

The East Baltimore Revitalization Initiative

RESPONSIBLE REDEVELOPMENT



Responsible Demolition: *A Baltimore Case Study with National Implications*

Since 2002, the Annie E. Casey Foundation has played a leading role in the East Baltimore Revitalization Initiative, a large-scale, innovative effort to transform a deeply distressed 88-acre area adjacent to the Johns Hopkins University and Hospital complex into a mixed-income residential community and engine of economic opportunity for both long-time and new residents. The initiative will include new and rehabilitated housing, new commercial space, including a research park, a state-of-the-art elementary-middle school, a grocery store and other retail outlets, as well as new public space and recreational amenities.

The East Baltimore project embraces a commitment to what the Casey Foundation calls “Responsible Redevelopment,” an approach that combines economic, community and human development strategies to provide area residents, businesses and the surrounding neighborhoods with the maximum benefit from the revitalization efforts.

This report is one of a series produced by the Casey Foundation to document the progress and lessons generated by the project.

The project is managed by East Baltimore Development Inc. (EBDI)—a nonprofit entity that has assembled a broad, cross-sector partnership that includes Casey, the Johns Hopkins Institutions, the City of Baltimore, the State of Maryland, community representatives and local and national philanthropies.

The partners have committed to ensuring that the project is focused not just on physical improvements but is also committed to expanding opportunities for residents of the area. To do that, the partners are making sure the project:

- Involves residents in a consequential way in planning, design, and implementation;*
- Offers intensive family advocacy and support to families forced to relocate;*
- Provides more equitable compensation than has been typical in redevelopment projects to families that relocate;*
- Ensures that relocated residents have the right and ability to return to the revitalized community;*
- Provides training and job readiness for community residents to help them secure jobs created by the redevelopment project;*
- Increases opportunities for local, minority- and women-owned businesses to obtain project contracts; and*
- Uses strict safety protocols to minimize the health hazards for residents of neighborhoods affected by demolition activities.*

Responsible Demolition: A Baltimore Case Study with National Implications

A NEW APPROACH TO DEMOLITION

Projects such as the one in East Baltimore that aim to redevelop blighted urban communities present a complex challenge that involves land acquisition, financing, relocation of dislocated residents and businesses, zoning, permitting, construction, leasing, and more.

These challenges become even more demanding when redevelopment officials commit themselves to treating residents of affected neighborhoods equitably—giving them a voice in the process, taking their concerns seriously and providing them with the additional support and assistance they need to emerge as beneficiaries of redevelopment.

Such projects inevitably lead to difficult and complex questions, but one aspect of the redevelopment puzzle would seem straightforward: Whatever else it does, redevelopment should not expose neighborhood residents to physical health hazards, even as we acknowledge that redevelopment can also have negative psychological and other impacts on residents.

Yet, remarkably, no such consensus exists nationwide today. Despite clear-cut evidence that poorly supervised demolition can exacerbate lead contamination and other environmental health hazards in affected neighborhoods, few meaningful safety requirements are imposed on demolition practices employed nationwide.

In the East Baltimore Revitalization Initiative, community residents and local advocates have worked with the Casey Foundation and other project leaders to change that reality. This paper describes their efforts and details how they succeeded in instituting practices that sharply reduced the risk of adverse health consequences from the demolition of several hundred East Baltimore homes.

In addition, the paper describes how the responsible demolition protocols developed for the East Baltimore project are being adopted or studied in other jurisdictions, and it offers lessons from East Baltimore's efforts on responsible demolition for policymakers, advocates and redevelopment professionals throughout the nation.

■ How Poorly Managed Demolition Exacerbates Lead Poisoning and Threatens Public Health

Over the past half-century, the United States has grown increasingly attentive to the crippling health effects of lead poisoning, which can include learning disabilities, lowered intelligence and behavioral disorders following even modest levels of exposure. At higher levels of exposure, lead poisoning can trigger seizures, comas and other severe neurological illnesses.

America's efforts to combat childhood lead poisoning represent one of the most successful public health campaigns in history. The percentage of U.S. children ages one to five with elevated blood levels has fallen from 88.2 percent in the late 1970s to 1.6 percent in the period between 1999 and 2002. Key steps included outlawing the use of lead in paint and gasoline in the 1970s, the enactment of state and local ordinances to make housing lead-safe and increasingly ambitious strategies to screen for and treat lead poisoning.

