENSIVE PLAN

The purpose of a comprehensive plan for the Omaha Lead Superfund Site is to provide a comprehensive approach to address all sources of lead poisoning in Omaha, Nebraska.

A comprehensive plan to eliminate lead poisoning for Omaha's children will include identification and remediation of all known sources of lead exposure in addition to soil contamination. While lead contamination of the soil in the designated Omaha Lead Superfund Site has been found to be an immediate hazard to children's health, it is important to recognize that children living in the Omaha Lead Superfund Site area are also exposed to the additional source of deteriorating lead-based paint and dust from both the soil and lead-based paint. Therefore, to focus solely on remediation the soil leaves a major source of lead exposure (deteriorating lead-based paint) available to children and a hazard to their health and development.

A comprehensive plan will provide for coordination of services in the Omaha Lead Site through the collaborative efforts of Omaha service providers including the Douglas County Health Department, City of Omaha Planning Department, Douglas and Sarpy County Extension Services, physicians and clinics, and community-based organizations with USEPA Region 7 Superfund activities. The participation of all these entities combined in a collaborative effort will be required for successful elimination of lead exposure. In addition, improved and expanded services provided through a coordinated collaborative effort will benefit the community of Omaha as a whole.

Present service providers have expertise in providing services in various components of a comprehensive plan and shall be enlisted to collaborate in working together to improve and expand their services in eliminating lead hazards from children's environments. Components of a comprehensive plan include:

- Outreach and awareness activities in the Omaha Lead Superfund Site area
- Education for parents, property owners, health care professionals, staff at community-based organizations
- Training for remodelers and home repair workers in lead-safe practices
- Training for contractors involved in remediation activities – soil and housing
- Screening of children for elevated blood lead levels
- Case management for monitoring children with elevated blood lead levels
- Source identification – soil/lead-based paint/air/water/other
- Source remediation – soil/lead-based paint/lead dust
- Surveillance – data collection for blood leads and housing
- Collaboration of service providers in providing coordinated services.
- Plans to expand and improve services
- Evaluation of effectiveness of collaboration and coordination efforts

The intent of developing and implementing a comprehensive plan is for the CAG to offer a preferred alternative to the USEPA Region 7 Record of Decision for the Omaha Lead Site.

Therefore, to be effective in eliminating lead hazards, the OLS Community Advisory Group is recommending the implementation of a Comprehensive Plan to Eliminate Lead Hazards for children residing in the designated Omaha Lead Superfund Site area.

3.0 Community Awareness and Education

A community awareness and education program has been developed that consists of categories, public outreach and community awareness, public education, training, and policy advocacy. The community awareness and education program will involve cooperative efforts with local government agencies, community health centers, neighborhood associations, and community-based organizations.

3.1 Public Outreach and Community Awareness

The purpose of community awareness is to raise general public awareness of potential health risks associated with lead poisoning and to inform residents on ways to minimize lead exposure to the children residing in the Omaha Lead Superfund Site area. Recognizing the diversity of cultures and languages of residents of the Omaha Lead Superfund Site area, materials and methods used for public outreach and community awareness will be linguistically and culturally appropriate. Also, the general literacy level of the area will be considered. The community awareness program will provide information on the following:

- The potential sources of lead exposure from the soil in the Omaha Lead Superfund Site area and why residents/property owners should participate in Superfund efforts to test soil in yards.
- The additional potential source of lead exposure from deteriorating lead-based paint found in older homes;
- The potential for children to be exposed to lead from dust found in the soil or lead-based paint that could have adverse health effects;
- The importance of obtaining a blood lead screening for children under seven years of age residing in the OLS area with an emphasis on children between the ages of one to three years of age;
- Primary prevention of exposure to lead dust from exterior or interior lead-based paint through home maintenance and targeted housecleaning;
- Primary prevention of exposure to lead dust through personal hygiene such as; washing hands after playing outdoors and washing hands and face before eating;
- Primary prevention of exposure to lead dust through providing tight groundcover in yards and elimination of bare soil next to homes and in play areas;
- Primary prevention of exposure to lead dust through proper nutrition including calcium and iron and excluding high fat foods.
- Primary prevention of exposure from other sources.
- Services available through the OLS Alliance for families/property owners in the Omaha Lead Superfund Site area. Information on these services can be provided through various approaches including door-to-door canvassing, letters to residents, etc.

