

**HEALTHY HOMES AND LEAD HAZARD CONTROL
LEAD HAZARD REDUCTION
2014 Summary Statement and Initiatives
(Dollars in Thousands)**

LEAD-BASED PAINT HAZARD REDUCTION PROGRAM	<u>Enacted/ Request</u>	<u>Carryover</u>	<u>Supplemental/ Rescission</u>	<u>Total Resources</u>	<u>Obligations</u>	<u>Outlays</u>
2012 Appropriation	\$120,000	\$8,295 ^{a/}	...	\$128,295	\$120,193	\$147,320
2013 Annualized CR	120,734	8,102	...	128,836	127,500	130,000
2014 Request	<u>120,000^{b/}</u>	<u>1,336</u>	<u>...</u>	<u>121,336</u>	<u>120,000</u>	<u>130,000</u>
Program Improvements/offsets	-734	-6,766	...	-7,500	-7,500	...

a/ This includes actual recaptures of \$1.75 million in fiscal year 2012.

b/ This number includes an estimated Transformation Initiative (TI) transfer that may be up to 0.5 percent of Budget Authority. This amount is excluded from obligations and outlays.

Note: Amounts may differ from amounts shown in Presidents Budget Appendix due to rounding.

1. What is this request?

The Department requests a total of \$120 million for the Healthy Homes and Lead Hazard Control Programs in fiscal year 2014, which is the same as the fiscal year 2012 enacted amount. The programs of the Office of Healthy Homes and Lead Hazard Control (OHHLHC) are unique in the federal government. Unlike many housing rehabilitation programs, which focus on major renovations without health and safety as a primary concern, the programs of the OHHLHC are intentionally focused on making homes safer for children and families to live in using established assessment methods that result in proven cost-savings. In fiscal year 2014, the Department will continue the successful lead hazard control and healthy homes programs by targeting the worst-quality low-income housing that threatens the health and safety of low-income families, children, and other vulnerable populations. The total budget request for fiscal year 2014 comprises the following budget components:

- Lead Hazard Control Program: \$90 million;
- Healthy Homes Program: \$25 million; and
- Lead Technical Studies and Programmatic Support: \$4 million.

Also, in fiscal year 2014, the Department renews its request for the Transformation Initiative Fund, which enables a transfer up to 0.5 percent or \$15 million, whichever is less, from this program to the Transformation Initiative Fund for the operation of a second-

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generation Transformation Initiative (TI2). More details on TI2 and its projects are provided in the justification for the Transformation Initiative Fund account.

Lead Hazard Control Program

For fiscal year 2014, the Department requests \$90 million for the Lead Hazard Control Program. With fiscal year 2014 funding, this program will yield an estimated 9,000 housing units made lead-safe. The Lead Based Paint Hazard Control (LBPHC) and Lead Hazard Reduction Demonstration (LHRD) grant programs are similar in their overall goal of producing lead-safe homes for low-income residents; the LHRD grant program is focused on jurisdictions with higher numbers of pre-1940 rental housing and higher rates of childhood lead poisoning cases. These programs are authorized under Section 1011 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 (Title X of the Housing and Community Development Act of 1992; Public Law 102-550; 42 U.S.C. 4852). Funding assists states, Native American Tribes, cities, counties/parishes, or other units of local government to identify and eliminate lead-based paint hazards in low- and very low-income private housing where children under 6 years of age reside or are likely to reside. Based on estimates of health benefits, the value of lead hazard control programs similar to those operated by HUD is conservatively estimated at \$1.8 billion based on the cost/benefit ratio of at least 17:1 (Gould, 2009).

Grantees must meet expenditure and performance benchmarks for the assessment and clearance of units containing lead-based paint hazards and other housing-related health hazards on a quarterly basis to ensure that the entire grant is properly expended within the period of performance.

Healthy Homes Program

For fiscal year 2014, the Department requests \$25 million for the Healthy Homes Program. Funds will assist cities, states, other units of local government and not-for-profit organizations to make housing repairs to target housing that reduces or eliminates significant health and safety hazards; and for evaluations to study the impact that health-related housing repairs (beyond those related to lead, which are evaluated separately) have on health. Unlike the Lead Hazard Control Program, the Healthy Homes Production Program goes beyond just addressing lead-based paint hazards and covers the most serious threats to residents' health and safety. No other federal program directly targets homes that threaten the health and safety of residents. With fiscal year 2014 funding, this program will yield an estimated 5,000 housing units made healthy. In addition, at the requested funding level, HUD will award Healthy Homes Initiative supplemental funds to fiscal year 2014 Lead-Based Paint Hazard Control Grant recipients who request such funding. The supplement will ensure that critical housing-related hazards are addressed in homes being made lead safe under that program, and help build up the communities' infrastructure for addressing a broad range of housing-related health and safety hazards. Returns on investments in asthma prevention programs similar to those operated by HUD have been conservatively estimated at \$212 million based on the estimated investments (Nurmagambetov et al., 2011).