Until recently, however, little attention has been paid to demolition as a cause of lead exposure. Most homes in the United States built before 1978 contain lead-based paint. When these older homes are in good repair and covered neatly with more modern lead-free paint, the older lead paints pose minimal health risks. However, demolishing these homes can release substantial amounts of lead-contaminated dust and paint chips into the surrounding environment.

In 2003, researchers at Johns Hopkins University published the first detailed study on demolition's contribution to lead poisoning. The study examined three sites—all of them in East Baltimore (although not part of the East Baltimore Revitalization Initiative)—where row houses were razed using typical demolition practices that did not include meaningful safeguards. The study found that lead dust levels in the air were 40 times higher during demolition and six times higher when removing debris.

“Demolition needs to be conducted in a manner that minimizes lead exposure for residents, workers, and the environment so that the process of redevelopment does not exacerbate existing risks of lead poisoning,” the scholars concluded.

Other recent research also documents the health hazards of demolition in low-income urban neighborhoods. A [2007 study](#) led by a Tulane University public health researcher found that children living in low-income St. Louis areas that had experienced substantial levels of demolition activity showed significantly higher levels of lead in their blood than children in demographically similar neighborhoods where little or no demolition had taken place.

Despite such findings, federal laws and regulations provide no protections to ensure that lead exposure is minimized during demolition (though Occupational Safety and Health Administration regulations offer some protection for demolition workers). Likewise, states or municipalities typically do not require contractors to take special precautions in the demolition process to minimize lead exposure in the surrounding area, and such precautions are not standard demolition practice in most urban areas.

In their 2003 study of demolition of East Baltimore row houses, the Johns Hopkins scholars noted that work crews made limited use of spraying down demolition sites with water—an important technique for limiting dust spread during demolition—and they used none at all when removing debris. Moreover, the authors reported, “Children and adults were seen walking through the site and on the debris pile during and immediately after the active work phase. Residents also reported that windows of neighboring houses were left open and that laundry and pets remained outside during demolition work.” Likewise, another recent study examined the demolition of 67 homes in Chicago. Work crews did not place any barriers or fencing around the sites and made limited use of spraying and other dust suppression techniques.

In the summer of 2004, an intern with the Baltimore City Department of Housing and Community Development surveyed public works officials from a dozen cities across the country and found that none had established rules or protocols for demolition to minimize the spread of lead dust. Indeed, the East Baltimore Revitalization Initiative could not identify detailed protocols anywhere in the nation requiring specific procedures to minimize lead dust during demolition and protect neighbors from lead exposure. Nor has any other city adopted protocols to address the other health hazards posed by demolition, including asbestos, rats and other vermin, and nontoxic dust that can exacerbate asthma and other respiratory problems.

■ How Demolition Safety Became a Key Element of the Revitalization Agenda in East Baltimore

From the time that residents learned that demolition would take place, it became a concern for residents, one that they continued to bring to the attention of planners of the East Baltimore Revitalization Initiative. Planners came to understand that demolition would have to be carried out carefully to assuage community concerns and minimize potential health hazards. In a series of meetings in 2004 and 2005, residents and local advocacy groups made clear that demolition safety was one of their major concerns with the redevelopment. They were apprehensive for several reasons.

- East Baltimore continues to have troubling levels of childhood lead poisoning—the highest of any community in Maryland. Baltimore is also home to a nationally renowned advocacy organization, the Coalition to End Childhood Lead Poisoning, which has spent years educating residents about the dangers of lead poisoning and advocating for policies and programs to protect residents.
- East Baltimore was the site of the groundbreaking Johns Hopkins University study documenting demolition’s effect on lead poisoning, which is mentioned above. The study came to the attention of residents just as the demolition phase of the East Baltimore redevelopment project was set to begin.
- The community had often tense relationships with the Baltimore City government and the Johns Hopkins Medical Institutions. Many community residents harbored resentments over what they perceived to be decades of neglect and broken promises.

Mistrust was particularly high on the issue of lead poisoning due to a high-profile lawsuit filed in 2000 alleging that Johns Hopkins researchers treated East Baltimore children as “guinea pigs” in a 1990s study to test the effectiveness of alternative lead abatement strategies.