Public awareness and community outreach activities will make residents conscious of the focus of the Omaha Lead Superfund activities, the risk of lead poisoning; specifically in young children and pregnant women, ways to reduce exposure to lead sources, and the

services available through the OLS Alliance. These services can be provided by the many community-based organizations located in the OLS area and through a media campaign.

The Douglas County Health Department presently provides public awareness and community outreach activities related to childhood lead poisoning prevention and have developed materials for outreach and education based on the diversity of the audiences in the metro area. To make the process smoother, one agency will take the leadership in the development; that agency should be the Douglas County Health Department. They will not be responsible for the development of all outreach and awareness and education materials, but they should provide consultation for the organizations and agencies collaborating with the Alliance so that consistent information and messages are presented by all organizations and agencies.

As part of community outreach and awareness and education, ATSDR is in the process of evaluating the current materials and curricula being utilized in the metro area. Also, as part of the process, the entities that have been identified as players in the development of public awareness and community outreach and education programs are NHHSS, DCHD, ATSDR, and the University of Nebraska Extension in Douglas and Sarpy Counties. These entities have expertise in curricula development and have an organizational mission that includes public education.

Community-based organizations presently providing public awareness and community outreach include but are not limited to the following:

- Charles Drew Community Health Center
- Chicano Awareness Center
- Greater Omaha Chamber of Commerce
- Hope Medical Outreach Coalition
- Lead Safe Omaha Coalition
- League of Women Voters of Greater Omaha
- Metropolitan Omaha Medical Society
- NAACP
- Nebraska Urban Indian Health Coalition
- Nuestro Mundo
- Omaha Housing Authority
- OneWorld Community Health Centers
- Sierra Club – Missouri Valley Chapter
- Sisters Together, Inc.

Community outreach and awareness is only one step in the development of an education plan. Concerned citizens and the groups they represent in the community will and must be part of the implementation of an education plan. They are the connection between the research regarding lead poisoning and the practical application of methods to reduce the risk of lead poisoning. They are also the key to providing and addressing with the unique cultural diversity within the community. Omaha's diverse cultural population requires publishing materials in multiple languages and coordination with culturally based community groups to facilitate awareness.

3.2 Education and Training

There are differences between public education and public awareness just as there are differences between public education and education specific to target audience. Public awareness and community outreach is one step in the development of an education plan. Public education is another step in the development of an education plan and expands on information aspects of a plan.

USEPA for education grants defines “public environmental information as those activities and materials which provide facts or opinions about environmental issues or problems. Although information is an essential element of any educational effort, environmental information is not, by itself, environmental education. Environmental education increases public awareness and knowledge about environmental issues and provides the skills to make informed decisions and take responsible actions. It is based on objective and scientifically sound information. It does not advocate a particular viewpoint or course of action. It teaches individuals how to weigh various sides of an issue through critical thinking and it enhances problem-solving and decision making skills.”

Public education materials and methods will be evaluated with focus groups representing the diversity of residents in the OLS site area. It is important that the information being provided gives the message intended with consideration for literacy, language and culture. Often materials are translated from English and the meaning is changed for the intended audience. Attention will be paid to the message given through graphics used along with language.

Education and/or training will be specific to targeted audiences; such as, parents, childcare providers, health care professionals and paraprofessionals, community health outreach workers, property owners, realtors, tenants, property maintenance workers, contractors and workers involved in soil remediation, contractors and workers involved in remediation of lead-based paint hazards, painters, home repair companies, and staff of community-based organizations including church members and school staff and children.