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The Healthy Homes Program targets those housing conditions that have been scientifically shown to negatively impact occupant health and safety, including mold and moisture intrusion, lead paint, radon, carbon monoxide, and pest infestations, and creates opportunities for communities to make smart investments in housing that can end the cost-shifting that causes higher medical bills, higher energy costs and higher housing maintenance costs. The Healthy Homes Program is authorized under Sections 501 and 502 of the Housing and Urban Development Act of 1970 (12 U.S.C. 1701z-1 and 1701z-2).

Technical Studies and Programmatic Support

For fiscal year 2014, the Department requests \$4 million for Lead Technical Studies and Programmatic Support. Funds will be used achieving the federal goal of eliminating childhood lead poisoning as a major public health problem. This goal requires research, outreach, and technical support to ensure that HUD's grantees make the most efficient and innovative use of funding. Funding for lead technical studies has been critical in the development of cost-effective measures to reduce lead-based paint hazards. Lead Technical Studies and Support contracts also promote and assist with the enforcement of HUD's Lead Disclosure Rule and monitoring of implementation of HUD's Lead Safe Housing Rule by HUD's Program Offices and recipients of their assistance.

The OHHLHC's lead technical studies and programmatic support activities include:

- Conducting technical studies and demonstration projects to identify innovative methods that reduce the cost and increase the effectiveness of lead hazard control and other housing-related health hazard remediation activities;
- Developing policy, regulatory and guidance materials for environmental health and safety issues;
- Providing technical support, public education and outreach on environmental health and safety issues in the home to state and local governments, the general public, the professional community, and trade groups;
- Collaborating with EPA to operate a toll-free hotline and document distribution center for the general public; and
- Developing grant management and tracking mechanisms related to grantee performance.

The OHHLHC's lead regulatory support activities include:

- Identify owners of pre-1978 multifamily housing, particularly larger owners, with known lead-based paint hazards who are likely not to have disclosed this information during sale or rental, for Lead Disclosure Rule enforcement action;
- Review evidence and perform monitoring of lead hazard control work performed under settlement agreements, as part of case development and management of settlement agreements;
- Analyze data from HUD program offices on the number of assisted housing units made lead safe through implementation of HUD's Lead Safe Housing Rule, and provide technical support to these Program Offices' compliance monitoring efforts;
- Track the number of units made lead-safe through Lead Disclosure Rule enforcement and Lead Safe Housing Rule compliance; and

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- Maintain and update guidance, toolkits, outreach documents and other materials and resources supporting implementation of the Lead Safe Housing Rule by program offices, housing providers, and residential property owners and managers.

Funds for these programs, in addition to producing safe and healthier homes for at-risk families, address critical housing quality needs in local communities by:

- Conducting applied research into interventions that promote health outcomes;
- Developing standardized methods for the assessment and control of housing-related health hazards;
- Mainstreaming of healthy housing principles into ongoing practices and programs;
- Incorporating healthy housing principles into green construction and rehabilitation;
- Evaluating the effectiveness of interventions targeting mold/moisture problems;
- Implementing a national strategy for healthy homes outreach;
- Building local capacity for evaluating and enforcing lead and healthy homes laws and codes; and
- Developing training to build healthy homes capacity and competency for partners, practitioners, and the public.

The requested funding will continue the significant progress we have made to further our understanding of housing conditions and their connection to residents' health, but also for identifying effective interventions and preventive measures, and demonstrating health benefits of targeting interventions to reduce or eliminate health hazards in homes.

Specifically, HUD will:

- Promote comprehensive approaches to controlling and preventing major housing-related exposures and hazards;
- Work with other federal partners to implement a comprehensive federal strategy to promote healthy homes;
- Identify and eliminate barriers that impede collaboration and complicate assisting those in need of federal technical assistance and/or funding; and
- Collaborate with key federal and non-federal stakeholders to implement healthy homes programs at the community level.

Additionally, HUD will:

- Work with other federal, state, local, and private partners, to eliminate lead poisoning in low-income and at-risk children nationwide as a major public health problem;
- Work to achieve meaningful reductions in the number of low-income homes with the most serious health and safety hazards;
- Promote the use of a risk assessment method that identifies and prioritizes housing conditions that pose serious threats to vulnerable low-income residents;
- Ensure that our grantees eliminate the most severe hazards that threaten families and children in a cost-effective manner

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- Work to reduce overall disparities – regarding race, ethnicity, and socio-economic status – in the risk of exposure to lead and other health and safety threats to children.

2. What is this program?

Over the past several years, the importance of the housing stock to the nation's economy has become increasingly evident. Housing, as a financial and national asset, has never been more important. Homes and health are inextricably linked together, reflect two of the most basic needs of a society, and serve as an indicator of the strength of the nation. The fact that improved housing quality results in improved health has been accepted since the mid-19th century (Lowry, 1991). Substandard housing affects communities through wealth depletion, an increase in abandoned properties, and housing instability. While unhealthy and unsafe housing continues to affect the health of millions of people from all income levels, geographic areas, and walks of life, susceptible and vulnerable populations, such as children, the poor, minorities, and people with chronic medical conditions are disproportionately impacted by inadequate housing. Furthermore, low-income persons are more likely to lack resources for preventive measures in the home, and deferred maintenance can lead to the development and persistence of residential health hazards. Improving housing quality can have a dramatic effect on the health of residents.