The community leaders intense focus on demolition was due in part to the commitment the Casey Foundation, city officials and Johns Hopkins officials made to include residents in the process. These institutions promised that neighborhood residents would have a voice in the project, and residents and their advocates played a central role in devising the project’s unusually comprehensive package of relocation benefits and assistance. As a result, residents expected to have their concerns addressed in other aspects of the redevelopment plan, especially in areas affecting their health, including demolition.

■ Developing Responsible Demolition Protocols

As demolition risks generated community concern, project leaders refocused on the issue and undertook extensive planning and research to safeguard the demolition process.

The initial efforts, conducted by EBDI staff in consultation with researchers at Johns Hopkins University, focused on identifying basic procedures to minimize demolition-related health hazards. These included aggressive public outreach to inform and educate residents about planned demolition activity, extensive use of water hoses to reduce the spread of dust during demolition, the use of fencing and other barriers to contain lead-contaminated debris, and testing to monitor the impact of demolition.

Before this planning was completed, two faculty members of Morgan State University acting as consultants to the neighborhood’s key community organization, the Save Middle East Action Committee (SMEAC), called for demolition activity to be put on hold until safety guarantees were in place, a call that was also echoed by SMEAC.

Project leaders agreed to suspend demolition and intensified their efforts to ensure demolition safety. EBDI and its partners agreed to work toward guaranteeing that demolition would not harm residents and took several key steps to achieve that goal:



- EBDI convened focus groups and held community hearings, during which residents and advocates could voice their concerns and suggest how to handle demolition, much as they had done when the housing relocation plan was being developed.
- EBDI asked the Coalition to End Childhood Lead Poisoning to take a lead role in formulating the demolition plan and protocols. In January 2005, the Casey Foundation provided a grant to the coalition to intensify its work on the demolition protocols.
- The coalition conducted field tests to determine the merits of deconstructing homes piece by piece rather than leveling them. Although this method all but eliminated the spread of dust, it was deemed impractical. However, the project did adopt partial deconstruction in which workers removed doors, windows, mantels, banisters, railings and large pieces with high concentrations of lead paint before demolition.
- With input from neighborhood residents and outside experts, coalition and EBDI staff worked in 2004 and 2005 to refine the demolition plan and protocols, a process that included community presentations. In the spring of 2005, the initial version of the demolition protocols was completed.
- Project leaders convened an independent panel of outside experts to assess the demolition protocols in consultation with community residents, advocate for needed changes, and review test results measuring the amount of lead released into the neighborhood during demolition. With funding from the Robert Wood Johnson and John D. and Catherine T. MacArthur Foundations, the panel met several times with community members to answer questions related to demolition safety, discuss demolition protocols, review test results and relay community concerns to the project's sponsors.
- Finally, in response to the continuing concerns of community members and their advocates, project leaders revised the demolition schedule. Under the revised plan, EBDI agreed to postpone almost all of the demolition until all residents living in the project area had been relocated, a significant delay to the original demolition schedule. This new schedule was accepted even though it added substantial new costs and created new health and safety concerns in the community—including the potential for rat infestation of vacated properties and the need for substantial security presence to stave off crime and drug activity.

The only area where demolition proceeded as scheduled was a parcel that had 18 row houses on the site of the new biotechnology complex, the economic engine of the entire redevelopment project. This limited demolition, undertaken in July and August 2005, allowed for a test of the demolition protocols and was closely overseen by the independent panel.

■ Details of the EBDI Responsible Demolition Protocols

The demolition protocols developed for the East Baltimore Revitalization Initiative set a new national standard in the battle against lead poisoning, and, more broadly, in the field of responsible redevelopment. Specifically, the demolition protocols included several core elements:

- Adequate use of fencing, barriers and other means to limit casual entry to demolition sites until demolition is complete and all debris removed.
- Widespread notification to residents, community organizations, faith-based organizations and city agencies about when and where demolition would be happening, along with highly visible signage on the houses to be demolished.
- Training community block monitors to observe the demolition process and assist residents with questions and home safety measures.
- Four days of training on lead safety and related issues for demolition supervisors and two days of training for all other workers.
- Removal and safe disposal of building components containing high amounts of lead before demolishing buildings that were structurally sound.
- Using ample amounts of water throughout the process to reduce the spread of dust.
- Careful demolition using the “picker method” (instead of the more traditional wrecking ball, bulldozing or implosion methods) and high fencing to control the spread of debris and dust.
- Careful procedures for removing debris from demolished buildings, including use of hoses to suppress dust and plastic covering on trucks to ensure that debris and dust are contained during removal.
- Post-demolition street and sidewalk cleaning and debris removal.
- Removing two inches of topsoil on all properties where demolition has occurred and replacing it with new sod.
- Providing community residents with high-efficiency particulate air (HEPA) vacuums and “tack mats,” which remove dust from shoes as individuals enter the home, to reduce lead dust exposure in residents’ homes following demolition.
- Independent testing of the streets and sidewalks surrounding demolished properties to measure the impact of demolition and debris removal on the local environment.

■ Reducing Health Hazards

In September 2005, EBDI completed a pilot use of the demolition protocols, documenting the lead levels before and after the 18 row houses in the first site were razed. Airborne tests conducted by an independent contractor showed that lead levels remained below detectible limits both before and after demolition. Dust wipe tests on nearby streets and sidewalks were inconsistent, but overall they showed a small yet statistically significant increase in lead levels after demolition.

Following a much larger round of demolition in the summer of 2006, when EBDI razed an additional 504 buildings, more precise tests were conducted to calculate the amount of lead falling into small containers placed near the demolition sites. Results showed that lead levels rose only

RESPONSIBLE DEMOLITION SAFETY PROTOCOLS

Based on the work in East Baltimore, responsible demolition projects should adopt a specific set of protocols, which should include these key elements:

- 1.) *Effective community notification*, including prominent signs at the site well in advance of demolition, distribution of notices to neighbors throughout the surrounding area, and proactive community education efforts.
- 2.) *Adequate use of water* to minimize the amount of dust spread during demolition and debris removal.
- 3.) *Partial deconstruction* of homes: removing doors, windows, railings and other components with high amounts of lead before demolition.
- 4.) *Fencing and other barriers* to control the spread of dust during and after demolition and to keep children and other pedestrians away from condemned sites.
- 5.) *Picker method for demolition*, rather than wrecking ball, to minimize spread of dust and debris.
- 6.) *Prompt, careful debris removal with water* to reduce dust, covers on all trucks carting debris out of the neighborhood, and carefully defined exit routes for hauling away debris.
- 7.) *Replacing contaminated soil with new sod* to eliminate topsoil contaminated during the demolition process.
- 8.) *Independent testing* to measure the amount of lead dust emitted through demolition, including tests measuring lead accumulation.

The detailed demolition safety protocols drafted by EBDI and its partners are readily available to other communities. The protocols can be adopted by any community to minimize potential health hazards caused by demolition. The protocols have been posted online at www.eastbaltimorerevitalization.org. Also available there is the Final Report of the EBDI Independent Advisory Community Panel.

slightly as a result of demolition on the EBDI sites, remaining well within federally mandated guidelines for lead safety and representing a vast improvement from earlier test results that followed demolition conducted without safety protocols.

A 2008 study compared the results of the EBDI demolition procedures with other demolitions conducted without significant safeguards in Chicago (67 single family homes razed in 2006) and Baltimore (150 units of multi-family housing in 1999). This study showed that the Chicago demolition caused the average lead-dust accumulation on the ground to increase 15 times. The earlier demolition in Baltimore, unconnected to EBDI, caused a 40-fold increase in average lead-dust accumulation.

By contrast, the demolition that used the new protocols in East Baltimore led to an average lead-dust accumulation increase of 33 percent. Tests again showed no increase in airborne lead levels, while soil tests showed that lead levels actually decreased, due to the topsoil removal and sod replacement.

This study's authors concluded: "Control of lead dust from housing demolition is feasible and necessary...Large amounts of lead-contaminated dust are generated from housing demolition, but can be controlled using simple dust suppression to protect the public health."

While the independent panel did not analyze the costs associated with implementing the demolition protocols, the Coalition to End Childhood Lead Poisoning has estimated that these extra steps added less than 25 percent to the costs of demolition as compared with conventional practice.