Training according to HUD curricula will be provided for all persons working in remediation of lead-based paint, soil removal, etc. It is important that persons working in lead remediation activities learn to work in a safe manner to reduce exposure of themselves and persons living on the properties. HUD approved trainers periodically provided training for supervisors and workers certified by the State, which is necessary for abatement. One day HUD approved training for property maintenance and repair and for interim control work is provided by DCHD.

Curricula relating to the OLS site will be developed for providing public education, which can be used with community-based organizations, churches, and schools. Present available curricula and materials for target audiences will be reviewed for use by the Alliance and service providers located in the OLS site. ATSDR, CDC, HUD, and EPA have developed materials and curricula, which are available for use and modification to fit the needs of the OLS site.

Delivery methods for public education or for education/training for target audiences will vary depending on the situation and the audience. Methods will include but not be limited to:

- A. Printed materials
- B. CD's with educational messages
- C. Videotapes
- D. Workshops
- E. Educational web sites
- F. One-on-one counseling
- G. Demonstration houses
- H. Demonstration landscaping
- I. Seminars
- J. Train-the-Trainer
- K. Classes at Health Centers
- L. Preschool/childcare curriculum

One of the most effective education models is through face-to-face consultations with residents. This approach will be used to educate residents to participate in the blood lead screening and monitoring program, EPA's soil sampling program, and the Alliance's environmental sampling program. Community-based organizations will be enlisted to assist in these face-to-face contacts using bilingual personnel and/or translators where needed.

An important link to providing awareness and education to the involved community is a local telephone hotline provided by the Alliance. A Lead Poisoning Prevention Hotline will be established and operated by bilingual persons with general knowledge relating to the issues for the OLS site and specific knowledge relating to lead poisoning, potential sources, effects on children and adults, how to reduce exposure, services available in the community, etc. It is important that persons answering the phone be able to answer questions and allay the fears of parents. This hotline will operate outside the normal business hours so it is available to working parents.

4.0 Human Health

4.1 Screening for Elevated Blood Lead Levels

In order to assess children's exposure to lead it is necessary to screen children with a blood lead test. Most initial screens are done with a finger stick. To confirm that the child has an elevated blood lead level it is necessary to perform a venous blood draw. The confirmatory test will rule out false positive results.

Ideally, all children under the age of seven years who reside in the OLS site area will be screened with a blood lead test annually starting at nine (9) months of age until they reach the age of seventy-two (72) months and children between the ages of thirty-six (36) months and seventy-two (72) months who have never been screened with a blood lead test will receive a blood lead test. Where the blood lead test is 10 mcg/dL or higher, the child will have a confirmatory venous blood lead test and subsequent blood lead tests will be monitored by the Douglas County Health Department.

Primary health care providers – physicians and clinics- should screen all children less than seven years of age residing in the OLS site area per the above. Primary health care providers receiving Medicaid funds are required to meet the HCFA requirements for blood lead screening. Federally funded community health centers are required to meet the HRSA requirements related to blood lead screening. Omaha has two federally qualified health centers located in the OLS site area – Charles Drew Community Health Center and OneWorld Community Health Centers.

The Federal government (HCFA and HRSA) requires Medicaid providers and health centers receiving federal grants provide lead screening services. The Federal Medicaid policy for lead screening was established by the Omnibus Budget Reconciliation Act of 1989, which required that Medicaid EPSDT services include blood lead level laboratory tests appropriate for age and risk factors. HCFA's Medicaid manual has specifically required since 1992 that, in line with CDC's recommendations, children enrolled in Medicaid be screened for elevated blood lead levels at a minimum at ages twelve (12) and twenty-four (24) months, and through seventy-two (72) months if previously unscreened. HRSA policy was established in 1992 when Public Law 102-531 amended the Public Health Service Act to include lead screening among primary services that health centers provide. HRSA policy calls for health centers to establish lead screening protocols that are consistent with CDC's guidelines, including risk assessments at well child visits and an initial blood lead test at least twelve (12) months.