The mission of the Office of Healthy Homes and Lead Hazard Control is to provide safe and healthy homes for at-risk families and children by promoting and funding housing repairs to address conditions that threaten the health of residents, coordinating disparate health and housing agendas, supporting key research, targeting enforcement efforts, and providing tools to build sustainable local programs that mitigate housing-related health hazards.

The OHHLHC assists states and local governments in remedying the unsafe housing conditions and the acute shortage of decent and safe dwellings for low-income families. The OHHLHC currently manages approximately 250 active grants making low-income homes safer and healthier. The OHHLHC's Lead Hazard grant programs have created about 200,000 lead-safe units from this funding, and tens of thousands more from leveraged resources from this funding, and have provided critical education, outreach, and scientific research that has improved the quality and efficacy of the evaluation and control of lead-based paint hazards. Staff provides daily interaction through technical assistance and guidance to communities implementing lead and healthy homes programs that directly contribute to improved health of children and their families.

The OHHLHC also uses the Lead Hazard Control grant program model in offering Healthy Homes Production funds to repair housing conditions that pose significant threat to at-risk families and children. Lastly, the OHHLHC's successful lead and healthy homes research programs continue to provide scientifically validated support for the approaches the Office recommends to its grantees and, more broadly, to HUD housing programs and to home owners, housing managers and tenants nationwide.

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HUD expects the following outcomes as part of its work:

1. Reduction in the number of children who sustain fatal and non-fatal injuries in the home.
2. Reduction in the blood-lead reference level of children under age 6 that the CDC defines as elevated.
3. Reduction in the number of homes with moderate or severe physical hazards as determined by the American Housing Survey.
4. Improved asthma control among children through multifaceted interventions that include mitigation of indoor asthma triggers.
5. Increased number and percentage of new and existing homes with radon-reducing features, especially in high radon areas.
6. Increased percentage of homes with working carbon monoxide (CO) and smoke alarms.
7. Increased percentage of smoke-free homes, including in HUD-assisted housing.

The Department's mission to develop and preserve quality, healthy, and affordable homes is directly connected to OHHLHC program funding. In addition, this funding supports the Department's goal of utilizing housing as a platform for improving quality of life and eliminating housing-related hazards that threaten the health of thousands of the nation's most vulnerable residents. The OHHLHC programs have a demonstrated history of success, filling critical needs in communities where no other resources exist to address substandard housing that threatens the health of the most vulnerable residents. These efforts include:

- HUD, through its Healthy Homes and Lead Hazard Control programs, continues to be the national leader in the effort to eliminate lead poisoning in children nationwide as a major public health problem. Low-income residential units made lead-safe and healthy by HUD's grant programs are supplemented by units remediated by its regulatory enforcement actions, through our innovative public-private partnerships like the Safe and Healthy Homes Investment Partnership (SHHIP) program, and through collaborative efforts with other federal agencies such as the Department of Energy, under its Weatherization Plus Health initiative.
- The OHHLHC is playing a leadership role in implementing the Coordinated Federal Action Plan to Reduce Asthma Disparities, released by HUD Secretary Donovan, HHS Secretary Sebelius, EPA Administrator Jackson, and CEQ Chair Sutley on May 31, 2012. Following up on its active involvement in developing the Asthma Disparities Action Plan, HUD's focus is now on instituting and promoting policies and practices for housing interventions to control asthma triggers in both federally assisted and non-assisted low-income housing.
- The OHHLHC organized and managed the development of the overall federal healthy homes strategic plan, *Advancing Healthy Housing – A Strategy for Action*, released by HUD Secretary Donovan, EPA Administrator Jackson, Surgeon General Benjamin, and Deputy Secretary of Energy Poneman, and CEQ Chair Sutley on February 4, 2013. The Strategy for Action presents a vision for addressing the nation's health and economic burdens caused by preventable hazards associated with the home, and outlines the pathway for federal agencies to take coordinated preemptive actions that will help reduce the number

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of American homes with health and safety hazards. The goals of the Strategy for Action are to: Establish and encourage adoption of healthy homes recommendations; Create and support training and workforce development to address health hazards in housing; Educate the public about healthy homes; and Support research that informs and advances healthy housing in a cost-effective manner. The Strategy was developed by the federal Healthy Homes Work Group, chaired by HUD, specifically, by the OHHLHC, and the Work Group is monitoring its implementation.

These programs directly support two of HUD's 5 Strategic Plan 2010-2015 goals: subgoal 3b—Utilize HUD assistance to improve health outcomes; and subgoal 4b—Promote energy-efficient buildings and location efficient communities that are healthy, affordable, and diverse. The OHHLHC programs directly underpin subgoal 3b through targeted housing interventions to reduce the severity and prevalence of asthma in children, and subgoal 4b by reducing the number of homes in the United States with significant environmental health and safety hazards such as mold and moisture, lead-based paint, poor indoor air quality, radon, and pest infestations.