A key factor in the protocols' success was their focus on giving timely information to residents in the area. Typically, demolition activities are undertaken without providing detailed and accurate information about the schedule to neighbors, and public education on the potential health impacts of demolition is rare. In some cases, reports David Jacobs, a nationally recognized expert on lead poisoning who served on the independent panel that oversaw the East Baltimore demolition process, demolitions can even become spectator events for community residents "where onlookers end up with a mouthful of [lead-contaminated] dust."

In East Baltimore, demolition protocols required visible signage to be posted around the affected area before the demolition and door-to-door notification of area residents. EBDI trained and paid workers to educate neighbors about the potential health hazards of demolition and teach them how to avoid danger by vacating their homes during the demolition, firmly closing all doors and windows, and cleaning up their homes following demolition using the special vacuums and doormats provided by EBDI.

■ Influencing Demolition Policies and Practices Beyond East Baltimore

The demolition safety efforts in East Baltimore yielded immediate results by safeguarding children and families near the project site. They are now a valuable resource in the effort to promote better demolition practices nationwide. As the first large-scale demonstration of lead-safe demolition undertaken in the United States, the East Baltimore project has helped raise awareness among federal officials and state and local leaders about the importance of demolition safety and the potential to substantially reduce the environmental harm of unsupervised demolition. These clear, detailed demolition protocols offer a concise guide for policymakers and practitioners interested in improving demolition safety.

Though the risks have been known for decades, demolition safety has received little attention in scholarly research and public debate. No federal regulations are in place to protect neighborhood residents from demolition-related lead exposure and as of 2004—when the East Baltimore project undertook its first demolition activities—no state or local jurisdiction had enacted rules mandating steps to minimize such risks related to lead dust.

Publishing the 2003 Johns Hopkins research paper referenced above was an important event because it provided the first detailed evidence that demolishing dilapidated buildings can significantly increase lead exposure in the area. This study and subsequent publications by the same research team attracted attention in the scholarly community and sparked additional research.

However, because these academic studies did not focus on corrective measures to reduce the hazards of demolition, they had limited potential on their own to impact demolition policy or practice. “It’s not enough to show that there’s a lot of lead being emitted thorough demolition,” environmental scholar David Jacobs said. “We needed to show that you can do something about it, and EBDI did that ... creating a dust suppression protocol that was shown to be effective. I don’t think anyone else has done that, and it was a tremendously important finding.”

The East Baltimore work on demolition safety has been a catalyst for other promising developments.

In 2007, Baltimore City revised its building code to require appropriate notice for residents of properties near proposed demolition sites and to ensure that crews use water to suppress dust in all phases of demolition involving potential lead contamination. In doing so, Baltimore became the first city in the nation to adopt demolition standards specifically aimed at suppressing lead dust exposure.

Before the change, Baltimore law required that notice be provided only to neighbors in physically adjoining properties. The new law requires prominent signs to be posted on the property at least five days before demolition. Such public notice is critical to easing community concerns, said Michael Braverman, Baltimore City’s deputy housing commissioner, who oversees code enforcement. “It takes so much of the edge off. We’re a row house city, and the idea that a backhoe can show up two doors down or across the street and start demolition without any notice was just infuriating for people.”

Baltimore's new rules also require permits for all demolition activity. Applicants must now send photographs documenting that appropriate signs have been posted. They must also meet with city inspectors to review their demolition plans and assure that steps are in place for hosing down the structure during demolition and debris removal to suppress dust. The city also requires 24-hour notice before any scheduled demolition activity so city inspectors can be present.

Experts associated with the East Baltimore Revitalization Initiative have been working to promote policy reforms that enhance lead safety in demolition practices in other jurisdictions as well.

- Members of the independent panel have presented research on lead-safe demolition to officials in Chicago, New Orleans, Providence, R.I., and other cities.
- The Coalition to End Childhood Lead Poisoning has made presentations to city leaders in St. Louis and Detroit, and the mayor of St. Louis led a delegation to Baltimore to learn firsthand about the new demolition protocols.
- The Maryland General Assembly has considered legislation that would require lead-safe demolition practices statewide. Maryland advocates remain optimistic that this will pass eventually.