Families will be educated to ask their child's primary health care provider to test their child for an elevated blood lead test. The Alliance will promote screening of children through education of local physicians and health care providers and community-based organizations. Douglas County Health Department is providing an education session for physicians and their staff on the importance of screening children especially those residing in the OLS site area for an elevated blood lead level. The Alliance will provide blood lead screening for those families where the test is not covered by insurance.

Advocacy with the Nebraska Health and Human Service System and the Metropolitan Omaha Medical Society will be implemented to ensure children are screened according to HCFA and HRSA regulations.

4.2 Monitoring and Case Management

Monitoring (surveillance) of children with an elevated blood lead level will be provided by the Douglas County Health Department (DCHD) per state regulations. Laboratories are required to report all blood lead levels to the DCHD.

Families of children with confirmed blood lead levels at or above 10 mcg/dL will receive a home visit by DCHD staff. During the home visit, parents are provided information about reducing their child's exposure through cleaning, nutrition, home maintenance, etc. Parents also receive information on the importance of follow-up tests to monitor the child's blood lead level. DCHD continues periodic visits with the families until the child's lead level is below 10 mcg/dL. In addition, DCHD has an inspector inspect the home and surroundings for lead hazards especially for lead-based paint hazards.

In addition, the community health centers and other physicians and health care providers provide medical case management for patients with an elevated blood lead level.

Families of children with blood lead levels below 10 mcg/dL will receive information about the Alliance and service provided. The Alliance will only monitor the blood lead levels of these children whose families participate in the services provided by the Alliance and provide appropriate services as needed.

4.3 Surveillance

Surveillance (monitoring) of elevated blood lead levels will continue to be conducted by the Nebraska Health and Human Services System and the Douglas County Health Department. The surveillance system makes it possible to generate reports:

- Summary of blood lead levels for children residing in the OLS
- A comparison to children with elevated blood lead levels outside the OLS area

5.0 Lead Safe Environments

5.1 Source Identification

Identification of the source of lead hazards for residents of the OLS site area will be performed with environmental sampling. The environmental sampling will include investigating sources of potential lead exposure, including lead from soil, dust, interior and exterior paint, water and other potential sources.

“The EPA recognizes that many potential sources potentially contribute to lead exposure at the OLS. In addition to soil, other potential sources include interior and exterior lead-based paint, lead-contaminated interior dust, drinking water, occupant hobbies or activities, and occupational exposure resulting in subsequent contamination of homes. The EPA will seek to partner with other public and private entities to characterize and address all identified sources of lead exposure to the OLS community.

Consistent with agency policy, the EPA will assess the contribution of all identified sources of lead to the overall lead exposure. The EPA will participate in the development of risk reduction strategies that address all source that contribute significantly to exposure.”

Proposed Plan – Residential Yard Soils Omaha Lead Site

5.1.1 Soil

The Human Health Risk Assessment developed by EPA for the OLS using site- specific information identified lead in the soil as the primary contaminant of concern. Other metals, such as arsenic, were also identified as contaminants of concern, but were eliminated due to their relatively low risk and lack of connection to the release from the institutional sources being addressed by this Superfund action.

The EPA uses the Integrated Exposure Uptake Biokinetic (IEUBK) model to evaluate the risk that lead contamination of soil poses to children less than seven years of age. The IEUBK model uses either site-specific inputs (if available) or default inputs to estimate the probability that a child’s blood lead level might exceed a health-based standard of 10 micrograms per deciliter. If only default values are used as inputs to the model, a child would have less than a 5 percent probability of having a blood lead level at or above the 10 µg/dL if the soil in that child’s environment had no more than 400 ppm of lead in the soil.

EPA Region 7 will test soil in the yards of all residential property in the Omaha Lead Superfund Site area for lead.