Salaries and Expenses (S&E) and Full-Time Equivalent (FTE) Request

The Office of Healthy Homes and Lead Hazard Control (OHHLHC) is requesting 59 FTE in fiscal year 2014, an increase of 3 FTE from the actual level of 56 FTE fiscal year 2012. The increase in FTEs will ensure that the OHHLHC has adequate staff to provide technical assistance and program oversight to the expected increase in grants to communities for the control of lead-based paint hazards and other health and safety hazards in housing. Total S&E funding is \$7.64 million, which is an increase of \$468 thousand from the actual fiscal year 2012 amount of \$7.17 million. Personnel services funding is \$7.39 million, which is an increase from the actual fiscal year 2012 amount of \$483 thousand, reflecting the cost of salary and fringe benefits.

Non-personnel services are decreased from the actual fiscal year 2012 amount of \$268 thousand to \$254 thousand, which is a \$15 thousand reduction.

Workload by Function

1. All activities associated with management of grant programs to control lead-based paint hazards and other health and safety hazards in housing, including developing Notices of Funding Availability, reviewing grant applications and negotiating and executing grants. This accounts for the majority of FTEs at 25.8 (45 percent).
2. All activities associated with the development of research plans and scientific evidence-based policies needed for office activities and the activities of grantees, contractors, and HUD-regulated entities. Includes drafting and review of regulations and codes, and strategic planning. This accounts for 6 FTEs (11 percent).

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3. All activities associated with enforcement of Lead Disclosure Rule and Lead Safe Housing Rule to include, but not limited to: targeting, case development, prosecution, coordination with CDC and EPA; and providing training and technical assistance to housing owners. This accounts for 9 FTEs (16 percent).
4. Activities related to development and implementation of outreach and training on Healthy Homes activities; Plan and execute a comprehensive national education and communications program for the general public and other consumer audiences. This accounts for 9 FTEs (16 percent).
5. All business operations and management activities associated with managing the day-to-day operations of the Office. This accounts for 5 FTEs (9 percent).
6. All activities associated with the development and execution of contracts and Interagency Agreements (IAAs). This accounts for 2 FTEs (3 percent).

3. Why is this program necessary and what will we get for the funds?

The Need for Healthy Housing

OHHLHC programs have contributed substantially to the reduction in childhood lead poisoning cases from the early 1990s to today (CDC, 2005; CDC 2012), because the most important preventable exposure sources for children are lead hazards in their residential Environment: deteriorated lead paint, house dust, and lead-contaminated soil. In May 2012, based on an extensive review of research on health effects of lead, the U.S. Centers for Disease Control and Prevention redefined the level at which children are considered to have too much lead in their blood in January 2012, from a "level of concern" (a blood lead level of 10 micrograms of lead per deciliter of blood ($\mu\text{g}/\text{dL}$) in a child under age 6) to a new "blood lead reference range value" based on the distribution of blood lead levels among U.S. children under age 6, specifically, the cutoff for the top 2.5 percent of these children (CDC ACCLPP, 2012; CDC, 2012). CDC's National Health and Nutrition Examination Survey indicates that this reference range value is currently 5.0 micrograms per deciliter.

The halving of the threshold (from 10 to 5 $\mu\text{g}/\text{dL}$) in response to the health research increases the number of children considered to have too much lead in their bodies from less than 100,000 to about 535,000.

Because lead-based paint hazards are the primary source of childhood exposure to lead in the U.S, and because lead paint is present in one-third of the nation's dwellings (Jacobs et al. 2002), continued investment is needed to reduce lead hazards in older homes. This funding will be used to protect children against lead exposure by targeting the highest risk properties for priority action, to ensure that lead-safe practices are followed during renovation, repair and painting of pre-1978 homes, and to eliminate lead-based

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paint hazards in as many pre-1978 homes as feasible. Of homes with lead-based paint hazards, 1.2 million are low-income households with one or more children under age six (Jacobs et al. 2002).

The OHHLHC's lead hazard control grants and lead regulatory enforcement efforts will reduce the exposure by young children – particularly those most at risk – to lead-contaminated paint chips, dust and soil. This will, therefore, reduce the blood lead level in these children, and, over time, contribute to moving the national distribution of children's blood lead values downward. More specifically, the cutoff for the top 2.5 percent of these children, the "reference range value," will decrease from 5.0 to 4.5 µg/dL over the course of the next 6 years, in accordance with the Healthy People 2020 blood lead level goal set by the U.S. Centers for Disease Control and Prevention, and to which HUD's program activities is contributing.