Finally, the U.S. Department of Housing and Urban Development has provided a grant for a new research initiative on demolition safety and the impact of demolition in Chicago—growing directly out of the East Baltimore project's success. The work is led by David Jacobs, research director at the National Center for Healthy Housing and a member of the independent panel monitoring EBDI's demolition efforts.

Demolition safety has figured prominently in the National Center for Healthy Housing's ongoing efforts to convince regulators at the U.S. Environmental Protection Agency (EPA) to adopt a new standard for exterior lead dust exposure—a step that would, for the first time, limit the levels of lead contamination that can be emitted legally during demolition. Current standards cover only indoor lead dust, not dust on sidewalks, porches and building exteriors. In addition, Jacobs has made presentations on demolition and lead safety to the American Public Health Association, the Centers for Disease Control and Prevention, the American Industrial Hygiene Association and others.

These efforts are significant but they mark only the beginning of a much-needed national movement to ensure demolition safety. Janet Phoenix, the independent panel's chairwoman, suggested that more detailed studies documenting the added costs associated with an effective dust-suppression protocol would be helpful in convincing state and local officials to make the dust suppression protocols mandatory.

A key step would be to work with the EPA to create a resident-protection standard to ensure that demolitions meet key health guidelines. The EPA would issue guidelines and tools for meeting such a standard.

It would also be useful to create detailed guidance that local public works agencies could use to create safe demolition procedures. Demolition is typically handled by local agencies, which may not be focused on health issues related to demolition.

■ Demolition Safety in Your Community: Summary Lessons from East Baltimore

The work in Baltimore has helped awaken environmental justice, housing and community development officials to the harm caused by poorly planned demolition. However, the reality remains that nationally as well as at the state and local level in most jurisdictions, clear rules and stronger oversight on demolition remain years away.

As such comprehensive policies emerge, local leaders can address demolition-related challenges now by considering key lessons from the East Baltimore experience.

- **Demolition can impose significant health hazards, the most important of which is lead poisoning.** Studies show that poorly supervised demolition can lead to significant spikes in lead dust and other health hazards in neighborhoods surrounding urban demolition sites. Children in neighborhoods experiencing multiple demolitions are more likely to suffer lead poisoning than children in similar neighborhoods where less demolition has occurred.
- **In the East Baltimore Revitalization Initiative, the Casey Foundation, EBDI and their partners have demonstrated that potential health hazards from demolition can be significantly reduced through modestly priced safety measures.** Independent tests found that through the use of safety protocols in East Baltimore, lead levels increased only marginally during the demolition and debris removal processes and remained well within federal safety guidelines. By contrast, measured lead levels in poorly supervised demolition sites have shown dramatic spikes in lead exposure that clearly endanger public health.
- **Demolition safety should not be addressed using a one-size-fits-all approach. Community involvement is critical.** Residents may well oppose redevelopment if they feel their health concerns are not being addressed. It is essential for redevelopment leaders to engage residents in the demolition process, heed their concerns and accept their suggestions as often as possible.
- **Action is required to reduce significant dangers to public health.** Before Baltimore enacted new regulations in 2007 to ensure safer demolition practices, no city in the nation had clear rules requiring demolition teams to employ such safety protocols. In many communities, demolition is still undertaken without use of even the most basic precautions, often with little or no advance notification for residents of the surrounding neighborhood. This poses an ongoing public health threat that demands action.

The Annie E. Casey Foundation

Copyright © 2011 The Annie E. Casey Foundation

The Annie E. Casey Foundation is a private charitable organization dedicated to helping build better futures for disadvantaged children in the United States. It was established in 1948 by Jim Casey, one of the founders of UPS, and his siblings, who named the Foundation in honor of their mother. The primary mission of the Foundation is to foster public policies, human-service reforms, and community supports that more effectively meet the needs of today's vulnerable children and families. In pursuit of this goal, the Foundation makes grants that help states, cities, and neighborhoods fashion more innovative, cost-effective responses to these needs. For more information, visit the Foundation's website at www.aecf.org.

701 St. Paul Street ■ Baltimore, MD 21202

About this report

This report was prepared by the Annie E. Casey Foundation. For more information about the Foundation's commitment to Responsible Redevelopment, contact Scot Spencer, Associate Director for Advocacy and Influence, Civic Sites, 410-223-2904, sspencer@aecf.org.

Editing and design by The Hatcher Group.