This testing will include the drip line area of the residence. Participating in the environmental sampling program will be with no cost to participants. Properties where soil sampling has not previously been performed will be automatically eligible for soil sampling by EPA Region 7. Properties where previous sampling was performed, but where conditions have changed, will be eligible for limited re-testing.

5.1.2 Residences

The DCHD inspector will inspect residences where a child has been identified with an elevated blood lead level. The DCHD inspector will investigate for deteriorating lead-based paint, both exterior and interior, and interior dust. Inquiries with the family will determine the possibility of other sources of lead.

EPA will receive information on residences where a child with an EBL resides so they can perform a soil sampling.

Where soil has been investigated and is determined to need remediation, the EPA Region 7 will determine if the residence has deteriorating lead-based paint on ten percent of more of the exterior surface. In these instances, EPA will remove the deteriorating lead-based paint and possibly repaint the exterior of the residence.

EPA will also test the interior dust of residences where the soil will be remediated to determine if dust contains lead. Where lead dust is found in the residence, EPA will contract for a thorough cleaning according to HUD.

HUD funded programs with the City of Omaha will assist eligible low and moderate income property owners applying for grants to renovate their homes with remediation of the deteriorating lead-based paint identified on their property.

The Alliance will investigate the possibility of obtaining funds to assist residents in having their residences inspected for lead-based paint hazards and in remediation of identified lead-based paint hazards found in both exterior and interior of homes. Persons participating in the Alliance's environmental sampling program will be asked to sign an access agreement. The agreement grants permission to use demographic information obtained through a questionnaire, sample the property, and obtain other information to assist in evaluating lead exposure.

5.1.3 Water and Other Possible Sources

Other potential sources of lead hazards will be investigated when inspectors or risk assessors determine the need.

Property owners and residents will be provided information on lead hazard sources identified and suggested remediation procedures. This information will be provided in the primary language of the property owner and resident to ensure their understanding of the issues and need for cooperation. Information on the Alliance and services will be provided to the property owner and tenant.

5.2 Source Remediation

The results of environmental investigations – soil, dust, lead-based paint, other – will be provided to property owner and tenant. Recommendations for remediation will be made by 1) EPA for soil and dust; and 2) DCHD, City inspectors, and/or certified risk assessors for lead-based paint and other sources. Remediation actions will be implemented in accordance with applicable City codes, HUD's Guidelines for the Evaluation and Control of Lead-based Paint

Hazards in Housing (June 1995), and EPA's Record of Decision for the Omaha Lead Site (to be released).

At the completion of remediation activities, property owners and tenants will be provided with instructions for maintaining components of the remedy, such as sod, landscaping, paint interim controls or abatement. The maintenance of each remediation activity will be fully explained to the property owner and tenants during discussion of recommended actions and upon completion of the selected action(s).

EPA Remedial Action Objectives for the Omaha Lead Site:

- One Remedial Action Objective has been developed for residential soils in Omaha
- Reduce the risk of exposure of young children to lead such that an individual child or group of similarly exposed children, have no greater than a 5 per cent chance of having a blood-lead concentration exceeding 10 µg/dL.

5.2.1 Soil

EPA's preferred alternative involves the excavation and removal of soil, backfilling the excavation with clean soil, and restoring the grass lawn. Excavation will be performed at properties where exposure potential is of greatest concern. Generally, the properties that will be designated for response include: 1) residences exceeding 400 ppm lead where children with elevated blood lead levels reside; 2) child care facilities exceeding 400 ppm lead; 3) high child impact areas such as a park or school exceeding 400 ppm; or 4) any residential property where at least one non-foundation sample exceeds 800 ppm.

Soil will be excavated using lightweight excavation equipment and hand tools in the portions of the yard where the surface soil exceeds 400 ppm lead. For child care facilities, residences that house children with EBLs and high child impact areas, soil clean-up will be initiated if at least one non-drip zone sample exceeds 400 ppm lead. Excavation will continue until the lead concentration measured at the exposed surface of the excavation is less than 400 ppm in the initial foot, or less than 1,200 ppm at depths greater than one foot. The excavation will cease at less than 12 inches if soil lead concentrations below 400 ppm are encountered within the initial foot of excavation.