Low-income persons are more likely to lack resources for preventive measures in the home, and deferred maintenance can lead to the development and persistence of residential health hazards. Improving housing quality can have a dramatic effect on the health of residents. However, a summary of the Worst Case Housing Needs Report released by HUD in February 2013 indicates that the number of very low-income renters facing severe housing problems continues to grow. In 2011, nearly 8.5 million households had worst case housing needs, up from 7.1 million in 2009. This represents a 19 percent increase since 2009 and 43 percent since 2007. Worst case needs are defined as renters with very low incomes (below half the median in their areas) who do not receive government housing assistance and who either paid more than their monthly incomes in rent, lived in substandard conditions, or both. Housing needs cut across all regions of the country and included all racial and ethnic groups, regardless of whether they lived in cities, suburbs, or rural areas. In addition, large numbers of worst case needs were also found across various household types including families with children, senior citizens, and persons with disabilities.

The rise in hardships among renters is due to substantial increases in rental housing demand and weakening incomes that increased competition for already-scarce affordable units. As a result, the gap between the number of affordable units that were available for very low-income renters and the number of renters who need these units not only failed to improve in percentage terms, but worsened in absolute terms. The number of affordable and available rental units decreased to 65 units per 100 very low-income renters and 36 units per 100 extremely low-income renters. (U.S. Department of Housing and Urban Development, Office of Policy Development and Research, February 2013).

Unhealthy and unsafe housing continues to affect the health of millions of people from all income levels, geographic areas, and walks of life in the United States; however, these hazards disproportionately impact children, the poor, minorities, people with medical conditions, people with disabilities, and older adults.

- About 23 million housing units have one or more lead-based paint hazards. Of these homes, 1.2 million are low-income households with one or more children under age 6, the age group most sensitive to lead poisoning. Further, low-income households are least able to afford to control these hazards (Department of Housing and Urban Development, 2009). Low-income children, Black children, and Hispanic children are at higher risk (Centers for Disease Control and Prevention, 2005a).

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Multivariate analysis indicates that residence in older housing, poverty, age, and being Hispanic or black are still major risk factors for higher lead levels. To maintain progress made and eliminate remaining disparities, efforts must continue to test children at high risk for lead poisoning, and identify and control sources of lead. Coordinated prevention strategies at national, state, and local levels will help achieve the goal of eliminating lead poisoning in children.

- According to the most recent data available, more than 6.8 million housing units have radon exposures above the current EPA action level; radon causes 21,000 deaths per year from lung cancer attributable to this preventable hazard (Environmental Protection Agency, 2003).
- Approximately 17 million homes have elevated levels of 4 or more allergens, which have been associated with symptoms among residents with allergic asthma (Department of Housing and Urban Development, 2009).

The Cost Burden of Unhealthy Housing

Researchers estimate that the health effects of poor housing conditions could cost billions of dollars annually in healthcare for asthma, lead-based paint poisoning and injury, as well as lost productivity in the labor force (Landrigan, Schechter, Lipton, Fahs and Schwartz, 2002). Reductions in the Lead Hazard Reduction funding would significantly reduce the OHHLHC's ability to reduce these costs through housing repairs and to provide safe, decent and sanitary homes for the most at-risk American families. The OHHLHC programs play an important part in reducing the nation's health care costs.

- A 2011 study of the total annual costs of pediatric disease in American children estimated that the total cost of lead poisoning in 2008 was \$50.9 billion (Trasande and Liu, 2011).
- Besides the physical toll an at-risk home can have on its inhabitants (e.g., unnecessary emergency room visits annually due to housing related injuries and illness), some research suggests that the cumulative financial burden of unhealthy homes for the nation is considerable. For example, one study estimates the total (direct and indirect) cost for unintentional injuries in the home is over \$200 billion annually, with \$90 billion of that due to falls alone (Zaloshnja, Lawrence, and Romano, 2005). Nearly 30 percent of residential injuries among children in a randomized controlled trial were found to be preventable through interventions (Phelan, Khoury, Xu, Liddy, Hornung, and Lanphear, 2011). If the same proportion of preventable injuries were found for adults, the annual cost of preventable injuries in the home would be about \$60 billion.
- One study finds that the costs for asthma due to one root cause in the home - dampness and mold - could be \$3.5 billion annually (Mudarra and Fisk, 2007). Other modifiable childhood asthma risk factors within the home (e.g., pet dander, cockroach allergen, use of stove or oven for home heating) were estimated to cost nearly \$1 billion (Lanphear, Aligne, Auinger, Weitzman, Byrd, 2001).

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- Childhood lead exposures were estimated to cost over \$55 billion in 2008 (based on inflation from the estimated cost for 2000) for direct medical costs and indirect costs due to future lost productivity and earnings resulting from cognitive impairment, with the majority of childhood lead poisoning attributable to exposure to lead-based paint hazards in the home (U.S. Environmental Protection Agency, 2000). Another study suggests that an estimated 70 percent of lead poisonings were due to dust exposures from lead-based paint in the home, which is completely preventable (Gould, 2009).

The potentially high health-related costs of unsafe housing are matched by significant and enduring social costs. Researchers find a clear relationship between elevated blood lead among children and their cognitive and behavioral impairment. “Even low levels of exposure appear to lower children’s IQ, which increases the need for enrollment in special education services, reduces the likelihood of high school and college graduation, lowers lifetime earnings (both through educational and IQ pathways), and greatly increases their propensity to engage in violent criminal activity” (Gould, 2009).

Studies of interventions similar to those funded by OHHLHC programs suggest that for every dollar spent on controlling residential lead hazards, between \$17 and \$221 are returned in health benefits, increased IQ, higher lifetime earnings, tax revenue, reduced spending on special education, and reduced criminal activity (Gould, 2009). Another study estimates the return on investment per dollar spent on multifaceted home interventions for asthma similar to those in grants funded by HUD is between \$5.30 and \$14.00 (Nurmagambetov et al., 2011). The returns on investment for categories of lead hazard control and asthma programs similar to those funded by HUD are higher than or comparable to that for vaccination against the most common childhood diseases, which is between \$5.30 and \$16.50 per every dollar spent (Zhou, Santoli, Messonnier, Yusuf, Shefer, and Chu, 2005).

Data from the American Housing Survey and the American Healthy Homes Survey indicate that over 30 million U.S. housing units have significant physical problems, lead paint hazards, radon, or other health and safety hazards that place their occupants at risk for illnesses and injuries. Funding this program will reduce the number of lead poisoned children by targeting lead hazard control in nearly 9,000 low-income substandard homes, and will indirectly reduce medical costs and improve the economy by reducing lost days at work due to illness and injury caused by unsafe housing conditions, and reducing children’s lost school days. The program has been extremely successful in reducing lead poisoning and other environmental housing-related hazards that affect the health of children and families.

The Department will conduct a competitive grant competition to award funding. Every year, significantly more applications are received than can be awarded with the total funds available.

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Table 1: Fiscal year 2012 NOFA Summary

Program	# Applicants	Requested Amount	\$ Awarded
Lead Hazard Control	76	\$166,950,235	\$73,225,109
Lead Hazard Reduction Demonstration	14	\$41,298,810	\$32,298,810

NOTES: This oversubscription pattern (97 percent in fiscal year 2012) has prevailed for many years. HUD did not offer Healthy Homes Production grants in fiscal year 2012 because of insufficient funding available.

Without the funds from these grant programs, local communities would be less equipped to address the critical needs they face in providing decent, safe and sanitary housing for their citizens, potentially forcing thousands of low-income families to live in housing that threatens their health, and often their lives, with unsafe and unhealthy housing conditions. While we have expanded the scope and network of successful local programs, if we fail to maintain these programs, we run the risk of losing momentum and slipping behind in our goals to protect children and families.

4. How do we know this program works?

Unsafe and unhealthy homes affect the health of millions of people of all income levels, geographic areas, and walks of life in the U.S., and affect the economy directly through increased utilization of health care services and indirectly through lost wages and increased school days missed. Housing improvements help prevent injuries and illnesses, reduce associated health care and social services costs, reduce absentee rates for children in school and adults at work, and reduce stress, all which help to improve the quality of life.

The OHHLHC's program funds have contributed to the understanding of housing conditions and their connection to residents' health; identified effective interventions and preventive measures; and demonstrated the health benefits of targeting interventions to reduce or eliminate health hazards in homes. For example:

- Peer-reviewed research in the National Evaluation of HUD's Lead Hazard Control Grant Program, which was a formal, prospective study funded by HUD of three years of HUD's lead hazard control grants, including assessments of lead hazards, types of hazard control work conducted, the effects of the work on reducing paint-lead, dust-lead and soil-lead hazards, and on the blood lead levels of children under age 6 in treated units, has demonstrated that the controls used in those grants, which are also used in other HUD assistance programs, are effective in reducing lead hazards for at least 6 years, and in reducing blood lead levels. (See, for example, Dixon et al., 2004; Clark et al., 2004a; Clark et al., 2004b; Dixon et al., 2005; Wilson et al., 2006; Clark et al., 2011.)

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- The State of Michigan used OHHLHC Healthy Homes Program funds to pilot an in-home environmental public health program for low-income families in Lansing, Michigan, which resulted in a substantial reduction in the impact of asthma on children in the pilot project. Documented results included significant reductions in:
 - unscheduled visits to healthcare providers;
 - emergency department visits;
 - hospitalizations;
 - days children were affected by asthma symptomatology; and
 - missed school days due to asthma.