Clean fill and topsoil will be used to replace the soil removed after excavation, returning the yard to its original elevation and grade. After the topsoil has been replaced a grass lawn will be re-established through either hydro-seeding or sodding.

The objective of soil remediation is to either remove the source of lead or eliminate the pathway of exposure. If EPA's soil action level (to be determined) is exceeded, remediation activities may be taken, including soil removals, capping, landscaping, raised beds for gardens, and/or phosphate remediation if such remediation is determined to be feasible.

- 1) **Removal:** EPA will perform soil removals as described in the Record of Decision for the Omaha Lead Site when the Record of Decision is released.

In the process of identifying appropriate options and recommendations for soil remediation, the condition of existing vegetation, the use patterns of the property, and current drainage patterns within and adjacent to a property will be evaluated.

During remediation activities, clean access to the residence will be provided at all times. Clean access means the resident will not have to walk through soil prior to entering their home. Sidewalks will be thoroughly brushed and washed off with water after each workday to provide as clean an entry as possible to the residence. In the absence of a sidewalk, laying down plywood, pallets, plastic, or using other temporary measures to prevent exposure and tracking of soils will provide a clean pathway to the residence. All residents will be required to stay away from the construction area during remediation activities. Unsafe excavation areas or stockpiled soils will be fenced off to prevent accidents and exposure.

Water application will be used to minimize the potential for fugitive dust emissions. Application rates will be regulated to control dust during excavation, yet prevent the development of mud. The objective is to minimize airborne dust and minimize the production of mud that could be transported off-site on haul trucks and other mobile equipment. Outdoor faucets and hydrants from private residences and public areas will be used as water supply sources.

- 2) **Capping:** Concrete and asphalt caps are generally constructed in high traffic areas such as driveways, porches, and sidewalks. The use of asphalt or concrete as a cover material will be limited to special circumstances, which may include:
 - Situations requiring the removal of existing concrete or asphalt
 - In limited areas at the property owner's request to match adjacent existing paved areas; and
 - Where removal is not practicable and the placement of concrete or asphalt is a cost effective alternative.
- 3) **Raised Beds for Gardens:** Raised beds are gardens formed by adding contained soil (below the action level) on top of present soil. Raised beds may be considered as a response action for existing vegetable gardens with lead in soil concentrations. Education will be provided to residents encouraging the use of mulch and straw to prevent garden soil from eroding.
- 4) **Landscaping:** Landscaping techniques may be considered as a remediation activity to contain lead particles. Landscaping techniques will most commonly be utilized for areas in which grass cover cannot be established (e.g. near trees or buildings). Landscaping techniques include covering bare areas with mulch, crushed stone, landscaping cloth, sand, woodchips, or sod and/or planting shrubs to create a barrier to lead exposure.
- 5) **Drip-line:** Drip-line soil removal actions will be performed if drip-line soil exceeds the action level (to be determined) for lead. If it is determined that exterior paint requires remediation, remediation activities will be performed before drip-line soil

removal. Drip line soil response actions will also be performed if clearance soil samples taken following lead-based paint remediation have increased in lead concentration from samples taken prior to lead-based paint remediation. Drip-line soil removal actions will be the same as other soil removal actions.

5.2.2 Lead-Based Paint

Education is an important component of all lead-based paint remediation actions. When lead-based paint is present, property owners and tenants will be educated as to the risk related to deteriorating lead-based paint and ways to reduce exposure to identified lead hazards. In addition to the one-on-one information provided, materials and workshops will be available to provide education to property owners and tenants.

Lead-based paint remediation activities (interim controls or abatement) will be performed in accordance with HUD's *Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing (June 1995)*.