- The City of San Diego used OHHLHC Healthy Homes Program funds to remediate 228 units:
 - Of the 228 households, 49.1 percent visited emergency room or urgent care center for asthmatic symptoms before the intervention. This was reduced significantly after the intervention as only 28.7 percent of the children needed to visit emergency room or urgent care center because of their asthmatic symptoms.
 - The degree of mold was significantly decreased after the intervention with 82.2 percent households that had a mold problem in kitchen showed no mold and 77.8 percent of households with a mold problem in the bathroom showed no mold.
 - With use of Integrated Pest Management control, there was significant improvement for cockroach problems. At pre-intervention, 79.8 percent of households had some sort of cockroach problem; at the 6 month post-intervention assessment, it was reduced to 26.8 percent, a reduction of 53 percentage points.
 - The low cost interventions resulted measured 6 months after the intervention showed a 60 percent reduction of hospital visits and a 48 percent reduction of overnight hospital visits.
 - At the time baseline measures were collected, participants reported an average of 4.01 doctor's office or clinic visits for urgent treatment of worsening asthma symptoms within the past year. One year after the intervention, participants reported an average of 2.23 emergency department visits, which is a 44 percent reduction from the baseline rate.
 - Results showed a statistically significant reduction in asthmatic symptoms. Before the intervention, 166 parents (78.3 percent) reported that their children had asthma or asthmatic symptoms during daytime. After 180 days, 68.1 percent of participating families reported that their children did not experience asthma or asthmatic symptoms during daytime to the post-intervention assessment.

- A randomized controlled trial funded with OHHLHC Healthy Homes Program funds in Cleveland, OH (Cuyahoga County and Case Western Reserve University) demonstrated significant improvement in asthma symptoms (including reduced acute care usage) among children following remediation focusing on mold and moisture problems in their homes.

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- An OHHLHC Healthy Homes Program grant in Gary, IN (Purdue University) demonstrated that integrated pest management (IPM) treatments led to significant reductions in cockroach populations and cockroach allergen loadings in heavily infested units of public housing.
- In Seattle, WA, an OHHLHC Healthy Homes Program grant to non-profit “Neighborhood House” and partners was used to upgrade 35 green-built public housing units (built through HUD’s HOPE VI Program) to “Breathe Easy Homes” with special features to improve indoor air quality and reduce indoor asthma triggers. Asthmatic children that were moved into these homes experienced significant improvements in asthma symptoms, including a reduced need for acute medical care.

The cost-effectiveness of lead and healthy homes interventions similar to those used by our grantees is well-documented by research:

- A 2011 study of childhood lead poisoning suggested that it accounted for, annually, \$5.9 billion in medical costs and \$50.9 billion in lost productivity due to cognitive impairment in 2008 (Trasande and Liu, 2011). Another researcher estimated that for every dollar spent on controlling lead hazards, \$17–\$221 would be returned in health benefits, increased IQ, higher lifetime earnings, tax revenue, reduced spending on special education, and reduced criminal activity (Gould, 2009).
- A study of the costs of childhood asthma from man-made environmental sources, both indoors and outdoors, estimated \$7 billion in direct and indirect costs in 2008 (Trasande et al, 2011). Outdoor sources are important to consider in the healthy homes context; poorly maintained and inadequately sealed homes will permit higher infiltration rates of outdoor air into the home. Exposure to dampness and mold in homes alone is projected by some researchers to contribute to approximately 21 percent of current asthma cases in the United States, at an annual cost of \$3.5 billion (Mudarri and Fisk, 2007). The side effects include 10 million lost school days and 2 million emergency room visits every year (National Institutes of Health, 2007). Another study suggests that for every \$1 spent on asthma reduction programs (although not necessarily those funded by the OHHLHC), there is a \$5.30-\$16.50 return on investment (Nurmagambetov et al, 2011).
- Minor to moderate remediation of housing hazards attributed to asthma, such as reducing interior moisture and improving indoor air quality, results in a substantial return for money invested. Following the National Asthma Education Prevention Program’s (NAEPP) Expert Panel Report 3 (EPR3) guidelines concerning the need for environmental control measures for asthma, the Connecticut Department of Public Health conducted a study to explore the cost-effectiveness of housing interventions (although not necessarily those funded by the OHHLHC) directed at mitigating conditions that exacerbated asthma. Net savings at 6 months follow-up were estimated at \$26,720 per 100 participants due to decreases in unscheduled acute care visits for adults and children (Kimberly H. Nguyen, Eileen Boulay, & Justin Peng, 2010).
- Falls are the leading cause of non-fatal injuries for all children ages 0 to 19 and for adults 65 years of age or older (Home Safety Council, 2004). Every day, approximately 8,000 children are treated in U.S. emergency rooms for fall-related injuries.

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This approaches three million children each year. Research suggests that the total direct and indirect costs for unintentional injuries (e.g., falls, poisonings, fires) in the home have averaged over \$200 billion annually (Zaloshnja et al, 2005; Home Safety Council, 2004) with falls alone responsible for half of those costs (Home Safety Council, 2004). In 2000, the total direct cost of all fall injuries for people 65 and older exceeded \$19 billion. The financial toll for older adult falls is expected to increase as the population ages. Research suggests that fire and burn injuries represent 1 percent of the incidence of injuries and 2 percent of the total costs of injuries, or \$1.3 billion each year; fatal fire and burn injuries cost \$66 million, representing 6 percent of the total costs of all fatal injuries. According to the Home Safety Council, installing a smoke detector at an average cost of \$33 produces \$940 in benefits to the U.S. society (Home Safety Council, 2002). Exposure to radon gas in the home is attributed to 21,000 radon-related lung cancer deaths annually, resulting in \$2.3 billion in direct and indirect costs (Mason, 2010; U.S. EPA, 2003).