Under the Lead-Based Paint Poisoning Prevention Act of 1992, paint is considered lead-based paint if it contains lead greater than or equal to 1.0 mg/cm². Based on this definition, if paint is found containing lead above 1 mg/cm² and is in poor condition or coating a friction surface, education will be provided to help reduce potential risks associated with lead-based paint and the need for additional remediation actions will be evaluated by a risk assessor. Property owners and tenants will be notified of the dangers associated with remediation actions due to the potential for increased exposure during these activities prior to the start of any lead-based paint remediation activities.

Measures will be taken to protect residents from exposure to lead-based paint hazards during remediation activities. At a minimum, residents will be required to stay out of work and containment areas. Residents will be required to be out of the residence while remediation activities are being implemented. The need for temporary relocation of the residents during interior and/or exterior paint remediation will be considered on a case-by-case basis, depending on the area of the home affected by activities, the kind of containment required, and the anticipated duration of remediation activities.

5.2.3 Dust

Since dust is a secondary lead source generated from soil, lead-based paint, or other sources, it will be necessary to identify and remediate the primary source followed by a dust action.

Dust removal actions may include education, physical protective measures, and/or removal and disposal. Dust removal and control actions will be typically recommended in situations where lead in interior paint is below an action level and the paint is in good condition. Dust removal and control actions will be conducted to remove the dust accumulation generated by lead-containing soils and other materials that have been tracked into the residence and will be implemented in accordance with HUD's *Guidelines for the Evaluation and Control of Lead-based Paint Hazards in Housing (June 1995)*.

Residents will be educated on how to effectively reduce lead dust through cleaning activities. Residents will also be offered the use of a vacuum cleaner equipped with a HEPA filter via the HEPA vacuum loan program. HEPA vacuums are capable of removing particles greater than or equal to 0.3 microns at an efficiency of 99.97 percent. Use of the vacuum program provided by community-based organizations will be available to all residents at no cost.

5.2.4 Water, Air and Other Sources

Tap water remediation actions will be recommended where residences with lead concentrations in drinking water greater than or equal to 15 parts per billion (ppb). Sources of lead in drinking water that may be addressed include lead pipes, lead solder, and/or lead-alloy fixtures. Where investigations determine that other sources of lead are available in hazardous states, appropriate actions will be taken to remediate the source.

5.3 Surveillance

Surveillance (monitoring) of residential properties needs to be established to provide data on residential properties 1) inspected for lead hazards, 2) remediation of lead-based paint was performed, 3) soil removal was performed, 4) follow-up inspections to determine properties remain lead-safe.

6.0 Coordination and Collaboration

6.1 Alliance Role and Responsibilities

The establishment of an Omaha Lead Superfund Site Alliance will facilitate the coordination of services by collaborative efforts of the various service providers presently providing service components or those who will provide various services in the future. The Alliance can be an entity affiliated with an existing agency or be a newly established non-profit entity. (501 (c) (3)).

The Alliance will have a membership of any interested party residing in the OLS area, representatives of service providers or interested community-based organizations, representatives of governmental agencies both local and state, and parents of young children residing in the OLS area. The membership will assist in providing feedback as to the implementation of a comprehensive plan to eliminate lead poisoning.

A coordinator will be hired to provide leadership in the implementation of a comprehensive plan to eliminate lead poisoning in the OLS area. The coordinator will be guided by an advisory/steering committee made up of five to nine members elected from the membership and including four parents of children with an elevated blood lead level from the OLS area – representing the culturally diverse community. Task forces/work groups headed by a member of the advisory/steering committee will address each component of the comprehensive plan.

The coordinator will be responsible for developing a work plan for the Alliance including activities to be provided by the Alliance, responsible parties, and timelines for implementation. In developing the work plan, the implementation of a logic model as presently required by many federal agencies will assist in preparing proposals for funding. The coordinator will investigate possible funding and either applies for funds for the Alliance or encourages and assists Alliance members in applying for funds to implement the Comprehensive Plan to Eliminate Lead Poisoning in the Omaha Lead Site area.

The establishment of an Omaha Lead Site Alliance will have as its goal the coordination and collaboration by service providers in efforts to reduce children's exposure to lead and eliminate lead hazards from their environments.

6.2 Current service Providers

A summary of services currently provided is included in Table 1.

Table 1 – Present and Potential Service Providers

COMPONENT/ DEFINITION	SERVICE/ DEFINITION	PRESENT PROVIDERS	POTENTIAL PROVIDERS
Plan administration	Coordination of services to be implemented via plan.	To be determined	
Advisory/Steering Committee	Assist in coordination activities	To be determined (5 members plus 4 parents)	
Alliance Members	Advise Alliance coordinator and advisory committee on service coordination and plan implementation	Representatives from: <ul style="list-style-type: none"> - Government Agencies - Service Providers - Medical Providers - Community - Owners - Tenants - Etc. 	Other interested parties from the OLS area
Services	Awareness/Outreach	DCHD, NUIHC, LSOC, CAC, LWVGO, CDREW, ONEWORLD, SISTERSTOG, SIERRA CLUB, HOPE MOC, NAACP	
	Education-public	DCHD, LSOC	
	Education-providers	DCHD, LSOC	
	Education- medical	DCHD, MOMS	
	Screening Children	PHYSICIANS, CLINICS, DCHD, LSOC	
	Case Management for EBLs	DCHD	
	Id housing w/ lead-based paint	DCHD, CITY	
	Provide training for owners	DCHD, EXT SERVICE	
	Provide training for workers	MASIMAX, DCHD, LSOC	
	Identify soil contamination	EPA	
	Provide temporary LBP cleaning	EPA	
	Remediate lead-based paint	CITY, PROPERTY OWNER	
	Remediate soil	EPA	
Monitor remediation	DCHD, City, EPA		
Ordinances/ Regulations	Federal State Local		
Program Evaluation	Evaluation components <ul style="list-style-type: none"> - Program implementation - Community perceptions 		
Advocacy	Community organizations	LSOC OLS CAG	

6.3 Expanded and Improved Services

Through the collaborative efforts of service providers with the Alliance, outreach and public awareness will be expanded and provided by multiple community resources including churches, schools, social service agencies, and others. Health education funds from EPA/ATSDR and the State of Nebraska will assist in improving and expanding these services under the direction of the Douglas County Health Department.

Families (residents or property owners) will learn about the Omaha Superfund Lead Site and the potential impact on their property and their children. Door to door canvassing will be provided to get this information to the OLS residents and make them aware of the problems and services available. A phone line manned by bilingual persons knowledgeable in lead issues will be available for citizens to call. Efforts will be made to have this service available after normal business hours.

Children who are uninsured and not eligible for Medicaid will be provided blood lead tests at no costs. The Alliance will seek funding when an uninsured child has a lead level that requires chelation and/or medical follow-up will be provided these services at no cost.

Training will be provided to property owners and maintenance workers on how to work safely when they are disturbing lead-based paint. Information about this training will be made by various media sources, community agencies and DCHD. The training will be provided at minimum or no cost.

Efforts will be made to identify potential funding sources to assist property owners in remediation of the lead-based paint identified on their property.

6.4 Research

Research related to the OLS will be encouraged by the Alliance and provided through collaborative efforts of the Nebraska Health and Human Services System, the University of Nebraska Medical Center, Creighton University, the University of Nebraska at Omaha, the Douglas County Health Department, and others.

6.5 Funding

Sources for funding to support the Alliance coordinator and the Alliance activities will be investigated. Possible sources are EPA/ATSDR, State of Nebraska, potential responsible parties, community foundations, community corporations, and others.

6.6 Evaluation

Procedures will be developed to evaluate the activities of the Alliance and the impact of those activities on reducing lead poisoning in the OLS area. A logic model used to develop program activities and procedures will include appropriate evaluation measures.