The following examples illustrate how Technical Studies and Programmatic Support contribute to a reduction in lead poisoning in children:

- Demonstrating that lead abatement is not required in most instances as the method needed to control lead-based paint hazards in both the short and long terms; instead, less expensive interim control measures including clearance examinations when they are completed, were shown to be effective both immediately in reducing lead exposures (i.e., dust-lead levels) and children's blood lead levels, and in maintaining the reduced lead exposures for the long term, with studies of up to 12 years after intervention.
- Identifying the patterns of the prevalence of lead-based paint hazards, and allergens (allergy-inducing substances) in housing, and demonstrating the demographic and economic differences among U.S. subpopulations and geographic areas, thus allowing improved focusing of the strategies for addressing these housing conditions.
- Performing an analysis of data collected through the CDC's National Health and Nutrition Examination Survey that provided the main basis for evidence that the current federal dust-lead standards do not appear to be adequately protective, prompting their reexamination by the EPA.
- Maintaining an archive of test materials (i.e., thoroughly analyzed architectural components from older homes) that are used to test and characterize the field performance of X-Ray Fluorescence (XRF) analysis instruments in order to determine how they can be used in conducting residential lead-based paint inspections. Two new instruments were scheduled for testing in 2013.

Information Technology Portfolio Improvements

The new OHHLHC grants management cloud computing system is expected to increase automation of data collection, grants administration, and processing that allows for reductions in FTEs. Beginning in fiscal year 2013, and with revisions to this HUD

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operated system in fiscal year 2014, the use of cloud services for the OHHLHC grants program will reduce the use of servers and increase the stability of the system, make it more accessible to grantees, and reduce maintenance and operational costs. Using these cloud services will reduce reliance on contractors to maintain and modify the system and expedite adding and updating data fields and structure.

Lead Hazard Reduction

**HEALTHY HOMES AND LEAD HAZARD CONTROL
LEAD HAZARD REDUCTION
Summary of Resources by Program
(Dollars in Thousands)**

<u>Budget Activity</u>	<u>2012 Budget Authority</u>	<u>2011 Carryover Into 2012</u>	<u>2012 Total Resources</u>	<u>2012 Obligations</u>	<u>2013 Annualized CR</u>	<u>2012 Carryover Into 2013</u>	<u>2013 Total Resources</u>	<u>2014 Request</u>
Lead Hazard Control								
Grants	\$75,201	...	\$75,201	\$73,225	\$62,883	\$1,977	\$64,860	\$90,400
Operation LEAP .....	...	...	...	...	...	...	...	...
Technical Studies	2,500	\$4,278	6,778	1,830	2,515	4,948	7,463	4,000
Healthy Homes	10,000	4,017	14,017	12,840	10,061	1,177	11,238	25,000
Lead Hazard Reduction								
Demonstration	32,299	...	32,299	32,299	45,275	...	45,275	...
Transformation								
Initiative .....	...	...	...	...	...	...	...	600
Total	120,000	8,295	128,295	120,194	120,734	8,102	128,836	120,000

NOTES: The fiscal year 2013 Budget Authority is equal to the fiscal year 2012 Budget Authority multiplied by 1.00612. Amounts may differ from amounts shown in President’s Budget Appendix due to rounding.

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**HEALTHY HOMES AND LEAD HAZARD CONTROL
LEAD HAZARD REDUCTION
Appropriations Language**

Below is the italicized appropriations language for the Lead Hazard Reduction account.

For the Lead Hazard Reduction Program, as authorized by section 1011 of the Residential Lead-Based Paint Hazard Reduction Act of 1992, \$120,000,000, to remain available until September 30, 2015: Provided, That up to \$25,000,000 of that amount shall be for the Healthy Homes Initiative, pursuant to sections 501 and 502 of the Housing and Urban Development Act of 1970 that shall include research, studies, testing, and demonstration efforts, including education and outreach concerning lead based paint poisoning and other housing-related diseases and hazards: Provided further, That for purposes of environmental review, pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.) and other provisions of the law that further the purposes of such Act, a grant under the Healthy Homes Initiative or the Lead Technical Studies program under this heading or under prior appropriations Acts for such purposes under this heading, shall be considered to be funds for a special project for purposes of section 305(c) of the Multifamily Housing Property Disposition Reform Act of 1994: Provided further, That amounts made available under this heading in this or prior appropriations Acts, and that still remain available, may be used for any purpose under this heading notwithstanding the purpose for which such amounts were appropriated if a program competition is undersubscribed and there are other program competitions under this heading that are oversubscribed.

Note.—A full-year 2013 appropriation for this account was not enacted at the time the budget was prepared; therefore, the budget assumes this account is operating under the Continuing Appropriations Resolution, 2013 (P.L. 112–175). The amounts included for 2013 reflect the annualized level provided by the continuing resolution.